



# Ammunition Advocate



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The mission of the Executive Director for Conventional Ammunition (EDCA) is to manage and execute activities of a joint-Service nature necessary to carry out the responsibilities of the Single Manager for Conventional Ammunition (SMCA). Responsibilities include oversight of planning, programming, and budgeting for resources to accomplish the SMCA mission; coordinating SMCA related issues with the Services and the Office of the Secretary of Defense; and acting as the focal point on critical joint-Service SMCA issues.

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## Joint Munitions Command (Provisional)

The Joint Munitions Command (JMC) is transforming the management of munitions within DoD. Through the Munitions Readiness Reporting (MRR) initiative, the JMC is providing timely go to war status to the key decision makers. Through the Centralized Ammunition Management (CAM) initiative, the JMC is providing the Army and other Services more efficient supply operations. The JMC is totally focused on the warfighters’ munitions needs; it will have a presence felt around the world.

The MRR initiative provides a vehicle for DoD to obtain a joint perspective of munitions readiness. The MRR will provide the global perspective of the joint munitions enterprise – from the war fighter through the storage and transportation systems back to the supply chain within the industrial base.

The CAM initiative is all about getting the right munitions to the right place at the right time at the lowest possible cost. It will do this by leveraging improved asset visibility information to optimize global storage,

distribution and utilization of the munitions stockpiles. This initiative is beginning with the ammunition storage at the Army’s FORSCOM and TRADOC facilities, but is well suited for expansion to all the Services.

The focus of JMC is the war fighter; therefore, it will have a direct link to the war fighter in all theaters and in all operations. Making a difference for Soldiers, Sailors, Airmen, and Marines.



Wade H. McManus, Jr.

Wade H. McManus, Jr.  
Major General, US Army  
Commanding General, US Army  
Joint Munitions Command

## Green Ammunition

By Michael S. Richard

In October 1995, the U.S. Army formed the Joint Working Group (JWG) for Non-Toxic Ammunition. Participation in the JWG includes several Army agencies as well as the Navy, Air Force, Marine Corps, Coast Guard, National Guard, Department of Energy, and Federal law enforcement agencies.

The JWG's goal is to develop environmentally compliant service ammunition for the Department of Defense and participating United States Government agencies. The short title for this effort is Green Ammo. The planned result is small caliber ammunition, caliber .50 and less that is free of toxic/hazardous substances in the end items (cartridges) and the production processes. The



Photo taken by Cpl. Jeff Sisto, 11/27/2002. Copied with permission from www.hqmc.usmc.mil

major toxic and hazardous substances are volatile organic chemicals (VOC) and ozone depleting chemicals (ODC) used in the sealants and production processes, and heavy metals (lead, antimony, barium) in the projectiles and primer compositions. To date, most of the VOCs and ODCs have been removed. Production ramp-up of the M855, 5.56mm ammunition for the M16 rifle and M249 Squad Automatic Weapon (SAW) at Lake City Army Ammunition Plant in Independence, Missouri is scheduled to be 100% converted by the FY05 procurement. This production process is replacing the lead insert from the projectile with a tungsten composite material.

The M855, 5.56mm Green Ammunition (lead-free cores) is currently being used by the Alaska National Guard on their new range near Nome, Alaska and on several Army ranges within the continental US. The Marine Corps is planning to start buying Green M855 with their FY03 procurement.

The future of Army Green Ammunition Program includes the introduction of other caliber cartridges with lead-free projectiles and the development of primer compositions that are non-toxic and free of heavy metals. Within the next 3 years, limited supplies of 5.56mm Tracer, 7.62mm Ball and Tracer, and caliber .50 Ball ammunition will be manufactured with lead-free projectiles. Additional work to replace the lead and other toxic materials in the cartridge primer is ongoing and schedules will be identified that incorporate these materials into production as the development becomes more refined.

The main focus of the program goals for the Green Ammo program is to ensure that the shooter cannot distinguish the difference between lead cartridges and Green Ammunition cartridges. Green Ammunition look, feel, and perform exactly like the lead cartridges they replace.

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## Multi-Option Fuze for Artillery (MOFA) M782 (DODIC: NA09)

*By Captain P. Barack, USMC*



How nice would it be to have one artillery fuze that does everything that our current inventory of eight fuzes does? Well, we're on our way on getting a fuze that will do just that...well, almost. The Multi-Option Fuze for Artillery (MOFA) (DODIC: NA09) will have four selectable functions; Proximity, Time, Point Detonating, and Delay. That

sounds like it does everything, what else is there? First of all, the MOFA will cost approximately \$240 each – the current PD fuze (DODIC: N340) costs approximately \$30, so the Marine Corps is keeping them. Same thing for the Concrete Piercing fuzes (DODIC: N659) - it's a cost thing. We also need to keep the Electronic Time Fuzes w/o the Booster (DODIC: N289) - in order to function those artillery projectiles that carry a payload that are expelled during projectile flight (airburst). MOFA will be part of a four fuze family consisting of the M739A1 (N340), MK399MOD1 (N659), and M762A1 (NA17) – NA17 is the next replacement for N289.

The MOFA is compatible with all current 105mm and 155mm bursting type artillery projectiles. It employs state-of-the-art advanced electronic technologies, including Millimeter-wave Monolithic Integrated Circuit (MMIC) transceiver, patch antenna, harmonic signal processor and a liquid reserve battery. Together, these devices provide immunity to electronic counter measures, enhance overall system performance, and improve producibility through the use of a modular design.

The MOFA is intended to increase efficiency of service and decrease crew error associated with fuze setting by electronically receiving fuze setting data from the M1155 Portable Inductive Fuze Setter (PIAFS). The MOFA is inductively set by means PIAFS and cannot be manually set. It can be inductively set in either the Proximity, Electronic Time, Point Detonating, or Delay mode. If not inductively set, the MOFA will default to the PD mode.

The MOFA multi-option capability reduces the number of artillery fuzes needed by the Marine Corps. As a singular replacement for five different fuzes in the Marine Corps' inventory, the MOFA will reduce the logistical footprint on the battlefield and artillery ammunition handling requirements. The MOFA will replace the following fuzes: Multi-Time, Super Quick M546 (DODIC: N278), M582 (DODIC: N286), Proximity M728 (DODIC: N463), M732A2 (DODIC: N291), and Electronic Time M767 (DODIC: N290).

The Marine Corps is scheduled to begin procuring the MOFA in Fiscal Year 2004. With an 18-month lead-time (administration/ production), the MOFA will be introduced into the Marine Corps inventory during Fiscal Year 2006. PIAFS will be procured simultaneously with the MOFA.

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## **New EDCA Liaison Position Assigned at the Joint Munitions Command (Prov)**

*By Gary Radicic*

The recommendations of both a 1996 AMC study and a 2001 EDCA study identified the need to better market SMCA and also link AMC and JMC efforts associated with the execution of the SMCA Field Operating Agency mission. To accomplish this goal, the EDCA Liaison position was added to the EDCA staff.

The primary missions of the EDCA Liaison are identified as: improve Joint Munitions and Single Manager (SM) marketing to support improved readiness and resource management; promote Military Service munitions interests; and provide assistance in logistic issues and performance assessment.

Mr. Radicic was selected and assigned to the newly formed position at JMC effective 11 August 2002. If you need assistance with SMCA or Joint Munitions issues, he may be contacted at his office in building 350, Room 232. His telephone is Commercial (309) 782-0308, DSN 793-0308 or FAX (309) 782-5977.

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## **Solid Fuel-Air Explosive Munitions – USAF's Thermobaric BLU-118B**

*By Major Craig Grosenheider*

The challenge of defeating hardened targets, particularly targets buried deep within mountains or underground, has attracted a number of innovative solutions, including familiar hard target penetrators like BLU-109 and BLU-113. These hardened steel alloy bombs are equipped with advanced fuzing to enable deep penetration of earth, rock, or concrete cover, followed by programmed detonation within the target structure. The current generation of penetrator weapons are limited in their ability to strike very deeply buried targets, and their payloads of conventional explosives limit their ability to destroy target assets outside the immediate region directly affected by the blast.

A new class of penetrator weapons, developed by the Air Force under the direction of the Defense Threat Reduction Agency Hard Target Defeat (HTD) program office, utilizes a flammable particulate explosive detonated by a conventional warhead to propagate heat and pressure effects deep within and throughout buried tunnel and cave systems. Thermobaric

bombs, from the Greek words for heat (Therme) and pressure (Baros), have the potential to destroy equipment, munitions, and personnel within buried structures while leaving the structure itself intact. The powerful fuel-air explosive blast has the added effect of rapidly consuming much of the available oxygen within a tunnel or cave system, creating a lethal vacuum inside the structure.

Thermobaric penetrators like the BLU-118B rely on the same explosive principles as Vietnam era liquid fuel-air explosives, but instead of liquid fuel they use a solid flammable particulate. Propelled by the bomb body, the warhead penetrates into the tunnel through earth, concrete, or the tunnel door. The bomb then releases a cloud of flammable, solid particulate which is allowed to propagate briefly before ignition by conventional explosives. The resulting blast creates enormous overpressure, heat, and blast which spreads throughout the structure, incinerating sensitive equipment, detonating stored ammunition or explosives, and killing personnel.

The shock wave and overpressure effects of the vapor explosion created by thermobaric munitions differ from those produced by equivalent high explosives like tritonal; thermobarics produce a shockwave of lower intensity and longer duration, thus decreasing potential structural damage.

The BLU-118B can be utilized with existing precision guidance kits, including those used for GBU-24, GBU-27, and GBU-28, as well as the GBU-15 and AGM-130 missiles.

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## **The EPA Munitions Rule – Follow up**

*By Gary Radicic*

In last quarter's newsletter, I discussed the implementation of the EPA Rule and the development of the DOD Munitions Rule Policy that ensued. This article provides more specific feedback and a view of what can be done.

As you may already know, "In 1992, the Federal Facility Compliance Act (FFCA) was signed into law. This law required the U.S. Environmental Protection Agency (EPA), in consultation with DOD and the States, to publish regulations that identify when conventional and chemical military munitions become hazardous waste and subject to Subtitle C of RCRA, and that provide for the safe storage and transportation of such waste. These regulations, entitled the Military Munitions Rule (MR) (62 FR 6621, February 12, 1997), that define when military munitions become waste and how these waste military munitions (WMM) will be managed, became effective at the Federal level on August 12, 1997."

(Source: <https://www.denix.osd.mil/denix/Public/Policy/Range/1july98mrip.html>)



The EPA Munitions Rule implementation policy was developed in July 1998 by the Munitions Rule Implementation Council (MRIC) to interpret the requirements of the MMR into specific procedures that must followed by DOD and affected parties. Their concerns were expressed in several specific areas. The following are updates on those areas:

**Added Costs.** Initial feedback from Service DDA staffs indicate Services have added management staff, developed policy and made computer system changes since 1998 and are currently paying added premiums for transportation, storage and environmental support. The Joint Transportation Office at the Joint Munitions Command (Prov) has reported that transportation is most dramatically affected with costs increasing 50-100% for shipments categorized as waste munitions versus normal hazardous material. The EPA Munitions Rule doubles the requirement for transport controls on munitions destined for specific types of demilitarization involving treatment. With that, costs are likewise increased during the time the items are stored and then later shipped.

**"Un-Wasting".** One important policy element not included in the initial DOD policy implementing the EPA rule was that the authorized officials (DDA)

couldn't reclassify "waste military munitions" back to "munitions as hazardous material" if the situation warranted. The Demil Program Office at Rock Island, IL in the case of "Yellow D munitions and the State of Minnesota" identified this policy weakness. The primary obstacle appeared to be State primacy and a lack of State administrative regulations to accomplish this waste reversal action. The issue was resolved by the Army Demilitarization Program Office sending in a special team to inspect, repackage, load and transport the munitions returning them to an Army depot for storage. They were returned to a non-waste status and placed in magazines with like munitions in the same condition and stored under Department of Defense Explosives Safety Board criteria.

**Waste Exemptions are allowed but rare.** Exemptions from the requirement to ship as waste military munitions do exist, however the use of these "Conditional Exemptions" have been found to be very difficult or impractical since the actions to qualify are either more expensive or not possible. An example of this was having to gain concurrence from all States in the shipment route from coast to coast. This area could be a potential improvement area for Service Munitions Rule policy writers.

**DOD Automated systems changes are required.** In addition to adding cost to transportation, storage and handling, the EPA Munitions Rule required that the inventory management systems of all the Services be adapted to track waste military munitions through the use of a condition code "V" indicator. Note that CC-V tracking requires dedicated staff, systems maintenance and management reports. All of this bears cost to DOD.

The following are my recommendations for improving the management of the DoD Munitions Rule compliance:

Measure costs of the implementation of the EPA rule and determine the value added. Our tax dollars must



Marine Medium Helicopter Squadron 263 Aviation Ordnance Technicians Cpl. Nolan Rondeau, from Alpena Mich., and Lance Cpl. Mike Culp, from Wadsworth, Ohio, prepare ammunition for a live-fire exercise conducted by the 24th Marine Expeditionary Unit (Special Operations Capable) (MEU(SOC)) while training in the U.S. Central Command Area of Responsibility.

Photo taken by Cpl. Jeff Sisto, 11/19/2002. Copied with permission from [www.hqmc.usmc.mil](http://www.hqmc.usmc.mil)



purchase either added safety or protection to the environment or human life. If it doesn't add value, then perhaps the added control requirement should be reviewed further to reduce expense.

Establish a clear chain of resources and accountability through the Office of Secretary of Defense. The responsibility to accomplish implementation of the Munitions Rule should be accompanied by a commensurate amount of authority and resources.

Formalize the DDA Council as a Joint Ordnance entity. This informal, self-chartered, self-governing council was formed because a clear need existed.

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## **Cross Leveling of Class V**

*By Diane M. Smith*

Each spring the Military Services and the U.S. Coast Guard meet to share information to support the cross leveling mission for Class V conventional ammunition. The meeting is co-hosted by OUSD(AT&L) and the O/EDCA. Cross

leveling allows for free exchange of items among Services so requirements can be met and funding for planned procurements reallocated. This is part of the stratification process described in Chapter 6, DoD 4140.1-R.

During the April 2002 meeting, the Air Force representative proposed the group look into developing a web enabled tool to assist in the process. This would improve decision-making by



Cross Leveling Tool Development Team: LCDR Whiteman, USCG Student at NPS; Ms. Smith, O/EDCA; and LTJG Henry, USCG Student at NPS

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## **Retirement of Bob Fahy**

*By Diane M. Smith*

After 37 years of Government service Mr. Robert Fahy, Bob as he is known to his friends, retired December 2002. He spent his entire career working the munitions business. The picture at the right shows him receiving his Certificate of Retirement from Mr. Gary Motsek, Deputy G-3 Support Operations.

Bob started his career as a Quality Assurance Specialist (Ammunition Surveillance) (QASAS) and retired as the Acting Assistant Deputy Chief of Staff for Ammunition at Army Materiel Command (AMC). Additionally, he was the Major Command Career Program Manager for the Army's Ammunition Management Career Program. During his career he served in assignments at Army ammunition depots, in Korea, as an instructor at Defense Ammunition Center, and at Headquarters, AMC.

His skills and knowledge helped him work at all levels of the Army and with other Services to enable the ammunition organization to remain effective during significant changes that have brought and will continue to bring the ammunition community into the 21st century. Bob will be sorely missed.



Photo taken by Spec Davison, HQ, AMC Photographer

providing better visibility of shared information. The O/EDCA assumed the lead on this project.

The O/EDCA looked to the Naval Postgraduate School to help with this effort. The thesis proposal included the following description:

"A web-based, computer tool needs to be developed to assist in conduct of cross leveling of Class V conventional ammunition. This tool would provide information for users from each of the Military Services to use when listing their available long supply assets and for providing logistics supply details to assist in determining acceptability of the offered material. Additionally, Planning, Programming, and Budgeting System (PPBS) information from the Single Manager for Conventional Ammunition (SMCA) would be listed so that the offered items can be compared to the list of SMCA-assigned material under procurement. This would be used to identify potential and actual cost avoidances achieved through cross leveling of conventional ammunition."

In September, two U.S. Coast Guard officers attending the Naval Postgraduate School in Monterey, CA accepted this tool as their Masters thesis project. LCDR Whiteman and LTJG Henry will collaborate on developing a tool that will track the efforts and allow for password protected sharing of information. The initial concept for the tool will be an HTML web page using Microsoft Access and Excel to track the information and provide required analytical products. Additionally, the students will provide docu-

mentation, in the form of their thesis project paper, so the tool can be maintained and updated as required in the future.

The O/EDCA office is working with the Naval Postgraduate School students and the Military Services to ensure the tool will function as intended and will provide the students with the learning challenge they require for their Information Management degrees.

*Ms. Diane M. Smith is a Logistics Management Specialist in the O/EDCA and may be reached at telephone: (703) 617-9549. Email: dmsmith@hqamc.army.mil*



An M1A1 Tank from Battalion Landing Team, 2nd Bn., 2nd Marines, 24th MEU (SOC) moves out to conduct a live-fire exercise while participating in an exercise in the U.S. Central Command Area of Responsibility. Photo taken by Lance Cpl. Alexander Whitney. Copied with permission from www.hqmc.usmc.mil

## ***Ammunition Manager of the Year Award***



*By John Stults*

Mark Lampert, Ammunition Manager assigned to the Logistics Integration Agency (LIA) receives his award as Ammunition Manager of the year from Mr. Donovan, Chief, Architecture and Policy Division, LIA. This award is unique in that careerists are nominated and selected by their peers. Mark is responsible for managing the DA G-4's ammunition related publications. In this position he manages the publication of the G-4's ammunition policy, ensures publications are current and acts as a facilitator during Integrated Process Team reviews of publications. Mark also provides ammunition expertise on the Headquarters, Department of the Army Command Logistics Review Program (CLRP) team, and is the Army representative on the Department of Defense Unique Item Tracking Committee (DOD UITC).

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## *Editor's Note*

Those of you who read our previous newsletter probably noticed that we did not issue a newsletter last quarter. This was a conscious decision while we regrouped and reprioritized. We currently plan to publish all future issues quarterly, but may decide to change to a semi-annual basis.

We would very much like to have articles submitted from various offices that deal with conventional ammunition in each of the Military Services. Feel free to email your draft article to me at our office address listed below or at my individual email address: [dmsmith@hqamc.army.mil](mailto:dmsmith@hqamc.army.mil). We are looking for articles of up to one page in length that might tell the story of projects being worked or might share information with the ammunition community. Include pictures whenever possible. If you can provide the photographer's name, proper credit can be included in the newsletter.

Feedback on this newsletter is appreciated. We are trying to produce a useful newsletter that contains items of interest to everyone in our community.

Diane M. Smith  
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We hope you enjoyed reading our newsletter and we hope it was informative. We encourage feedback.

If you want more information about a particular topic discussed here, please feel free to contact the author directly. Also, if you would like to submit pictures or an article for a future newsletter, please contact us via phone or email. Our point of contact information is shown to the left of this comment.

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*Opinions expressed in this newsletter are not necessarily official policy or endorsed by DoD.*

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