

FROM OPEN TO CLOSED

Determining alternative technology solutions for the Army's disposal of excess, obsolete and defective munitions.

by James Terhune

The Department of Defense sustains combat readiness through safe and efficient disposal of excess, obsolete and defective munitions at a rate sufficient to keep pace with new generations of munitions and to control overall stockpile growth. Open burning and open detonation are critical capabilities to safely accomplish the mission at the required rate to effectively support combat readiness.

In open burning, materials are destroyed by self-sustained combustion after being ignited. In open detonation, explosives and munitions are destroyed by a detonation of added explosive charges. Open detonation is also used in emergency situations to destroy munitions and improvised explosive devices deemed unsafe to move.

Historically, the Army has relied on open burning and open detonation as the most inexpensive processes to demilitarize ammunition. The demilitarization enterprise enables readiness by reducing unserviceable and obsolete stocks in storage, freeing up critical storage space for joint service new production, war reserve and training munitions. Demilitarization, commonly called “demil,” reduces life, safety and health risks by removing aging stocks from storage and increases depot capabilities by making room for good service stocks to be properly stored and aligned to operations.

Over the past 20-plus years, research, development, test and evaluation investments have been made to further the capabilities of alternative, closed disposal technologies with limited success. Two major projects are the Munitions Cryofracture Demilitarization Facility at McAlester Army Ammunition in McAlester, Oklahoma, and the Ammonium Perchlorate Rocket Motor Destruction capability at the Letterkenny Munitions Center in Chambersburg, Pennsylvania. A large portion of funds are used to maintain and improve the existing rotary kiln incinerators, which are the primary closed disposal capabilities used at various organic industrial base locations.

CALL TO ACTION

Previous regulations from the U.S. Environmental Protection Agency (EPA) provided a variance to the prohibition on the open burning of hazardous waste when no alternatives for the safe treatment of waste explosives existed.

According to the EPA, recent findings from the National Academies of Sciences, Engineering and Medicine (NASEM) have determined that safe alternatives are now available for many energetic or explosive waste streams. By waste streams, we mean the gases, liquids or solids that are the byproducts of a demilitarization treatment operation or processes. Because there are safe alternatives available and in use today that capture and treat emissions

ELIMINATING STOCKPILE

Open detonation of obsolete munitions at Tooele Army Depot.
(Photo courtesy of Tooele Army Depot)





CLOSED DISPOSAL

Example of a Closed Disposal Technology at McAlester Army Ammunition Plant in Oklahoma. Pictured here are the McAlester Ammunition Peculiar Equipment (APE) 1236 Rotary Kiln Incinerator thermal treatment system and the Munitions Cryo-Fracture Demilitarization Facility, which prepares munitions for feeding into the APE 1236 for demilitarization. (Photo by Brent Hunt, Tooele Army Depot)

This will include determining where alternative technologies will be installed and how the projects will be executed. Both an acquisition strategy and a funding plan also will be developed, and from this an implementation timeline will be established. Construction usually requires funding from DOD's Military Construction program and is a lengthy process to receive and implement. The demilitarization enterprise is requesting Procurement of Ammunition Army (PAA) funding on Product Director Demilitarization's EP1700 funding line during the recent fiscal year 2026-30 Program Objective Memorandum funding requests. An act of Congress would be required to allow PAA funds to be used for construction, alternate technology or otherwise.

CONCLUSION

In the 1980s, regulations allowed the permitting of open burning and open detonation to demilitarize munitions. On May 19, 1980, 45 Federal Register 33063-33285, page 33217, allowed

the open burning and open detonation of waste explosives, within specified distance and weight limitations, during an interim status permitting period. On Dec. 10, 1987, in 52 Federal Register 46.946, 46.949-50, 46.957-58, the EPA concluded that facilities conducting open burning and open detonation of waste explosives would receive permits under the RCRA Subpart X provisions as miscellaneous units. Since then, DOD has been proactively reducing the number of permitted open burning and open detonation units from 114 to 34, a 70% reduction. Moreover, DOD facilities reduced the quantity of munitions treated by open burning and open detonation by 58% over the past 20 years.

The demilitarization industrial base is currently facing both technological and funding constraints in the implementation of additional closed disposal technology solutions. By developing a comprehensive acquisition strategy and funding plan, it will enable Army leaders to make informed

decisions on the necessity and urgency of funding future demilitarization technology projects.

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