The CBRN Search: A Different Perspective on the Employment of Modern Chemical, Biological, and Radiological Detection and Analytical Equipment

By Mr. Peter G. Schulze

There has been a long doctrinal history of nuclear, biological, and chemical (NBC) reconnaissance—now referred to as chemical, biological, radiological, and nuclear (CBRN) reconnaissance—within the U.S. Army and the Chemical Corps. As early as 1935, the need to identify, mark, and avoid contaminated areas was discussed in Chemical Warfare School publications.[1] Just before World War II, the U.S. War Department promulgated Field Manual (FM) 21-40, *Defense Against Chemical Attack*—a document that associated the concept of traditional reconnaissance with the establishment of a chemical defensive posture and the ability to rapidly recover from an attack to continue offensive operations.[2] During the 1980s, NBC reconnaissance was refined and incorporated into a set of common and specialized Soldier skills associated with passive defense measures that were designed to sustain continuous operations and maneuvers during and against a massive Soviet Bloc attack. Today, CBRN reconnaissance remains articulated within the context and limitations of passive defense; there has been no fundamental change since before World War II. However, the movement toward the "rapid" and evolving acquisition of modern detection and analytical equipment sets and the need for an Army that is capable of simultaneous offensive, defensive, and stability or defense support to civil authorities operations has created new complexities and challenges for a Corps that has been organized, trained, and educated around the historical paradigm of passive CBRN defense. In light of the increased capability of the Chemical Corps to detect and analyze hazards, CBRN reconnaissance tactics, techniques, and procedures (hereafter simply referred to as "techniques") must be intellectually reviewed and potentially revised to complement the Army's core competencies of combined arms maneuver and wide-area security, while also supporting the National Strategy to Combat Weapons of Mass Destruction (WMD).[3]

Defining the Problem

The central theme of U.S. Army Training and Doctrine Command (TRADOC) Pamphlet (Pam) 525-3-1, *The United States Army Operating Concept*, is the development of operationally adaptable forces that are capable of combined arms maneuver and wide-area security within the context of joint, interagency, intergovernmental, and multinational efforts.[4] Throughout the past few years, CBRN doctrine has evolved to support this theme within the context of the *National Strategy to Combat WMD*. The shift in capstone CBRN doctrine from a passive defense-centric model to one centered on the *National Strategy to Combat WMD* was timely and relevant to experts who were concerned with the evolving strategic threats associated with WMD. However, for those engaged in the current armed conflict, many of the underlying techniques associated with CBRN doctrine continue to be disconnected from tactical reality.

In the most recent working draft of Technical Manual (TM) 3-11.37, *Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Reconnaissance and Surveillance*, CBRN reconnaissance operations are defined as " . . . those operations undertaken to obtain, by visual observation or other detection methods, information on the potential or actual CBRN hazards and threats in an area of operations." This definition and the one currently contained in FM 3-11.19, *Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Reconnaissance*, remain connected to the intellectual framework of traditional NBC warfare threats.[5] While doctrinally consistent, these definitions fail to communicate—from a layperson's perspective—how CBRN capabilities support the operational commander who is concerned with maintaining situational awareness regarding ongoing or current hybrid threats within his area of operations. In addition, the techniques associated with CBRN dismounted reconnaissance in the approved version and the draft revision are very similar to those used for the historical NBC reconnaissance purposes of identifying, marking, avoiding, and reporting of contaminated areas. These techniques do not support the combined arms synergy needed to facilitate an understanding of the operating environment, enemy clandestine activities, and civil and environmental considerations in support of military operations. In addition, they fail to address how the dismounted employment of emerging technological solutions can support a robust operational awareness of clandestine explosive manufacturing activities and other potential warfighter hazards.

> In our tactical forces, we have built-in organizational flexibility. We must recognize this and capitalize on it in our orders. To get maximum combat power, we must have plans flexible enough to meet rapidly changing situations; but careful planning is not enough. This must be coupled with the readiness to change and adapt to situations *as they are*, not as they *were expected to be*.
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> —General Bruce C. Clarke[6]

The dismounted CBRN reconnaissance construct remains a valuable common Soldier and specialized technique required to protect the force during unified land operations. However, this technique alone cannot be used to adequately address the employment of specialized technology designed to detect and analyze the full range of chemical, biological, and radiological hazards and explosive precursors. The addition of this highly specialized equipment within a traditional employment construct has created what is often referred to as a "technology facade," which is the use or integration of technology without the benefit of the dogma, terminology, or infrastructure necessary to support its application as a viable strategy.[7]

When a collective group of individuals subconsciously holds onto familiar dogma solely because it has long been held to be true or holds onto existing terminology solely because it is comfortable, there is a limiting effect. Our continued insistence on, and application of, techniques designed to detect, mark, and avoid traditional chemical contamination has caused the Chemical Corps to fall victim to the common fallacy of *argumentum ad antiquitam,* or "appeal to tradition." This philosophy has limited our perspective and has hidden from the operational commander's view our potential, as part of a combined arms team, to directly contribute to countering future hybrid threats and current clandestine activities associated with the manufacture of homemade explosives—now the most common threat facing our force.

The enemy use of existing battlefield, industrial, and commercial improvised material, including chemical precursors and associated nontraditional materials used for the production of homemade devices and explosives, has been an ongoing issue for many years. Entirely new organizations, such as the Joint Improvised Explosive Device Defeat Organization and the Counter Explosive Hazards Center, were established to deal with this threat. In addition, TRADOC approved a standardized, integrated program for counter improvised explosive device (IED) training and education and mandated common skills training in the institution and in support of predeployment efforts.[8] At about the same time, the U.S. Army Chemical School changed its name, mission, vision, doctrine, and focus to encompass CBRN operations that span the entire range of CBRN hazards. In March 2007, the U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) received international recognition and accreditation to train and certify specialists in safe operations across the entire range of hazmat. In support of emerging CBRN operations, the Joint Program Executive Office for Chemical and Biological Defense initiated plans to acquire sets, kits, and outfits designed to detect and analyze a significantly wider array of CBRN hazards (including explosives and explosive precursors) than previously attempted. Despite these changes, we continue to limit our capabilities by exclusively clinging to techniques that were designed to protect the force from a massive chemical or nuclear attack and by our inability to communicate our capabilities in common warfighter terminology.

Developing the Solution

To succeed in this increasingly competitive environment, the Army expects our leaders and organizations to understand and adapt to situations more quickly than our adversaries do. Accordingly, the USACBRNS must place a renewed emphasis on new techniques, training, education, and leader development to produce a new generation of Soldiers and leaders who are capable of succeeding in the face of uncertainty and effectively employing emerging technologies outside traditional areas of comfort. To conduct simultaneous offensive, defensive, and stability or defense support to civil authorities operations and rapidly transition from one type of operation to another (including operations that support a commander's ability to gain complete knowledge of his entire area of operations), our forces must change long-held concepts and adapt to current and future operational environments.[9] Although dismounted route, area, and zone CBRN reconnaissance remains a valuable aspect of the protection warfighting function, it is unclear where reconnaissance ends and other activities begin that can maximize the entire array of technological solutions available to the CBRN specialist.

One concept that can be used to support the commander's situational awareness is *military search*. This concept, which has already been described in various doctrinal publications, has the best potential for creating the combined arms synergy needed to facilitate an understanding of the operating environment and enemy clandestine activities and for maximizing the emerging technological solutions fielded to CBRN units now and into the future. There are various search levels within military operations.[10] A *CBRN search* is an advanced form of search that requires a specialized team and equipment. An *advanced search* is a deliberate, preplanned operation undertaken when specific intelligence indicates the presence of chemical, biological, or radiological material; hazmat; explosive or hazardous-device precursors; or environmental hazards. Military personnel who are members of advanced search teams typically receive the most advanced levels of training to learn new techniques, acquire unique skills, and prepare for the increased risks associated with advanced searches.

The term *CBRN search* (or, alternatively, another term that is consistent with emerging doctrine) should be defined as "the planned, systematic, tactical assessment of a site where some form of clandestine activity, natural

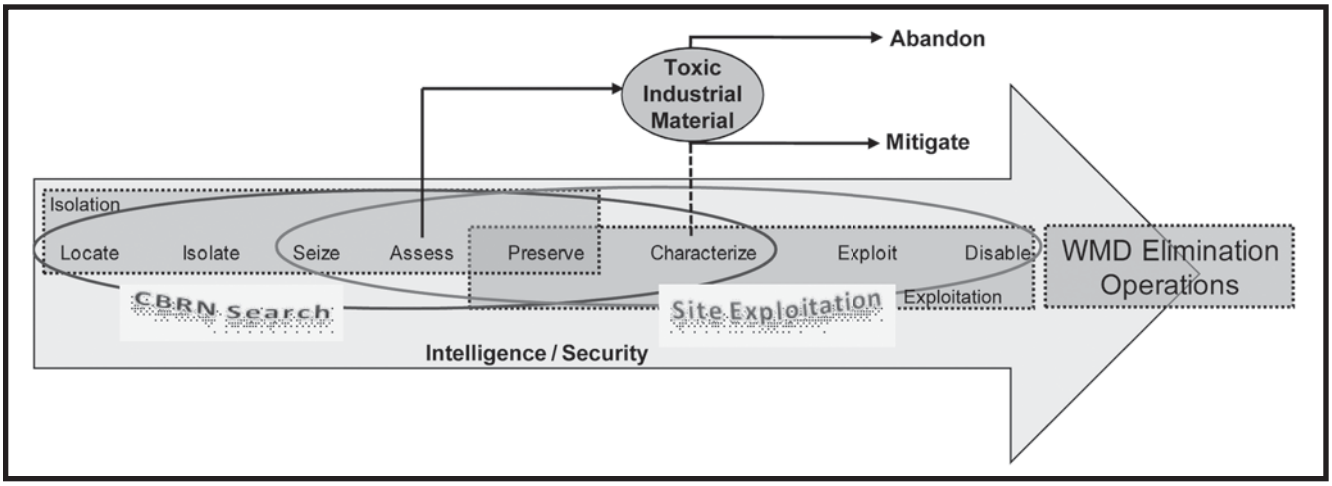

Figure 1. Role of CBRN search in WMD elimination operations

or man-made incident, or contamination has occurred or is suspected, with the objective of locating, assessing, and documenting suspected CBRN substances, material, or facilities." CBRN substances and material include chemical, biological, and radiological manufacturing and homemade explosives precursors, waste, and by-products; processing, production, and weaponization equipment; and postevent and postproduction residues and hazards. A CBRN search, which is typically conducted with a combined arms team of specialists, may involve the application of specialized tools and techniques and may be conducted in several phases. The search is conducted in conjunction with—or as a result of—operations at brigade level or below, in response to accidental or deliberate tactical or domestic CBRN events, or in response to an actual or suspected spill or other unplanned release.

CBRN search operations are planned and executed to substantiate the presence of suspected materiel and to protect and preserve sites if necessary. In addition, CBRN searches may prompt or complement more extensive law enforcement and exploitation actions. The results of a CBRN search support the tactical commander's determination regarding whether threats, hazards, information, personnel, or material associated with a site warrant any further action.

CBRN searches complement and are consistent with many of the basic tactical activities that comprise WMD-elimination operations. Within the WMD-elimination construct, CBRN searches support the techniques required to secure and assess suspected sites, materials, equipment, and personnel as illustrated in Figure 1. In transitioning from search activities to exploitation activities, more specialized teams assume a greater responsibility for the mission. These teams may be comprised of military intelligence, military police, explosive ordnance disposal, engineer, or CBRN (technical escort or special-operations forces) personnel or other government agencies.

Summary

The term *CBRN search* may or may not be the appropriate term to describe the techniques required to support current operations; however, the USACBRNS and the Chemical Regiment need to review, reconsider and, if necessary, modify our techniques to support simultaneous offensive, defensive, and stability or defense support to civil authorities operations. It is not enough to change overarching doctrine, thereby "making" the Chemical Corps relevant; our techniques must directly impact current and future operations. Properly developed and communicated, CBRN search could be the first of many critical changes needed to support unified land operations today and into the future.

While the doctrinal transition from a purely passive CBRN defense perspective to one that encompasses the full range of CBRN operations is apparent and relevant to CBRN experts, there is still a procedural gap with regard to how CBRN elements and personnel can support current operations from a warfighter perspective. As members of the CBRN community, we must ask ourselves tough questions about how we coordinate and communicate CBRN capability and adaptability using a common language. How do we dismantle the intellectual and organizational stovepipes of the Chemical Corps and provide the synergy needed to contribute tactically to known operational and environmental threats from a combined arms perspective? How can CBRN specialists apply techniques and leverage complex technology designed to detect and analyze the full range of chemical, biological, and radiological hazards and explosive precursors to close known gaps against the most common threat our Soldiers face today and will face in the future?

Endnotes:

[1]*Protection Against Chemical Warfare*, Book 5, the Chemical Warfare School, October 1935.

[2]FM 21-40, *Defense Against Chemical Attack*, 1 May 1940.

[3]Homeland Security Presidential Directive (HSPD) 4, *National Strategy to Combat Weapons of Mass Destruction*, December 2002.

[4]TRADOC Pam 525-3-1, *The United States Army Operating Concept: 2016–2028*, 19 August 2010.

[5]FM 3-11.19, *Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Reconnaissance*, 30 July 2004 (with Change 1, 31 December 2008).

[6]Bruce C. Clarke, "Mission-Type Orders," *Military Review*, September 1961.

[7]Lawrence A. Tomei, *The Technology Facade: Overcoming Barriers to Effective Instructional Technology*, Allyn & Bacon Publisher, Boston, 2002.

[8]Dorian D'Aria and Tahnee L. Moore, "Adapting the Army: Institutionalizing Counter-IED Training Efforts," *Engineer: The Professional Bulletin of Army Engineers*, January–April 2010.

[9]TRADOC Pam 525-3-1, 19 August 2010.

[10]Iain Church, "Counter Explosive Hazards Center," *Engineer: The Professional Bulletin of Army Engineers*, October–December 2005.

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