SOLDIERS AS SENSORS

Evolution of a battlefield-proven solution for reducing casualties

by GRANT HABER

IT WAS IN 2006 when I first heard soldiers and United States Department of Defense (DoD) subject-matter experts mentioning the operational need for a force-multiplying trainer and equipping program to enable “soldiers as sensors” to choke the flow of bomb-making materials used on the battlefield. Casualties from homemade explosives (HME) and their resulting IEDs were surging, and the traumatic brain injuries (TBI) reported to Veteran Affairs (VA) since 2001 was on a fast trajectory to top 100,000.

Army Engineers have an integral role in shaping requirements and building strategic capacities; assisting and empowering them to make informed decisions makes a big difference in saving soldiers on the battlefield. Without relevant and approved requirements to satisfy operational needs, helping soldiers timely can be reduced to birthday candles, wishes, and a prayer. Teamwork and action is vital for their success.

In 2009, I volunteered at the United States Military Academy (USMA) to train 200 cadets on how wet chemistry is being used to detect and identify explosives residues on the battlefield, to attack bomb-maker networks, and to differentiate urea fertilizer from urea nitrate, an HME.

In 2012, I volunteered again at USMA, this time to train 1,600 cadets (8 cadet companies) on bulk HMEs precursor-identification, explosives trace detection, and lessons learned with regard to the detection tools fielded into Afghanistan and Iraq.

The Military Training Branch at USMA incorporated into their summer Cadet Field Training (CFT) the American Innovations, Inc. (AI) bulk HME precursor identification, a HME being supplied to joint forces for Afghanistan operations. This first-generation kit was battlefield proven in 2010, contributed to the 440 tons of HME materials seized in 2012, and was highlighted by U.S. Army Center for Army Lessons Learned (CALL) as a best practice for U.S. and coalition forces.

A cadre of Army Engineers from the Joint Readiness Training Center (Fort Polk) reported to USMA to set up IED training lanes during the summer CFT. The IED training spanned five days over two weeks in July 2012. I taught the HME breakout sessions ranging in size from approximately 30 to 100 cadets per class.

U.S. Army Forces Command (FORSCOM) Counter IED Integration Cell (CI2C) assisted with some classes. These 1,600 cadets came from throughout U.S. and many foreign nations; their input provided many perspectives. The pace at which these young adults processed vast amounts of information was truly impressive.

In the HME breakout sessions, cadets were provided four unknown bulk materials. These included calcium ammonium nitrate, diammonium phosphate, urea fertilizers, and potassium chloride. They were tasked to determine which materials were targeted bomb-making materials and which were not.

As the cadets ran tests and interpreted results, their challenges, comments, and suggestions were being analyzed and considered for inclusion into the development of a next-generation bulk HME precursor identification kit to better support the transition of Afghanistan combat operations to an Afghan forces lead. The cadets wanted “smaller, faster, simpler, fewer steps, more sustainable, evidence collection and preservation means included, and multi-language picture instructions.”

During the next six months, these desired enhancements became suggestions and/or requests from U.S. Central Command (CENTCOM), Joint Improvised Explosives Device Defeat Organization (JIEDDO), FORSCOM, NATO Explosives Ordinance Disposal center, Excellence in Pakistan (NATO EOD CoE) personnel in Afghanistan, and soldiers who used the first-generation kit during deployments.

Despite unprecedented success in the hands of U.S. and coalition forces, Afghan forces, Afghan forces experienced many operational challenges while utilizing the AI-HME test kits to analyze unknown bulk materials.

The cadets’ questions were equally impressive, highly strategic, and proactive in nature, and with the foresight of delivering fast wins with measurable gains. Their questions stimulated good discussions. Eradicating enduring HME threats became not only the desired outcome but an achievable sustainable outcome.

Based on comments during the discussions, eliminating soldier casualties and civilian collateral damage was of high importance for these future Army officers.

The cadets’ entire wish list became the deliverables for the next-generation bulk HME precursor identification kit (AH-HME-001) delivered to JIEDDO (DEC 2012), validated by JTF-Paladin (JAN 2013), requested by the Afghanistan Ministry for Interior for countrywide integration (SEP 2013), the NATO EOD CoE (Spain), FBI Hazardous Device School (Alabama), and DHS Federal Law Enforcement Training Center (Georgia) have since incorporated this tool into their training.
SOLDIERS AS SENSORS: EVOLUTION OF A BATTLEFIELD-PROVEN SOLUTION FOR REDUCING CASUALTIES

Q1. What is the fastest way to reduce HME precursor inventories? ranted arrests will result; this network through lawful ar-
simultaneously disrupt the HME precursors supply and homemade explosives. Yes, providing the detection

Q2. Can partner nation forces be effectively stopped before HME precursors flow?...

Q3. Are HME precursors detectable without training military personnel to detect HME precursors?... differentsand... few hundred... pan-seeking.

Q4. How can we aggressively screen for HME precursors without violating civilian trust?... scanning (trace sampling) for “prima-

Q5. How would long it take to train and equip every soldier to become a sensor? With current production ca-

Q6. How can we ensure detection kits issued to partner nation forces are sustainable?... be reusable after first use, provide many tests, and be effective. Single-use kits become impractical for carrying and sustainable. Do not provide non-specialists with tools... untrained personnel are expected to accomplish too much; it’s important to manage expectations. Keep it simple, reward success, and track results.

Q7. What has been the worst HME attack on U.S. soil and what have we learned from it?... have the unique opportunity to help shape requirements and build the capabilities needed to prevent the next surge in U.S. and coalition forces casualties from HME. This article is meant to storm, things that can and peacekeeper missions... a huge impact tomorrow.