Homemade Explosives and Hazardous Materials

By Major Jim Hartman

Recent experience in supporting explosive ordnance disposal (EOD) operations in Iraq has highlighted the urgent need for predeployment training on hazardous materials (HAZMAT). An increase in the number of homemade explosives (HMEs) in Iraq has resulted in an increase in the amount of HME ingredients that Soldiers encounter in cache clearance. These ingredients include substances such as nitric acid, sodium cyanide, and sodium arsenate. Caches generally contain significant amounts of HAZMAT. For example, a recent find contained more than 1,000 gallons of nitric acid in partially buried, 5-gallon containers; nearly half of these containers were leaking. It is often necessary to move leaking containers to destroy HMEs and ordnance stored in the cache. In many instances, containers are stored in confined spaces where fumes can collect in dangerous concentrations.

The approved technique for disposing of HAZMAT associated with HMEs is to secure the site and commit the Multinational Corps–Iraq (MNC-I) HAZMAT platoon. The platoon consists of Chemical Soldiers who are specially trained and equipped to deal with HAZMAT. They do a fantastic job of removing undamaged containers and preparing damaged containers for transport and disposal. The HAZMAT platoon has recovered and overpacked more than 6,000 gallons of nitric acid and numerous other HME precursor chemicals throughout its tour. The platoon is generally capable of completely mitigating a hazard in 48 hours or less.

Although securing the site and using specially trained Chemical Soldiers is the safest way to reduce a hazard, alternate methods are required when there is an unstable HME in close proximity to the HAZMAT. This is very common in HME production facilities in Baghdad. The presence of an unstable HME requires that an EOD operator enter the area, assess the situation, and mitigate the explosive hazard. There are a number of techniques that can be used to accomplish the task; however, they all require that the EOD operator be exposed to potentially hazardous fumes. EOD operators currently receive very little training on the identification of hazards and associated risks. The Soldiers in the field are doing a great job of locating HME factories, and the HAZMAT platoon is getting the site mitigation job done. We just need to better educate and equip personnel to decrease hazards.

The Army is making great strides in solving this problem, but we can still do more. Oxygen monitors that enable Soldiers to assess the risk of entering a room are being procured, and predeployment HME training is being integrated into Bureau of Alcohol, Tobacco, and Firearms post-blast schools. Hopefully, an M40 protective mask filter that protects against nitric acid fumes will be fielded in the near future. I believe that additional training could be accomplished during the biological-chemical phase of EOD School or at predeployment Global Antiterrorism Operational Readiness training. EOD Soldiers need to be aware of the inhalation, contact, and long-term

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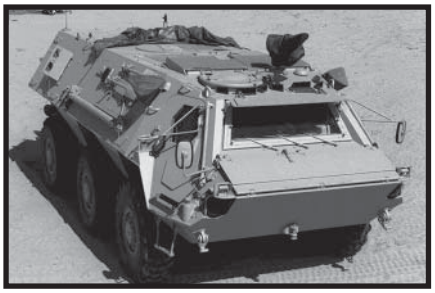
Five-gallon containers of nitric acid from a recent cache



Fox CBRN reconnaissance vehicle

forces. With equipment such as M56 and M58 Smoke Generation Systems, smoke units can generate vast amounts of obscurants to create camouflage or decoys or to counter new-generation smart weapons.

The BIDS consists of biological detection, identification, and sampling equipment. BIDS units are capable of detecting biological attacks, providing presumptive identification of biological agents, and producing samples for detailed laboratory analysis.

The work of decontamination units allows for the return of units to the field for combat operations. With decontamination equipment such as the M12A1 and M17, vehicles can be decontaminated rapidly and returned to the fight. Decontamination units are undergoing a significant modernization, which will enable them to conduct hazard response operations.

Impressive equipment and technology are not the sole indicators of success. As Colonel Visser points out, "Humans are more important than hardware, quality is better than quantity, CBRNE forces cannot be mass-produced, and competent CBRNE forces cannot be created after emergencies occur."

With a full-time focus on countering CBRNE threats at home and abroad, the Spartans of the 48th Chemical Brigade are using lessons learned in today's operations to combat the weapons of mass destruction and CBRNE threats of tomorrow.

"We stand ready with sharp swords and polished shields to deploy on short notice anywhere in the world to provide CBRNE support to protect the Nation," said Visser. "Spartans, leading to victory!"

Stryker CBRN reconnaissance vehicle

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environmental hazards presented by the emergency disposal of HMEs. Increased training and awareness will ensure the continued safe mitigation of explosive hazards and proper site turnover to HAZMAT personnel for final clearance.

Most likely, the number and complexity of HMEs will grow as we win the war against the supply of conventional ordnance used in improvised explosive device construction. The education, training, and protection of all personnel involved in the search and reduction process can only enhance combat readiness in the field. Efforts to coordinate the mitigation of the HME precursor hazard with the Chemical Corps will continue to pay big dividends.

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Editor's Note: *The U.S. Army Chemical, Biological, Radiological, and Nuclear School (USACBRNS) recognized this gap in capabilities and collaborated with the Edgewood Chemical Biological Center to develop training material that will allow Soldiers to recognize situations where they should notify EOD. The training material will be validated this summer in the Chemical Captains Career Course, and the training will be integrated into other courses during Fiscal Year 2009.*

The USACBRNS and the Maneuver Support Center are currently working on a chemical, biological, radiological, and nuclear dismounted reconnaissance and surveillance capability (Joint Nuclear, Biological, and Chemical Reconnaissance and Surveillance [JNBCRS] Increment II) that includes HAZMAT sensors capable of detecting HME compounds. The JNBCRS Increment II will enable units to enter unknown environments using protection and detection technologies similar to those found in many HAZMAT response teams.