

Ammunition Enterprise Support to Soldiers

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Picatiny Arsenal, NJ, has been called the home of Army lethality. It has provided nearly 90 percent of all Army weapons and munitions systems used by generations of warfighters. Even though today's engineers and scientists at the U. S. Army Armament Research, Development and Engineering Center (ARDEC) are still turning out new ammunition items, they are also using new business metrics to measure their performance, speed, flexibility, value and customization in support of their customer — the Soldier.

With his M4 carbine aimed, a soldier prepares to enter a cave during *Operation Mongoose*. The operation searched various caves throughout the mountain range of Adi Ghar for suspected Taliban and weapons caches. (U.S. Army photo by SPC Gul A. Alisan, 55th Signal Company, Combat Camera.)



XM1060
40mm
grenade

This new thinking and continued focus on the warfighter is found in all organizations headquartered at Picatinny Arsenal, including the Program Executive Office for Ammunition (PEO Ammo) and its subordinate commands: Project Manager Close Combat Systems (PM CCS), PM Combat Ammunition Systems (CAS), PM Maneuver Ammunition Systems (MAS) and PM Joint Munitions Command (JMC).

Together, these organizations form the Ammunition Enterprise. As a team, they have developed and provided 167 of the Army's 172 go-to-war lethality systems for *Operation Iraqi Freedom (OIF)*. Whether in a stateside office or on the ground in Iraq, they are finding ways of fielding these weapons faster, streamlining the acquisition process, using Six Sigma — a measurement-based strategy that focuses on process improvement — talking to Soldiers who have battle-tested their products and planning the next precision guided munitions iteration.

Urgent Fieldings Benefit Forces

U.S. forces in Afghanistan and Iraq have benefited from Picatinny's expertise in many areas including urgent fieldings. During a 12-month period, ARDEC fielded 17 specialized weapons and ammo systems in record time. Among them was the XM1060 40mm Thermobaric Grenade, which was developed and fielded in only 4 months. It is the first small-arms thermobaric device to be released to the war theater. Commanders report that it has given them the capability needed for urban terrain and close-quarters cave operations. Similarly, the M919

25mm round, a PM MAS-managed item, proved its value against armored targets when it was used in combat for the first time during *OIF*.

Another urgent need request — for nonlethal items to support U.S. operations in urban environments — was filled by PM CCS' Nonlethal Capabilities Set (NLCS). NLCS gives the operational commander options — graduated force levels to meet numerous threats, from dealing with unruly crowds to providing military assistance for civil disturbances. The set has five components: counter-personnel systems, countermateriel systems, individual protective equipment,

mission enhancement and training devices. Together, they represent almost 50 items ranging from the Modular Crowd Control Munition, a nonlethal Claymore munition variant, to body shields and other individual equipment.

More than 13 NLCS systems have been deployed to Iraq and Afghanistan. They have been particularly effective in crowd control situations, but have also been used in cordon and search operations and enemy prisoner of war (POW) camps. According to a Soldier from the 800th Military Police Brigade, they are "using the nonlethal Claymores at a rate of 1 every 2 days at the POW camps to prevent escapes and riots."

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During a search for enemy combatants and weapons caches in the Afghani mountains, soldiers secure a cave opening after throwing a grenade inside. (U.S. Army photo by SPC Gul A. Alisan, 55th Signal Company, Combat Camera.)

PM MAS responded to an urgent fielding request during the initial phase of *Operation Enduring Freedom* and *OIF* with several munitions including the Abrams tank-fired 120mm M908 obstacle reduction round — a modification of the silver bullet M830A1 Multi-Purpose Antitank (AT) round that was used so successfully in *Operation Desert Storm*.

Countering IEDs in Iraq

Improvised explosive devices (IEDs) have become the weapon of choice against coalition forces in Iraq. These remotely detonated weapons have been used to kill and maim hundreds of Soldiers and Marines. The most common type uses artillery, tank or mortar projectiles combined with some plastic explosive and a blasting cap. The initiator is either a battery or some remote control device such as a car alarm, a cordless phone or a doorbell switch. They are typically camouflaged or buried on the roadside, lying in wait for passing convoys.

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IEDs and provide Soldiers with a high degree of protection. The first is the Interim Vehicle Mounted Mine Detection System (IVMMD), consisting of a Meerkat mine-detection vehicle, the Husky mine detection and towing vehicle, a series of detonation trailers, spare modules and a parts container. Developed, tested and built in South Africa, the system uses a pulse-induction metal detector to find

metal-cased AT mines as well as large metal IEDs. The Meerkat has a one-person crew. The operator must pass over the top of the mine or IED to detect it. Risk is mitigated by the sharp V-shaped armored hull and frangible components that make up the front and rear modules.

The Husky uses its own mine detector to hunt for IEDs, or it can tow the detonation trailers to de-

tect and proof the route for buried plastic-cased AT mines. A Buffalo mine-protected clearance vehicle follows the detection vehicles and uses a

A Metal Detecting and Marking Vehicle belonging to the 141st Engineering Battalion aids in clearing a section of Highway 1 outside Ad Dujayl, Iraq, earlier this year. The battalion, out of Dickinson, ND, is at Forward Observing Base O'Ryan in support of the 1st Infantry Division. (U.S. Army photo by PFC Elizabeth Erste, 55th Signal Company, Combat Camera.)

telescopic arm to investigate suspected targets found and marked by the IVMMD Meerkat or Husky. Both the Meerkat and Buffalo have been struck by IEDs or AT mines and, in both cases, the Soldiers inside walked away without injury and the vehicles were successfully repaired and placed back in operation. As one operator put it, "Every round [of ammunition] we find is one less that could injure or kill a Soldier."

Quality Ammunition

Other organizations at Picatinny ensure that Soldiers have the quality ammunition they need today, while continuing to find ways to improve the munitions for future battles. PM CAS, JMC and ARDEC are the principal enterprise players in this effort. The inclusion of Army user representatives from the U.S. Army Training and Doctrine Command Artillery and Infantry Schools — as well as the Single Manager for Conventional Ammunition customers from the other services — reinforces the goal of staying customer-focused.

Recent battlefield feedback on artillery and mortar performance has been outstanding. Mortars continue to be the most responsive and deeply integrated means of fire support. Numerous mortars from the 60mm, 81mm and 120mm families (high explosive (HE), smoke and illuminating — both visible light and infrared) — have been successfully used in Afghanistan and Iraq. During a mountain battle waged by the 101st Airborne Division (Air Assault) in Afghanistan, 120mm mortars were responsible for the overwhelming majority of enemy kills. Mortars were also effective during the high-operations tempo advance to Baghdad, and the planned Mortar Fire Control System



will further improve this capability. Cannon artillery performance in *OIF* has also proved invaluable to our Soldiers. Observations from the 3rd Infantry Division (3ID) and others say that cannons paved the way to Baghdad early in *OIF*, and numerous 105mm and 155mm HE, smoke and illuminating rounds have been, and continue to be, successfully employed by U.S. ground forces.

A key enterprise success in precision artillery in *OIF* is Sense and Destroy Armor (SADARM), a “smart” artillery projectile containing two submunitions designed for precision engagement of Self-Propelled Howitzers and other armored vehicles.

PM CAS, JMC and ARDEC teamed to expedite SADARM’s conditional materiel release in 2002 so that 347 rounds could be shipped to support *OIF*. SADARM exceeded expectations

by providing superior performance for the 3ID — 121 rounds fired in combat destroyed 45 pieces of enemy equipment.

PM MAS supports the Soldier in the field as the Army’s life-cycle manager of all small-caliber direct-fire ammunition, training and tactical weapons other than nonlethal. High consumption rates associated with training, the global war on terrorism and *OIF* have resulted in

intense production of small- and medium-caliber ammunition — more

than 1.4 billion rounds will be produced in FY04. This is a 400-percent increase in small-caliber production since 1999, and a 700-percent increase in medium-caliber production since 2002.

There is nothing more critical to our Soldiers’ ability to perform their mission than ammunition in direct-fire engagement. We are constantly reminded of that, especially by reports from in theater.

Ammo Enterprise Goes to the Fight

MAJ Robert Floersheim, Assistant PM MAS, is just one of many Picatinny experts who have provided hands-on, on-the-ground expertise in Afghanistan, Iraq and elsewhere. He is currently providing ammunition acquisition expertise to the Coalition Provisional Authority and is assigned to Baghdad as part of the reconstruction task force. One of his fellow PMs, MAJ Michael Williams, gathered ammunition performance information that evaluated ways to improve the instant stopping power and lethality of small-arms ammunition in close-quarters battle while maintaining the lethality against a body-armor-clad enemy at longer engagements.

ARDEC engineers responded immediately when the 101st Airborne Division reported that its air Volcano systems were inoperative for deployment. The trip to Fort Campbell, KY, resulted in two of the Division’s three systems being put back into operation during the visit. The ARDEC Explosive Ordnance Disposal unit’s presence in Iraq and Afghanistan was critical in collecting vital enemy ordnance and explosive device information and establishing protocols that enable America’s Joint service troops to render foreign enemy ground combat weapons safe.

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A Soldier prepares to enter a cave to search for enemy fighters in Afghanistan. (U.S. Army photo.)



Soldiers secure the opening of a cave in the Afghani mountains after throwing a grenade inside. (U.S. Army photo by SPC Gul A. Alisan, 55th Signal Company, Combat Camera.)

Brian M. Green, from PM CCS's Countermine Division, delivered the mine-clearing equipment to Soldiers at Bagram Air Base, Afghanistan, and conducted initial user training. He performed similar duties in Iraq. MAJ Pete Lozis and Eric Steckmann were in Afghanistan twice to field other countermine equipment.

MAJ Joseph Hitt from PEO Ammo was on the ground before the war started as part of the Assistant Secretary of the Army for Acquisition, Logistics and Technology Operations Cell at Camp Doha, Kuwait. He provided a readiness link back to the PEO and ensured that the right ammunition was targeted to the right unit. He also provided battle damage assessment. He was later joined by MAJ Jason Robbins, Executive Officer to BG Paul S. Izzo.

Picatinny engineers, scientists, weapons specialists, logisticians and other experts can be found wherever U.S. troops live and fight. They serve as the Army's "911" lifeline for lethality assistance and troubleshooting. This always-open line of communication

helps the Ammunition Enterprise support U.S. forces around the world by assessing existing and newly fielded munitions systems effectiveness and identifying warfighter needs. Together, ARDEC, PEO Ammo and its PMs and JMC have contributed to military operations in Afghanistan and Iraq by ensuring that America's armaments inventory remains strong.

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