Making the Impossible a Reality

by Ms. Lisandra LaShomb, Office Automation Assistant, DCMA Syracuse

Radio-controlled improvised explosive devices (RCIEDs) have killed or wounded more Iraqi and U.S. personnel than perished in combat in Operation Iraqi Freedom. These weapons of terror have severely curtailed travel on Iraqi roads. It is a problem requiring an immediate solution, and the Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEW&S), in partnership with the Defense Contract Management Agency (DCMA), has set about finding it.

"Warlock Duke," the system developed by PEO IEW&S, is capable of jamming most RCIEDs. With tens of thousands of military vehicles operating in Iraq, rapidly producing systems to reduce further losses of life became paramount.

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The coalition forces' advance into Iraq in 2003 was relatively straightforward compared to the challenges facing the troops today in combating the wide variety of terrorist groups intertwined into the local population. With information on making cheap roadside bombs readily accessible, the enemy had found a convenient weapon to seriously impede the progress in Iraq's quest for a stable and secure government.

By 2004, the U.S. Army's Central Command (CENTCOM) identified a need to produce systems to counter the remote-controlled IEDs that were starting to emerge. Consequently, various systems were deployed to Iraq and Afghanistan to counter specific RCIEDs in use at the time. Unfortunately, the terrorists adapted by using more powerful devices with higher ranges of frequencies. Again, the U. S. responded by developing systems to combat the new RCIEDs. The Army awarded a $551 million contract to Syracuse Research Corporation (SRC) for the development and mass production of a jammer to defeat all known RCIEDs. The Army also wanted the system to be capable of rapid modification to defeat emerging devices.

Given the urgency of this program and the need to accelerate the production process, DCMA Syracuse responded without delay, creating a dedicated team with program integration, engineering, quality assurance, software and industrial and contractual expertise to assist SRC.

Within six months of the contract award to SRC, the first delivery order of "Warlock Duke" included technical and operational testing, initial production quantities and contractor support. The contract contained a surge clause requiring the quantity delivered to the Army to exceed the initial requirements by more than 900 percent. As SRC geared up for production, it quickly became clear that they did not have the systems or trained personnel in place to support such a huge effort.

DCMA's role in contract management has traditionally been limited to contractual review and quality assurance. Given the urgency of this program and the need to accelerate the production process, DCMA Syracuse responded without delay, creating a dedicated team with program integration, engineering, quality assurance, software and industrial and contractual expertise to assist SRC. Specifically, DCMA Long Island and DCMA Philadelphia assisted in managing the major production challenges that occurred. Key to the success of the program was changing SRC's method of operation from research and development to large-scale production. As explained by Mr. Edward Bair, program executive officer, IEW&S, the integrated team's role included being "the program manager's eyes and ears in the contractor's plant, looking at what's going on and managing and monitoring things on the ground, right then and there."

Everyone involved recognized that DCMA's presence at SRC would require adjustments. DCMA's increased involvement was new to both organizations, but SRC's program manager, Mr. Matt Tryniski, was optimistic. "SRC has never had DCMA personnel resident in our facility, so we really did not know what to expect," he said.

The DCMA team members quickly assessed SRC's existing manufacturing processes and identified potential problems. Team members prioritized tasks to promote the critical path for first article testing and improve configuration management. For the manufacturing team, the most challenging issues included understanding system details, contract requirements and the bill of material and components and identifying critical suppliers. Quality assurance issues consisted of ensuring that drawings and test documentation were detailed enough to ensure repeatability and refining the process for inspection systems off

(Above) A rising cloud of black smoke is one remnant of the explosion caused by a roadside bomb, which U.S. Marines found May 30, 2006, during a patrol in Haqlaniyah, Iraq. An explosive ordinance disposal team detonated the roadside bomb to prevent it from doing harm to anyone traveling the road. (U.S. Marine Corps photo by Sgt. Roe F. Seigle)
(Right) Mr. Edward Bair, program executive officer, U.S. Army Intelligence, Electronic Warfare & Sensors.

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the assembly line. Another quality concern was a lack of certification of primary vendors. With the compressed production schedule — less than six months from development to the first shipment of a completed system — considerable effort was required to streamline the process.

Testing occurred concurrently with production. The configuration management system required changes, and "as-needed fixes" were identified through testing, adding to the difficulty of managing product configurations. With the compressed production schedule, the contract required modification to provide for the manufacture of the product without a complete configuration management system in place. Concurrent production and configuration management development required close coordination. Weekly feedback was required from the most critical vendors to ensure everyone was abreast of the situation. Mr. Bair praised the team's effort in working with the suppliers: "I would tell you, in my experience, this is the most comprehensive undertaking in terms of the supply chain management that I have ever observed." Mr. Tryniski added, "The DCMA team worked with SRC and provided us their expertise and knowledge as we developed all of the detailed, step-by-step processes necessary for a manufacturing program of this magnitude."

This process was extremely challenging and not without some missteps. Mr. Bair pointed out that in the beginning, communication amongst all of the team members was crucial and did not always go smoothly. "Certainly, understanding each other's roles was critical, and good communication was essential to this process. DCMA solved this problem by working closely with SRC personnel to quickly identify issues and suggest solutions. By working with both the buying command and SRC, DCMA was able to develop streamlined methods that ensured the acceptance of quality product required. Another key element in the ultimate success of the program was the recognition of and capitalization on each other's strengths," he said.

The same dynamics were at work in this manufacturing effort as exist within a family. "You take the good, the bad and the ugly. You're all together in this!" said Mr. Bair. This philosophy allows for differences of opinion, arguments and open discussion with the understanding that, in his words, "At the end of the day, the entire family or team is headed in a common direction. If you can't argue within your family, if your family can't tell you what's wrong with you, then who is going to tell you that?" This philosophy helped forge an effective team, united in one purpose, one goal and one objective: to save lives.

(Above) U.S. Army Staff Sgt. Cooper, with Bravo Company, 2nd Battalion, 506th Infantry Regiment, searches through a suitcase full of materials, which are suspected to be used for making improvised explosive devices, during operations in Southern Baghdad, Iraq. (U.S. Army photo by Staff Sgt. Kevin L. Moses Sr.)

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Within the last 12 months, SRC increased the delivery rate of the new systems by 10 times the original contract requirements, and the success of this program has helped save hundreds of lives. Every member of the team agrees that this was the most important result of the project and found it rewarding to be personally involved in watching a product go from a few units per month production in a lab environment to a full-fledged production line in a matter of months.

SRC also benefited from DCMA's guidance and is moving toward its goal of becoming International Standards Organization (ISO) 9001 certified. DCMA's expertise in ISO programs will continue to be a primary resource in developing and evaluating the company's new procedures.

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Mr. Bair emphasized that the fundamental foundation of an effective partnership includes trust, confidence and respect. "You can't just say DCMA is part of the team — let's go," he said. "You've got to engage them." DCMA's role, he stated, was to be there, on the ground, providing independent U.S. government oversight and insight. In the end, Mr. Bair had nothing but praise for the team effort put forth to ensure the success of this program, saying, "DCMA Syracuse program support is a model for DCMA to follow!"

(Top) Syracuse Research Corporation personnel deploy the "Warlock Duke" countermeasure.
(Above) A simulated improvised explosive device (IED) emits a firestorm as soldiers in the Iowa National Guard's 1-133 Infantry Battalion experience the concussion and noise of an explosion during Theater Immersion Training at Camp Shelby, Miss. (U.S. Army photo)