PM CCS

PROJECT MANAGER CLOSE COMBAT SYSTEMS

"Changes to the smoke grenades will make training and use in theater safer for Soldiers while protecting and preserving the land they train and fight on."

DEMOLITIONS, GRENADES, SPECIAL PROJECTS

NEW COMPOSITIONS IN SMOKE GRENADES PROTECTS SOLDIERS AND THE ENVIRONMENT

When a **smoke grenade ignites**, the dye inside vaporizes and condenses to form a colored cloud. Typically, the formulation relied on a sulfur-based fuel to generate just enough heat to vaporize the dye; this could cause a burning sensation if inhaled and the dye residue could **potentially be harmful** to the environment.

PM CCS was instrumental in developing a **sugar-based mixture** to replace the dye. This not only **removes the sulfur** from the dye, it also **reduces the weight** and manufacturing costs. The green and yellow versions are already being used in the field; the violet and red are still being developed and/or undergoing testing.

For now, pyrotechnic experts say that changes to the smoke grenade will make training and use in theater safer for Soldiers while **protecting and preserving** the land they train and fight on.

BANGALORE TORPEDO DEMOLITION KIT (BTDK) TAKES ON A NEW LIFE

The Bangalore Torpedo was **first devised** by a member of the British Army Bengal Bombay and Madras Sappers and Miners in Bangalore, India, **in 1912** as a means to explode booby traps and barricades left over from the Boer and Russo-Japanese Wars. It was **used in World War I** to clear barbed wire and adapted during **World War II** as the M1A1 Bangalore Torpedo. The M1A2 version was introduced in the early 1950's.

In 2003, the U.S. Army Engineering School requested a **shortened – but equally powerful – version** of the M1A2 to make it easier for Soldiers to transport and handle. The new version of the M1A3 BTDK is **half the length** of the M1A2 with the **same energetic materials**. PM CCS completed Full Material Release of the BTDK in 2008 and **successfully equipped units** shortly thereafter.

DEMOLITION AND COUNTERMINE MUNITIONS

Demolition and Countermine Munitions are used by combat engineers and special operations Soldiers to clear mines, breach doors, overcome obstacles and impede enemy movements.

MODERN DEMOLITIONS INITIATOR (MDI)

MDI is a suite of initiating components used to activate all standard military demolitions and explosives. It gives Soldiers the most modern pieces of equipment in the demolition inventory and ensures that they have the competitive edge required on the battlefield. MDI consists of non-electric blasting cap assemblies with an integral time delay initiator, a time fuse or shock tube and a "J" hook that can be attached to a detonating cord. The recent addition of a pair of booster assemblies makes it possible to safely initiate underground charges. With MDI, Soldiers can successfully complete demolition missions in a safe, quick and easy manner.

BULK CHARGES

Bulk demolition charges are prepackaged, high-explosive charges for general demolition operations such as cutting, breaching and cratering. Examples of these are the M112 Demolition Block 1¼ lb. C4, the 40 lb. Cratering Charge and the ¼, ½ and 1 lb. TNT demolition blocks.

DEMOLITION SHAPED CHARGES

These charges are shaped so as to concentrate their explosive force in a particular direction. They use high explosives to form a metallic or glass liner into a high velocity jet of molten material with the ability to stretch several times its original length. They can obtain tip velocities that can exceed 8km/second. PM CCS manages two shape types of Demolition Charges: Linearly Shaped, which are used to remotely low-order initiate (blow apart rather than detonate) or cut open explosive ordnance devices in order to render them safe to handle or transport and Conically Shaped, which are used for boring holes in earth, metal, masonry, concrete and paved and unpaved roads.

EOD MUNITIONS

EOD munitions are used by EOD personnel to render safe unexploded ordnance and other unknown equipment and charges.

DETONATION CORD

Detonation Cord consists of a high-explosive (either PETN or RDX) core wrapped in a reinforced, waterproof, olive-drab plastic coating that transmits a detonating wave. It is used as a detonating agent, a priming agent or alone as an explosive charge. It can be initiated by an electric blasting cap or non-electric blasting cap. When the explosive core is detonated by a blasting cap, the wave travels along the cord to other blasting caps or explosive charges attached to it. It has a detonating velocity of not less than 5,900 m/s which makes it suitable for synchronizing multiple charges, even when placed at different distances from initiation.

BLASTING CAPS (ELECTRIC AND NON-ELECTRIC)

DODIC M131, NSN 1375-01-315-1335, Cap, Blasting, Non-Electric, M7 Assembly consists of an aluminum alloy cup containing an ignition charge of lead styphnate, an intermediate charge of lead azide and a base charge of RDX. It is used to detonate all military explosives. When initiated by time-blasting fuse, primer or detonating cord, the ignition charge detonates the intermediate charge which detonates the base charge, which initiates the explosive charge.

DODIC M130, NSN 1375-01-316-1229, Cap, Blasting, Electric, M6 Assembly also has an aluminum alloy cup containing an ignition charge but the charge consists of smokeless powder, potassium chlorate and lead salt of dinitro, ortho cresol and a base charge of RDX. Two 12-foot lead wires, connected by a bridge wire in the ignition charge, extend through a rubber (or rubber and sulfur) plug assembly in the open end of the cup. Two circumferential crimps secure the plug assembly in the cup. The M6 Electric Blasting Cap is used to initiate high explosives with a blasting machine or other suitable source of electric power to detonate all standard military explosives.

FUSE BLASTING TIME

A time-blasting fuse transmits a delayed spit of flame to a non-electric blasting cap, allowing a Soldier to initiate a charge and get to a safe distance before the explosion. The fuse consists of a continuous delay of black powder, tightly wrapped and enclosed by an inner cover of jute yarn counter-wound with cotton yarn and covered with bitumen and a plastic sheath. Once ignited, the burn rate of the fuse is 36 to 44 seconds per foot.

BANGALORE TORPEDO

This man-portable device is used to clear a 0.6 meter path for dismounted infantry or engineer troops. Dating back to World War II, the Bangalore Torpedo consists of eight 2.5-foot sections that are connected in order to push it through the minefield before detonation. A blasting cap initiates detonation.

COUNTERMINE MUNITIONS

MINE CLEARING LINE CHARGE (MICLIC)

MICLIC is a mine clearing device used to clear a path for tanks, vehicles and personnel through minefields and other obstacles. The line charge is propelled over the minefield by a Mk22 5-inch rocket motor and detonated, clearing a one vehicle wide lane 100 meters long and eight meters wide. The MICLIC is effective against single pulse, pressure fuzed mines.

ANTIPERSONNEL OBSTACLE BREACHING SYSTEM (APOBS)

APOBS is an explosive line charge system that allows Soldiers to conduct safe breaching through enemy antipersonnel minefields and multi-strand wire obstacles. It is light enough to be carried by two Soldiers with backpacks and can be deployed within 30 to 120 seconds. Once set in place, the APOBS rocket is fired from a 35-meter standoff position, sending the line charge with fragmentation grenades over the minefield and/or wire obstacle. The grenades neutralize or clear the mines and sever the wire, effectively clearing a footpath for troops up to 45 meters in length.

SIMPLE SOLUTION ENHANCES GRENADE SAFETY

Grenades have played a part in warfare for hundreds of years. And, for many of those years, Soldiers have been **"taping" their grenades** for perceived safety or to reduce noise. This is a safety hazard; removing the tape can **inadvertently pull the pin** resulting in serious injury. It can also **obscure vital markings** such as lot numbers so otherwise functional grenades have to be demiled. The **Confidence Clip solves this problem**. The clip is a simple device that fits between the grenade fuze and body, securely fastening the pull ring in place to **prevent accidental removal** or rattling. It will be incorporated into newly produced grenades as well as the existing inventory of lethal hand grenades to mitigate the unsafe, wasteful practice.

GRENADES

Grenades increase combat effectiveness and survivability. They range in effect from non-lethal to lethal, and can be hand thrown or launched from a grenade or 66mm launcher. Each grenade has different characteristics, offering a variety of capabilities to the Soldier.

LETHAL HAND GRENADES

PM CCS manages the M67 Fragmentation Hand Grenade, used to supplement small arms fire against enemies in close combat; the Mk3A2, a non-fragmenting Offensive Grenade that produces casualties through concussive force during close combat while minimizing danger to friendly personnel; and, the AN-M14 TH3 Incendiary Hand Grenade, used to destroy equipment or start fires and destroy vehicles, weapons systems, shelters and munitions.

SMOKE GRENADES

PM CCS manages the M18 Smoke Hand Grenade, M83 Smoke Screening Grenade and the M8 Floating Smoke Pot. Used to communicate on the battlefield, identify landing zones, friendly troops and potential targets, smoke grenades are undergoing changes that will make them safer for Soldiers and the environment by removing potentially harmful dyes and other materials. PM CCS is a leader in this effort.

LAUNCHER GRENADES

Launcher grenades under PM CCS management include the M90 66mm Smoke Grenade Launcher, a soft-launched, pyrotechnic smoke grenade self-protection system and the M76 IR Smoke Grenade which blocks both visible and infrared light waves.

TRAINING GRENADES

Training grenades, like the 66mm L97A1 Grenade Discharger: Anti-Riot, Practice; the M69 Fragmentation Training Hand Grenade; and, the M82 66mm Tube Launched, Smoke Training Grenade, provide realistic training and familiarization with the functioning and characteristics of the actual hand grenade in a practice environment.

SPECIAL PROJECTS

Special Projects focus on products employed by Special Operations Forces whose missions require self-sufficiency, stealth, speed and close communication.

SPECIAL OPERATIONS FORCES DEMOLITION KIT (SOFDK)

The SOFDK contains a variety of inert items that, when field loaded, provide Special Operations Forces with the capability to tailor charges to the target by using SDK components and C4 or other moldable explosives. The kit provides several methods of attaching charges/munitions to targets. The overall intent is to allow the operator to construct the smallest, lightest charge feasible with the greatest standoff distance attainable and maximum precision.

GUNFIRE DETECTION SYSTEM (GDS)

This passive, acoustic-based security system can detect and locate sniper or gunshot activity that occurs outside of the safety perimeter, allowing raid teams to quickly respond to catch the attackers. GDS is ideal for asset and force protection, providing automatic 360-degree coverage and multi-computer compatibility. One unit in Iraq received the GDS and soon found out how valuable it was. Within two hours of emplacing the device, the unit received sniper fire. According to a LTC assigned to the 116th Brigade Combat Team, source data received from GDS enabled the battalion to initiate a 2-platoon raid that resulted in two individuals being detained.

REMOTE ACTIVATION MUNITION SYSTEM (RAMS)

There are two versions of RAMS: RAMS/Magneto-Inductive System (RAMS-MI) and RAMS-Radio Frequency (RAMS-RF). RAMS-MI gives Soldiers the capability to remotely control demolition charges and other items of equipment through natural or man-made structures. It also interfaces with the Shock Tube Initiator (STI), converting electrical outputs of the attached receiver into a mechanical output that initiates the shock tube. RAMS-RF is a radio-controlled version that offers similar capabilities.

SELECTABLE LIGHTWEIGHT ATTACK MUNITION (SLAM)

SLAM is a multipurpose munition designed to be readily portable and hand-emplaced against lightly armored infantry vehicles, parked aircraft and petroleum storage sites. It can operate day and night during all weather conditions to defeat selected targets using an Explosively Formed Penetrator warhead. The SLAM has four operating modes: bottom-attack, side-attack, timed-demolition and operator-initiated mode.

RAPID WALL BREACHING KIT (RWBK)

RBWK addresses an immediate need to give Soldiers a wall breaching capability in urban and complex terrain. It supports performance demolition missions across the full range of operations. The RWBK is man-portable, rapidly deployable and creates a man-size hole to gain forced entry into buildings. Each kit will contain explosive, ignition material, attachment devices and a rebar cutter.

M153 TIME-DELAY SYMPATHETIC DETONATOR (TY-SYDET)

TD-SYDET is a small, lightweight unit designed to enhance the performance of U.S. Forces. It can be set to time delay detonation or to simultaneously initiate numerous explosive charges in the same vicinity through a single control.

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