MITIGATED FINDING OF NO SIGNIFICANT IMPACT
for the Lead Azide Risk Mitigation at
Iowa Army Ammunition Plant
Middleton, Iowa

1. Title of the Proposed Action

Controlled Detonation and Environmental Risk Mitigation of Unserviceable Lead Azide at the Iowa Army Ammunition Plant (IAAAP), Middletown, Iowa.

2. Purpose and Need for Action

The purpose of the Proposed Action is to safely, permanently, and definitively eliminate the immediate explosive safety threat posed by a degraded, unserviceable stockpile of lead azide at the IAAAP while utilizing engineered mitigations and operational controls to prevent significant impacts to human health, safety, and the surrounding environment.

The Proposed Action is urgently needed because the stockpile, consisting of drums containing bulk lead azide, has experienced severe chemical degradation and crystallization over time while submerged in an ethanol/water storage solution. Temperature fluctuations have caused the lead azide to dissolve and recrystallize into its pure form as needles and platelets, which are acutely sensitive to shock, friction, static electricity, and heat. Due to this instability, the material was legally determined in March 2026 to be an unserviceable hazardous waste exhibiting characteristics of reactivity (D003) and toxicity (D008).

Department of Defense Explosive Ordnance Disposal (EOD) technical personnel inspected the drums and issued a formal safety directive to not move the material. Movement, physical handling, or off-site transit over public transportation routes presents an unacceptable risk of accidental, catastrophic detonation. Leaving the stockpile in place without destruction presents an ongoing, escalating threat of uncontrolled explosion, prolonged regulatory non-compliance under the Resource Conservation and Recovery Act (RCRA), persistent facility-wide stop-work disruptions, and potential loss of human life. Therefore, permanent in-place disposal under controlled conditions is necessary.

3. Description of the Proposed Action (Alternative 1 - Selected Alternative)

Under the Proposed Action (Alternative 1 - Mitigated Controlled Detonation), the U.S. Army will execute a single, coordinated operational mission to destroy the drums of lead azide in place within the two concrete earth-covered magazines (ECMs) where they currently reside:

- **Execution and Phasing:** Execution is structured through an integrated multi-organizational command structure:
    - *Phase 1 (Pre-Treatment):* Finalization of safety buffers, public outreach, utility isolation, baseline environmental sampling, pre-treatment vegetation clearing outside active ecological windows, and barrier construction.

- *Phase 2 (Active Treatment):* Military EOD personnel will configure donor charges on each drum and execute a simultaneous controlled detonation of both magazines.
- *Phase 3 (Initial Cleanup / Short-Term Closure):* Qualified environmental and UXO contractors will enter following a 24-hour safety hold to assess site conditions, clear potential energetic anomalies, delineate debris fallout zones, and excavate heavily impacted crater soils.
- *Phase 4 (Long-Term Site Remediation & Closure):* Systematic debris recovery, soil stabilization (if required for D008 waste), transport to licensed RCRA disposal facilities, backfilling, grading, and final closure certification.

- **Integrated Engineering Blast Controls:** The ECMs are enclosed within engineered blast containment barriers comprising approximately 19,000 cubic yards (23,688 tons) of lime-fill foundation and 300 sand-filled HESCO barriers (2,390 cubic yards / 3,225 tons of washed sand). The barriers incorporate an engineered 28-foot venting aperture oriented to direct blast overpressure and ejecta toward the south and southwest, away from primary installation infrastructure and populated areas.

4. Alternatives Considered

The U.S. Army evaluated multiple Courses of Action (COAs) against five screening criteria: (1) Personnel Safety (Handling Minimization); (2) Environmental Protection and Regulatory Compliance; (3) Public Health and Off-Installation Impacts; (4) Mission Compatibility and Timeline; and (5) Technical Feasibility.

a. **Alternative 1: Mitigated Controlled Detonation (Proposed Action - Selected):** Satisfies all screening criteria by eliminating personnel handling of crystallized drums, employing engineered containment, strictly enforcing weather criteria, and binding the Army to comprehensive post-blast RCRA cleanup.

b. **No Action Alternative:** The unserviceable lead azide would remain indefinitely in storage. This alternative was carried forward as an analytical baseline pursuant to CEQ regulations. It fails the Purpose and Need because it allows the explosion hazard to escalate, guarantees persistent RCRA violation, and risks catastrophic accidental detonation.

c. **Chemical Neutralization (Eliminated from Detailed Study):** Evaluated adding caustic chemical reagents to dissolve and decompose the azide over 7 to 22 operational days. Eliminated because achieving chemical contact requires opening drums and physically agitating shock-sensitive crystals, creating an extreme and unacceptable risk of fatal accidental detonation.

d. **Transport to On-Site Open Detonation (OD) Unit (Eliminated from Detailed Study):** Evaluated moving the drums across installation roads to the permitted OD

grounds. Eliminated because loading, transporting, and burying degraded barrels introduces severe shock and friction risks that violate explosive safety criteria.

e. **Unmitigated Controlled Detonation (Eliminated from Detailed Study):** Evaluated open detonation without engineered blast barriers, dust suppression, or plume restrictions. Eliminated due to unacceptable releases of airborne lead and heavy metal dispersal that would violate RCRA and Clean Air Act thresholds.

5. Summary of Environmental Consequences

The Environmental Assessment (EA) evaluated the potential impacts of Alternative 1 across all relevant environmental resources:

- **Land Use:** Temporary operational restriction of the storage yard during setup and detonation. Following two-phase remediation and site grading, the footprint will be restored to safe, usable condition. Long-term impacts are beneficial.
- **Air Quality:** Detonation will generate a transient, localized plume containing lead particulates and combustion byproducts. Unmitigated modeling demonstrates concentrations will remain below life-threatening (PAC-2/PAC-3) thresholds. With water misting suppression, optimal atmospheric mixing heights, and strict meteorological go/no-go limits (winds >15 mph, no inversions, no precipitation), impacts will be minor and short-term. Long-term regional attainment of National Ambient Air Quality Standards (NAAQS) will not be impacted.
- **Noise (Acoustics):** A single, instantaneous impulse noise event will occur. Peak impulse sound levels (PK15[met]) will be substantially attenuated by the massive sand/lime blast containment barriers, existing earth cover, and surrounding topography. The event will not alter the annual C-Weighted Day-Night Level (CDNL) or modify installation noise zones defined in the IAAAP Environmental Noise Management Program (ENMP).
- **Hazardous Materials and Waste:** Permanently destroys existing quantity of reactive (D003) hazardous waste, abating an imminent threat. Secondary Demolition Debris (DD) will be sampled via Toxicity Characteristic Leaching Procedure (TCLP). Non-hazardous debris will be managed as solid waste; hazardous debris will be stabilized on-site or manifested to a permitted RCRA Subtitle C facility. Long-term impacts are highly beneficial.
- **Water Resources:** No direct discharges to surface waters. Concrete foundation slabs and the lime-fill foundation (which elevates soil pH and binds lead) significantly impede vertical migration to the surficial overburden and bedrock aquifers. Runoff will be controlled via an Iowa NPDES General Permit No. 2 Stormwater Pollution Prevention Plan (SWPPP). Pre- and post-treatment sampling of surface water, sediment, and existing groundwater wells will verify protection of local water resources.

- **Utilities and Infrastructure:** Non-essential overhead power lines will be de-energized prior to detonation. Primary blast overpressure is directed away from internal rail lines by the barrier venting design. Damaged localized gravel access roads will be rebuilt during Phase 4 closure.
- **Cultural Resources:** Demolition of the two 1940 ECMs is programmatically cleared and previously mitigated under Section 4.2.6 of the *Program Comment for Army Warfighting Readiness and Associated Infrastructure* (Tier 4 properties). Standard inadvertent discovery protocols protect unanticipated archaeological resources.
- **Biological Resources:** No forest canopy or tree removal will occur during active operations. Pre-treatment brush and tree clearance within the fence line was executed and documented under a separate Record of Environmental Consideration (REC) in compliance with U.S. Fish and Wildlife Service (USFWS) time-of-year restrictions (prohibiting cutting during the April 1 to October 31 bat active season). Pre-staged fire crews and rapid post-blast soil removal ensure no adverse impacts to the Indiana Bat, Northern Long-eared Bat, or other protected species.
- **Socioeconomics:** A temporary restriction of installation access and execution of an outer non-essential personnel safety exclusion zone (6,269 feet) will protect the workforce and adjacent residents. Agricultural outlease holders will be pre-notified, and post-blast soil testing in nearby fields will ensure no loss of crop productivity. Eliminating the catastrophic hazard preserves the long-term defense mission and local employment base.

6. Enforceable Mitigation Commitments and Best Management Practices

To ensure that environmental and public health impacts remain below significant levels, the U.S. Army commits to implementing the following mandatory mitigation measures and Best Management Practices (BMPs):

Environmental and Air Quality Protection

A. **Engineered Blast Containment:** The Army will utilize constructed protective earthworks surrounding both magazines consisting of approximately 19,000 cubic yards of lime-fill foundation and 300 sand-filled HESCO units, configured with a 28-foot venting gap oriented toward the southwest to deflect blast overpressure away from infrastructure and receptors.

B. **Fugitive Dust Suppression:** Water cannons or misters will thoroughly wet the magazine surfaces, containment berms, and adjacent soil prior to detonation to suppress particulate kickout, and will be utilized during post-blast excavation and debris handling.

C. **Meteorological "No-Go" Mandate:** The detonation will occur only during daylight hours under verified atmospheric conditions: surface wind speeds strictly <15mph, zero precipitation forecasted, no electrical storms, cloud ceilings > 2,000 feet, and verified absence of temperature inversions. Real-time conditions will be validated via on-site meteorological stations.

D. **Stormwater Runoff Control (SWPPP):** An Iowa NPDES General Permit No. 2 compliant SWPPP will be implemented, incorporating sediment basins, silt fencing, and earthen check dams down-gradient of the treatment area prior to detonation. Runoff controls will be inspected and maintained throughout site reclamation.

Hazardous Waste and Site Closure

E. **Execution of Two-Phase Closure Plan:** Remediation of Demolition Debris (DD) and soils will proceed systematically from the outer assessment areas inward. Soils exceeding the project cleanup goal, the EPA Regional Screening Level (RSL) for industrial soil of 800mg/kg for lead, will be excavated to clean native soil.

F. **TCLP Waste Characterization and Stabilization:** Excavated materials will undergo TCLP testing. Waste exceeding 5.0mg leachable lead will be classified as D008 hazardous waste and will either undergo bench-tested chemical stabilization to eliminate leachability prior to non-hazardous disposal, or will be manifested for direct disposal at a licensed RCRA Subtitle C facility.

G. **Comprehensive Environmental Sampling (SAP):** The Army will execute multi-incremental soil sampling across 44 Decision Units extending up to 3,000 feet, pre- and post-treatment sampling at seven co-located surface water/sediment stations, and sampling of up to six existing groundwater monitoring wells to confirm containment.

H. **Closure Certification Report (CCR):** A formal CCR documenting all analytical verifications, manifests, excavation depths, and restoration records will be prepared within 60 days of demobilization and submitted to EPA Region 7.

Safety, Noise, and Community Protections

I. **Explosive Safety Exclusion Zones:** Strict perimeter security will be enforced establishing a 956-foot inner perimeter restricted exclusively to EOD personnel and a 6,269-foot outer exclusion zone restricting all non-essential military and civilian personnel. Nearby homeowners will be notified and recommended for temporary evacuation.

J. **Three-Phase Community Engagement:** The Public Affairs Office will conduct (1) pre-detonation briefings for local elected officials and a public open house; (2) timely pre-blast alerts via broadcast media and notification systems; and (3) a post-blast public confirmation release and official after-action review.

K. **Noise Complaint Management:** Detonation timing will adhere to ENMP favorable atmospheric guidelines to prevent sound focusing, and any received inquiries or noise concerns will be addressed through the formal ENMP complaint process.

L. **Site Safety, Health, and Training:** All field personnel will hold current 40-hour HAZWOPER certification and maintain qualifications under DDESB TP-18. Operations will adhere strictly to an approved Site Safety and Health Plan (SSHP) and Project Contingency Plan, including 24-hour post-blast hold periods, pre-staged fire suppression, and emergency medical routing.

7. Finding of No Significant Impact and Recommendation

Based on the comprehensive environmental analysis presented in the accompanying Environmental Assessment, and in accordance with the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500–1508); the Department of War (DoW) NEPA Implementing Procedures (September 2026); and Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, the U.S. Army concludes that the Proposed Action (Alternative 1 – Mitigated Controlled Detonation) does not constitute a major federal action significantly affecting the quality of the human or natural environment under the National Environmental Policy Act of 1969 (42 U.S.C. § 4321 et seq.).

The implementation of the specified engineered blast controls, strict meteorological constraints, comprehensive post-detonation soil and water remediation, and enforceable mitigation commitments detailed in this document avoids, minimizes, and reduces all potential environmental, acoustic, and public health impacts to a less-than-significant level. Furthermore, the action permanently resolves an imminent and catastrophic explosive safety hazard and restores vital military-industrial readiness to the installation. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required.

It is recommended that the Commander, Iowa Army Ammunition Plant, approve the Proposed Action and sign this Mitigated Finding of No Significant Impact.



11/18/26

Daniel V. Nosse
Lieutenant Colonel, U.S. Army
Commander
Iowa Army Ammunition Plant

Date