



(Photo by Sgt. Quanesha Deloach, U.S. Army)

Soldiers attached to 2nd Infantry Division destroy simulated chemical weapons manufacturing equipment 22 March 2016 during training near the Korean Demilitarized Zone in Black Hawk Village, Republic of Korea.

20th CBRNE Command

Organizing, Training, and Resourcing for Chemical, Biological, Radiological, Nuclear, and Explosives Operations

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In April 1980, a U.S. military operation of utmost strategic importance spectacularly failed before the entire world, bringing embarrassment to the United States, unease to our allies, and celebration to our adversaries. Eight Americans died without having ever been engaged by enemy forces in the operation that was aborted long before it was close to its objective. In the aftermath, Iranian television jubilantly showed the charred remains of the eight blackened American corpses during ensuing press conferences.

Operation Eagle Claw had aimed to rescue fifty-three Americans in two locations in the heart of Tehran who were taken hostage in the 1979 Iranian Revolution. This complex operation integrated operators from the Army, Marine Corps, Navy, Air Force, and different intelligence agencies; forty-four aircraft from the different services; thousands of gallons of fuel; and a convoy of vehicles for insertion into a hostile city of over four million people. Forward reconnaissance had marked two locations in the desert, known as Desert One and Desert Two, for aircraft to land. C-130 aircraft from the Air Force, loaded with the rescue force and fuel bladders, would rendezvous with Navy helicopters piloted by marines at Desert One, where they would conduct refuel operations without illumination. From Desert One, the eight helicopters would ferry the rescue force to Desert Two on the outskirts of the city, where vehicles would be covertly staged to begin the infiltration early in the morning to the locations harboring the hostages. Expecting a firefight once the Iranians became aware of the rescue attempt, helicopters would arrive at a nearby soccer stadium to exfiltrate the hostages and rescue force to a nearby airport seized by Army Rangers so that a second fleet of fixed-wing transports could fly everyone to freedom.¹

Leading up to Operation Eagle Claw, the teams involved from the different services and agencies had never operated together or conducted a full mission rehearsal. Mission command confusion and mission complexity contributed to the crash between a transport plane and helicopter resulting in American deaths, abandonment of equipment and sensitive information in the Iranian desert, and ultimately, the cancellation of the overall mission.

Analysis of the operation in its aftermath concluded that failure could largely be attributed to the services having brought together specialized, functional, stove-piped organizations on an ad hoc basis. Gen. Stanley McChrystal would later comment that, “At best, the plan was a series of difficult missions, each a variable

in a complex equation. At worst, with an ad hoc team, it called for a string of miracles.”² The needed miracles did not happen, and the resulting failure would forever change the way the United States approached organizing, training, and resourcing special operations.

Applying Lessons of the Past to Better Prepare for the Realities of the Operational Environment

This article examines the Army 20th Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Command’s efforts in 2014 to 2015 to organize, train, and resource for CBRNE operations in order to achieve the Nation’s weapons of mass destruction (WMD) and CBRNE objectives. These initiatives are a conscious effort to avoid ad hoc organizational solutions that could lead to mission failures similar to Operation Eagle Claw.

Given the nexus of ideology, technology, and CBRNE materials employed by state and nonstate actors, the authors offer that WMD may be better viewed as a subset of the more encompassing term CBRNE, which more accurately reflects anticipated mission sets and serves as a broader lens for force employment. We suggest that dealing with future operational environments in accordance with recently published strategic guidance would best be accomplished by reorganizing Army CBRNE forces and regionally aligning them in preparation to execute their critical mission sets.

Multifunctional CBRNE Task Force

In order to evaluate the possibility of effective multifunctional CBRNE formation employment, the 20th CBRNE Command developed and implemented a multifunctional CBRNE task force (TF) concept to synchronize the synergistic capabilities of our chemical, biological, radiological, and nuclear (CBRN) forces with those of our explosive ordnance disposal (EOD) forces and nuclear disablement teams. The CBRNE TF concept underwent continual evaluation at the Army’s combat training centers (CTCs) and during an Army-wide Network Integration Evaluation to identify critical capability gaps and challenges.³

To increase our understanding of those gaps, and to aid in the development of solutions for them, the CTCs provide an optimal tactical environment for assembling the CBRNE enterprise’s senior leadership as part of the 20th CBRNE Command’s “Scientists in the Foxhole”

initiative.⁴ This initiative is an immersive experience to better inform scientific research, technology acquisition, and policy formulation through observation of the execution of CBRNE operations in a multiechelon, field-training environment that includes a realistic replication of the full range of anticipated CBRNE hazards.

The CBRNE Strategic Landscape

Taking the strategic landscape of 1980 and applying it to today, one would be hard pressed to find a more “cannot fail” mission than countering weapons of mass destruction (CWMD). Nearly every strategic guidance document published identifying threats to the United States and its allies highly prioritizes CWMD as a clear requirement as known adversaries continue to pursue these types of capabilities.⁵ Whether those adversaries are criminals, terrorists, or nation-states, “increased access to expertise, materials, and technologies heightens the risk that these adversaries will seek, acquire, proliferate, and employ WMD.”⁶

Operational environment. With today’s unprecedented global interconnections and the ease of access and distribution of information and threat technology, potential CBRNE employment methods are much harder to contain, track, and therefore counter. The danger is also growing as regular and irregular forces, criminals, refugees, and other agents increasingly intermingle and interact among themselves internationally across traditional lines.

While WMD may elicit the notion of difficult-to-make-and-access nuclear or chemical weapons, many CBRNE hazards are commercially available, easily procured, and when coupled with a delivery means, can have WMD-scale devastating effects. Therefore, employing WMD, and more broadly CBRNE weapons, is no longer the sole purview of nation-states. In addition to a broad range of readily available conventional weapons, state and nonstate actors can select from an array of affordable technologies that can be adapted in unconventional ways. We should, therefore, anticipate that our adversaries will seek to develop and employ CBRNE capabilities to shape the operating environment by inflicting casualties, creating conditions to deter or defeat entry operations, and eroding public allied or coalition support together with the basic will to fight.



WMD and CBRNE terminology. Numerous organizations exist across the national security enterprise studying the CWMD problem set, with many varying nuances in their definitions of WMD. However, all have the same objectives of preventing WMD development and use, and preparing for consequence management.

The American public expects that its government and national security enterprise will be trained and organized correctly to meet any threat, regardless of how vast or complex. Also, there is the public’s expectation of rapid coalescing of capabilities to defeat, contain, or respond effectively to CBRNE threats to protect U.S. interests.

To apply the lessons learned from Operation Eagle Claw, it is paramount that we ensure that military forces and interagency partners responsible for confronting WMD (and more broadly CBRNE threats and hazards) are not ad hoc groups of functional, stovepiped organizations coming together on the objective without previous experience working together, but rather, are an integrated force continually training for and collectively organizing appropriately to respond.

Expanding the Scope of the Threat

The Department of Defense (DOD) defines WMD as “chemical, biological, radiological, or nuclear weapons or devices capable of a high order of destruction and/or causing mass casualties. This does not include the means



(Photo by Col. F. John Burpo, U.S. Army)

CBRNE leaders and scientists observe a simulated fuel rod enrichment facility during the Scientists in the Foxhole event November 2015 at the National Training Center, Fort Irwin, California.

of transporting or propelling the weapon where such a means is separable and divisible part of the weapon.”⁷ However, there is an increasing recognition of the expanded scope and impact of CBRNE threats and hazards. A 2014 CWMD white paper by the Army Capabilities Integration Center states, “the Army’s approach to CWMD is consistent with the DOD definition and includes the expanded scope of explosive threats resulting in a high order of destruction. This full range of CBRNE threats and hazards is representative of the combined arms approach for future force capabilities development.”⁸

In addition to broadening the scope of explosive yield considered, the full range of CBRNE threats and hazards is recommended as a broader umbrella concept for organizing, training, resourcing, and employing forces, where the WMD mission space exists as a subset of CBRNE. Including the range of low- to high-yield explosives to holistically characterize the current and future range of threats and hazards better captures the subset of critical tasks that EOD soldiers perform in operations, including unexploded ordnance disposal to improvised explosive device (IED) defeat. With this perspective, for the purposes of organizing

Army operations, the term represented by the acronym CBRNE should be used as the operative term that integrates and accounts more accurately for these threats and the capabilities needed to counter them.

These perspectives are drawn from the lessons learned from the Fukushima nuclear disaster in 2012 and multiple explosive attacks that include the 1993 New York City bombing of the World Trade Center, the 1995 Oklahoma City car bombing of the Alfred P. Murrah Federal Building, the 1996 truck bombing of the Khobar Tower military complex in Saudi Arabia, the October 2000 boat bombing of USS *Cole*, and the April 2013 Boston Marathon bombing.⁹

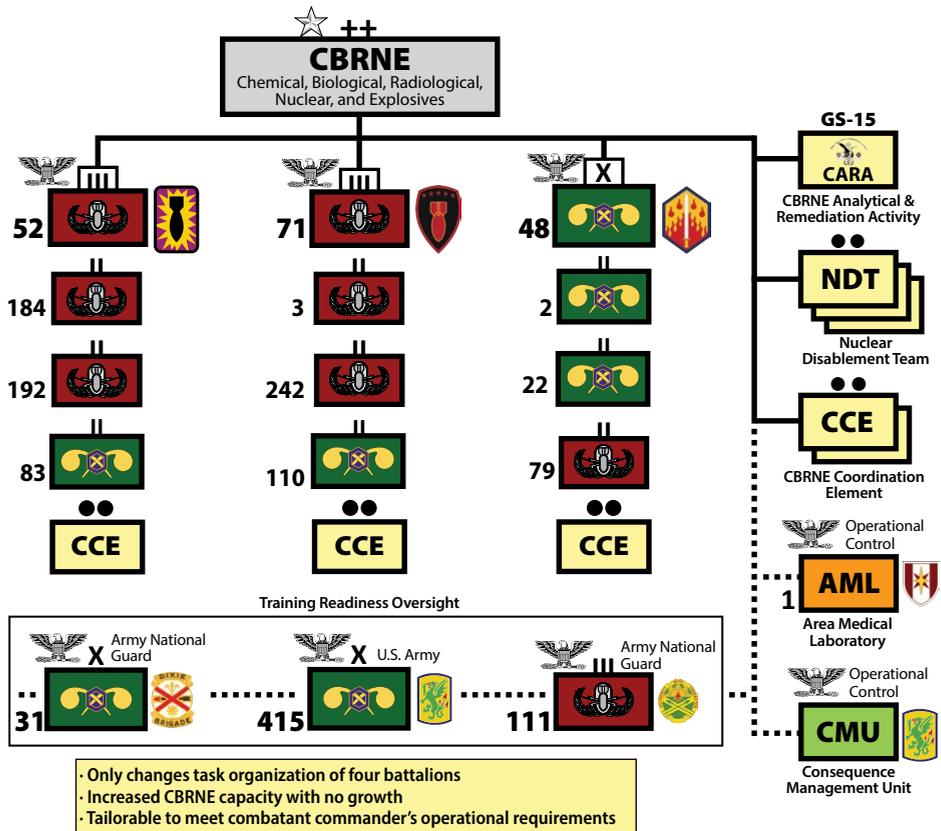
To further illustrate this point, explosives in the form of jet fuel, coupled with the delivery means of an airplane, exemplified a terrorist-delivered CBRNE event on 11 September 2001, with mass effects that would not otherwise be formally characterized as caused by a WMD under the DOD definition.

U.S. Army Training and Doctrine Command Pamphlet 525-7-19, *The United States Army Concept Capability Plan for Combating Weapons of Mass Destruction for the Future Modular Force, 2015-2024*, provides this discussion on the categorization of WMD:

Whether or not the definition of WMD, or a definition of CWMD, will eventually include all explosives, it is appropriate to acknowledge that future solutions developed in response to CWMD capability requirements must consider cross-utility for such things as explosives detection and forensic analysis of trace chemical residue. Any analytical capability developed for CBRN applications ought to consider the chemical nature of explosives as part of the requirement.¹⁰

With this expanded CBRNE/WMD perspective, state-sponsored nuclear and chemical WMD are considered here as a subset under the broader umbrella concept of CBRNE threats and hazards.

While difficulty in acquiring, developing, and delivering weapons increases from chemical to biological to radiological to nuclear, with low-yield explosives remaining cheap and easy, accelerating technological advancement enables a greater ease in the development and employment of not only single threat types but also more complex hybrid CBRNE threats delivered in parallel or serial within a given operational area.



(Graphic by Col. F. John Burpo, U.S. Army)

Figure 1. Proposed CBRNE Brigade Task Force Organization

In the same manner in which the 9/11 terrorists coupled innovative delivery means with a combustible fuel, we must anticipate unique and coupled delivery of multiple elements of the CBRNE threat spectrum. For example, IEDs are likely to remain a pervasive tactical threat, with the increasing ability to be employed simultaneously with other CBRNE components. Regardless, to successfully defeat the simultaneous presentation of various types of CBRNE threats within an operational area requires unity of command and unity of effort of special purpose, highly technical forces to appropriately synchronize an effective response. Ad hoc solutions will not work.

Current Organizational Challenges and Deficiencies

The 20th CBRNE Command comprises the majority of active component EOD and CBRN units, and these units are currently organized functionally into three brigade-level commands. The 20th CBRNE Command's mission requires the unit to deploy forces to support unified land operations and perform mission command

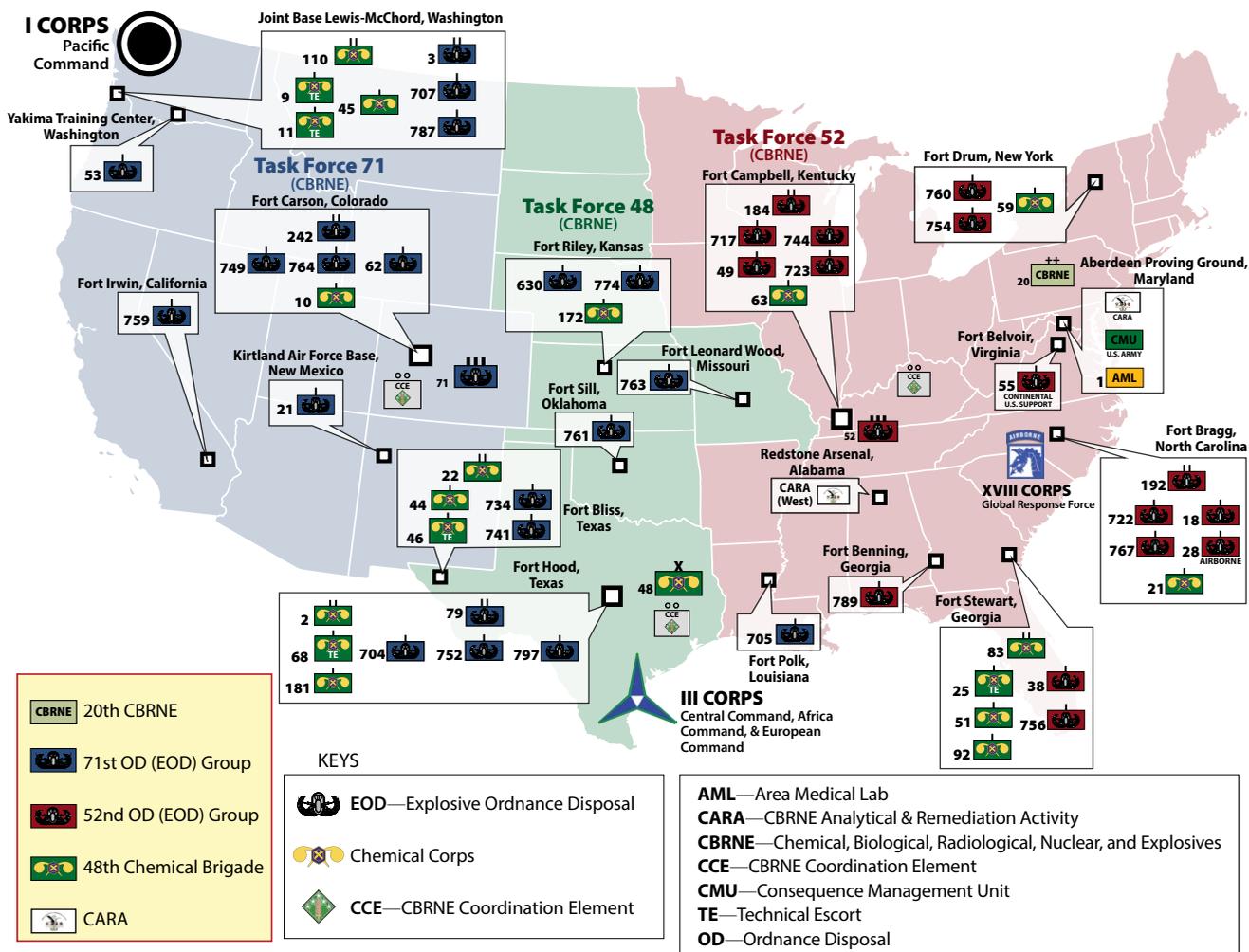
for Army or joint CBRN operations, and to provide EOD forces to achieve national CWMD, homeland defense, and defense-support-of-civil-authorities objectives, while providing globally responsive CBRN and EOD forces to combatant commands.¹¹

In support of the mission, the current functional organization of the command does not capitalize on overlapping CBRN and EOD mission areas or core capabilities, nor are any of the subordinate formation's efforts focused on any specific global region. Therefore, the distributed nature of the command across sixteen states and nineteen installations creates inefficiencies in the execution of mission command, impacts negatively on readiness, and leads to ad hoc solutions when considering how to best resource emergent contingencies that call for the simultaneous employment of EOD and CBRN forces.

- Three all-CBRNE-hazards-capable CBRNE brigade task forces
- Each CBRNE brigade task force regionally aligned with one of the three CONUS-based Army corps
- Each CBRNE brigade task force enabled with a CBRNE coordination element

Proposed Task Organization:

- ✓ Does not require any modified table of organization and equipment changes and can be achieved without any growth in authorizations
- ✓ Enables unity of command by reducing disparate command relationships across dispersed formation
- ✓ Provides unity of effort and increases ability to project integrated CBRNE capability
- ✓ Enables projection of mission command by echelon to assure proper employment and integration of CBRNE forces
- ✓ Does not impact ongoing defense support of civil authorities or special operations forces support missions
- ✓ Enables regional alignment consistent with Department of the Army and U.S. Army Forces Command directives
- ✓ Achieves and ensures necessary technical oversight requirements



(Graphic by Col. F. John Burpo, U.S. Army)

Figure 2. CBRNE Brigade Task Force Regional Alignment: Unity of Command and Unity of Effort

Reorganizing CBRNE Task Forces for Improved Efficiency

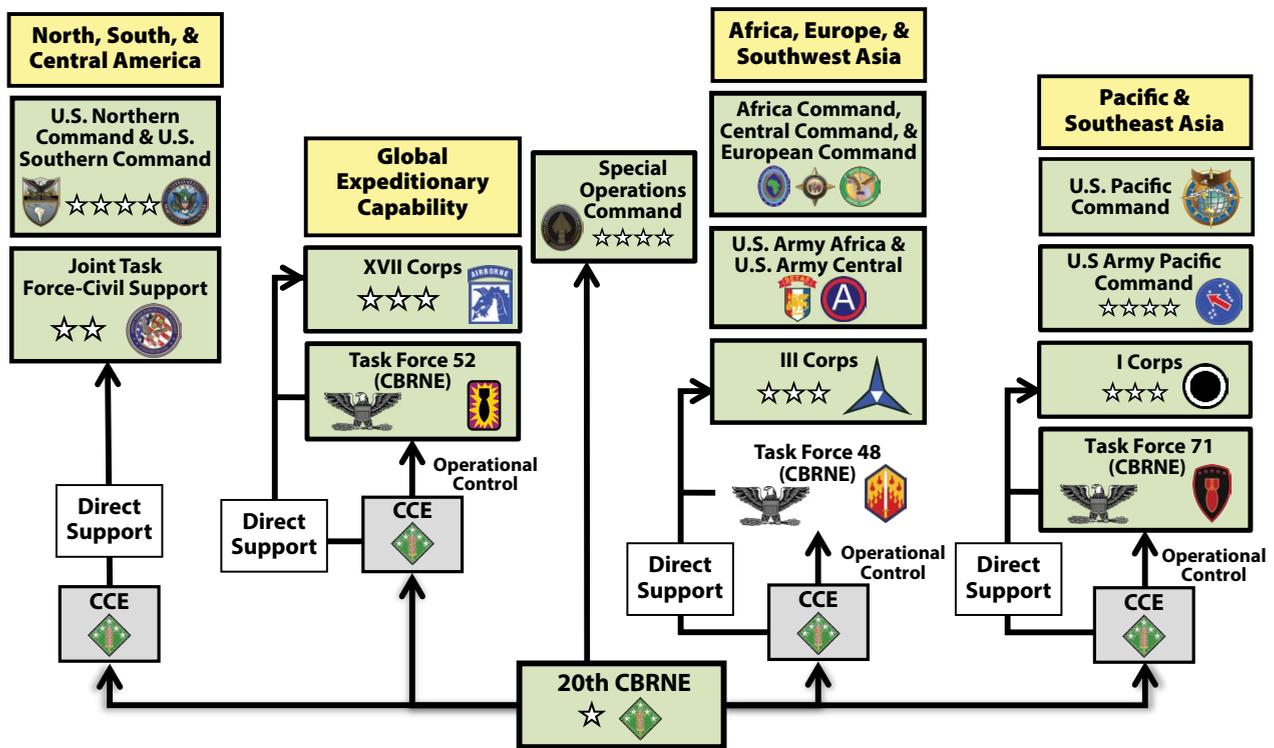
We offer that to operate effectively across the CBRNE spectrum, the Army must broaden the historically limiting view of the 20th CBRNE Command as focused only on CWMD and counter-IED operations. It must be available for employment across the full range of CBRNE threats and hazards and across the full range of military operations. Rather than viewing the operational environment through a narrow CWMD lens, analyzing problems through a wider CBRNE perspective better illuminates challenges and opportunities, and it leverages the full capability of the command.

For example, recent deployment of the 20th CBRNE Command’s area medical lab in support of Operation United Assistance, the response to the Ebola

crises in West Africa, illustrates an example of CBRNE force employment that would have been precluded based on a strictly WMD employment mindset.

We propose that to meet similar future challenges emerging from the rapidly changing strategic environment, as well as the intent of the *Quadrennial Defense Review* and the directives of the *Army Strategic Planning Guidance*, by task-organizing the functionally organized command into three multifunctional CBRNE brigade TFs.¹² Each TF would be enabled with robust CBRNE planning and coordinating expertise and technical reach-back capabilities provided by an aligned CBRNE coordination element (see figure 1).

Establishing unity of command, defining clear objectives, and employing maneuver to capitalize on the flexible application of power are battle proven remedies



Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE)

(Graphic by Col. F. John Burpo, U.S. Army)

Figure 3. Regional Alignment Construct

for complex challenges. Reorganizing the 20th CBRNE Command to create three multifunctional, regionally focused CBRNE brigade TFs will ensure that the Army has ready, reliable, and globally responsive CBRNE capabilities to meet the challenges of the current and future strategic environments.

Reorganizing the command from its current configuration of one CBRN brigade and two EOD groups into three similarly organized CBRNE brigade formations would result in an immediate increase in national capacity, with zero growth in personnel.

Whether for training or contingency operations, or as enduring organizations, task-organizing into three regionally aligned multifunctional CBRNE brigade TFs would ensure that these forces are properly organized, focused, positioned, and prepared to respond globally to ever-evolving CBRNE threats.

This adjustment to mission command can be achieved with no physical relocation of units, and it would immediately deliver more flexible and capable regionally focused CBRNE forces. Given the anticipated reductions of EOD force structure due to Total Army Analysis 18-22, the proposal would mitigate the

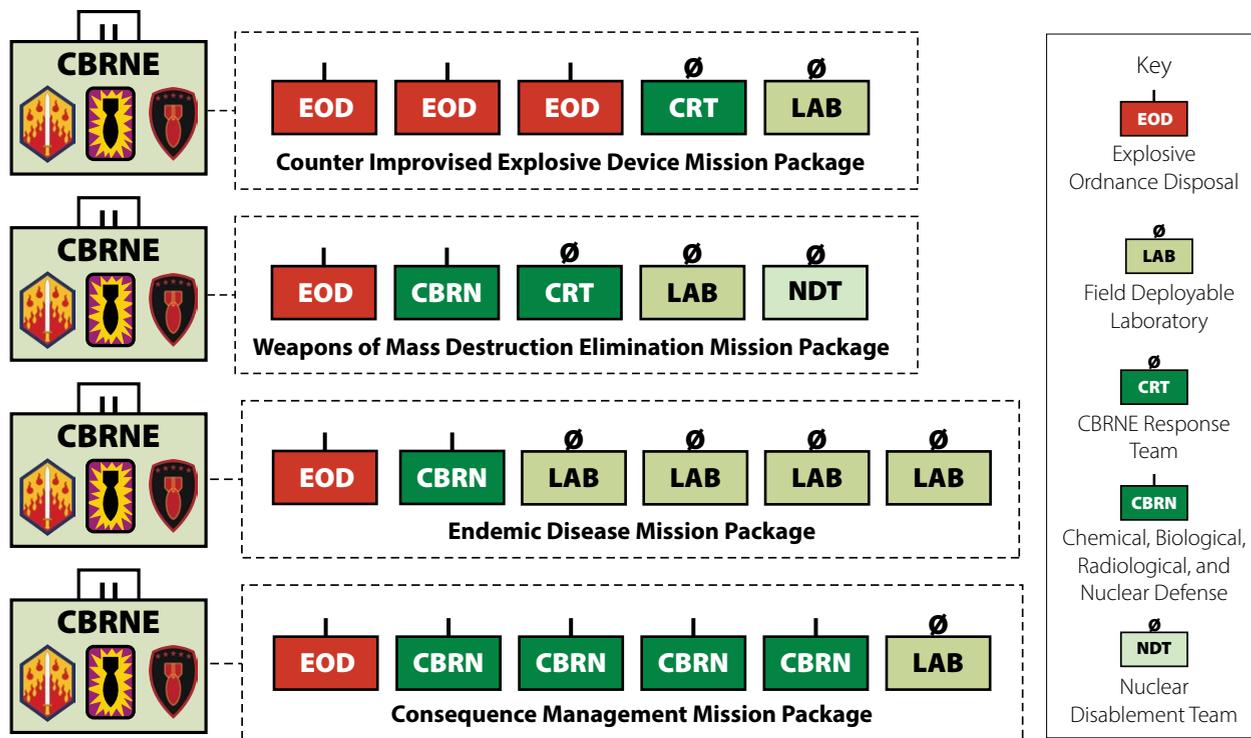
challenges of historical ad hoc solutions to similar and anticipated future mission sets and it would overcome the command's current unity of command and unity of effort challenges resulting from the widely distributed basing construct and complex mission profiles.

For the supported commanders, task-organizing the command would resolve the issue of disparate command and support relationships of CBRNE forces throughout the formation by assembling them under a single O-6 commander and integrated staff.

Regional Alignment of CBRNE Brigade Task Forces

The CBRNE brigade TF concept (henceforth referred to as a CBRNE brigade) would enable the packaging of trained and ready CBRNE forces under one commander. This would increase mission command effectiveness and reduce the impromptu relationships reminiscent of ad hoc planning for Operation Eagle Claw.

Each CBRNE brigade would be regionally aligned with the Army service component commands, and in support of the three Army corps based in the continental United States (CONUS) in accordance with the Army's regional



The Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Battalion Task Force is **TAILORABLE** and **SCALABLE**, providing integrated CBRNE capability with a mission command element to the supported commander.

(Graphic by Col. F. John Burpo, U.S. Army)

Figure 4. Potential Integrated CBRNE Mission Packages

alignment of forces concept (see figures 2 and 3).¹³ TF 71 (CBRNE), positioned in the western United States, would align in general support of I Corps with a focus on the U.S. Pacific Command area of responsibility (AOR). TF 48 (CBRNE), positioned in the central United States in general support of III Corps, would focus on the U.S. Central Command, U.S. Africa Command, and U.S. European Command AORs. TF 52 (CBRNE), located in the eastern United States, would align in general support of XVIII Airborne Corps and their global response force mission.

Task-organizing and regionally aligning the 20th CBRNE Command's subordinate formations would markedly improve readiness through unity of command, unity of effort, and increased "train as you intend to fight" familiarity between 20th CBRNE and supported forces. By focusing efforts regionally and aligning in support of the Army service component commands through the three CONUS-based corps, the command would be better prepared to fulfill its expeditionary mission requirements without relying on traditional ad hoc solutions.

Through task organization, the leaders, soldiers, and civilians of the 20th CBRNE Command would become

better informed about their potential primary operational environment and better able to train habitually with their supported maneuver formations. This, in turn, would increase interoperability and enhance examination of specific regional threats, from current combat operations to the entire range of threats found across the combatant commands.

CBRNE Task Forces at the Combat Training Centers

To test the CBRNE TF concept, the 20th CBRNE Command organized and employed different configurations of CBRNE battalion-task-force formations in support of brigade combat teams during nine CTC rotations in fiscal years 14 and 15. Additional rotations are planned for fiscal years 16 and 17. Both CBRN and EOD battalions have served as the integrating headquarters under which CBRN, EOD, and CBRNE response teams; nuclear disablement teams; and expeditionary laboratories have been assembled.

CBRNE TFs can be scaled and tailored across a range of possible contingency operations as shown in

figure 4. These mission-tailored CBRNE TFs provide the supported commander a “single point of touch” to plan and execute interrelated CBRNE mission sets, allowing for effective mission command of technical forces on CBRNE target sites.

To increase training realism, the 20th CBRNE Command collaborated with the National Training Center, the Joint Readiness Training Center, and the Brigade Modernization Command at Fort Bliss, Texas, to build an array of new CBRNE target sites. With equipment transfers from Oak Ridge National Laboratory and other interagency partners, these targets replicated an unprecedented degree of CBRNE training realism.

When mission sets and training objectives warrant the employment of CBRNE TFs, the training relationships and lessons learned are invaluable to operationalizing the force. They serve as a foundation for future concept development.

Resourcing—Scientists in the Foxhole and Advanced Technology Demonstration

Given the 20th CBRNE Command’s multiple proponents that oversee interrelated CBRNE force doctrine, training, and resourcing issues—including the CBRN School, the EOD Directorate, and the U.S. Army Nuclear and Combating WMD Agency (USANCA)—a holistic enterprise solution is required. To facilitate that approach, the 20th CBRNE command, in collaboration with the Defense Threat Reduction Agency, organized a “Scientists in the Foxhole” initiative.¹⁴ This effort assembled senior leaders throughout the CBRNE enterprise, to include representatives from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; the Defense Threat Reduction Agency; the Joint Requirements Oversight Council; Headquarters, Department of the Army G-8; U.S. Army Forces Command; the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD); Research and Development Command; the Edgewood Chemical Biological Center; USANCA; and the EOD Directorate. The program provides senior leaders and scientists from the CBRNE enterprise an opportunity to meet with and observe soldiers and civilians conducting CBRNE tactical operations in a live force-on-force training environment.

These type of engagements serve to assist CBRNE enterprise leadership in recognizing and articulating capability gaps and defining potential materiel and nonmateriel solutions to enable the Nation’s CBRNE capabilities. For example, JPEO-CBD, in partnership with the 20th CBRNE Command and many of these same enterprise partners, is leading an advanced technology demonstration to accelerate technology development and implementation and address multiple operational issues while gaining efficiencies in materiel and nonmateriel solutions.¹⁵

This enterprise approach to holistically and more rapidly resource capability gaps and requirements allows the Army and the joint force to better resource an integrated, combined arms approach to combating CBRNE threats.

Impacts: The Way Forward

Organizing the functional subordinate formations of the 20th CBRNE Command into three multifunctional, regionally aligned CBRNE brigades is an important step in meeting the Army’s strategic planning guidance for this one-of-a-kind formation. This reorganization provides the Army and the Nation with an immediately improved solution, with no growth and no physical relocation of units, for delivering integrated CBRNE capacity to meet expeditionary and campaign requirements.

The expanded definition of CBRNE threats and hazards, with WMD and CWMD missions as a subset, facilitates a more expansive understanding of the operational environment and better informs the analysis of potential geographic regions that would require the employment of the command or its subordinate elements. Continued training and validation of the multifunctional CBRNE TF construct at CTCs, in concert with innovative enterprise efforts such as the Scientists in the Foxhole and Advanced Technology Demonstrations, ensure that the Nation’s CBRNE forces are properly organized, trained, and resourced for mission success, avoiding ad hoc organizational failures such as those seen in Operation Eagle Claw.

It is imperative that the 20th CBRNE Command provide the Army and the Nation with ready, reliable, and globally responsive integrated CBRNE forces capable of leading and executing CBRNE operations and activities anytime and anywhere. Task-organizing the command better enables that end state through unity of command, unity of effort, and a regional focus accounting for all CBRNE hazards, to better inform our training and equipping strategies. ■

Biographies

Brig. Gen. James B. Burton, U.S. Army, retired, is the former commanding general of the 20th CBRNE Command, Aberdeen Proving Ground, Maryland. He has commanded at every echelon, including commanding a mechanized combined-arms team during Operations Desert Shield and Desert Storm; 2nd Battalion, 5th Cavalry, in Kuwait during Operation Intrinsic Action; and the 2nd Brigade Combat Team of the 1st Infantry Division in Baghdad, Iraq. He previously served as deputy commanding general for maneuver of the 2nd Infantry Division. He received an MMAS from the U.S. Army Command and General Staff College and an MA in national security and strategic studies from the Naval War College.

Col. F. John Burpo, U.S. Army, is the deputy department head for the Department of Chemistry and Life Science at the United States Military Academy, West Point, New York, and the former deputy commander for transformation in the 20th CBRNE Command. He received a ScD in bioengineering from Massachusetts Institute of Technology, an MS in chemical engineering from Stanford University, and a BS in mechanical-aerospace engineering from West Point. He has served in airborne, armor, and Stryker units with humanitarian, peacekeeping, and combat operational deployments to Rwanda, Bosnia, and Iraq.

Capt. Kevin A. Garcia, U.S. Army, is a cavalry officer serving in Central America engaged in counternarcotic/countertransnational organized crime efforts. He received a BA from the University of Notre Dame and an MS in organizational leadership from Columbus State University. He previously served as a platoon leader in Iraq with the 3rd Armored Cavalry Regiment, and as an aide-de-camp in the 2nd Infantry Division and in the 20th CBRNE Command.

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