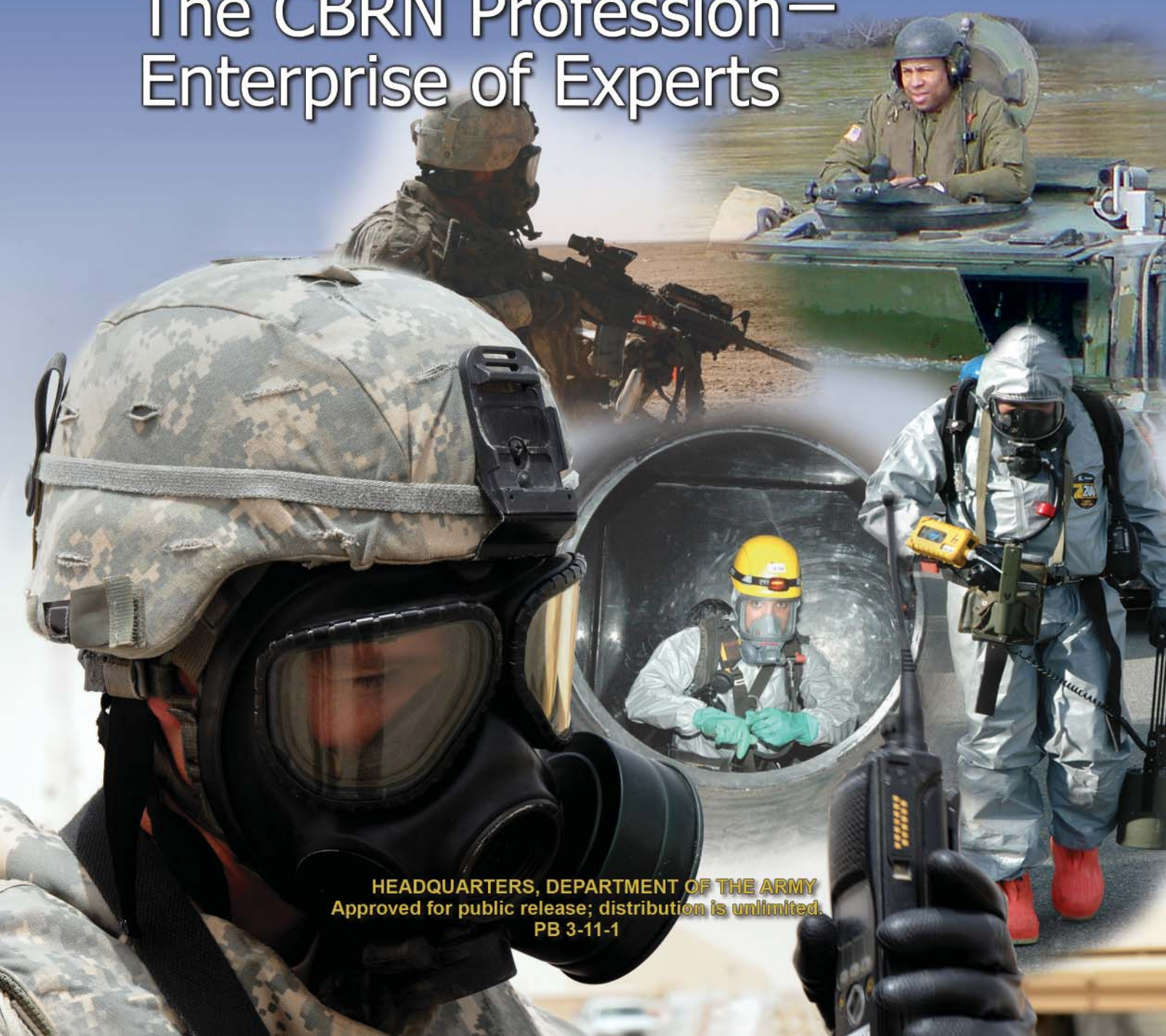
INSIDE
"The U.S. Army Chemical Corps Regimental Campaign Plan"

ARMY CHEMICAL REVIEW

The Professional Bulletin of the Chemical Corps
Summer 2011

The CBRN Profession—Enterprise of Experts



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ARMY CHEMICAL REVIEW

THE PROFESSIONAL BULLETIN OF THE CHEMICAL CORPS
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2 **Chief of Chemical**

3 **Regimental Command Sergeant Major**

4 **Implementing the *ALC* in the 84th Chemical Battalion: Investing in Our Cadre, Students, and Trainees**
by Lieutenant Colonel Thomas A. Duncan II

9 **The Profession of Arms and Professional Soldier Campaign: What Does That Mean?**
by Chief Warrant Officer Four Shaun M. Collins

11 **The Relevance of the Chemical Corps as a Deterrent**
by Captain Lucas Hoffmann

14 **CBRN Officer Versus CBRN Warrant Officer**
by Captain Chad M. Baker

17 **Leadership Opportunities for CBRN Officers—Within and Outside Skill Sets**
by Captain John Busuego

19 **Mission Essential: A Perspective in the Development of the Iraqi CDC**
by First Lieutenant Michael Lee

21 **Alternatives for the Distribution of CBRN Soldiers in an HBCT**
by Captain Rush Williams

22 **The Wilcox Project**
by Captain Silvia Longo

23 **CBRN Specialist Graduates at the Top of His Ranger School Class**
by Ms. Tracy A. Bailey

24 **The Effectiveness of Combat Decontamination Practices: A Firsthand Experience**
by Captain Nathan K. Player

26 **Doctrine Update**

28 **Robotics and the Chemical Corps**
by Mr. Alvie Scott and Mr. John Moore

31 **HaMMER Advanced Technology Demonstration**
by Sergeant First Class Scott Newell (Retired)

32 **Reserve Component Update**

34 **Regimental Week and JIIM-IA Conference Agenda**

36 **The American Dream: The Story of Albanian Genti Sulaj**
by Captain Micah A. Walker

38 **Farewell to a True Dragon Soldier**
by Captain Herschel H. Flowers

39 **World War II Hero Leaves a Chemical Legacy**
by Captain Kristy Moore

41 **Chemical Company Inactivates**
by Major Donald R. Twiss

42 ***Army Chemical Review* Writer's Guide**

43 **Publication Information**

44 **Publication and Subscription Order Form**

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

Colonel Vance P. Visser

Greetings, Dragon Warriors!

The Chemical Corps Regiment continues to reveal unmatched versatility, flexibility, and innovation as we continue to fight a complex adversary, respond to national disasters, and provide homeland defense and security in support of a U.S. government lead agency. As I reflect on the past nine months, I am humbled and inspired by the incredible efforts and sacrifices of our Dragon Warriors and Families and the entire chemical, biological, radiological, and nuclear (CBRN) enterprise. Your efforts contribute to our Nation, our Army, and our Regiment and make our branch unique and distinctive. The Chemical Corps and the rich heritage that you enhance continue to attract and retain the very best Soldiers, enabling us to accomplish our goal of retaining Dragon Warriors who embrace our values of taking care of Soldiers, civilians, and their Families; training as we fight; and maintaining our Regiment.

I am proud to announce that our Regimental Campaign Plan is complete. This is a critical step in synchronizing our CBRN TEAM (Together Everyone Accomplishes the Mission) efforts in the CBRN mission arena and in guaranteeing our end state. This issue of *Army Chemical Review* includes a pullout leaflet that highlights key points of our Regimental Vision, Strategy, and Campaign Plan. It explains our organization, our capabilities as a Corps, and our direction for the near future. We need to continue to challenge that which does not make sense; first-class ideas will survive. I want to thank our TEAM for the hard work and contributions that went into creating this plan.

This summer marks the 93d Anniversary of the Chemical Corps, which coincides with our first Chemical Corps Regimental Association 2011 Joint, Interagency, Intergovernmental, and Multinational–Industry and Academia Conference and Exhibition (see page 34). The theme for this year's week-long conference is "The CBRN Profession—Enterprise of Experts." The conference will build upon our goals of strengthening global partnerships and exchanging information in the realm of CBRN and weapons of mass destruction prevention, protection, and response. This is a tremendous opportunity to—

- Meet, network, and build relationships with CBRN and weapons of mass destruction professionals from all around the world.
- Exchange strategic, operational, and tactical CBRN and weapons of mass destruction information.
- Share views about CBRN and weapons of mass destruction domestic and foreign incident response.

There are also several Regimental Week events to add fun and flavor to the experience. Highlights include the traditional Green Dragon Ball, Chemical Corps Regimental Run, Chemical Corps Regimental Association Barbecue, and Chemical Corps Regimental Association Golf Tournament. In addition, some of the best Dragon Warriors in the Chemical Corps will be recognized during the Best CBRN Warrior Competition and Sibert Award presentation. I sincerely hope that you will attend and participate.

As a Corps, we have a lot to look forward to in the next few years. Current circumstances in Iraq, Afghanistan, Japan, and throughout the world present great opportunites for our Corps to protect national interests at home and abroad. You are doing tremendous things, Dragon Warriors! Sustain excellence in execution.

Elementis, Regamus, Proelium!

Dragon Warriors . . . No One Else Can Do What You Do

Regimental Command Sergeant Major

To Dragon Warriors: Our Home of the Regiment survived a New Year's Eve tornado that took its toll on more than 64 Families and many of our Soldier training areas. Our team here at Fort Leonard Wood, Missouri, was tasked with ensuring that every Family had a place to live and was well cared for within hours of the storm. We were thankful and blessed that only minor injuries resulted. I want to take this opportunity to thank our first responders, garrison command, community, Chemical Corps Regimental Association, leaders, Soldiers, civilians, and Families for their timeliness, support, and commitment.

Command Sergeant Major
Ted A. Lopez

To the Corps: Congratulations! In the past six months, you have continued to sustain Soldiers, Families, and civilians; prepare for success in the current fight; reset returning units; and transform the Army to meet the demands of the 21st Century. We conducted a critical task selection board for the Senior Leader Course and Advanced Leader Course and proposed a program of instruction change for Advanced Individual Training. These actions are critical in providing the appropriate equipment and training to each Soldier. We remain in an era of persistent conflict, facing an uncertain and increasingly complex strategic environment. Hybrid threats made up of conventional, irregular, criminal, and terrorist capabilities will continue to test our forces. Therefore, we must continue to update our doctrine, develop critical tasks, and prepare our forces for the full spectrum of operations.

This summer, we will celebrate the 93d Anniversary of the Chemical Corps Regiment. We will also execute our Best Chemical, Biological, Radiological, and Nuclear (CBRN) Warrior Team Competition 12–18 June 2011 (see the schedule on page 34). We are very excited about the competition this year because our Regiment, the U.S. Army CBRN School, and the 3d Chemical Brigade have laid out a tough competition that will test the battlefield and technical skills of the teams. Extreme physical, mental, and technical demands will be placed on the CBRN warriors. We would like to see more team competitors from the Army National Guard and U.S. Army Reserve this year.

I have made many visits in the past six months, and I am very impressed with the great missions that our CBRN warriors are completing each and every day. I would like to highlight two of my recent visits. First, I met with the mighty 22d Chemical Battalion (Technical Escort), who performed some outstanding mission sets in West Virginia. What a great place to conduct small-unit training! This training site offers a place for our teams and platoons to concentrate on supporting tasks with no outside distractions. The facility is equipped with life support; observer/controller expertise; and the resources necessary to conduct chemical, biological, radiological, nuclear, and high-yield explosives training, along with guest star (hazmat) training. Next, the "Land of the Morning Calm" was a great venue in which to observe our 2d Infantry Division CBRN warriors performing some interesting full spectrum operations missions in the forward-deployed area of South Korea. The 4th Chemical Company, Camp Casey, is currently fielding the Stryker Nuclear, Biological, and Chemical Reconnaissance Vehicle, while also training for war. I had a great time during my visit, and I am very proud of our warriors. I also ate lunch and visited with our CBRN warriors at Camp Humphreys, where I conducted a developmental briefing; and I received a capabilities briefing from the 3d Military Intelligence Battalion Command Team. In addition, I spent time with our Republic of Korea Army counterparts, building our partnership with the Republic of Korea CBRN School by visiting with Brigadier General Lee and his team, including his sergeant major and staff NCOs, as well as the school command sergeant major. Finally, I visited with Republic of Korea Chemical, Biological, and Radiological Development Center personnel; the commander, Brigadier General Kim, and his team presented an impressive capability brief. I had a good time sharing ideas and building our partnership with the command sergeant major and his staff NCOs.

I want to send a "shot across the bow" and personally thank all of our Families for supporting our great warriors throughout the world. We have many new leaders coming onboard across our great Army; I ask that you continue to support them. Please be safe. And thank you for what you do each and every day.

Elementis, Regamus, Proelium!

Implementing the *ALC* in the 84th Chemical Battalion:
Investing in Our Cadre, Students, and Trainees

By Lieutenant Colonel Thomas A. Duncan II

The mission of the 84th Chemical Battalion is to produce warrior leaders who are proud, confident, disciplined, ready, relevant, and resilient. According to *The U.S. Army Training Concept—2012–2020 (ATC)*, "The key to success in this endeavor is the quality of the commanders, cadre, instructors, and the outstanding noncommissioned officers . . .."[1] The 84th Chemical Battalion, the 3d Chemical Brigade, and the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) are investing in cadre and overhauling programs of instruction (POIs) to achieve the mission and to create a "bright spot" in the implementation of the *The U.S. Army Learning Concept for 2015 (ALC)*.[2]

In this era of persistent conflict and rapidly decreasing resources, we must improve efficiency and maximize training opportunities by overhauling our POIs and investing time and resources in the professional development of our cadre. Several new Army concepts provide a foundation for training Soldiers in today's Army. *The Army Capstone Concept; Operational Adaptability: Operating Under Conditions of Uncertainty and Complexity in an Era of Persistent Conflict—2016–2028 (ACC)*, *ALC*, *ATC*, and *A Leader Development Strategy for a 21st Century Army (ALDS)* provide guidance for institutional training through the next fifteen years. We are applying these concepts to our POIs and lesson plans, while also investing in leader/facilitator development and certification.

The 84th Chemical Battalion, Fort Leonard Wood, Missouri, supplies the Army with graduates of Chemical, Biological, Radiological, and Nuclear (CBRN) Advanced Individual Training (AIT), the CBRN Basic Officer Leader's Course (BOLC), the CBRN Captain's Career Course, and several additional skill identifier courses. In conjunction with the Marine Corps Detachment at Fort Leonard Wood, the 84th will also begin conducting the Army's first Joint Warrant Officer Basic Course in June 2011.

This article focuses on how the 84th Chemical Battalion is implementing the *ALC*. It contains a brief definition of applicable Army concepts (the Army Concept Framework), an overview of the operational environment, and a discussion about how we are updating POIs and developing instructors to achieve specific outcomes and develop capabilities described in the new Army concepts. It also briefly describes the support required from higher headquarters to effectively implement new learning and training methodologies.

Army Concept Framework

The February 2010 *Quadrennial Defense Review (QDR) Report*, which describes U.S. Department of Defense (DOD) strategies and initiatives that link military operations to the national strategy, led to the development of the Army Concept Framework. Key components of the Army Concept Framework include the *ACC*, *The United States Army Operating Concept—2016–2028 (AOC)*, *ALC*, *ATC*, and *ALDS*, which were published to describe ". . . the vision for an integrated training and learning environment that builds leaders, Soldiers, civilians, and units that have the capability to achieve the Army force generation objectives and to execute full spectrum operations."[3]

- ***ACC:*** Describes the ". . . broad capabilities the Army will require in 2016–2028."[4]
- ***AOC:*** Describes how ". . . future Army forces conduct operations as part of the joint force to deter conflict, prevail in war, and succeed in a wide range of contingencies in the future operating environment."[5]
- ***ALC:*** Describes ". . . the learning continuum for an individual Soldier and leader from initial military training through functional courses and professional military education."[6]
- ***ATC:*** Serves as the ". . . Army's vision for unit training that balances operational and institutional training requirements."[7]
- ***ALDS:*** Discusses how we will adapt leader development for an ". . . operational environment [that] will be even more uncertain, complex, and competitive, as hybrid threats challenge us across the full spectrum of operations."[8]

In addition, as we begin discussions on the Army as a professional institution, we are integrating "The Profession of Arms" white paper into professional development sessions for cadre, students, and trainees.

Together, these documents allow for a foundational understanding of the direction in which the Army is moving, the current operational environment, and the role of institutional training in the way ahead.

Summary of the Operational Environment (With CBRN Emphasis)

We are currently involved in conflicts in Afghanistan and Iraq; and at the time of this writing, we had just begun air operations against Libya. But we are looking beyond these current conflicts and preparing to execute full spectrum operations against adaptive enemies in complex environments. The current economic environment adds to this challenge.

The *ACC* states, "National security guidance requires the military to be prepared to defend the homeland, deter or prevent the use or proliferation of weapons of mass destruction (WMDs), win the Nation's wars, deter potential enemies, protect the global commons (sea, air, cyber, and space), develop cooperative security, and respond to civil crises at home and abroad."[9] The *ACC* planning assumptions include our inability to achieve information superiority solely through the network, enemies who will combine conventional and unconventional tactics and fight in complex terrain, threat elements who will seek WMDs and ways to employ them, and enemies who will attempt to influence the will of the American people and key allies. It is also assumed that the United States will continue to employ an all-volunteer force.[10] These key assumptions about the operating environment guide the training of Soldiers and the development of cadre.

Furthermore, the *QDR* contains a strategic vision for how DOD supports national security guidance and prepares to meet the challenges of this century. Relevant *QDR* guidance also shapes the Chemical Corps mission. The *QDR* states, "The proliferation of [WMDs] continues to undermine global security, further complicating efforts to sustain peace and prevent harmful arms races. The instability or collapse of a WMD-armed state is among our most troubling concerns. Such an occurrence could lead to rapid proliferation of WMD material, weapons, and technology and could quickly become a global crisis posing a direct physical threat to the United States and all other nations."[11]

In conjunction with the *ACC* and *QDR* foundational documents, the *AOC* states, "Future Army forces require the capability to operate in a [chemical, biological, radiological, nuclear, and high-yield explosives] environment and against nuclear armed enemies."[12]

Given the very real threat that WMDs pose to the United States and our allies around the world, the Chemical Corps is undergoing a period of transition to ensure that we are prepared to meet that threat. We must be ready to support combined arms maneuver and homeland defense missions, while continuing to support the Army force generation process and ongoing counterinsurgency operations. The Chemical Corps is the only organization with maneuver elements that are capable of addressing the WMD threat at home and abroad—a fact that guides our training as we look beyond current counterinsurgency operations and prepare to defend U.S. military forces, the Homeland, and our allies against a variety of WMD threats. The assumption is that all future operations will involve joint, interagency, intergovernmental, and multinational (JIIM) partners; therefore, building relationships with JIIM, CBRN enterprise, and academic partners is essential to the success of the Chemical Corps in this century.

Amid this change, there are several constants. For example, the Army will continue to rely on disciplined, values-based Soldiers who competently perform warrior tasks, battle drills, and technical core CBRN tasks. In addition, CBRN warrior leaders must continue to comfortably handle complex problems.

According to the *ACC*, there are two things that are certain about the future operational environment: There will be uncertainty, and there will be complexity. We expect to face a flexible and adaptive enemy in complex terrain. To accomplish our mission in this environment, we have developed systems that improve how we provide our Soldiers and leaders with institutional training through the implementation of the *ALC* and *ATC*. The assumptions and brief descriptions of possible threats contained in the *ACC* provide our battalions with a framework for designing field training exercises, situational training exercises, and warfighter scenarios.

Required Initial Military Training Outcomes

We place greater demands than ever before on our cadre in an initial military training environment. Our AIT platoon sergeants, CBRN BOLC small-group instructors (SGIs), instructors, and writers are required to produce Soldiers who—

- Live the Army values.
- Are resilient in the face of adversity.
- Possess a diverse set of technical and tactical skills.
- Are ready to immediately contribute to their first assigned unit.

The instability or collapse of a WMD-armed state is among our most troubling concerns. Such an occurrence could lead to rapid proliferation of WMD material, weapons, and technology and could quickly become a global crisis posing a direct physical threat to the United States and all other nations.[11]

Soldiers must simultaneously—

- Provide responsive POI updates to maintain relevancy and present comprehensive skills.
- Develop training that is appealing to technologically savvy students.
- Maintain and train professional cadre and unit leaders who adhere to the Warrior Ethos. They must also be master instructors who fully understand training management and are proficient in the areas of training technology and methodology.[13]

In addition, 84th Chemical Battalion training addresses the building of Soldier confidence and communication skills as a foundation for future leaders. The 84th employs three primary lines of effort to improve training and achieve the desired trainee and student outcomes:

- Instructor Certification and Development Program.
- Leadership Development Program.
- POI review.
  - CBRN BOLC.
  - CBRN Captain's Career Course.
  - 74D AIT.
  - L4 Biological Integrated Detection System.
  - L5 Fox Reconnaissance.
  - L6 Nuclear, Biological, and Chemical Reconnaissance for Brigade Combat Teams.
  - Radiological Safety.
  - Operational Radiation Safety.

Instructor Development Program

Discipline, values, resiliency, warrior tasks, battle drills, and CBRN technical training are the cornerstones of our courses. But there is no single class or program capable of successfully inculcating all Soldiers with each of these skills and attributes. Instead, this is achieved through the dedication of AIT platoon sergeants, CBRN BOLC SGIs, and facilitators who interact with students and trainees on a daily basis. The 84th Chemical Battalion and 3d Chemical Brigade have significantly invested in an Instructor Development Program to help leaders achieve the required outcomes specified in the *ATC*.

The 84th Chemical Battalion sends instructors to relevant conferences, such as the Army Learning Summit 2011 and the Intellectual Warrior Conference, to instill in them a sense of *ALC* implementation ownership and to encourage them to become actively involved in the implementation of new educational methodologies.

We also leverage internal and guest instructors to educate the cadre with regard to various teaching methodologies that can be applied in the classroom. Major Don Vandergriff (Retired), author of *Raising the Bar: Creating and Nurturing Adaptability to Deal with the Changing Face of War*, has visited three times during the past eight months to instruct our cadre on his vision for implementing outcomes-based training and education.[14] These instructor development courses have increased awareness about how the millennial generation learns and how today's students can be better engaged through facilitated discussions as opposed to lectures. The intent is not to apply Vandergriff's recommendations across the board, but to provide our instructors with a different approach to training.

Colonel David Wilcox and Lieutenant Colonel Randall Wickman, both of the 3d Chemical Brigade, have developed "Smart Training," which has now been introduced to our cadre and is currently being introduced to the U.S. Army Training and Doctrine Command (TRADOC). Based on the way in which the millennial generation learns, the 3d Chemical Brigade is employing spiral learning methodology (using repetition and increasingly complex scenarios) to adjust and develop training for critical tasks such as warrior tasks, battle drills, and technical core CBRN tasks. We are also taking advantage of peer-enabled learning throughout AIT. Trainees go through several iterations of training on core CBRN tasks such as operational decontamination. Classroom instruction is followed by situational training exercise lanes, field training exercise rehearsals and, finally, execution. AIT instructor and platoon sergeant engagement is required to reinforce core training according to the POI and command guidance.

We are reaching out to our CBRN enterprise partners to enhance the professional development of our cadre and students. Ongoing partnerships with the Edgewood Chemical Biological Center, the Defense Threat Reduction Agency, and Dugway Proving Ground allow our cadre and students to interact with fellow subject matter experts. This cross training and sharing of information exposes our Soldiers to other DOD CBRN defense expertise and capabilities and provides our CBRN enterprise partners with information about Chemical Corps capabilities. As an investment in our leaders, we will be sending twenty-four instructors to the unique chemical and biological facilities at Dugway Proving Ground, Utah, to train with other experts this summer. This will enable our instructors to understand how each of our Skill Level 1 tasks fit into more complex scenarios and how our overall training fits into the larger context of the CBRN enterprise.

We are expanding the technical and teaching skills of our cadre. The Army Basic Instructor Course, SGI Training Course, and AIT Platoon Sergeant Course are aimed at developing the ability of our cadre to teach. Because institutional instructor and writer training regarding the submission of changes to lesson plans and POIs is minimal, we are teaching our cadre how to effectively submit changes to lesson plans. One of our unit-driven instructor development classes focused on lesson plan development. This training involved the use of actual lesson plans that required revision.

The lesson plans were reviewed by small groups, and the exercise culminated in the completion of documents that were turned in to the Directorate of Training, USACBRNS, for approval. Subject matter experts must work through the brigade and with the Directorate of Training to gain approval of updated lesson plans; otherwise, the review of POIs is pointless. We have already observed a return on the investment, as lesson plans are being updated more rapidly, thereby facilitating the implementation of the *ALC* in our courses.

Leader Professional Development

I am impressed with the competence and commitment of the officers and noncommissioned officers who train our USACBRNS students and trainees on a daily basis; they do superb work—in spite of the fact that they receive only minimal institutional training before assuming their duties. The assumption is that our officers and noncommissioned officers learned the leadership skills required to instill discipline, inculcate the Army values and Warrior Ethos, and train tactical and technical skills as they progressed through their years of military service. Because Soldiers actually receive very little formal training on these topics immediately before beginning work in the training battalion, our Leader Professional Development sessions focus on these critical areas. We use the book entitled *Black Hearts: One Platoon's Descent Into Madness in Iraq's Triangle of Death* to emphasize the importance of engaging leaders at all levels to build and maintain discipline, values, and resilience in our Soldiers—during training and while forward-deployed. We also use the white paper entitled "The Profession of Arms" to lead into a discussion of our role as leaders in a professional Army and an explanation of how we can instill values in students and trainees. In recognition of the fact that no single class can replace competent, first-line leaders (AIT platoon sergeants and CBRN BOLC SGIs) who are persistently engaged over a period of time, we invest time in training our cadre. After all, our first-line leaders are the primary positive influence on our students and trainees. Therefore, we must ensure that our cadre return to the force as "top 10 percent" leaders.

POI Review

The USACBRNS established a team to review the lesson plans for eight POIs, with a focus on two foundational courses—CBRN (74D) AIT and CBRN BOLC. This POI review working group (which is comprised of battalion subject matter experts, the brigade Department of Education and Training Evaluation, and the USCBRNS Directorate of Training is concentrating on core tasks and technical aspects of training covered by the POIs, as well as on the "Four Rs"—maintaining Relevance, eliminating Redundancy, efficiently Resourcing, and Reducing PowerPoint. A significant amount of time has also been spent updating the way in which our training is evaluated so that we might add rigor to our courses. The POI review working group is driven by consideration of the operational environment, consideration of how the millennial generation processes information, an expansion of training to cover the full spectrum of operations, and an increase in experiential-based learning.

The team continues to prioritize and update lesson plans to ensure continued compliance with TRADOC accreditation standards. At the same time, team members are working to build the USACBRNS Commandant's out-brief on the AIT and CBRN BOLC POI review to the TRADOC Deputy Commanding General for Initial Military Training, scheduled for July 2011. This vertical and horizontal integration of experts extends our staff capacity and leverages a variety of capabilities.

Recommendations for TRADOC Support

Long-term success of the *ALC* requires an investment by our senior leaders. The application of scarce resources to facilitator development, AIT platoon sergeant development, and training will provide the tools required to prepare millennial-generation Soldiers who can conduct full spectrum operations in a complex environment.

The following changes are recommended for systems above the battalion level:

- Update the Army Basic Instructor Course, SGI Training Course, and AIT Platoon Sergeant Course to integrate new Army concepts.
- Refine the way in which the Army conducts quality assurance.
- Reinforce the capacity for subordinate elements to leverage distributed learning and information technology, gaming, and software design applications.
- Ensure that school assignments remain competitive with U.S. Army Forces Command positions.
- Ensure that the best candidates from the field are chosen to serve as instructors and AIT platoon sergeants.

Training battalion staffs have tremendous capability, but limited capacity. Gains in capacity and efficiencies are realized by TRADOC-wide programs aimed at reinforcing *ALC* implementation. The main responsibility of the battalion is to define how the *ALC* will be implemented and to request specific resources in support of the program.

Conclusion

Preparing flexible and adaptive Soldiers who are proud, confident, disciplined, ready, relevant, and resilient will continue to be the mission of the 84th Chemical Battalion, the 3d Chemical Brigade, and the USACBRNS. But we must realize that many of our millennial-generation students and trainees learn differently and have different expectations than students and trainees of previous generations.

Preparing flexible and adaptive Soldiers who are proud, confident, disciplined, ready, relevant, and resilient will continue to be the mission . . .

Given our understanding of the demanding operational environment facing our Soldiers and of the Army direction outlined in the *ACC*, we must implement the *ALC* to ensure that our Soldiers departing from institutional training are ready for unit training that will enable them to support full spectrum operations. And the best way to improve institutional training is through an investment in our people and a focused review of our POIs. In this era of reduced resources, it is now more important than ever to prioritize our training resource requirements. The implementation of the *ALC* requires that commanders invest in foundational courses and cadre development programs. I am certain that this investment will continue to pay off in the form of higher-quality training for our Soldiers.

Endnotes:

[1]TRADOC Pamphlet (Pam) 525-8-3, *The U.S. Army Training Concept—2012–2020*, 7 January 2011.

[2]Chip Heath and Dan Heath, *Switch: How to Change Things When Change is Hard*, Broadway Books, New York, 2010.

[3]TRADOC Pam 525-8-3, 2011.

[4]TRADOC Pam 525-3-0, *The Army Capstone Concept; Operational Adaptability: Operating Under Conditions of Uncertainty and Complexity in an Era of Persistent Conflict—2016–2028*, 21 December 2009.

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[8]*A Leader Development Strategy for a 21st Century Army,* 25 November 2009.

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[14]Major Vandergriff (Retired) is a former Army Reserve Officer Training Corps instructor and teacher at the McDonough School of Business, Georgetown University, Washington, D.C., and is presently an Army Capabilities Integration Center Forward contractor.

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The Profession of Arms and Professional Soldier Campaign: What Does That Mean?

By Chief Warrant Officer Four Shaun M. Collins

The U.S. Army Profession of Arms and Professional Soldier Campaign kicked off at the beginning of 2011. To understand what this means to us as members of a "profession of arms," we must first ask ourselves what it means to be members of a profession. One of the primary reasons that Army senior leaders initiated this campaign was to evoke deep contemplation and self-reflection, which should, in turn, lead to some substantial adjustments to our current beliefs and actions. These changes are expected to significantly impact leader development and our approach to the measurement of success, while improving our focus on mission accomplishment and helping to create the most ethical environment possible.

The first question we should ask ourselves is this: "Do we belong to a profession or a bureaucracy?" A *profession* is defined as "a vocation or occupation requiring advanced education and training and involving intellectual skills, as medicine, law, theology, engineering, teaching, etc."[1] A *bureaucracy* is defined as "the administration of government through departments and subdivisions managed by sets of appointed officials following an inflexible routine."[2] But the question of whether we belong to a profession or a bureaucracy is not as simple to answer as we might think; we must truly reflect on what our profession is and what it means to be a professional within it. How do we operate? And are we actually contributing to a profession? Let's examine some of the things that are done Army-wide nearly every day.

From what I can ascertain, the Travel Risk Planning System—including the vehicle inspection process—was designed to help prevent injuries and deaths of our Soldiers—specifically those in the grades of E-1 through E-6 with less than six years of service, who typically engage in the most high-risk behavior and frequently operate poorly maintained vehicles. The system was apparently designed to ensure that leaders help junior personnel evaluate their recreational activities, consider appropriate risk mitigation tools, and operate safe vehicles in a safe manner. At some point, though, these became standard procedures for everyone. But who inspects the battalion commander's vehicle? The command sergeant major's vehicle? The chief warrant officer's vehicle? If we were to take a look, I think we would find that inspection sheets have been completed for these vehicles; but I also think it is unlikely that anyone left the building to complete them. Unfortunately, this practice has become standard across the board; and today, Soldiers think nothing of completing this "false official statement." They rationalize that everybody else is doing the same thing and everyone knows it. However, if we have someone else physically inspect our senior leaders' vehicles, we send a clear signal that no one is ever mature enough to ensure that his or her own vehicle is safe to drive, responsible enough to make his or her own decisions, or capable enough to take action. Both of these situations send damaging messages to our young Soldiers. Had we maintained our focus on the demographic that actually required the additional attention, the Travel Risk Planning System would probably still be a viable tool; however, it is not. Instead, we have implemented the system in such a way that we have created an undercurrent of unethical conduct that erodes the very fabric of our profession.

Quarterly counseling sessions were also designed to engage leaders to assist their subordinates. But if we were to take an honest look at when and how counseling statements are completed, we would find that the forms are filled out merely to meet requirements—not to meet the needs of the individuals who receive them. Conequently, very little meaningful counseling ever really takes place.

There are dozens of other similar examples ranging from mandatory standards-of-conduct training (which is repeatedly presented to Soldiers throughout their careers, despite no changes in the standards and little likelihood that Soldiers will forget those standards) to the distributed learning Antiterrorism Level 1 Course (which most Soldiers quickly skim through to reach the end-of-course scenario questions with easy-to-predict answers).

So, what are we focusing on—the requirement or the need? Are we preparing our units to pass inspections or to accomplish the mission? Are we training our personnel to meet mandated standards or to achieve optimal performance? Are we documenting and reporting our mistakes simply to ensure that we are "covered," or are we underwriting them and using them as training opportunities? We all tend to focus on areas in which we are graded; so if we are graded on documents that show what we have done, then our focus is on getting those documents completed.

Every Army process was designed to help us achieve a specific objective; however, because processes are easily measurable and gradable, they have become the objective and we have lost sight of the original intent. We have

created a culture in which we merely "meet requirements" or "pencil whip" documentation and, in the process, have eroded the ethical development of our organizations. As we slide further into this rut, we are leaving our Soldiers stagnant, ill-prepared, increasingly inflexible, and afraid to make decisions. In short, we are making them afraid to grow!

To develop strong leaders, we need to train and enable them. We need to hold subordinates accountable, when appropriate; and we need to underwrite honest mistakes. We need to expose Soldiers to processes, but only after they understand the intended objectives and realize that a process is only a means of achieving an objective. Processes that are put into place to help Soldiers accomplish specific tasks or missions should not be used as the scale to measure success. It is the successful accomplishment of a task or mission itself that should be evaluated—not the path that is taken to get there.

If Soldiers successfully accomplish an assigned task or mission without using the process that was designed to help get them there, then the process and the standard may need to be reevaluated to determine whether they are still relevant. A high failure rate may also indicate the need for a reevaluation to ensure that the standard is achievable with the personnel and resources available.

While some processes were derived as a result of safety issues, others were adopted as a means to an end. When safety is the reason for the prescribed sequence of steps, the process must be enforced as developed. In situations with an arbitrary process, the performance of steps in the proper sequence is less important than the successful completion of the task, regardless of the method of execution or order in which the steps are performed. Rather than stifling our Soldiers, we should be encouraging their independent thought and problem-solving skills. Otherwise, we are likely to produce an army of robots who do only as they are told. We cannot afford to create a force in which Soldiers do nothing because there is no one available to authorize action or tell them how to go about accomplishing their mission. We need to stop developing our leaders using a "what to think" approach and start focusing on "how to think."

Of course, there are also mandatory training, standard, and process requirements, such as those associated with the Prevention of Sexual Harassment, Equal Opportunity/Equal Employment Opportunity, Information Assurance, Human Trafficking, and Operations Security Programs. While the reason behind the initial development of these and a myriad of other mandatory requirements may be evident, we are obligated to frequently evaluate these requirements to ensure that we are fulfilling the original need and that the Soldier is ultimately benefiting from our efforts. At some point we need to say, "We've got it" and stop expending precious time and resources on reinforcing clearly defined standards of conduct. We should present standards early in Soldiers' careers, require them to sign a document indicating that they understand and agree to abide by them, and hold individuals who deviate from the standards accountable for their actions.

We need to use common sense—not blanket practices. Does it make sense for an E-5 to provide classroom instruction on cold-weather driving to an E-3 who has never driven in winter conditions? Does it make sense for the E-5 to provide that training to an E-7 who has been successfully driving in cold weather for 20 years? Should the training be conducted in a classroom—or should it consist of practical, hands-on instruction? Which of these methods will better prepare the Soldier? Taking the common-sense approach allows us to, once again, use our training time to build technical expertise rather than engage in "check the block" training designed to "prove" that an errant individual was recently instructed not to engage in inappropriate conduct. If we fail to use common sense and logic in leading Soldiers, how can we expect them to do so in conducting their missions?

I strongly believe that we are all members of a profession; however, our profession is at risk of being taken over by bureaucracy. I believe that this is why our most senior leaders considered the Profession of Arms and Professional Soldier Campaign to be necessary. We need to take the time to reevaluate each aspect of the culture around us and ask ourselves if it adds value or if it is merely a bureaucratic requirement that is no longer relevant. We need to ensure that our Army is a professional organization that always values leader development and mission accomplishment over prescribed processes and "cookie cutter" approaches. We need to constantly ask ourselves: "Is this value-added to the Soldier on the ground?" "Does this contribute to optimal performance?" "Does this negate a previous requirement?" And, of course, "Am I a member of a profession or a bureaucracy?" We need to stop trying to make a difference and BE the difference!

Endnotes:

[1]*Webster's New World College Dictionary*, Wiley Publishing, Inc., Cleveland, Ohio, 2010.

[2]Ibid.

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The Relevance of the Chemical Corps as a Deterrent

By Captain Lucas Hoffmann

It's no secret that many Soldiers from other branches—and even some fellow Dragon Soldiers—view the Chemical Corps as "irrelevant" and that resistance to chemical, biological, radiological, and nuclear (CBRN) training has been continually building. CBRN Soldiers are being tasked to serve in other areas, and their required training is being rescheduled to accommodate training in the tasks they will actually perform when deployed. These ideas and practices are based on the misconception that, if CBRN Soldiers aren't responding to chemical attacks, they are not performing their duty to protect Soldiers from chemical weapons. This is not true. CBRN Soldiers prevent attacks from occurring simply by being trained and equipped to deal with them. The greatest deterrent to the use of chemical weapons is a competent, effective CBRN defense program.

When making a decision about whether to invest in the development and use of chemical weapons, an enemy must perform a cost/benefit analysis. The potential benefits of chemical weapons can be analyzed by examining how they have historically been employed, determining the effects they have had, and extrapolating the results to the modern setting.

The first time that chemical weapons were employed on a large scale was during World War I, which served as an ideal setting for the employment of chemical weapons in warfare. Enemy troops were restricted to given locations and confined to trenches, where poisonous gases could settle and accumulate. Furthermore, the technology for protecting against chemicals was nonexistent at the outset of the war and later attempts at its advancement were hasty, resulting in the inability to keep up with the development of new chemicals. In addition, there was a general failure at all levels—from the troops on the ground to the commanders of the armies—to understand the concepts involved.

When gas was first employed as a weapon in 1915, there was no modern chemical equipment available in any form. The only means for the detection of chemical agents was the sense of smell—which posed a health risk to Soldiers attempting to detect chemical agents. Given the variety and intensity of odors on the battlefield, the sense of smell was also a very unreliable means of detection. Standard issue clothing provided the only skin protection, protective masks were not included in the military arsenal, and there was no formal decontamination procedure in place. Pieces of gauze soaked with sodium hypochlorite were used as makeshift "gas masks" in response to the first chemical attack. Soon thereafter, the British smoke hood, or "hypo helmet" (a cloth sack soaked in reactive chemicals), was issued. The hypo helmet was of poor quality, breaking easily and offering only limited protection. The British small box respirator and the French M2 gas mask were developed in 1916; and by 1917, had been issued to the troops of those countries. Although the British small box respirator was more effective, the French mask was more comfortable and could be worn for longer periods of time.

But training and discipline regarding chemical protection were severely lacking. Consequently, the few primitive methods of protection that were available were frequently misused, if they were used at all. Most troops did not understand the dangers posed by poison gas until they witnessed the results firsthand. Even Soldiers who recognized the need for face masks were often unaware of the proper donning procedures. One written account relates how a group of men, upon being informed that gas could affect their lungs, believed that they could protect themselves by wearing their masks over their chests.[1] Some Americans who were issued both the British small box respirator and the French M2 mask became exposed to poisonous gases when switching from one mask to the other upon the realization that they would need protection for an extended period of time.[2] In addition, officers often did not want troops who had been attacked with mustard gas to return to rear areas, where they would have had the opportunity to wash their skin and clothing. Thus, the effects suffered were far worse than necessary.

To determine the modern applicability of this historic scenario, we must first examine the reasons for the effectiveness of the chemical agents and then ascertain whether the same methods would be as effective if used today. Table 1, page 12, outlines the causes of gas casualties in a series of World War I battles. As indicated in the table, two of the most common causes of gas casualties were premature mask removal due to bad judgment and failure to detect the presence of the agent due to low concentrations or the use of chemicals in conjunction with conventional explosives. Similar, modern-day scenarios could be easily prevented

through the use of standard chemical detectors such as the M22 Automatic Chemical Agent Detector and Alarm or M256 Chemical Agent Detector Kit. Another significant cause of World War I gas casualties was the requirement for troops to remain in a contaminated area. However, this problem has been addressed through the development of personal protective equipment. As evidenced by the data in Table 2, which depicts the efficacy of German chemical agents against British forces during different years of the war, the number of casualties per given amount of agent was at its highest in 1915—when gas was first used and there was no protective equipment in existence. But when masks began to be employed against the nonpersistent choking agents of 1916, only half the number of casualties were reported—despite the fact that more than twice as much agent was used. A later increase in agent effectiveness (from 1917 to 1918) was the result of mustard gases that could persist in areas for extended periods of time, causing casualties through exposed skin and rendering masks insufficient for protection. The importance of protective equipment can also be seen in the chemical weapon-related death rates of various countries (Table 3). The number and percent of fatalities suffered by the Russian army were significantly higher than those of other countries due to the lack of effective personal protective equipment provided to the Russian soldiers. Today, the problem of prolonged exposure to chemical agents is effectively overcome through the exchange of mission-oriented protective posture gear and the decontamination of equipment. Today's troops receive protective joint service, lightweight, integrated-suit technology clothing when in contaminated areas; and contamination is removed at the earliest opportunity.

Table 1. World War I Gas Casualities

Cause of Gas Casualty	Percentage of Total Casualties	Percentage for Entire Group
Failure to mask		27.2
Not detected because of high explosive	7.0	
Low concentrations	17.5	
Asleep	1.6	
Mask missing or defective	0.2	
In supposedly gas-proof shelter	0.9	
Slow masking		10.2
Surprised, high concentrations, panic, careless, concussions, wounded by shells	9.0	
Did something else first	0.1	
High breathing rate	1.1	
Mask overwhelmed	0.0	0.0
Removed mask prematurely		39.4
Bad judgment	26.2	
Exhaustion	6.2	
Torn off by shell or barbed wire	2.3	
Changed masks	0.1	
Removed for better performance of duties	4.6	
Contact with agent		23.2
Liquid mustard splash	0.8	
Stayed in contaminated area	18.4	
Passed through contaminated area	4.0	
Note. There was only one case in which a mask was overwhelmed in the battles recorded.		

Source: Clark, 1959.[3]

But for all of the attention that chemical weapons garnered during World War I, they actually accounted for only 1.24 million of the 37 million war casualties (or about 3 percent). The effect of chemical weapons on a trained and prepared adversary is, as expected, significantly less than that experienced by an enemy lacking in training and equipment.

Another historic—but more modern—example of the use of chemical weapons occurred in 1988, when the Iraqi government used a mixture of mustard gas, sarin, and VX to exterminate the unprepared Kurdish population in the civilian city of Halabja. The attack resulted in 7,000 to 10,000 casualties, with a death rate near 40 percent. These figures highlight two important concerns: an increase in the lethality of modern nerve agents and the vulnerability of a population with no chemical protection or training.

The development of chemical weapons is very costly. In addition to the money needed to purchase sufficient stock materials and acquire the services of appropriately trained personnel, the building of a chemical weapons program renders the adversary vulnerable. While the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction (commonly known as the Chemical Weapons Convention [CWC]) describes some specific "smoking gun" precursors to chemical weapons, most components that are used to manufacture chemical weapons are considered hazardous materials and are, therefore, assigned a unique identifier that is filed with international shipping companies. These chemicals must be shipped to specific physical locations and can be tracked. The association of production to a specific location is dangerous for a state actor, given the potential of an air strike or guided-missile attack.

If the manufacture of chemical agents is expensive for a state actor, it is more so for nonstate actors. While nonstate actors generally do not face the same retaliation threats that confront nations, the impunity is largely due to the

difficulty in pinpointing the location of the nonstate actor, the lack of a requirement for the nonstate actor to protect any single asset, and the ability of nonstate actors to operate by using relatively unskilled individuals.

Another advantage that nations have over terrorists when it comes to chemical weapon production is the ability to experiment and rehearse. A few terrorists, including Ramzi Yousef (one of the perpetrators of the 1993 World Trade Center bombing), Muharem Kurbegovic (the Alphabet Bomber, who bombed several locations in Los Angeles, California), and members of Aum Shinrikyo (the Japanese religious group responsible for carrying out sarin attacks in Tokyo in 1995), have attempted to use chemical agents. All failed to achieve the massive number of casualties they sought. Of particular interest is the Aum Shinrikyo case. Since that organization boasts competent scientists and a large bankroll, it seems that their success would have been plausible. However, only 20 civilians were killed in 10 chemical attacks,[7] despite the fact that one of the attacks took place in a crowded subway.

At the present time, we seem to be better at defending ourselves against a chemical attack than terrorists seem to be at deploying these attacks. But maintaining a trained and active Chemical Corps is essential to ensuring that this remains the case.

Although this article exclusively addresses the *chemical* weapons that are the namesake of our branch, the message remains the same when considering biological or radiological warfare—without a trained, competent, and prepared response, the consequences of an attack would be severe. This is not an idle threat. Against protests from the global community, Iran and North Korea are pursuing nuclear technology. Both countries have the technical proficiency and financial resources to begin such a program, and international disapproval and sanctions are not effective deterrents.

The best way to reduce the risk of a CBRN attack is by demonstrating that there is an effective mitigation strategy in place. It is essential that all Soldiers not only understand the potential severity of a CBRN attack, but also that they know what they can do to protect themselves and what the Army is doing to protect them.

Table 2. Efficacy of German Chemical Agents Against British Forces

Year	Percentage of German Agent Used	Percentage of British Gas Casualties	Efficacy (Percent)
1915	5.5	6.9	125
1916	13.3	3.6	27
1917	28.2	28.2	100
1918	53.0	61.3	116

Source: Clark, 1959.[4]

Table 3. Chemical Weapon-Related Casualties of Various Countries During World War I

Country	Casualties	Deaths	Percent
Austria-Hungary	100,000	3,000	3.0
British Empire	188,706	8,109	4.3
France	190,000	8,000	4.2
Germany	200,000	9,000	4.5
Italy	60,000	4,627	7.7
Russia	419,340	56,000	13.4
USA	72,807	1,462	2.0
Others	10,000	1,000	10.0

Sources: Clark, 1959[5] and Duffy, 2009.[6]

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CBRN Officer Versus CBRN Warrant Officer

By Captain Chad M. Baker

"Following the events of 11 September 2001 and continuing through the current operating environment, the role of the Chemical Corps has evolved from conducting conventional chemical, biological, radiological, and nuclear (CBRN) passive defense to encompassing the full spectrum of operations, including consequence management; weapons of mass destruction–elimination; and toxic industrial chemical, toxic industrial material, and radiological hazards mitigation."[1] This new focus has placed an even greater emphasis on the need for Chemical Corps Soldiers who are technical experts in the areas of CBRN hazards and operations.

The Chemical Corps supplies the Army with highly trained CBRN experts. "Currently, the Corps is composed of officers, noncommissioned officers, and enlisted Soldiers. There are not, nor have there ever been, warrant officers in the Chemical Corps."[2] The increase in technical CBRN requirements has resulted in a greater challenge regarding the development of incoming lieutenants. "Unit expectations for these new [soon-to-be platoon leaders, executive officers, and] battalion CBRN officers [have] shifted from combined arms tactics and leadership advisor to technical expert for all new technologies developed and fielded to support the expanding missions."[3]

To help bridge the technical gap, the U.S. Army CBRN School has identified the need for a new military occupational specialty within the Chemical Corps—the CBRN warrant officer. "These warrant officers are expected to provide the Army with CBRN technical expertise on existing equipment and new technologies at all levels of command."[4]

Although the intent of this forward thinking may be good, the initial perception is that Chemical Corps officers, noncommissioned officers, and enlisted Soldiers must not be performing their duties to current standards. This article identifies the advantages and disadvantages of the new CBRN Warrant Officer Program from the perspective of a Regular Army CBRN officer.

Commissioned officers normally serve as general leaders in staff and command positions. And the Army requires that its leaders exhibit certain qualities, such as self-discipline, intelligence, confidence, and initiative. They must also be physically fit and have the intestinal fortitude to perform under the physical and mental pressures of combat. Army leaders are required to lead from the front and adjust to ever-changing environments. They are expected to make quick decisions, while maintaining their focus on mission completion. And they are intensely judged by their ability to make these decisions on their own and to bear ultimate responsibility for these decisions. In addition, CBRN officers must be technically proficient with branch- and mission-specific tools, equipment, and systems. The success of the CBRN mission demands the proper balance between technical skills and the ability to understand and apply appropriate tactical skills at the right moment.

Upon completion of the Basic Officer Leader's Course, newly promoted second lieutenants are required to serve

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in a variety of positions to gain the knowledge and experience needed throughout their military careers. The Army force generation schedule is used to determine where these new officers are needed throughout the Army. Due primarily to the size of the Chemical Corps, only the most fortunate CBRN officers have the opportunity to serve in company level positions within chemical units. For example, a CBRN officer rarely has the opportunity to serve as a platoon leader or executive officer in a headquarters company. Those who are not assigned to a chemical company serve in command and staff roles as battalion CBRN officers or battalion assistant operation officers, where they are required to "…plan, coordinate, and direct CBRN operations and training within a command or activity, to include CBRN vulnerability assessment; multispectral obscuration; sensitive-site exploitation and assessment; CBRN reconnaissance; CBRN decontamination; CBRN force protection; and combating weapons of mass destruction, which includes nonproliferation, counterproliferation, and consequence management."[5]

As commissioned officers progress through the military, they are monitored to ensure that they complete certain criteria, including the requirement to serve in specific positions. This tracking process ensures that officers acquire the experience and skill sets that will enable them to be successful. In a perfect world, a lieutenant's professional development is monitored by the commanding officer—the immediate company commander or the battalion or brigade commander.

Unlike most Army branches, the Chemical Corps has not had a warrant officer position. The typical Army warrant officer is a technical expert who is the primary source of information for a specific career field. This is basically the same thing the Army expects from its CBRN officers—except the officers have the added responsibility of leading Soldiers.

As the Chemical Corps becomes a more technical branch and the future force concept sweeps across the Department of Defense, the implementation of the CBRN Warrant Officer Program is expected to make the transition a little less dramatic. CBRN warrant officers are expected to provide in-depth technical expertise in the areas of CBRN defense. They will eventually be responsible for planning, coordinating, and directing CBRN operations and training, including CBRN vulnerability assessments; sensitive-site exploitations and assessments; CBRN reconnaissance; CBRN decontamination; CBRN force protection; combating weapons of mass destruction (nonproliferation, counterprolifration, consequence management, and identification of hazmat, including toxic industrial chemicals and toxic industrial materials); defense support to civil authorities; and planning, coordinating, and employing CBRN systems in support of joint interagency, intergovernmental, multinational, and combined arms operations. Ultimately, the CBRN warrant officer will take over technical responsibilities from the CBRN officer. But can CBRN officers and CBRN warrant officers coexist in such a small branch?

According to Colonel Robert Walk and Chief Warrant Officer Two Charles McKnight, "In the Army, trade offs must be made when a change in force structure is needed."[6] Until the CBRN Warrant Officer Program is fully implemented and the first warrant officer leaves the school house and enters the work force, the advantages and disadvantages of this change in force structure must be determined theoretically.

Advantages

There are a few advantages to having a CBRN warrant officer in the Chemical Corps. Due to their previous enlisted experience, warrant officers are expected to provide the CBRN expertise lacking in some of the current CBRN officers. After all, " . . . lieutenants are busy learning their trade, but by the time they become experts in their field, they are promoted and trained in general leadership roles to fill higher-level positions."[7]

Another "advantage" (but, in my opinion, also a disadvantage) to adding CBRN warrant officers to the Chemical Corps is that the Army will reallocate current CBRN officer positions to compensate for the influx of CBRN warrant officers (rather than simply adding personnel slots). In short, CBRN warrant officer positions will be added at the expense of current officer slots. This may be an overall benefit to the Army through a reduction in paperwork, but it is not a benefit for

The typical Army warrant officer is a technical expert who is the primary source of information for a specific career field.

CBRN officers. "The implementation of the CBRN Warrant Officer Program requires that 13 percent of the CBRN officer positions be converted to CBRN warrant officer positions. The officer conversions apply to Regular Army and Reserve Component positions, ultimately decreasing the number of branch detail officers by 30 to 50 percent. The adjustment will provide an increased opportunity for many CBRN lieutenants to serve in platoon leader positions—positions that were previously filled by branch detail officers."[8] These officers represent projected Chemical Corps losses because they are generally expected to complete their initial obligations and then move on to their originally assigned branches. Fortunately, a few branch detail officers will elect to remain in the Chemical Corps. The end result is a slight increase in the availability of platoon leader and executive officer positions, but the question is: Once those slots are filled, what happens to the remaining lieutenants?

A third advantage of the CBRN Warrant Officer Program is that it will provide a huge opportunity for dedicated, hard-working enlisted CBRN Soldiers. It creates an alternative career path for those who seek to be "subject matter experts" and those who desire more responsibility. However, there are also some disadvantages to incorporating CBRN warrant officers into the Chemical Corps.

Disadvantages

The competition for training and key leadership positions in the Army is intense. But, while officer training is becoming more generalized, the Chemical Branch is becoming more technical. Because effective leaders must understand the capabilities of their Soldiers and know the limitations of the equipment, the Chemical Corps needs leaders who are also experts in platoon and company level CBRN operations. Furthermore, brigade and battalion level staff positions are essential to the leadership development of lieutenants and junior captains. Consequently, CBRN officers serving as technical experts in battalion or brigade level staff positions should not be replaced by CBRN warrant officers.

Under the CBRN Warrant Officer Program, warrant officers are slated to become the CBRN experts; therefore, they will have priority with regard to technical training. However, to be effective leaders, lieutenants and captains must also receive technical training. At this critical point in their careers, young officers must gain a solid technical foundation so that they may make the best decisions possible. There will be plenty of time for these junior officers to receive generalized training once they have mastered platoon and company level operations and are ready to transition into the field grade ranks.

In implementing the CBRN Warrant Officer Program, the Army plans to slot new CBRN warrant officers in positions currently held by lieutenants, which will put the lieutenants at a huge disadvantage. These junior company grade officers need the knowledge and experience gained from filling positions such as platoon leaders, executive officers, and battalion and brigade CBRN officers. CBRN officers who lack this knowledge and experience will likely struggle in company command and higher-level staff positions, and this could be detrimental to their careers. Under the CBRN Warrant Officer Program, the Chemical Corps will gain knowledgeable warrant officers, but inexperienced CBRN officers will be leading and employing Soldiers in combat. This is a trade off that should be reexamined to determine whether it is in the best interests of both officers.

Conclusion

As the Chemical Corps transitions to the future force concept, highly trained CBRN experts are in demand. To address this issue, the Army has introduced the CBRN Warrant Officer Program—but at what cost? "As the Army transitions to the future force concept, the [CBRN] officer as we know it will disappear."[9] To allow for CBRN officers and CBRN warrant officers to coexist in the Chemical Corps, the situation should be seriously reconsidered.

Endnotes:

[1]Tammy R. Alatorre, "The New CBRN Warrant Officer Program," *Army Chemical Review*, Summer 2010.

[2]Robert Walk and Charles McKnight, "Do We Need a CBRN Operations Warrant Officer Corps?" *Army Chemical Review*, July–December 2007.

[3]Alatorre, 2010.

[4]Ibid.

[5]"MOS 74A—Chemical, Biological, Radiological, and Nuclear (CBRN) Officer," *Army-Portal.com*, <*http://www.army-portal.com/ jobs/chemical/74a.html*>, accessed on 18 April 2011.

[6]Walk and McKnight, 2007.

[7]Ibid.

[8]Alatorre, 2010.

[9]Walk and McKnight, 2007.

At the time this article was written, Captain Baker was a student in the CBRN Captain's Career Course at Fort Leonard Wood, Missouri.

Leadership Opportunities for CBRN Officers—Within and Outside Skill Sets

By Captain John Busuego

Local, state, and federal agencies and foreign governments are becoming more aware and concerned about their ability to respond to events involving weapons of mass destruction (WMD). Civil authorities routinely turn to the military for expertise and assistance with WMD issues because military personnel receive the best available chemical, biological, radiological, and nuclear (CBRN) defense and consequence management training. And because the U.S Army Chemical Corps leads the Army's effort to address homeland security and the threat of WMD, CBRN officers have the tools and skills necessary to deal with these WMD issues. The various units that provide expanded leadership opportunities within the Chemical Corps are identified in this article. In addition, the article describes how versatile CBRN officers might also be suited for leadership positions outside the CBRN world.

Due to the pervasive nature of CBRN threats and the accompanying need for CBRN defense, CBRN officers have the opportunity to contribute to the fight at the tactical and strategic levels. Chemical units at division and corps levels play vital roles in CBRN defense, ranging from providing protection for key seaports and power projection facilities to defending and protecting tactical warfighting units on the battlefield.[1]

Many changes in the availability of leadership positions for CBRN officers have taken place, primarily due to the force structure change and the establishment of units that support the CBRN missions of defense and WMD mitigation.

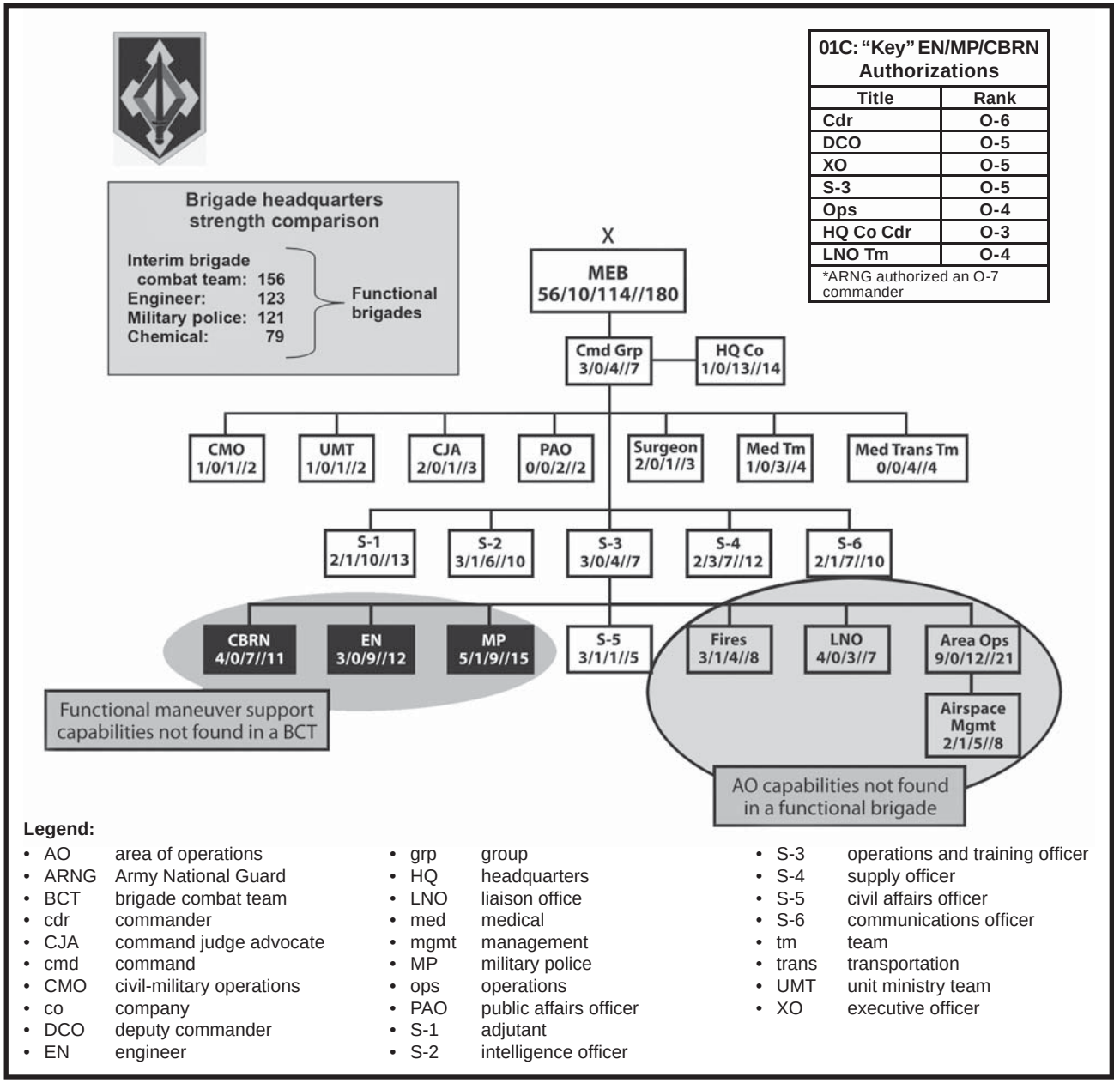
For example, the 20th Support Command (Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives [CBRNE]) was established at Aberdeen Proving Ground, Maryland, on 16 October 2004. The mission of the 20th Support Command is to integrate, coordinate, deploy, and provide trained and ready CBRNE forces. The 20th is a rapid, robust response force that exercises command and control of specialized CBRNE operations to support Army and joint force commanders—primarily in overseas contingencies and warfighting operations, but also in the area of homeland defense. The 20th also maintains technical links with appropriate Army, federal, state, and joint CBRNE assets and the research, development, and technical communities to ensure CBRNE response readiness.[2] The establishment of the 20th Support Command has expanded leadership roles and responsibilities within the Chemical Corps. And because the previous commandant of the U.S. Army CBRN School is now the commander of the 20th, the vision of the Chemical Corps is now a reality for pioneers of the Chemical Branch. This inevitably opens doors for CBRN officers who continue to broaden their professional military education.

Another unit that has been established is the maneuver enhancement brigade (MEB), which was designed to be joint (to operate with coalition or joint forces, such as the Marine Corps) and structured to command chemical, military police, engineer, and civil affairs units.[3] Available MEB positions are shown in the chart on page 18. A CBRN staff section provides an added functional maneuver support capability that does not exist in a brigade combat team. There are currently four MEBs in the Active Army: 1st MEB, Fort Polk, Louisiana; 2d MEB, Fort Drum, New York; 3d MEB, Fort Richardson, Alaska; and 4th MEB, Fort Leonard Wood, Missouri.

Finally, on 16 September 2007, the 48th Chemical Brigade was activated at Fort Hood, Texas, and designated as the CBRN brigade to provide combatant commanders and government agencies with the ability to counter CBRNE threats. The 48th Chemical Brigade and its subordinate units provide additional CBRN-relevant company/field grade level officer leadership opportunities.

Although the Chemical Branch is focused primarily on training and warfighting operations in support of CBRN defense, smoke employment, and programs that protect the civilian population and military forces against WMD, it is also a branch of diversity, opportunity, and challenge. CBRN officers hold various jobs and perform various duties, including those of platoon leader, company executive officer, battalion/brigade staff officer, and company commander—and not necessarily within CBRN-specific units. Many junior CBRN officers acquire different skill sets through experiences gained by filling positions in infantry, armor, special forces, and aviation battalions; chemical companies; Stryker brigade combat teams; or brigade combat team reconnaissance platoons.

Most lieutenants who complete the Basic Officer Leader's Course head to units where CBRN defense and training are not priorities. However, the proximity of junior officers to primary staff and the command group affords junior officers the opportunity to excel at the most basic staff functions. After successfully "grinding" as the operations and training officer (S-3) "jack-of-all trades," CBRN officers who aspire to serve in leadership positions may become platoon/patrol leaders or be assigned to primary warfighting function positions.



Source: Williams and Crider[4]

MEB staff organization

It is important that officers hold a variety of positions—whether staff functions or "green tab" leadership positions—to gain the experience and flexibility necessary to command positions that oversee other branches and agencies. The skill sets learned and the leadership qualities gained from a spectrum of experience make for flexible, resilient, adaptable leaders who will carry on the CBRN mission and maintain the established homeland security partnerships.

Endnotes:

[1]"Enlisted and Officer Opportunities in the Chemical Corps," U.S. Army Chemical, Biological, Radiological, and Nuclear School Web site, <*http://www.wood.army.mil/wood_cms/usacbrns.shtml*>, accessed on 9 March 2011.

[2]U.S. Army 20th Support Command Web site, <*http://www.cbrne.army.mil/leadership.htm*>, accessed on 9 March 2011.

[3]Charles A. Williams and Joe Crider, "Maneuver Enhancement Brigade," *Army Chemical Review*, Summer 2009.

[4]Ibid.

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Mission Essential:

A Perspective in the Development of the Iraqi CDC

By First Lieutenant Michael Lee

The mission was (supposedly) simple: Train the Iraqi Chemical Defense Company (CDC) on weapons of mass destruction–elimination operations and produce a well-organized, "full operating capability" element. But because of the many obstacles we faced, we were skeptical about the chances of our success.

As a signatory to the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on Their Destruction (commonly known as the Chemical Weapons Convention), Iraq must now be able to identify, transport, and destroy chemical weapons located within its jurisdiction. The CDC was formed to comply with the Chemical Weapons Convention, other international treaties related to weapons of mass destruction, and United Nations Security Council resolutions by conducting chemical weapons recovery and elimination operations in support of the Iraqi army and the government of Iraq. As part of Task Force Troy, Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives Response Team (CRT) 1, Company A, 110th Chemical Battalion—and later, CRT 2, Company B, 22d Chemical Battalion—assisted in the development of the CDC and the partnering of disposal capabilities until equipment arrived and the CDC could be properly trained.

CRT 1 received the initial CDC assistance mission. Within six months of starting from scratch, the team had trained the CDC on basic technical escort procedures and they were teaching basic chemical operations at the Chemical Defense School. As CRT 2, our job was to fine-tune the skills of the CDC in an operational environment. We needed quality intelligence to understand the complexity of chemical defense training for a foreign military force; this intelligence was obtained through relief in place. Constant contact with representatives of CRT 1 ensured our proper situational awareness before we arrived in the country.

For those of us who had been in Iraq during the first few years of the war, the sense of change was pervasive. The Iraqis were eager to take charge of their country and nurture their feeble new democracy. We found the soldiers to be proud and firmly committed to the task before them.

Following initial introductions, we went right to work. It usually takes about two years for a new U.S. Army unit to become operational; new equipment must be fielded, training must be conducted, and the unit must be certified before it is considered "combat ready." But we did not have this luxury with the CDC, which was to be operational only months before our departure from Iraq. With such a short time available, we quickly established the following attainable objectives to achieve mission success:

- **Objective 1: Assess the strengths and weaknesses of the CDC, and concentrate efforts on the weaknesses.** To accomplish this, we had each CDC platoon execute several different scenarios. We then conducted formal after action reviews, which included the analysis of photographs and videos. This approach allowed CDC members to simultaneously see and acknowledge their mistakes. This process continued for three months before the first CDC mission.
- **Objective 2: Receive and inventory equipment, and conduct new-equipment training.** Chemical equipment included the Lightweight Chemical Detector 3, M22 Automatic Chemical Agent Detector Alarm, Improved Chemical Agent Monitor, AN/UDR-13 Military Pocket Radiac, and AN/PDR-75 Radiac Set. Training on some of the equipment had been provided by CRT 1; however, because most of the equipment had not been received by the time CRT 1 concluded their portion of the training, CRT 2 conducted its training on the remaining equipment—including equipment not organic to technical escort units, such as the Karcher Multipurpose Decontamination System. This required that we first become familiar with the equipment ourselves.
- **Objective 3: Conduct a company field training exercise.** We established two scenarios that could be used to evaluate the reporting and dissemination of information systems. One of the scenarios involved a few chemical rounds lying in an open field and area residents showing signs of exposure to chemical agents. The other scenario involved children playing around an abandoned house that contained several munitions and protective masks. Simulated chemicals were used in both instances, and booby traps were set at both sites. The CDC performed better than expected, successfully processing both sites without incident.
- **Objective 4: Direct each CDC platoon to execute a real-world mission.** With the help of the Task Force Troy commander and the U.S. Forces–Iraq chemical, biological, radiological, and nuclear (CBRN) cell, we had the 2d Platoon, CDC, complete their first real-world mission, which consisted of performing leak, seal, and pack operations and disposing of 391 suspected chemical rounds located at a possible chemical remnant-of-war

cache discovered by the Iraqi army. The CDC considered the obstacles that they would need to overcome—ranging from the heat, to the disposal of protective gear. They asked for our help, but we provided little assistance the first day. We wanted to observe and evaluate their reaction to an actual situation. Eventually, though, we interjected some advice. For example, some of the CDC mission-oriented protective posture gear had no hoods. Because we were afraid that CDC members might become contaminated, we asked the CDC platoon sergeant to explain the plans for addressing this problem in advance of the operation. The solution was for those who would be downrange to suit up with hoods, leaving the decontamination and rescue teams without hoods until Tyvek suits could be delivered by their commander. This approach signified that the CDC was actually thinking "outside the box." Although it was necessary for the platoon leader to adjust his timeline due to the heat, the platoon was still able to execute the mission in about three days. We were so confident in their abilities that we processed through their decontamination line upon our return from downrange.

The 1st Platoon, CDC, had a different mission—one that was simple enough that even the CDC commander acknowledged that the presence of coalition forces was unnecessary. This is just what we had been waiting for—the day that the Iraqis would say, "Relax—we've got this." The 1st Platoon conducted a site survey of a mass grave site, where Iraqis suspected that chemical weapons had been used. The results were negative. This mission helped the 1st Platoon (who, unlike the 2d Platoon, lacked drive) to gain confidence in their abilities, the trust of their commander, and respect from the 2d Platoon.

The CDC has subsequently performed several other real-world missions with no assistance from CRT 2. A chemical defense capability has been added to the Iraqi army and the government of Iraq within one year of CDC existence.

- **Objective 5: Establish a training, supply, and maintenance program.** Although we managed to get the CDC to begin planning their training at least two weeks out, the platoon leaders still did not understand the evaluation process or the need to focus their training on areas of weakness. The CDC lacked the manpower and the supply system needed to sustain supply and maintenance programs. However, we knew that we must provide them with the necessary tools and allow them to develop their own methods.

Ultimately, the work of the CDC was key to the lifting of United Nations sanctions. Through the development of the CDC, the manufacturing industry began to thrive and simple things that we take for granted—like baby formula—could be produced, allowing for some semblance of normalcy to be restored to the country.

The future is very bright for the CDC. The Iraqi army and the government of Iraq have already begun expanding the CDC by adding another company and a regimental headquarters so that the 1st CDC is now part of the Iraqi Chemical Defense Regiment. CRT 2 has provided the 1st CDC with train-the-trainer instruction, and members of the 1st CDC are now serving as primary trainers for the 2d CDC. The ultimate goal is to have three chemical companies responsible for chemical, biological, radiological, nuclear, and high-yield explosives response in the northern, central, and southern portions of Iraq. Plans to have some of the Iraqi officers attend the CBRN Basic Officer Leader's Course and CBRN Captain's Career Course at Fort Leonard Wood, Missouri, are also underway. Our continued partnership with the chemical corps of the Iraqi army will continue to enhance their capabilities and present the prospect of a pleasant future for the people of Iraq.

First Lieutenant Lee is a team leader for CRT 2. He holds an associate's degree in general studies from Central Texas College, Killeen, Texas, and a bachelor's degree in management from Park University, Parkville, Missouri.

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Alternatives for the Distribution of CBRN Soldiers in an HBCT

By Captain Rush Williams

There are a limited number of Chemical Corps jobs that are actually sought by Soldiers. These jobs (which are strictly chemical, biological, radiological, and nuclear [CBRN] in nature) allow Soldiers to demonstrate their abilities within the CBRN realm. One of the reasons that these jobs are so attractive is that they include opportunities for additional schooling and interaction with other Chemical Corps personnel. However, I believe that a more significant reason these jobs are so highly desired is the lack of respect and opportunity associated with a large number of other CBRN slots—such as those within heavy brigade combat teams (HBCTs).

Several Soldiers with a 74-series military occupational specialty are assigned to an HBCT, but only a few are assigned to the HBCT chemical reconnaissance platoon. The rest fill company level CBRN slots or serve as battalion CBRN noncommissioned officers in various staff positions. While these are technically CBRN slots, there is no CBRN-related work associated with most of these positions. Rather, a significant number of them involve working as company level training room personnel, in battalion tactical operations centers, or in other required capacities. And, given the lack of CBRN work within the HBCT mission, commanders are not easily convinced that CBRN training is necessary.

The current method of HBCT slotting is actually harming the Chemical Corps for several reasons. First, it requires that Soldiers spend several years at a post in which they receive little to no CBRN training and they experience little to no interaction with other CBRN Soldiers. Secondly, the lack of respect for the jobs and abilities of CBRN Soldiers within the HBCT causes many to harbor feelings of animosity toward the Chemical Corps and the Army. Lastly, the fact that the Chemical Corps appears to be doing little about the problem reinforces the belief of many CBRN Soldiers that the Chemical Corps doesn't really care about them all that much. Fortunately, there are several easy courses of action that would allow HBCTs to retain the present number of authorized Soldiers, but at the same time, positively impact the HBCT and the Chemical Corps. These courses of action would allow CBRN Soldiers to interact with other CBRN Soldiers, and they would provide for better training and education of CBRN Soldiers.

Course of Action 1

The first possible course of action involves designating one E-7 as the brigade CBRN noncommissioned officer and consolidating the other HBCT CBRN Soldiers into one platoon. Given the size, the platoon could perform multiple functions, focusing on reconnaissance and decontamination. The brigade would contain the same number of CBRN Soldiers and would have the same reconnaissance assets that it currently possesses, but decontamination capabilities would be added. In addition, a unified platoon would allow CBRN Soldiers to receive noncommissioned officer-led training, resulting in a better-trained Chemical Corps. Furthermore, it would foster a tightly knit Chemical Corps by promoting a sense of belonging among CBRN Soldiers.

This course of action could also spawn several subcourses of action. The Soldiers could be tasked to serve on sensitive-site assessment or sensitive-site exploitation teams. Or they could be used as a large security element. While their use as a large security element may not have a significant positive impact on the Chemical Corps like the other two subcourses of action, simply keeping the CBRN Soldiers together in one platoon would improve their chances of obtaining CBRN training, which in turn, would further serve to bring the Chemical Corps together. And, more importantly, the HBCT commander would possess a significant new asset.

Regardless of how the platoon were to be used, CBRN Soldiers would be more valuable if they were consolidated, rather than spread throughout the HBCT.

Disadvantages: The unified platoon would be extremely large and semi-inflexible. Furthermore, because the HBCT would lose CBRN Soldiers at the lowest level, changes would need to be made to the current HBCT task organization. Finally, the HBCT would have an additional platoon to do with as it may—which could actually be worse for CBRN Soldiers, as they could potentially end up performing tasks even further removed from the CBRN arena.

Course of Action 2

A second possible course of action involves consolidating the HBCT CBRN Soldiers into one platoon and sending them out to various units to perform required tasks. This is similar to the process already in place for several types of platoons (including medic, fire, and maintenance platoons) in the HBCT combined arms battalion. Under this course of action, the current HBCT task organization would remain essentially the same. No changes would be required in the way that companies operate within the HBCT, and CBRN

(Continued on page 40)

The Wilcox Project

By Captain Silvia Longo

As a lieutenant attending the Chemical, Biological, Radiological, and Nuclear (CBRN) Basic Officer Leader's Course (BOLC), I looked up to my small-group instructor (SGI) and considered him a "subject matter expert." The immense role that he played in our development and improvement as officers in the U.S. Army cannot be overstated. We were his top priority, and he was capable of fielding questions on any topic we raised. When we had curriculum-related questions, he always provided an answer. When we inquired about various Army installations, he discussed the pros and cons of each. And when he was uncertain about an answer, he did whatever it took to find one. In short, he taught and mentored thirty young, impressionable lieutenants who, at the time, had little or no knowledge about what it was like to be a U.S. Army officer—let alone an officer in the Chemical Corps. I could never have imagined that I would be an SGI just two and half years later!

With the growing demand for captains in units executing Army force generation-based rotations in support of Operations Iraqi Freedom and Enduring Freedom, senior leaders elected to accept the risks associated with filling U.S. Army Training and Doctrine Command instructor positions at only 50–75 percent strength (with no corresponding decrease in student throughput). In response, several U.S. Army Training and Doctrine Command schools implemented a strategy to use students from Captain's Career Courses to teach BOLCs.

At the U.S. Army CBRN School, Colonel Dave Wilcox (commander of the 3d Chemical Brigade) and cadre with the CBRN Officer Training Department decided to defer the course start date for qualified captains with orders to attend the Chemical, Biological, Radiological, and Nuclear Captain's Career Course (CBRNC3) by six to seven months and, instead, have them serve as CBRN BOLC SGIs. To meet the basic SGI qualifications, a captain must have been a platoon leader, on battalion staff, and deployed. While it is rare for captains to be placed in command before arriving for CBRNC3, those who have are considered exceptional CBRN BOLC SGI candidates. This program, which was implemented in late 2009, was unofficially dubbed the "Wilcox Project."

I first learned of the Wilcox Project as I was preparing for a permanent change of station to Fort Leonard Wood, Missouri, to attend CBRNC3 in early 2010. That's when my branch manager asked me if I would like to take part in the program. For several reasons, I immediately jumped at the opportunity.

One of the main reasons that I chose to participate in the Wilcox Project is that I enjoyed the idea of aiding in the development of a group of lieutenants. Because I had held various positions (including those of staff and platoon leader) during my limited time in the Army, I believed that I could provide valuable insight—especially since I had recently held the same positions that the lieutenants would soon be filling. I truly felt that I could effectively answer questions and address concerns about serving as a CBRN officer in a chemical battalion and on a light infantry combat team. In addition, because I had just redeployed from Afghanistan, I was eager to pass my deployment experiences along to the lieutenants.

Furthermore, most of the knowledge and skills that I acquired while attending CBRN BOLC are what I consider "perishable." After rarely putting those particular skills to use in the last couple of years, I was intimidated by the idea of relearning the material while simultaneously attending CBRNC3. Therefore, the opportunity to work as an SGI (which would allow me to not only assist in the professional development of lieutenants, but also to further my own professional development) was appealing. I knew that, as an SGI, I would occasionally get a chance to observe technical blocks of instruction, which would be excellent "refreshers."

Finally, I wanted to experience what it meant to be an SGI. The Wilcox Project would afford me the opportunity to learn about the time and effort that goes into serving as an instructor so that I might be better equipped to determine whether I would be interested in pursuing such a position in the future.

Although I was excited about participating in the Wilcox Project, I initially had some reservations about becoming an instructor. I was worried that I would not have sufficient knowledge to offer the lieutenants since I had not yet attended CBRNC3. I was also worried that there would be insufficient time for me to shadow another instructor so that I could become familiar with how things worked. But, I soon realized that my fears were unwarranted.

During the first few weeks as an SGI, I taught common-core classes such as "Advise the Commander on CBRN Threats" and "Training Management." I was able to rely on my previous experiences to convey teaching points, answer questions, and address concerns. In addition, other departmental instructors and noncommissioned officers were always willing to help by answering my questions and offering advice about the execution of training. The common-core block of instruction was followed by several weeks of technical instruction, which was conducted by expert instructors from the 84th Chemical Battalion, Fort Leonard Wood. During the technical blocks of instruction, my job primarily consisted of ensuring that the training was properly resourced, while also counseling, mentoring, and building upon the leadership foundations of the lieutenants.

Ultimately, the Wilcox Project was an incredibly insightful and truly rewarding experience that allowed me the opportunity to further develop myself and the young CBRN BOLC lieutenants. I not only instructed and mentored the students, but I also gained a better understanding of what it takes to serve as an SGI and acquired the skills necessary to promote future success. And I learned that serving as an SGI is a job that I truly enjoy—even one that I wouldn't mind doing again.

Captain Longo is a graduate of the U.S. Military Academy, West Point, New York.

CBRN Specialist Graduates at the Top of His Ranger School Class

By Ms. Tracy A. Bailey

A chemical, biological, radiological, and nuclear (CBRN) Specialist with Company E, 3d Battalion, 75th Ranger Regiment, Fort Benning, Georgia, recently graduated with top enlisted honors from the U.S. Army Ranger School at Fort Benning. Staff Sergeant Ellis Lawson was presented with the William O. Darby Distinguished Honor Graduate award during a 4 March 2011 Ranger School graduation ceremony.

Staff Sergeant Lawson, who is a graduate of Bradwell Institute, Hinesville, Georgia, joined the Army for the experience. He previously served with the 1st Battalion, 503d Infantry Regiment, Korea, and the 23d Chemical Battalion, Joint Base Lewis-McChord. He has been deployed to Iraq, Afghanistan, and Kuwait.

In June 2010, Lawson volunteered for service with the 75th Ranger Regiment. Following successful completion of the Assessment and Selection Program, he was assigned to Company E, 3d Battalion, where he is in charge of decontamination and reconnaissance and also serves as the company operations sergeant. "I wanted a different experience and more challenge to my Army career. The 75th Ranger Regiment is unique and has great opportunities that you won't find anywhere else," said Lawson. "I would encourage all 74Ds to apply for the 75th Ranger Regiment."

Within a few short months of joining the 3d Battalion, Lawson found himself in the Regiment's Small-Unit Ranger Training and the U.S. Army Ranger School. He successfully completed both courses on the first "go."

"Ranger School was very cold! But I learned how to be successful in the worst possible conditions," Lawson said. "It's the kind of place where you find yourself and push yourself to the limits."

Experienced officers and noncommissioned officers who are interested in volunteering for the 75th Ranger Regiment should contact the recruiters by e-mail at *75recruit@soc.mil*.

Ms. Bailey is the public affairs officer, 75th Ranger Regiment.

The Effectiveness of Combat Decontamination Practices:
A Firsthand Experience

By Captain Nathan K. Player

While serving as a reconnaissance platoon leader, Special Troops Battalion, 3d Brigade, 25th Infantry Division, Schofield Barracks, Hawaii, my platoon was invited to participate in a study conducted on the effectiveness of the Army decontamination techniques specified in Field Manual (FM) 3-11.5. This article summarizes my observations and describes the results of the study, which was conducted at Schofield Barracks, 19–23 April 2010.[1]

My involvement with the decontamination study began in March 2010, when the commander of the 71st Chemical Company, Schofield Barracks, contacted me to determine whether my platoon would be interested in participating in the study. He explained that the agencies conducting the study (including the lead agency—the U.S. Army Edgewood Chemical Biological Center Automated, Detailed Equipment Decontamination for Land Vehicles Advanced Technology Demonstration—along with the U.S. Army Maneuver Support Center of Excellence; Defense Threat Reduction Agency; Concurrent Technologies Corporation; U.S. Department of Energy, Kansas City Plant; Sandia National Laboratories; U.S. Army Operational Test Command; Army Test and Evaluation Command Test and Evaluation Coordination Office; Dugway Proving Ground; U.S. Army Corps of Engineers Engineer Research and Development Center; U.S. Army Research Laboratory; and Johns Hopkins University Applied Physics Laboratory) wanted to use as many chemical, biological, radiological, and nuclear Soldiers as possible to ensure the highest level of efficiency during detailed equipment decontamination (DED). Because the platoon sergeant and I were happy to have the opportunity to provide such unique training to our Soldiers, we added the event to our training schedule.

The first day of the study was dedicated to in-processing and briefings. Scientists and support personnel explained the event timeline and announced that the goals of the study were to—

- Examine the functions required to follow prescribed tactics, techniques, and procedures or effective operation of the DED line.
- Examine system sustainability, ease-of-use operations, and safety concerns.
- Determine resource requirements to support the DED operations outlined in FM 3-11.5.
- Examine required logistics, equipment, and costs.

All Soldiers were issued badges according to their roles in the study. The platoon sergeant and I were issued "unit SME" badges, which granted us full access to the training area for the duration of the DED study and signified that we were not under medical evaluation. Our Soldiers were issued "DED participant" badges and biometric armbands, which were designed to take pulses, measure hydration, and track calories burned during the exercise. Our platoon Soldiers were then divided between the two platoons slated to rotate through the work/rest cycles of the DED study.

The following morning, the Soldiers received refresher training on DED operations. For the purpose of the study, participants were instructed to disregard any unit-specific decontamination standing operating procedures and to strictly adhere to the decontamination operations outlined in FM 3-11.5 (except for specified changes made to accommodate equipment replacements). The intent was to ensure that it was doctrine, rather than individual unit standing operating procedures, that was evaluated by the study. Next, the

A Soldier is fitted with a biometric armband.

DED line was set up according to the configuration shown in Figure 1. Observers/controllers were assigned to each of the stations to ensure proper setup.

Throughout the next several days, participants performed a series of decontamination dry runs. This allowed the scientists who had designed the study to ensure that the Soldiers knew their jobs. Once the participants were capable of consistently performing decontamination operations according to the requirements of FM 3-11.5, the actual DED study began. The vehicles involved in the dry runs and the actual study were "contaminated" with a simulated chemical agent and driven through muddy areas to emulate battlefield contamination. The simulated agent was designed to mimic the vapor pressure and persistency of HD (a sulfur mustard blister agent). Although most of the Soldiers were members of a decontamination platoon and were, therefore, well versed in decontamination operations, this was the first time they had attempted to remove a simulated chemical warfare agent specifically designed to mimic a persistent sulfur mustard agent.

While the original intent of this "baseline" study was not to prove or disprove the merits of current Army decontamination doctrine, the results did call into question the effectiveness of the thorough equipment decontamination process outlined in the doctrine. The results are clear: the doctrinal decontamination process takes considerable time, significantly taxes the health of Soldiers, and could be done much more effectively using modern technology. According to the official report, "Human factors on the DED process indicated that doctrinal DED was labor-intensive to the point of being potentially hazardous. Numerous safety concerns were pointed out by Soldiers and are summarized in this report. The [rate of perceived exertion] and exertion data both call into question the safety of doctrinal DED. Doctrinal DED with the JSTDS-SS [Joint Service Transportable Decontamination System–Small Scale] was found to be only moderately effective in removing simulant from the vehicles. Even with 38 Soldiers working in potentially unsafe conditions for 10 hours, only 38 percent of vehicles were decontaminated in one trip through the DED line. In conclusion, the baseline experiment highlighted several deficiencies in doctrinal DED. The data collected in the experiment, observations, and literature review can be used with the [process evaluation tool set] to evaluate any future changes to the DED process."

Due to the long history of FM 3-11.5, many within the Chemical Corps will likely disagree with the conclusions of the study. However, the modernization of the DED process would undoubtedly allow for contaminated troops to be sent back into the fight faster and on a larger scale than is possible using traditional decontamination methods. In addition, the number of Soldiers required to conduct decontamination operations might decrease with the modernization of decontamination procedures. This would be beneficial for the following reasons:

- The Army is undergoing force structure changes under the restriction of a zero growth policy. Every Soldier added to a unit must be removed from somewhere else. And from past experience, we know that the Chemical Corps is often one of the first on the chopping block. A modernized, automated decontamination system would allow us to sustain and improve decontamination readiness in the face of near certain force reduction requirements.

(Continued on page 30)

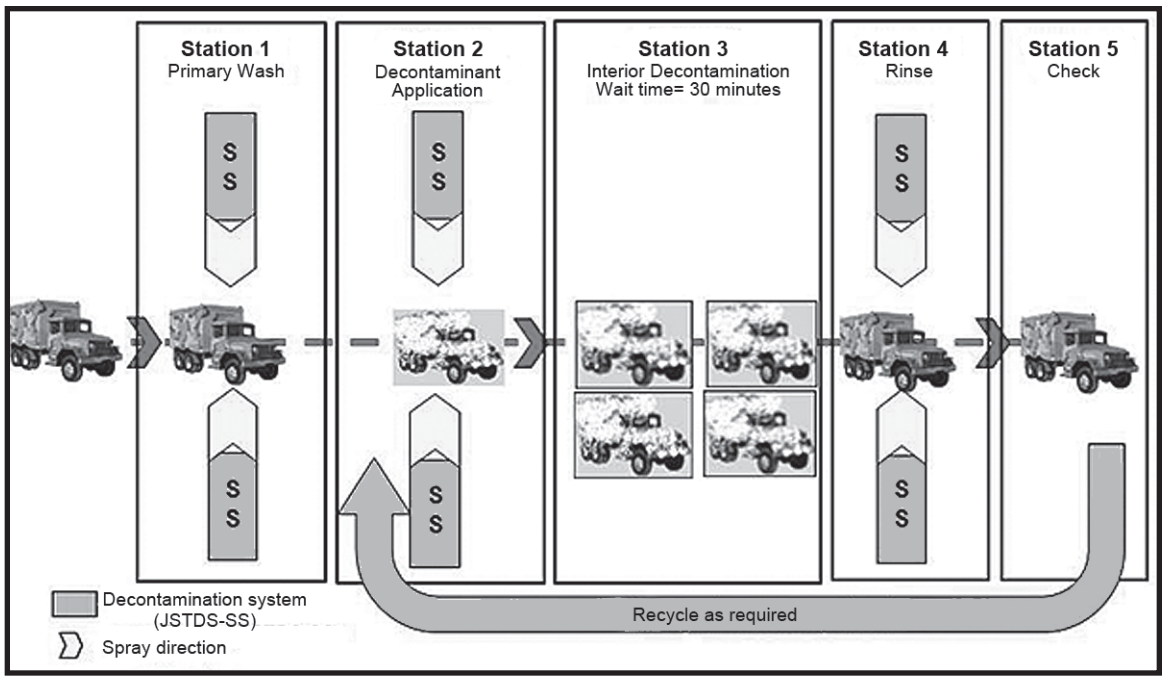


Figure 1. Schematic diagram of the DED line

DOCTRINE UPDATE

U.S. Army Maneuver Support Center of Excellence
Capabilities Development Integration Directorate
Concepts, Organization, and Doctrine Development Division

Publication Number	Title	Date	Description
Current Publications			
ATTP 3-11.23	Multiservice Tactics, Techniques, and Procedures for Weapons of Mass Destruction Elimination Operations	10 Dec 10	A multiservice tactics, techniques, and procedures (MTTP) manual that provides the tactical doctrine and associated tactics, techniques, and procedures (TTP) that each Service provides in support of the joint weapons of mass destruction–elimination (WMD-E) mission area in an effort to operate systematically to locate, secure, disable, and/or destroy a state or nonstate actor's weapons of mass destruction (WMD) programs and related capabilities. **Status**: Current.
ATTP 3-11.36 MCRP 3-37B NTTP 3-11.34 AFTTP 3-2.70	Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Aspects of Command and Control	12 Jul 10	An MTTP manual that provides commanders, staffs, key agencies, and Service members with a key reference for understanding, characterizing, and managing chemical, biological, radiological, and nuclear (CBRN) threats and hazards in a particular operational environment. **Status:** Current.
FM 3-11 MCWP 3-37.1 NWP 3-11 AFTTP(I) 3-2.42	Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Defense Operations	10 Mar 03	This is the CBRN keystone manual. This revision represents a critical doctrinal shift from nuclear, biological, and chemical (reactive mode covering WMD only) to CBRN operations (proactive mode covering the full range of CBRN threats and hazards). It implements the three strategic pillars of the *National Strategy to Combat Weapons of Mass Destruction*—nonproliferation, counterproliferation, and consequence management. The new name will be *Multi-Service Doctrine for Chemical, Biological, Radiological, and Nuclear Operations.* **Status**: Will be redesignated as ATTP 3-11.
FM 3-11.3 MCRP 3-37.2A NTTP 3-11.25 AFTTP(I) 3-2.56	Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Contamination Avoidance	2 Feb 06 C1 20 Apr 09	An MTTP manual for CBRN contamination avoidance. It provides commanders, staffs, key agencies, and Service members with a key reference for planning and conducting CBRN avoidance and contains the tools that CBRN defense personnel need to implement active and passive CBRN avoidance measures. It also supports decisionmaking. **Status**: Under revision FY 11. Will be redesignated as ATTP 3-11.33.
FM 3-11.4 MCWP 3-37.2 NTTP 3-11.27 AFTTP(I) 3-2.46	Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection	2 Jun 03 C1 31 Dec 09	An MTTP manual that establishes principles for CBRN protection and addresses individual and collective protection considerations for the protection of the force and civilian personnel. **Status**: Current. Will be redesignated as ATTP 3-11.34.
FM 3-11.5 MCWP 3-37.3 NTTP 3-1.26 AFTTP(I) 3-2.60	Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination	4 Apr 06	An MTTP manual that defines the roles of military units and staffs involved in the preparation, planning, and execution of decontamination operations. It addresses the requirement for different decontamination techniques. The manual focuses on the need for all U.S. forces to be prepared to fight and win in a CBRN-contaminated environment. It also addresses homeland security support required from the Department of Defense (DOD). **Status**: Current. Will be redesignated as ATTP 3-11.35.
FM 3-11.9 MCRP 3-37.1B NTRP 3-11.32 AFTTP(I) 3-2.55	Potential Military Chemical/ Biological Agents and Compounds	10 Jan 05	A manual that provides commanders and staffs with general information and technical data concerning chemical and biological agents and other compounds of military interest, such as toxic industrial chemicals. **Status**: Under revision FY 11. Will be redesignated as TM 3-11.91.
FM 3-11.11 MCRP 3-3.7.2	Flame, Riot Control Agent, and Herbicide Operations	19 Aug 96 C1 10 Mar 03	A manual that describes the TTP for employing flame weapons, riot control agents, and herbicides during peacetime and combat. The distribution of this manual is restricted due to the sensitive nature of the information contained in it. **Status**: Current. Will be redesignated as TM 3-11.92.
FM 3-11.19 MCWP 3-37.4 NTTP 3-11.29 AFTTP(I) 3-2.44	Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Reconnaissance	30 Jul 04 C1 31 Dec 08	An MTTP that provides tactical-level guidance and consideration for multiservice forces that are conducting CBRN reconnaissance and surveillance in all operational environments. It covers the full range of CBRN hazards by better addressing toxic industrial materials. It also expands TTP for dismounted CBRN reconnaissance and addresses CBRN sampling and sample management. The new name will be *Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Reconnasissance and Surveillance.* **Status**: Under revision FY 11. Will be combined with and supersede FM 3-11.86. Will be redesignated as ATTP 3-11.37.

DOCTRINE UPDATE

U.S. Army Maneuver Support Center of Excellence
Capabilities Development Integration Directorate
Concepts, Organization, and Doctrine Development Division

Publication Number	Title	Date	Description
Current Publications (Continued)			
FM 3-11.20	Technical Escort Battalion Operations	29 Aug 07	An Army-only manual that provides the TTP for the employment of technical escort battalions. The distribution of this manual is restricted due to the sensitive nature of the information contained in it. **Status**: Current. Will be redesignated as ATTP 3-11.24.
FM 3-11.21 MCRP 3-37.2C NTTP 3-11.24 AFTTP(I) 3-2.37	Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Consequence Management Operations	1 Apr 08	An MTTP designed for CBRN responders who plan and conduct domestic, foreign, or DOD-led consequence management operations. DOD personnel who respond to a CBRN incident may be responsible for CBRN consequence management planning and may be required to execute plans during full spectrum operations. **Status**: Current. Will be redesignated as ATTP 3-11.41.
FM 3-11.22	Weapons of Mass Destruction–Civil Support Team Operations	10 Dec 07 C1 31 Mar 09	A dual-service (Army and Air Force) manual that provides suggested doctrinal TTP for use by WMD–civil support teams. The revision updates the manual to incorporate the expanded mission of WMD-civil support teams, including responses to toxic industrial materials releases and natural or man-made disasters that could result in the loss of life or destruction of property in the United States. It also addresses expanded response areas in which the teams are required to conduct their missions, including maritime and urban areas and confined spaces. **Status**: Under revision FY 11. Will be redesignated as ATTP 3-11.46.
FM 3-11.34 MCWP 3-37.5 NTTP 3-11.23 AFTTP(I) 3-2.33	Multiservice Tactics, Techniques, and Procedures for Installation CBRN Defense	6 Nov 07	An MTTP that focuses on installation emergency management rather than CBRN installation defense. It will address all hazards—not just CBRN hazards. The revision is the result of newly published DOD policy and instruction and a front-end analysis of the DOD CBRN Defense Program led by the J-8/Joint Requirements Office. The new name will be *Multiservice Tactics, Techniques, and Procedures for Installation Emergency Management.* **Status**: Under revision FY 11. Will be redesignated as ATTP 3-11.42.
FM 3-11.50	Battlefield Obscuration	31 Dec 08	An Army-only manual that provides TTP to plan obscuration operations and employ obscurants during or in support of full spectrum military operations at the tactical through operational levels of war. **Status**: Current. Will be redesignated as ATTP 3-11.50.
FM 3-11.86 MCWP 3.37.1C NTTP 3-11.31 AFTTP(I) 3-2.52	Multiservice Tactics, Techniques, and Procedures for Biological Surveillance	4 Oct 04	An MTTP manual for planning and conducting biological surveillance operations to monitor, detect, sample, identify, report, package, and evacuate samples of biological warfare agents. **Status**: Under revision FY 11. Will be consolidated with FM 3-11.19.
FMI 3-90.10	Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives Operational Headquarters	24 Jan 08	An Army-only manual that provides the basic doctrine for the employment of a chemical, biological, radiological, nuclear, and high-yield explosives operational headquarters to conduct tactical-level, WMD-E operations or transition to a joint task force-capable headquarters for WMD-E operations to support campaigns and civil authorities. **Status**: Under revision FY 11. This is a Maneuver Support Center of Excellence manual, which will be redesignated as an FM.
***Note.* Current CBRN publications can be accessed and downloaded in electronic format from the Reimer Digital Library at <*http://www.adtdl.army.mil/*>, CBRN Knowledge Network (CKN) at <*http://www.us.army.mil/suite/portal.do?p=409522*>, or Maneuver Support Knowledge Network (MSKN) at <*http://www.us.army.mil/suite/page/275589*>.**			
Emerging Publications			
ATTP 3-11.47	Chemical, Biological, Radiological, Nuclear, and High-Yield Explosives Emergency Response Force Package (CERFP) Operations	4th Qtr, FY 11	A dual-service ATTP that provides the tactical doctrine and associated TTP for conducting CERFP and Homeland Response Force (HRP) operations. This manual contains TTP associated with consequence management operations that involve State Active Duty, Title 32, and Title 10 response. A recommendation has been made to the U.S. Army Training and Doctrine Command to encompass CERFP and Homeland Response Force missions in this manual. **Status:** Under development FY 11.
***Note.* CBRN draft publications can be accessed and downloaded in electronic format from CKN at <*https://www.us.army.mil/suite/portal.do?$p=409522*> or MSKN at <*https://www.us.army.mil/suite/page/275589*>.**			

ROBOTICS AND THE CHEMICAL CORPS

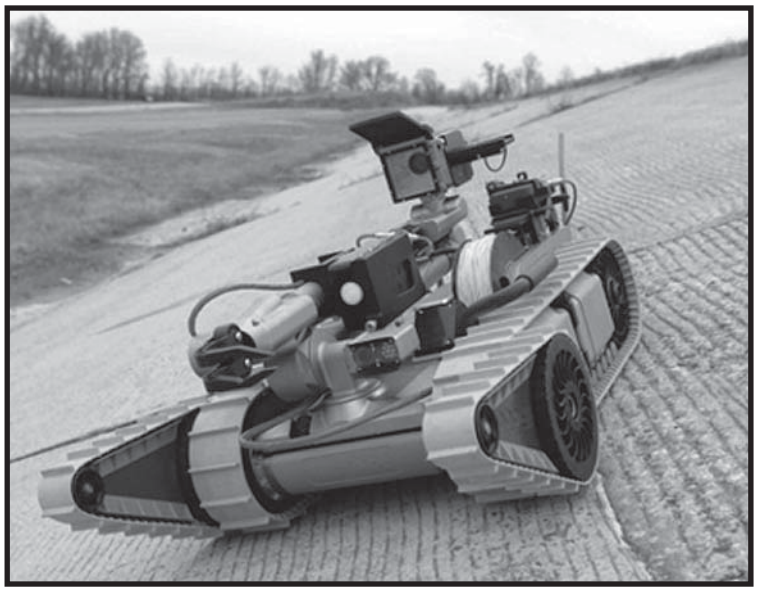
By Mr. Alvie Scott and Mr. John Moore

The *Buck Rogers in the 25th Century* television show and the *Star Wars* movies represent the best of 1970s science fiction entertainment. But now, using technology reminiscent of the fictional *Star Wars* characters R2-D2 and C-3PO, the Chemical Corps is approaching the ability to employ unmanned ground vehicles (UGVs) and unmanned air systems (UASs) containing integrated chemical, biological, radiological, and nuclear (CBRN) sensors in support of sophisticated and complex missions. And this is not simply for entertainment; the purpose is to limit the exposure of personnel to hazardous substances.

Many of the tasks that are regularly performed by CBRN reconnaissance and survey team members in potentially contaminated areas can be executed by unmanned systems in lieu of humans, thereby improving force protection. Unmanned systems allow an operator to remotely control the vehicle to facilitate initial-entry tasks and other phases of site assessment missions.

Robotics provide users with improved hazard standoff, increased mission speed, and enhanced availability and reliability. A few select units have been using CBRN sensor-equipped UGVs, and they have reported the successful accomplishment of their missions with these systems. Small UASs are primarily used for tactical missions involving intelligence, reconnaissance, and surveillance and homeland defense incident awareness assessment. UASs supply intelligence, reconnaissance, and surveillance; incident awareness assessment; and CBRN sensor information to the operator and the commander or staff. The operator evaluates the data and serves as a link in the overall architecture.

Numerous efforts to develop ground and air robotic platforms and sensors are continuing within the Department of Defense. The staffs of the Maneuver Support Center of Excellence, the Chemical Corps, and the Joint Program Executive Office–Chemical Biological Defense continue to experiment with CBRN robotics, but there are many technological issues that must be overcome to provide reliable, affordable systems that will support the tasks executed by Soldiers in the field. The Chemical Corps is particularly interested in the concept of a common-control device designed to support ground and air platforms. The immediate goal of the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) is to, whenever applicable, capitalize on the efforts and achievements of those involved in operations in Iraq and Afghanistan. The USACBRNS and Maneuver Support Center of Excellence



The PacBot® UGV

Soldiers retrieve data from the UGV.

plan to consolidate the lessons learned from these initiatives and develop requirements for various programs of record.

CBRN Soldiers provide subject matter expertise to non-CBRN Soldiers and units. Combat units are the most likely targets of CBRN attacks and are the first to find themselves in harm's way. Consequently, robotic systems designed to provide Soldiers with initial remote or standoff detection and identification capabilities using a simple "red light–green light" concept are being developed for brigade combat teams. This will allow for immediate action with regard to the protection of personnel and equipment. However, CBRN professionals require higher-fidelity systems that are capable of detecting and identifying chemical warfare agents and toxic industrial materials, detecting biological agents, measuring radiation, identifying isotopes, measuring oxygen levels, detecting lower-explosive limits, and identifying and marking contaminated areas.

The Joint Program Executive Office–Chemical Biological Defense science and technology community is focusing primarily on systems that operate wirelessly and are equipped with sensor and mapping capabilities that support CBRN ground and air missions. While the interface between the sensor, platform, and controller was once facilitated via a tethered (or wired) connection, the new systems use a wireless interface device for communication from the sensor, through a common controller, to the operator. Existing handheld sensors are mounted on standardized platforms. In ground systems, organic CBRN point and standoff detectors (ion mobility spectrometers, photoionization detectors) are mounted on the platform and communication with the operator takes place via sensor feedback and a wireless interface, which are key features of robotics support. The integration of radio frequency with wireless communication permits extended non-line-of-site operations via radio repeater systems, or "bread crumbs." This increases the communication range, allowing adequate distance for standoff operations.

Another key component of the new technology is the platform/payload controller. In conjunction with the Robotic Systems Joint Program Office, efforts are underway to develop the architecture and interface required to permit standardized sensor feedback to the common controller. First, in a one-way mode of operation, the information received on the controller screen appears just as it was presented on the sensor itself. A second effort will involve the addition of two-way communications between the sensor and operator so that the operator can manipulate the sensor (turn the sensor on and off, change the mode of operation).

Robotics requirements are aligned with CBRN capabilities for tactical and homeland defense missions; therefore, robots will become assets for units conducting intelligence, reconnaissance, surveillance, and CBRN missions. For example, the mission of the survey team is to verify the suitability of the area of operations through perimeter monitoring, provide hazard assessment through reconnaissance and site characterization, and collect samples for internal and external laboratory analysis. This involves the detection and identification of chemical, biological, radiological, nuclear, and high-yield explosives and toxic industrial material agents and substances. UGVs and UASs can be used to support these aspects of the survey team mission. Specific tasks that can be performed by UGVs and UASs include—

- Mark and time the route.
- Scan for hazards.
- Conduct air monitoring.
- Check for corrosives.
- Detect radiation, chemical warfare agents, and biological hazards.

In addition, the use of properly equipped UGVs to perform these tasks reduces the thermal load and hazard exposure of a Soldier.

One of the major advantages of robotics is the ability to use a remote or standoff approach to the detection and identification of CBRN hazards. Point sensors are currently employed to provide remote detection and identification capabilities on robotic platforms. With respect to the employment strategy, this provides a form of standoff protection. However, the issue of robot and payload decontamination must be addressed upon mission completion. Based on this and other complications, the development of true standoff detection and identification systems that are capable of providing an alert at some distance outside of the actual contaminated area is preferred. An actual standoff detection capability is especially important for UAS platforms. However, today's standoff sensors are large and cumbersome devices that require extensive miniaturization before they can be integrated on the current platforms.

Following the demise of the Future Combat Systems Program in 2009, the Joint Ground Robotics Integration Team was assembled to fill the void that was created in the area of ground robotic systems development. The Joint Ground Robotics Integration Team, which focuses on the

Talon IV® robot

coordination and development of robotic system platforms of various sizes to support multiple mission profiles, is not a program of record—rather, it is a coordinating body used by all U.S. Army centers of excellence to reduce or eliminate the duplication of effort. The individual centers will develop and provide their own mission payloads that can be tied into the platform interface device. This approach was selected to ensure affordable robotic efforts and achievable results. An additional advantage of this approach is that the various mission payload developers, including the Joint Program Executive Office–Chemical Biological Defense, are not needed to develop platforms; their resources are better focused on areas such as sensor and CBRN-specific support development.

The research and development phase of acquisition is arriving at a point where capabilities can be transitioned into the force as solutions to standoff detection issues and force protection gaps. Interim ad hoc solutions for the rapid development of tactics, techniques, and procedures will become available this year for expected delivery to selected units. Based on tentative plans under discussion at USACBRNS and the Maneuver Support Center of Excellence, they could be delivered as early as next year. While these systems may not be as technologically advanced as the characters portrayed in the science fiction entertainment of the 1970s, they are becoming "smarter" and more autonomous as technology continues to mature.

The Army has demonstrated the operational viability of ground robotics in various mission sets throughout the last decade. But there is a recurring requirement to conduct operations in a safer, more rapid, and more effective manner against a wider spectrum of current and anticipated threats. In response, the Chemical Corps is getting ever closer to employing UGVs and UASs with integrated CBRN sensors to replace human intervention, include higher levels of autonomy, dramatically reduce the risk to personnel, and improve mission effectiveness.

Mr. Scott is a capability developer for the Homeland Defense/Civil Support Team, Combating Weapons of Mass Destruction Branch, Requirements Determination Division, Capabilities Development and Integration Directorate, Maneuver Support Center of Excellence, Fort Leonard Wood, Missouri. He holds a bachelor's degree in business administration from Columbia College, Columbia, Missouri, and associate's degrees in disaster preparedness, maintenance production management, and instructor of technology and military science from the Community College of the Air Force, Maxwell Air Force Base, Alabama.

Mr. Moore is a capability developer for the Sense Team, Combating Weapons of Mass Destruction Branch, Requirements Determination Division, Capabilities Development and Integration Directorate, Maneuver Support Center of Excellence, Fort Leonard Wood. He holds a bachelor's degree in biology and environmental science from Drury University, Springfield, Missouri, and a master's degree in environmental science from Webster University.

("The Effectiveness of Combat Decontamination Practices: A Firsthand Experience," continued from page 25)

- Under the current doctrine, the decontamination process must be augmented by Soldiers from nonchemical units. Chemical, biological, radiological, nuclear, and high-yield explosives readiness training has suffered greatly due to the Army force generation cycle, which significantly hinders the ability of non-Chemical Corps Soldiers to effectively conduct decontamination operations. A shift to a minimally manned automated system would allow decontamination platoons to support the needs of the brigade without any outside help.

My participation in such an important and informative study was a great learning experience. As decisions are made regarding the application of this and other follow-on study results, I am confident that our leaders are doing what is best for our Corps. I believe the future holds great things for DED operations and the Chemical Corps.

Endnote:

[1]A complete copy of the decontamination study may be obtained by contacting the U.S. Army Engineer Research and Development Center, 3909 Halls Ferry Road, Vicksburg, MS 39183.

Reference:

FM 3-11.5, *Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination*, 4 April 2006.

At the time this article was written, Captain Player was a student in the Chemical, Biological, Radiological, and Nuclear Captain's Career Course at Fort Leonard Wood, Missouri. He is now the commander, Waco Recruiting Company, Dallas Recruiting Battalion, Irving, Texas.

HaMMER Advanced Technology Demonstration

By Sergeant First Class Scott Newell (Retired)

The Hazard Mitigation, Materiel, and Equipment Restoration (HaMMER) Program is an Advanced Technology Demonstration (ATD) sponsored by the Defense Threat Reduction Agency Joint Science and Technology Office. That office also serves as the program manager, with additional management provided by the U.S. Army Pacific (operational manager); the Joint Project Manager–Protection (transition manager); and the Engineering Directorate, Edgewood Chemical Biological Center, U.S. Army Research, Development, and Engineering Command (technical manager). The HaMMER ATD aims to support the warfighter through the demonstration of an integrated family of systems for decontamination and the mitigation of current and emerging threats to operationally relevant levels.

The HaMMER Program, which is envisioned as a risk reduction and screening effort for the Joint Project Manager–Protection Decontamination Family of Systems Program, will also be used to identify—

- Potential technologies for transition to an acquisition program of record.
- Changes to existing concepts of operations; tactics, techniques, and procedures; and standing operating procedures that can be transitioned to the U.S. Army Chemical, Biological, Radiological, and Nuclear School to support future changes to doctrine.
- Measures of performance and effectiveness that will support the generation of Decontamination Family of Systems Program requirements.

The objective of the Decontamination Family of Systems Program is to provide the equipment needed to improve decontamination procedures for personnel, equipment, vehicles, terrain, and fixed facilities contaminated with chemical or biological warfare agents. To achieve this objective, the Decontamination Family of Systems Program makes use of mature technologies (general-purpose decontaminants, wipes, contamination indicators [agent disclosure], decontamination assurance sprays) and emergent technologies (coatings and sealants, custom decontamination solutions, effluent controls, niche decontamination).

The HaMMER ATD is being executed in four phases, spanning four years. The first phase, Risk Reduction, began in 2009. The objectives of this phase were to identify individual technologies that might be collectively applied in a family of systems to reduce or eliminate chemical and biological hazards and to define an initial set of technology systems to begin integration. The following year, the HaMMER ATD entered into the Integration Phase, in which the recommended family of systems was optimized through technical testing, tabletop exercises, and warfighter feedback. The Technical Demonstration Phase is underway this year. In this phase, laboratory data will be collected to support technology claims and the synergistic effects of the family of systems. Finally, the ATD will conclude with the Operational Demonstration Phase in 2012. The goal of this phase is to employ the technologies in an operational scenario using new or modified concepts of operations or tactics, techniques, and procedures. The results of the Operational Demonstration Phase will be used to determine military utility.

The benefits of the HaMMER ATD proposals include multiple transition points, new components and technologies that may supplement or replace existing decontamination equipment (in the near term), a new family of systems employed under new concepts of operations (in the midterm), flexible configurations to address specific problems and operational needs, and the capability for deployment at logistically and operationally appropriate levels.

According to Sergeant Major Luis Rivera, the senior enlisted leader for the operational manager, "The decontamination process has not been evaluated in years based on new technologies and current warfighter needs. HaMMER technologies have the potential of eliminating the chemical, biological, and radiological [CBR] threat to the warfighter as far forward as possible. This program has the potential of equipping the warfighters with tools that will give them the confidence that they will have a higher percentage surviving a CBR incident."

For more information on HaMMER, contact Mr. Markham Smith (program manager) at (703) 767-3292 or Mr. Shawn Funk (technical manager) at (410) 436-5747.

Sergeant First Class Newell (Retired) is a chemical, biological, radiological, and nuclear analyst/project manager with Concurrent Technologies Corporation, Fort Leonard Wood, Missouri. He holds a bachelor's degree in computer science from Hawaii Pacific University and has completed graduate work in environmental science at Jacksonville State University, Jacksonville, Alabama, and information technology management at Webster University.

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	
74D10 Chemical, Biological, Radiological, and Nuclear (CBRN) Specialist Course (School Code 031)	
Phase I (Course 031-74D10 [R] [dL])	Students who have a reservation for Phase II are automatically enrolled in Phase I. They receive e-mail instructions from The Army Distributed Learning Program via Army Knowledge Online (AKO). Students must complete Phase I before reporting for Phase II training. An Army Correspondence Course Program (ACCP) certificate of completion (e-mailed) or other documentation must be presented as proof of Phase I completion during Phase II in-processing. Soldiers who experience problems with Phase I should telephone the ACCP at (800) 275-2872 (Option 3) or (757) 878-3322/3335. If no ACCP representative is available, they should contact Ms. Karen Campbell, 3d Brigade (Chemical), at (860) 570-7117 or *<karen.a.campbell@us.army.mil>.*
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. Phase II is waived for civil support team members who have already completed the Civil Support Skills Course (CSSC).
Advanced Leader Course (ALC)—Common Core (CC) dL (School Code G400, Course 600-C45)	
This is a 90-day, 60.4-hour, highly facilitated, Web-based, non-military-occupational-specialty-specific course that has replaced only the CC portion of the previous Basic Noncommissioned Officer Course (BNCOC). Unit trainers enroll Soldiers through the Army Training Requirements System (ATTRS). Students receive e-mail registration instructions. Soldiers who fail to register within 15 days prior to the start date are automatically cancelled and considered "No Shows." The next Soldier on the waiting list is granted a confirmed reservation. Soldiers who are classified as "No Shows" or who have been cancelled may be required to wait 24 months to be rescheduled for any phase of ALC. Soldiers must complete the ALC-CC and the three-phase CBRN ALC technical course to be considered an ALC graduate. Soldiers who previously completed BNCOC-CC will receive constructive credit for ALC-CC.	
74D30 CBRN ALC (School Code R031, Course 031-74D30-C45)	
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 technical level.	
74D40 Senior Leader Course (SLC) (School Code R031, Course 031-74D30-C46)	
This is a three-phase resident course conducted at Fort Leonard Wood.	
Officer Qualification Training Courses	
CBRN Captain's Career Course (C3) (School Code 031)	
Phase I (Course 4-3-C23[dL])	This branch-specific distributed learning (dL) phase (formerly Phase II) consists of 108 hours of dL instruction, which must be completed within 60 days before attending Phase II. Unit trainers enroll Soldiers through ATTRS. Students receive e-mail instructions from the Army Distributed Learning Program. Hazmat awareness training can be accessed at *<https://afcesa.csd.disa.mil/kc/login/login.asp>* 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), CBRN C3 Course Manager, Major John Feero at (573) 563-7397. The successful completion of Phase I (and the CBRN Defense Course [branch transfers]) is a prerequisite for Phase II attendance.
Phase II (Course 4-3-C23)	This branch-specific resident phase (formerly Phase III) consists of two weeks of training conducted at the USACBRNS. The focus is on radiological operations, live-agent training, hazmat awareness and operations level training and certification, and the basics of the Joint Warning and Reporting Network used within the Maneuver Control System. The successful completion of Phase II is a prerequisite for enrollment in Phase III.
Phase III (Course 4-3-C23 [dL])	This CC phase (formerly Phase IV) consists of 59.2 hours of dL instruction. Unit trainers enroll Soldiers through ATTRS. Students receive e-mail instructions from the Army Distributive Learning Program. Students must complete Phase III within 60 days of attending Phase IV. Those who encounter problems should contact Major Feero at (573) 563-7397. The successful completion of Phase III is a prerequisite for Phase IV attendance.
Phase IV (Course 4-3-C23)	This resident phase (formerly Phase V) consists of two weeks of training conducted at the 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 decisionmaking process exercise using state-of-the-art battle simulation equipment.
Notes.	
1. Soldiers completing any portion of the previous five-phase course receive constructive credit.	
2. The renumbering of the C3 phases has resulted in an increase in the number of students experiencing registration difficulties. The USACBRNS is working with the Training Operations Management Agency (TOMA) to address this issue. Once the problems have been corrected, clear guidance regarding the path to course completion will be provided. Please contact Major Feero concerning any registration issues.	

Joint SLC (Course 4K-74A/494-F18)
This is a four-day course in which senior leaders are presented with critical CBRN subject matter such as operational- and strategic-level aspects of CBRN defense. 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.
CBRN Precommand Course (Course 4K0F4)
This is a five-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 Field Manual (FM) 7-0 and FM 7-1 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 CBRN consequence management response force; chemical, biological, radiological, nuclear, and high-yield explosives (CBRNE) enhanced response force package; and civil support team units and for military occupational speciality qualification.

Table 2. Functional training courses

CBRN Defense Course (School Code R031, Course 031-NBC)
This twelve-day course, which is conducted by Total Army School System battalions at various locations, is designed to provide Regular Army and RC officers and NCOs with the knowledge and skills necessary to perform the additional duty of CBRN officer/NCO at company and detachment levels. The course is taught in a combination classroom/field environment and is supplemented with training videotapes. The extensive use of hands-on training ensures that Soldiers master the requisite skills.
Mass Casualty Decontamination Course (School Code 031, Course 4K-F25/494-F-30)
This nine-day course is appropriate for CBRNE enhanced response force package and domestic-response casualty decontamination team members. Students who successfully complete the course receive certification at the hazmat awareness and operations levels.
CBRN Responder Course (School Code 031, Course 4K-F24/494-F29)
This ten-day course is appropriate for CBRN consequence management response force members. Students who successfully complete the course receive certification at the hazmat awareness, operations, and technician levels.
Civil Support Skills Course (CSSC) (School Code 031, Course 4K-F20/494-28)
This eight-week course is appropriate for Army National Guard civil support team members. Students receive advanced training in hazmat technician and incident command and CBRN survey, point reconnaissance, sampling operations, personal protective equipment selection and certification, decontamination, and 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 the International Fire Service Accreditation Congress and DOD. Additional copies of certificates can be obtained from <*http://www.dodffcert.com*>.**

Soldiers who arrive for any resident courses without having first completed all appropriate dL requirements will be returned to their units 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 U.S. Army Reserve (USAR) Proponency NCO.

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

3d Brigade (Chemical), 102d Division (Maneuver Support), is currently seeking instructors for various locations. Applicants should be an E-6 or E-7, be qualified (or able to be trained) as Army basic instructors, and have completed the appropriate NCOES coursework. Interested Soldiers should contact Ms. Campbell at (860) 570-7117 or <*karen.a.campbell@us.army.mil*> or Master Sergeant Richard Kennon at (860) 570-7115 or <*richard.kennon@us.army.mil*>.

Contact Information

Colonel Jon M. Byrom (DAC-RC), (573) 563-8050 or <*jon.byrom@us.army.mil*>.

Major James C. McGuyer (DAC-NG), (573) 563-7676 or <*james.mcguyer@us.army.mil*>.

Master Sergeant LaHarold Woodhouse (USAR Proponency NCO), (573) 563-7757 or <*laharold.woodhouse@us.army.mil*>.

Sergeant First Class Joseph Bahr (ARNG Proponency NCO), (573) 563-7667 or <*joseph.bahr@us.army.mil*>.

Regimental Week and JIIM-IA Conference Agenda

The 2011 U.S. Army Chemical Corps Regimental Week and Joint, Interagency, Intergovernmental, Multinational, Industry, and Academia (JIIM-IA) Conference will be conducted at Fort Leonard Wood, Missouri, in June. The following schedule is provided for planning purposes, but is subject to change due to ongoing operational commitments. For additional information and last-minute changes, please visit the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) public Web site at <*http://www.wood.army.mil/cbrns/*>.

Time	Event	Location
Monday, 13 June 2011		
0530–1200	Best Chemical, Biological, Radiological, and Nuclear (CBRN) Warrior Competition (Army Physical Fitness Test, Physical Endurance Combat Skills)	Gerlach Field/ Training Area (TA) 97
Tuesday, 14 June 2011		
0700–1700	Best CBRN Warrior Competition (Incident Response Training Department [IRTD], Chemical Decontamination Training Facility [CDTF])	Lieutenant Terry Facility/CDTF
Wednesday, 15 June 2011		
0700–1700	Best CBRN Warrior Competition (IRTD, CDTF)	Lieutenant Terry Facility/CDTF
Thursday, 16 June 2011		
0530–?	Best CBRN Warrior Competition (Land Navigation/Dragon Warrior Tasks)	TA 401
Friday, 17 June 2011		
0530–?	Best CBRN Warrior Competition (Reflexive Fire)	TA 401
Saturday, 18 June 2011		
0900–1200	Best CBRN Warrior Competition (Awards Ceremony)	Lincoln Hall Auditorium
1730–2400	Green Dragon Ball	Nutter Field House
Sunday, 19 June 2011		
All day	Father's Day	
Monday, 20 June 2011		
0700–1500	Chemical Corps Regimental Association (CCRA) Golf Tournament	Piney Valley Golf Course
Tuesday, 21 June 2011		
0530–0700	Regimental Run	Gammon Field
0730–1730	Vendor Displays	Nutter Field House
0900–1300	Conference (Strategic: Nonproliferation, Counterproliferation)	Abrams Theater
1500–1630	Hall of Fame/Distinguished Members of the Corps Induction Ceremony/ Reception	Museum/ Regimental Room
1830–2100	General Officer/VIP Dinner (by invitation only)	

Time	Event	Location
1830–2100	Regimental Command Sergeant Major Ice Breaker (by invitation only)	Museum/ Regimental Room
Wednesday, 22 June 2011		
0600–0700	"Honor to Our Fallen" Sunrise Service	Memorial Grove Park
0730–1730	Vendor Displays	Nutter Field House
0800–0900	CCRA Corporate Breakfast	Pershing Community Club
0900–1200	Conference (Operational: Domestic Consequence Management)	Abrams Theater
1300–1430	Conference (Operational: Foreign Consequence Management)	Abrams Theater
1830–2200	CCRA Barbecue	Lieutenant Terry Facility
Thursday, 23 June 2011		
0600–0730	Warfighter Seminar Registration	Lincoln Hall Auditorium Foyer
0730–1000	Joint Program Manager (JPM) Update	Lincoln Hall Auditorium
1000–1030	Deputy Under Secretary of the Army–Test and Evaluation (DUSA-TE) Brief	Lincoln Hall Auditorium
1030–1630	Warfighter Seminar (by invitation only)	Lincoln Hall Auditorium
1630–1730	Sibert Award Presentation/Final Remarks	Lincoln Hall Auditorium

CKN
CBRN Knowledge Network
Web Site

Do you need up-to-date information about chemical, biological, radiological, and nuclear (CBRN) career management, courses, equipment, doctrine, and training development? All of this information and more is available at the CBRN Knowlege Network (CKN) Web site. To visit the CKN, go to the Fort Leonard Wood Web site at <*http://www.wood.army.mil/*> and select *Maneuver Support Knowledge Network (MSKN)* in the lower, right-hand column of the home page. At the Army Knowledge Online (AKO) portal, log in using your user name and password. On the *Maneuver Support Knowledge Network* page, select *Chemical (CKN)* on the left-hand side of the page to check out this great resource.

Care to Comment?

The *Army Chemical Review* welcomes letters from readers. If you have a comment concerning an article we have published or would like to express your point of view on another subject of interest to chemical, biological, radiological, and nuclear Soldiers, let us hear from you. Your letter must include your complete address and a telephone number. All letters are subject to editing for reasons of space or clarity.

Our mailing and e-mail addresses are—

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The American Dream:
The Story of Albanian Genti Sulaj

By Captain Micah A. Walker

In an ever-shrinking America—where our every thought, whim, and desire is communicated through cell phones and social networking sites and our eyes are always on the future—we often forget that it was the hard work and dedication of immigrants that laid the foundation for our country. Generations were raised with the belief that the United States of America was the land of opportunity and prosperity. And even as our Nation continues to struggle with the economy and we attempt to rebuild from our first depression in nearly a century, that belief still holds true. This is the story of Second Lieutenant Genti Sulaj and his American Dream.

Genti Sulaj was born in Tirana, Albania, on 18 May 1980. From an early age, Sulaj exhibited a passion for mathematics, which he inherited from his mother, who was a high school mathematics teacher. He also possessed a sense of duty and a desire to lead—undoubtedly developed from years of watching his father, who was a 27-year Albanian artillery officer. As Sulaj grew older, the skills and characteristics that he acquired from his parents proved to be more important than he could imagine.

In January 1997, political turmoil erupted in Albania. Government-backed Ponzi schemes, which involved nearly two thirds of the populace, caused the Albanian economy to collapse; the country of about 3 million people lost approximately $1.2 billion. This led to government protests that collectively became known as the "Lottery Uprising." Following the resignation of Prime Minister Aleksandër Meksi and the subsequent appointment of Bashkim Fino (a member of the Socialist Party of Albania) to the post, the country split—with the north under the control of the Socialist Party of Albania and the south controlled by local criminal gangs and rebels. While all of this was going on, Sulaj was attending high school in Albania. He applied for, and was accepted as, a foreign exchange student in a small town in Idaho; and on 28 December 1997, he stepped foot on American soil for the first time.

Following his May 1998 high school graduation, Sulaj was slated to return to his family and the political unrest of Albania. After completing the first of four flights that were to take him back to his homeland, Sulaj decided to defect and declare political asylum. At 18 years of age, he was alone in Cincinnati, Ohio—more than 5,300 miles from home—with no one to turn to and no place to go. He headed to the streets of Dayton, Ohio, where he slept in alleyways and under bridges and scavenged for life's basic necessities. After two months, he was saved by the grace of an American couple who took him in.

With his struggles for survival behind him, Sulaj decided that he would like to continue his education. However, he soon learned that his immigration status prevented his admission to several universities. He realized that, to succeed in this foreign country, he would need to work. So, Sulaj secured employment as a cook at an Italian restaurant, then as a customer service representative at a home improvement store, and finally settled on a position with another home improvement store. He was constantly looking for the next opportunity; each of these jobs paid more money and offered more benefits than the last. A year later, after saving enough money to purchase a modest condominium, Sulaj moved out of what he considers his "adoptive" family home.

But soon after the purchase of his personal "slice of America," Sulaj learned that he would be required to support his younger sister, who had also recently immigrated to the United States from Albania. Although he desperately longed to continue his education, his plans were necessarily delayed once again. Finally, after receiving advice from a church friend in 2002, Sulaj submitted an application for admission to Ohio University. He subsequently met with a campus enrollment counselor and was accepted in the area of mathematics. The delicate balancing act of supporting his sister and paying his college expenses led Sulaj to take out personal loans through various banks. One way or another, he was going to complete his bachelor's degree!

Just as the pieces of his life began to fall into place, Sulaj was laid off from his job at the home improvement store. And to make financial matters worse, he learned that his parents would also be immigrating to America. The next five years were very difficult, as Sulaj continued to study and support his family. He moved onto the campus, allowed his parents to have complete control of his condominium and all of his possessions, and worked at any paying job he could find. "I gave [my family] everything." explained Sulaj, "That

is what you do. You take care of those that are important to you, and you sacrifice. I wasn't going to quit school or [quit] supporting my family just because it was hard."

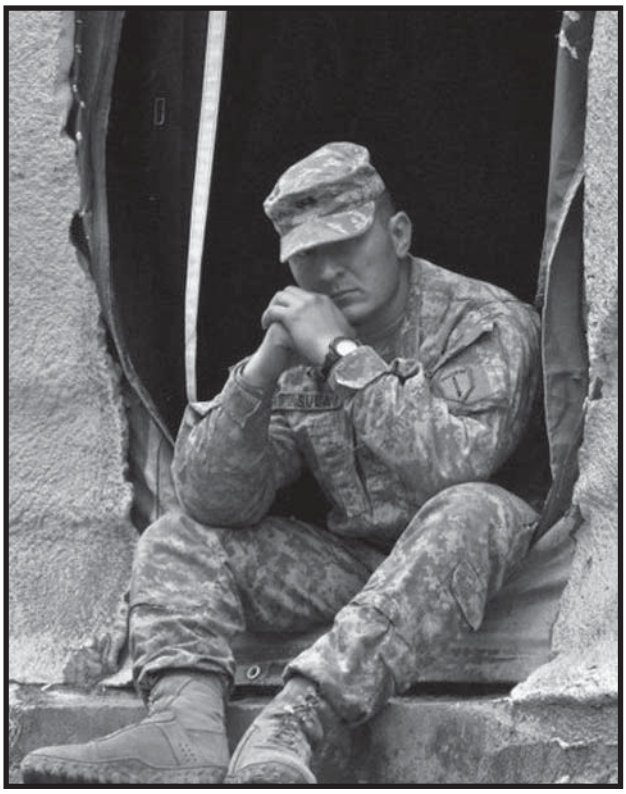
Somewhere along the way, Sulaj reevaluated the events of 11 September 2001 and decided to change his major to foreign policy, with a minor in Middle-Eastern history. He also volunteered to participate in the Reserve Officer Training Corps at Ohio University. Although he could serve only two years, Sulaj used that time to learn leadership skills and better prepare himself for the future.

After graduating and receiving a U.S. Permanent Resident Card (more commonly referred to as a "green card") in 2007, Sulaj considered the possibility of joining the U.S. Army. On one hand, he felt compelled to pay tribute to a nation that had given him so much; but on the other hand, he needed to support his family. Finally, in September 2008, Sulaj enlisted in the Army as a chemical operations specialist (military occupational specialty 74D). After attending Basic Training and Advanced Individual Training at Fort Leonard Wood, Missouri, he was assigned to the 23d Chemical Battalion, located along the damp, cold shores of Puget Sound in Washington. There, he began to evaluate the prospects of becoming an Army officer. After all, he had a college degree and Reserve Officer Training Corps experience and he fancied himself to be a natural leader. The only remaining prerequisite was U.S. citizenship. Sulaj promised himself that, if given the chance, he would jump at the opportunity to become an officer.

On 18 September 2009, Genti Sulaj took an Oath of Allegiance to the United States of America. After defending the country for the previous 18 months, he was finally an American citizen. Next, he turned his attention to fulfilling the promise that he had made to himself; within a month, Sulaj applied for, and was accepted into, Officer Candidate School at Fort Benning, Georgia.

After 12 rigorous weeks of training, Second Lieutenant Genti Sulaj proudly displayed his "butter bar" (a term of endearment for the rank of second lieutenant) and took a second oath—the Uniformed Services Oath of Office.

While attending Officer Candidate School, Sulaj decided that he would serve as a field artillery officer—thereby following in his father's footsteps once again. He is now stationed at Fort Sill, Oklahoma, where he is completing the Field Artillery Basic Officer Leader's Course. Second Lieutenant Sulaj is also being groomed to lead America's most precious resource into battle. He must maintain a balance of precision and inspiration.



Second Lieutenant Sulaj

Of course, Sulaj's parents are very proud of what he has accomplished. And despite his own excitement, Second Lieutenant Sulaj knows how hard he has worked and understands the responsibility that comes with his new position. "I am excited to get to work [with] and lead American Soldiers," he says. "I am so grateful and humbled by this opportunity. I am indebted to this country for everything I have, and I will work for the rest of my life to try and give back what has been given to me."

Like so many before him, Second Lieutenant Genti Sulaj is doing his part to shore up the foundation upon which 21st Century America is built.

At the time this article was written, Captain Walker was assigned to the 23d Chemical Battalion, Joint Base Lewis-McChord, Washington. He is now a Chemical, Biological, Radiological, and Nuclear Captain's Career Course student at Fort Leonard Wood, Missouri. Captain Walker holds a bachelor's degree in molecular biology from the Florida Institute of Technology.

Farewell to a True Dragon Soldier

By Captain Herschel H. Flowers

Sergeant Major Tussey

This year brings a bit of sadness to many Chemical Corps members, as we see one of our leaders take his final stroll through the halls of the Maneuver Support Center of Excellence at Fort Leonard Wood, Missouri. After more than 41 years of service to our Nation, Sergeant Major Jack Tussey is retiring.

Tussey joined the Kentucky Army National Guard (ARNG) as a private in 1970; and throughout his career, his dedication to duty, service, and leadership has been recognized again and again. By 1972, he had been promoted to the grade of E-5. In 1975, while serving in the 103d Forward Support Battalion, he was selected as the Kentucky National Guardsman of the Year. Tussey continued to rise through the ranks, distinguishing himself at every assigned duty position. From receiving the Association of the U.S. Army Plaque for Leadership—to earning Distinguished Honor Graduate recognition when training to become a nuclear, biological, and chemical specialist—to achieving the highest retention rate for any company in the entire Kentucky ARNG while serving as the Headquarters Company recruiting/retention and safety noncommissioned officer for the 103d Support Battalion from 1986 to 1988—he exemplified the true meaning of dedication to Soldiers.

In 1991, Tussey joined the U.S. Army Reserve (USAR) and immediately displayed his leadership skills as a nuclear, biological, and chemical (now chemical, biological, radiological, and nuclear [CBRN]) instructor for the USAR Forces School in Lexington, Kentucky. After his promotion to master sergeant in 1995, he was reassigned to the 4/100th Chemical Battalion, Huntsville, Alabama, where he coordinated all Military Occupational Specialty 74D training for the USAR and Kentucky ARNG.

Master Sergeant Tussey's career came to a brief halt in 1999, when he reached the mandatory removal date and was transferred to the Individual Ready Reserve; but a shortage of qualified 74D instructors allowed him to almost immediately return to the 4/100th Chemical Battalion in 2000. At a point in life when many Soldiers just want to enjoy retirement, Tussey was once again earning accolades by taking care of Soldiers and leading through example.

After more than 30 years of service in ARNG and USAR troop program units, Master Sergeant Tussey applied for, and was accepted into, the Individual Mobilization Augmentee (IMA) Program in 2002 and was detailed to the Noncommissioned Officer Academy at Fort Leonard Wood. There, he was chosen first sergeant and chief of the 74D Basic Noncommissioned Officer Course. In November 2006, he was selected for, and promoted to, the rank of sergeant major and subsequently moved to the Reserve Component CBRN Captain's Career Course, where he served as the senior noncommissioned officer responsible for training all ARNG and USAR CBRN captains. During his tenure in that position, he has been a calm, steady source of leadership and wisdom, which has allowed for the successful training of nearly 400 students in 16 training cycles—with no injuries to students or staff.

His quiet demeanor and caring attitude make Sergeant Major Tussey an unforgettable leader—not only to those who have had the honor to serve with him, but also to those who have encountered him while training at Fort Leonard Wood. The time he spent as sergeant major of the Reserve Component CBRN Captain's Career Course will continue to positively impact the Corps for years to come.

As the two-time Pulitzer Prize winner and intellectual Walter Lippmann once said, "The final test of a leader is that he leaves behind him, in other men, the conviction and the will to carry on." Sergeant Major Jack Tussey has passed this test with flying colors.

Captain Flowers is a CBRN officer with the Reconnaissance Training Department, Technical Training Division (Reserve Component), U.S. Army CBRN School, Fort Leonard Wood. He holds a bachelor's degree in law and a juris doctorate degree from the University of Costa Rica and a master's degree in international trade law from the University of Amsterdam, the Netherlands. In addition, he holds a bachelor's degree in homeland security and emergency management, with a minor in political science and government.

World War II Hero Leaves a Chemical Legacy

By Captain Kristy Moore

Sidney Diamond was born to Russian Jewish immigrants on 11 April 1922 in Bronx, New York, where he was raised. As a boy, Diamond participated in the Boy Scouts of America and later become an assistant scoutmaster. He attended Stuyvesant High School—a school for intellectually gifted boys. Upon his graduation in 1939, Diamond entered the City College of New York, where he studied chemical engineering and joined the Alpha Phi Omega fraternity.[1]

Although Diamond had followed the normal course of most boys his age, his destiny was to be determined by colliding world powers and the bloodiest wars in history. With the Japanese bombing of Pearl Harbor, Hawaii, on 7 December 1941, more than 2,300 American troops were killed. The next day, the United States declared war on Japan and Sidney Diamond's life changed forever. Like most Americans, Diamond felt a sense of duty to his country. On 24 April 1942, he entered the U.S. Army as a private at Fort Dix, New Jersey. Upon completing basic training on 10 May 1942, Private Diamond joined the Chemical Warfare Service at Edgewood Arsenal, Maryland. He trained with Company G, 2d Chemical Warfare Service Training Battalion. Private Diamond was excited to be a part of a new Army service, where he felt his education in chemical engineering would prove useful. The following excerpt is from a letter that Private Diamond wrote to his fiancée, Ms. Estelle Spero:

> *Hello Sweet,*
> *. . . Can't express my elation and satisfaction with the new post . . . . Everyone makes it a point of behaving like a gentleman and Soldier. Persons here are proud of the service they're in. The Chemical Warfare Service is a comparatively new branch of the Army. Corporal informs us that it's merely a year and a half old. It acts its age: young, vibrant, enthusiastic, courageous and, above all, eager! . . .*[2]

In July 1942, Private Diamond applied for Officer Candidate School. He was accepted in August and trained as a chemical officer until mid-November. He was then assigned as a platoon leader, D Company, 82d Chemical Battalion, Fort Bliss, Texas. The 82d, which was on orders to deploy, trained for deployment in Shreveport, Louisiana, and at Camp Swift, Texas. In June 1943, the unit left for San Francisco, California, where Lieutenant Diamond was attached to the 1st Battalion, 160th Infantry Regiment, 40th Division—a 4.2-inch mortar unit.[3]

On 27 June 1943, the unit left San Francisco for Nouméa, New Caledonia, in the Southwest Pacific. In October 1943, they resumed training at Guadalcanal in the Solomon Islands; and on 15 January 1944, they entered World War II at Empress Augusta Bay, Bougainville, Solomon Islands. On 18 January, the troops were greeted by Japanese bombers. Under Lieutenant Colonel Stratta, commander of the 1st Battalion, Lieutenant Diamond led his platoon in attacks to clear parallel ridges to the west in the Zambales Mountains above Clark Field in the Philippines. On 29 January 1945, Lieutenant Diamond, who was serving as a forward observer, successfully directed mortar fire during the initial stages of the action, killing and wounding what appeared to be a reinforced platoon of Japanese. To bring fire upon other enemy positions, Lieutenant Diamond—with heroic disregard for his own safety—made his way (alone and under intense hostile machine gun, mortar, and rifle fire) to a position 150 yards beyond friendly lines. Despite the continued heavy fire, Diamond remained in this position, skillfully directing mortars to destroy many Japanese troops and strongpoints—until he was killed by an enemy shell. He was posthumously awarded the Silver Star for his actions.

During the time he spent on active duty, Lieutenant Diamond wrote more than 525 letters to Ms. Spero. These letters have been preserved in a collection at the Gilder Lehrman Institute of American History in New York; some of them have been printed in the book entitled *An Alcove in the Heart: WWII Letters of Sidney Diamond to Estelle Spero*. The letters, which

are filled with humor and heartache, serve as an excellent record of the trials and tribulations faced by Soldiers in training and combat—including their feelings of ambivalence toward family and country. The letters also preserve the memory of a young Chemical Corps.

Lieutenant Diamond is an excellent example of a Soldier who contributed to the long, proud, heroic history that is part of our chemical, biological, radiological, and nuclear legacy. We face the battle with duty and honor, dedicating our lives to our country.

Endnotes:

[1]Estelle Spero Lynch, *An Alcove in the Heart: WWII Letters of Sydney Diamond to Estelle Spero,* Author House, 13 September 2004.

[2]Ibid.

[3]Before the war, the Chemical Warfare Service developed the 4.2-inch mortar, or "automatic howitzer," to throw gas shells; however, it could also provide high-explosive shells for use against tanks and troop concentrations. The mortar, which weighed about 300 pounds, was capable of slamming out an 8-pound shell every 3 seconds ("Army & Navy—Stovepipe Artillery," *Time*, 15 November 1943).

References:

Dale Andrade, CMH Pub 72-28, *Luzon: 15 December 1944–4 July 1945*, U.S. Army Center of Military History.

Jack Butler, *Fire, Smoke, and Steel: The Jungle-Fighting 82nd Chemical Mortar Battalion*, 2001, <*http://www.4point2.org/hist-82-pl.htm*>, accessed on 16 February 2011.

Captain Moore is a training developer with the Directorate of Training and Leader Development, U.S. Army Chemical, Biological, Radiological, and Nuclear School, Fort Leonard Wood, Missouri. She holds a bachelor's degree in history from Drury University, Springfield, Missouri, and a master's degree in environmental management from Webster University.

("Alternatives for the Distribution of CBRN Soldiers in an HBCT," continued from page 21)

Soldiers would be allowed at the lowest levels within maneuver elements. Many of the same Chemical Corps improvements that would be realized under the first possible course of action would also be realized under this one.

Given that the platoon would consist of CBRN Soldiers, platoon members would enjoy a much greater sense of belonging. They would generally be able to train as a unit. And under this course of action, CBRN Soldiers would do the same work within the HBCT and—at the same time—provide the HBCT commander with an additional asset. If necessary, the HBCT commander would also be able to use the consolidated platoon for alternate tasks—with very little impact on the HBCT companies.

Disadvantages: This course of action would provide the HBCT with a legitimate means of denying CBRN Soldiers the opportunity to perform CBRN jobs. In addition, although organized together, the platoon would still be separated; therefore, some of the benefits of unit cohesion would diminish.

Course of Action 3

A third possible course of action involves consolidating the HBCT CBRN Soldiers into two separate platoons. In addition to the same training and cohesion benefits described under the first two courses of action, this course of action would offer the Chemical Corps additional platoon leader and platoon sergeant slots. This, in turn, would allow the further development of Chemical Corps leadership. Under this course of action, one of the platoons could focus on reconnaissance and the other could focus on decontamination. This would offer the HBCT commander additional flexibility by providing two, smaller consolidated units with which to do as he pleased.

Disadvantages: The creation of two platoons, as opposed to one, would result in less unit cohesion for CBRN Soldiers. In addition, it would also be much easier for the commander to use the smaller units for any desired purpose—even if that purpose is not CBRN-related.

Conclusion

It is clear that the consolidation of CBRN Soldiers within the HBCT would be good for the Chemical Corps and the HBCT commander. Of the possible courses of action presented, I believe that the first is the best choice for the Chemical Corps. However, I believe that the second is the best choice for the HBCT commander; the second would also likely be the easiest to "sell" to the Army. The benefits of better training, greater flexibility, and improved unit cohesion greatly outweigh any manpower loss at the lowest levels. Therefore, the HBCT CBRN Soldiers should somehow be consolidated.

At the time this article was written, Captain Williams was a student in the CBRN Captain's Career Course at Fort Leonard Wood, Missouri.

Chemical Company Inactivates

By Major Donald R. Twiss

Twenty-nine years after its activation at Fort Hood, Texas, the 46th Chemical Company has furled its guidon until the unit is, once again, needed by the Army. The inactivation was a result of the reorganization of Army force structure and the shifting nature of full spectrum operations. Many former commanders and first sergeants of the 46th Chemical Company—as well as leaders from the 20th Support Command and the chemical, biological, radiological, nuclear, and high-yield explosives (CBRNE) community—attended the inactivation ceremony, held at Fort Hood on 15 October 2010.

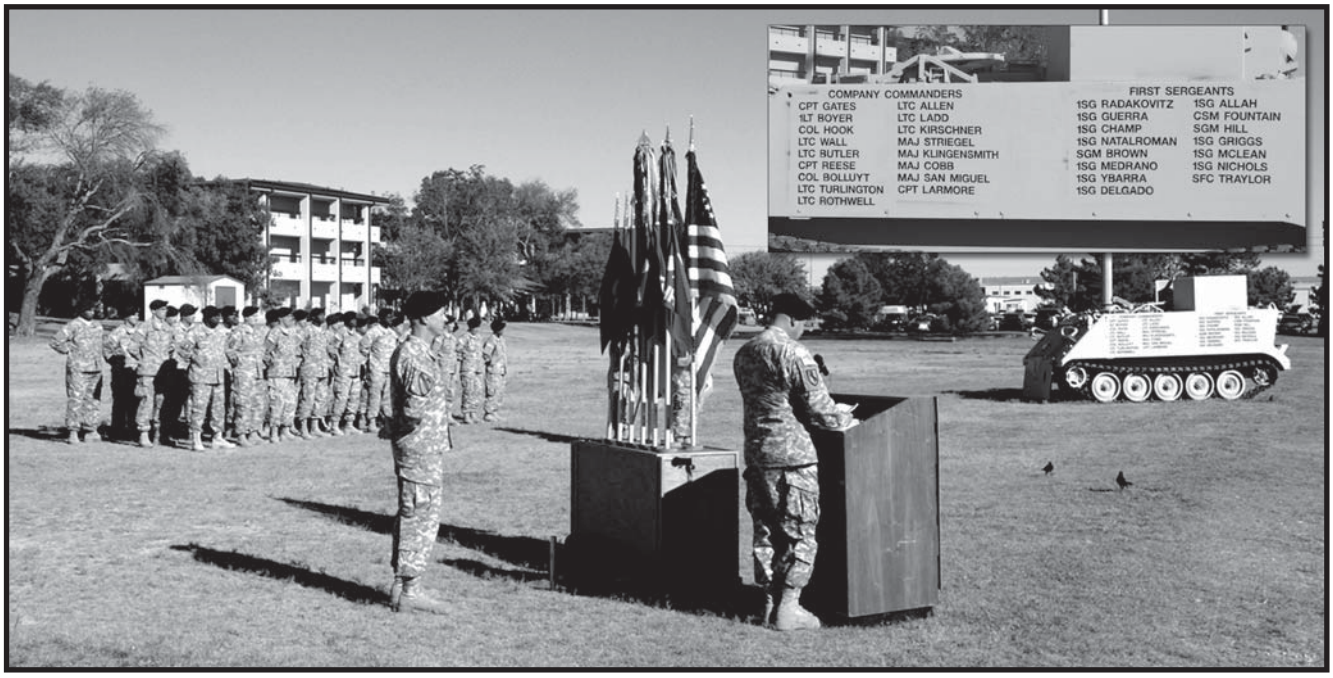
The 46th Chemical Company lineage dates back to March 1942, when it was activated to provide fire support to units deployed in the European theater of operations. In its most recent form as a mechanized smoke generator company, the 46th has deployed to Operation Desert Storm in support of the 3d Armored Division, Operation Iraqi Freedom in support of the 4th Infantry Division, and Operation Iraqi Freedom in support of the 142d Combat Support Battalion and Joint Special Operations Command.

During the inactivation ceremony, Captain Mike Larmore, the final company commander of the 46th, said, " . . . this was a dedicated and loyal unit. They understood that the mission we executed provided the ground force commander 143 multifunctional Soldiers to do a job that no one else either can do or is willing to do."

Lieutenant Colonel Christopher Cox, commander of the 2d Chemical Battalion, said, "Since 2d Chemical Battalion was reactivated in 1981 here at Fort Hood, 46th Chemical Company has been the cornerstone of our capability portfolio. The company always stood ready to provide large-area obscuration to our heavy formations during high-intensity conflict. The 46th leaves the Active Army rolls with multiple combat tours to the Central Command area of operations and has distinguished itself during every one of them." Lieutenant Colonel Cox also indicated that members of the 46th Chemical Company would be remembered for their discipline and readiness during the Cold War and for their courage during Operation Desert Storm and Operation Iraqi Freedom.

According to Captain Larmore, "Over the past six months, our Soldiers, as the company has gone through the inactivation process, have taken their skill sets forward to benefit units in every country around the world that you find a U.S. Soldier." He concluded the inactivation ceremony by saying, "Looking back at history, this unit has reorganized or inactivated five times. So, we aren't done yet; we are just taking a knee, drinking some water, and preparing for the follow-on mission."

Major Twiss is the executive officer, 2d Chemical Battalion, 48th Chemical Brigade, Fort Hood.



Soldiers stand in formation during the 46th Chemical Company inactivation ceremony. The inset shows a detail of the list of previous commanders and first sergeants.

Army Chemical Review Writer's Guide

Army Chemical Review is a professional-development bulletin designed to provide a forum for exchanging information and ideas within the Army chemical, biological, radiological, and nuclear (CBRN) community. We include articles by and about officers, enlisted Soldiers, warrant officers, Department of the Army civilian employees, and others. Writers may discuss training, current operations and exercises, doctrine, equipment, history, personal viewpoints, or other areas of general interest to CBRN Soldiers. Articles may share good ideas and lessons learned or explore better ways of doing things.

Articles should be concise, straightforward, and in the active voice. If they contain attributable information or quotations not referenced in the text, provide appropriate endnotes. The text length should not exceed 2,000 words (about eight double-spaced pages). Shorter, after-action type articles and reviews of books on CBRN topics are also welcome.

Include photographs (with captions) and/or line diagrams that illustrate information in the article. Please do not insert illustrations or photographs in the text; instead, send each of them as a separate file. Do not embed photographs in Microsoft PowerPoint or Word. If illustrations are in PowerPoint, avoid using excessive color and shading. Save digital images in a TIF or JPG format at a resolution no lower than 200 dpi. Images copied from a Web site must be accompanied by copyright permission.

Provide a short paragraph that summarizes the content of the article. Also include a short biography (full name, rank, current unit, job title, and education), your mailing address, a fax number, and a commercial daytime telephone number.

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Army Chemical Review is published biannually in June and December, and articles are due by 1 March and 1 September. Send submissions by e-mail to <*leon.mdotacr@conus.army.mil*>, or send an electronic copy in Microsoft Word on a compact disk and a double-spaced hard copy of the manuscript to—

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Note: Please indicate if your manuscript is being considered for publication elsewhere. Due to the limited space per issue, we usually do not print articles that have been accepted for publication by other Army venues.

Publication Information

U.S. Army Combined Arms Center
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Change 1 to FM 3-0, *Operations*
(Published 22 February 2011)

Change 1 to Field Manual (FM) 3-0 incorporates lessons learned from continuing operations and maturing discussions with regard to U.S. Army doctrine. Key changes include replacing "command and control" with "mission command" as an activity and warfighting function and replacing the five Army information tasks with "inform and influence" and "cyber/electromagnetic" activities. The manual also contains several other changes:

- Hybrid threats are addressed.
- Security force assistance is described under stability operations.
- Chemical, biological, radiological, nuclear, and high-yield explosives consequence management is an additional civil-support task.
- Design is included in Chapter 7.

An electronic copy of FM 3-0, Change 1 is available at <*http://usacac.army.mil/cac2/FM3-0/index.asp*>.

FM 7-0, *Training Units and Developing Leaders for Full Spectrum Operations*
(Published 23 February 2011)

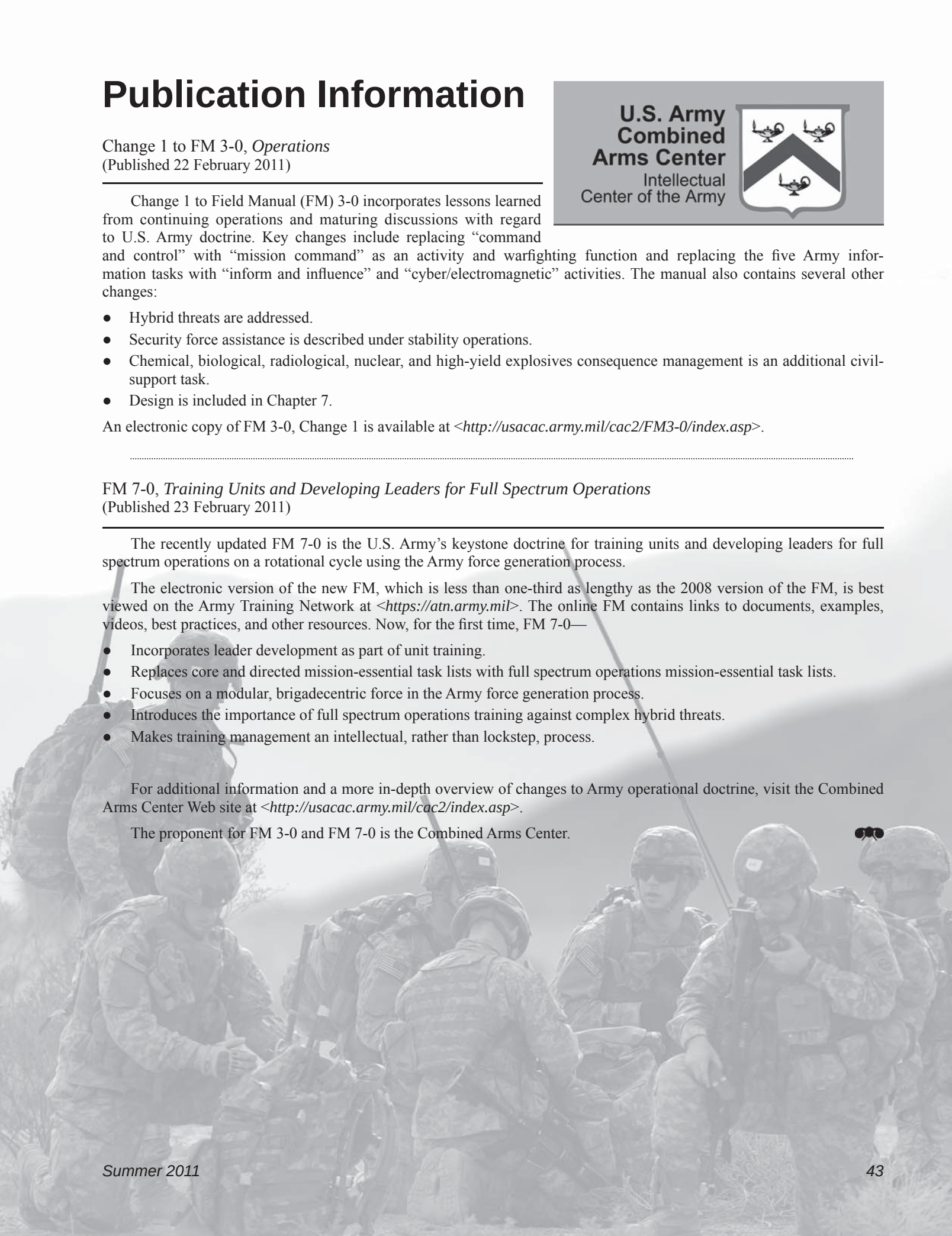
The recently updated FM 7-0 is the U.S. Army's keystone doctrine for training units and developing leaders for full spectrum operations on a rotational cycle using the Army force generation process.

The electronic version of the new FM, which is less than one-third as lengthy as the 2008 version of the FM, is best viewed on the Army Training Network at <*https://atn.army.mil*>. The online FM contains links to documents, examples, videos, best practices, and other resources. Now, for the first time, FM 7-0—

- Incorporates leader development as part of unit training.
- Replaces core and directed mission-essential task lists with full spectrum operations mission-essential task lists.
- Focuses on a modular, brigadecentric force in the Army force generation process.
- Introduces the importance of full spectrum operations training against complex hybrid threats.
- Makes training management an intellectual, rather than lockstep, process.

For additional information and a more in-depth overview of changes to Army operational doctrine, visit the Combined Arms Center Web site at <*http://usacac.army.mil/cac2/index.asp*>.

The proponent for FM 3-0 and FM 7-0 is the Combined Arms Center.



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U.S. Army Chemical Corps

Vision

The Chemical Regiment is a unique, professional corps of chemical, biological, radiological, and nuclear (CBRN) warriors, world renown in countering the entire range of CBRN threats and hazards.

Our versatile Soldiers and leaders are fully networked in the CBRN enterprise and operate in full spectrum, capable formations to protect the Nation.

Values

The Chemical Regiment is an innovative and adaptable force that is dedicated to meeting the CBRN hazmat needs of our Nation. We accomplish this by focusing on three priorities—taking care of our Soldiers, Civilians, and their Families; training as we fight; and maintaining our Regiment.

We are an enduring CBRN team that is committed to the profession of arms, Army values, Warrior Ethos, and the well-being of U.S. citizens.

We instill confidence in our national and international partners by providing credible CBRN technical expertise and remaining responsive and accountable to their needs.

We empower our people to do the right thing by encouraging candor and rewarding initiative. Although our professional CBRN family members are located in different organizations, we work together to accomplish the Chemical Corps mission.

Mission

The Chemical Regiment conducts CBRN operations to protect national interests at home and abroad.

End State

The Chemical Regiment is a professional corps of CBRN warriors—the world leader for CBRN and hazmat operations. It is capable of countering the entire range of CBRN threats and hazards, is equipped with enhanced CBRN capabilities to operate across the full spectrum of conflict, and is fully networked and integrated with the CBRN enterprise to protect the Nation and meet the challenges addressed in national strategies and guidance.

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