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FINAL UXO SUPPORT PLAN REMEDIAL ACTION SITE 12 NSWC INDIAN HEAD MD
6/21/2002
SHAW ENVIRONMENTAL, INC.

FINAL
UXO SUPPORT PLAN
REMEDIAL ACTION SITE 12 – TOWN GUT LANDFILL
INDIAN HEAD DIVISION – NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND

CONTRACT NO. N62470-97-D-5000
TASK ORDER 0062

Prepared for:

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June 21, 2002

Response to Comments
Draft UXO Support Plan
Remedial Action
Site 12 – Town Gut Landfill
Indian Head, Maryland

Indian Head Division – Naval Surface Warfare Center
Shawn Jorgensen Comments

Comment 1: **Page 3-1, Section 2.2, second paragraph, first sentence. The use of hand-held radios in the entire Restricted Area (where Site 12 is located) is prohibited unless approved by Safety Department personnel.**

Response: *The text will be changed to indicate that UXO technicians will use hand signals to communicate. Additionally, hand held radios will be used if and when they are approved by the Base Safety Department.*

Comment 2: **Page 3-2, Section 3.4.1, first paragraph, second sentence. The Confined Burn Facility (CBF) does not exist at Indian Head. A Military Construction Project has been proposed for the construction of a CBF, however, this project is 8 to 10 years out. The Strauss Avenue Thermal Treatment Point (SATTP) can only accept reactive hazardous waste for disposal, i.e., Resource Conservation and Recovery Act (RCRA) D003 reactive waste. In addition, just for your information, we are not permitted to Open Detonate (OD) anything at Indian Head, including at the SATTP. However, inert UXO items can be thermally treated at the Industrial Waste Processor (IWP) as long as no explosive/propellant is visible to the naked eye and the waste is not reactive or potentially reactive, i.e., items that are only minutely explosive contaminated. In other words, the IWP can only be used to treat items that are truly inert and may have at one time come into contact with explosives but are not currently explosive contaminated (reactive).**

Section 3.4.2, third sentence from the end. I am unaware of any "EOD Technical Division" at Indian Head, unless this refers to our tenant at Stump Neck Annex. If this is the case, I doubt that they will assist in the assessment of the UXO. Perhaps this should be our Safety Department personnel. I'm sure that our Safety Department will provide comments on this. Their comments will be forwarded to you once I receive them.

Response: *Section 3.4.1 will be revised. It will no longer indicate treatment at a Confined Burn Facility. The paragraph will indicate that safe-to-move items will be moved from the excavation area to a holding area. The ROICC and Base Safety will be notified immediately and will notify EOD Mobile Unit Two Detachment Dahlgren if necessary. Base Safety will make arrangements for final disposition of UXO items.*

The reference to the EOD Technical Division will be removed from Section 3.4.2. Instead, the ROICC and Base Safety Department will be notified immediately. Base Safety will assume the responsibility for contacting EOD Mobile Unit Two Detachment Dahlgren.

Comment 3: **Page A-1, Section 1.0, last sentence. I am not familiar with a "Base Weapons" group at our facility. Perhaps this should be our Safety Department. Again, I anticipate that our Safety Department will have a comment on this. This comment holds for page A-4, first two bullets, as well.**

Section 3.0, second paragraph, first sentence. Remove the last "Scrap" from the sentence.

Response: *"Base Weapons" will be replaced with Indian Head Safety Department.*

The second "Scrap" has been deleted.

Indian Head Division – Naval Surface Warfare Center
Safety Department Comments

Comment 1: **Para 2.2. Will any soil be removed from the station? If soil is removed we have to ensure that no explosively contaminated items are removed with the soil.**

Response: *Excavated soils will be visually screened for debris then placed within the landfill limits and covered by the cap. Sediment removed from around the erosion control structures may or may not be removed from the site. The sediment will be the result of soil erosion during capping activities and should not contain any explosively contaminated items.*

Comment 2: **Para 3.3. Radio's must be approved by Safety Dept.**

Response: *The text will be changed to indicate that UXO technicians will use hand signals to communicate. Additionally, hand held radios will be used if Base Safety Department approves.*

Comment 3: **Para 3.4.1. When UXO has been found and determined safe to move, the UXO team will remove the item from the excavation area to a safe holding area ON-SITE. UXO items that cannot be fully inspected and certified as intert but are certified as safe to move will be moved to a SAFE LOCATION ON-SITE. ROICC AND BASE SAFETY WILL BE IMMEDIATELY NOTIFIED AND WILL MAKE NOTIFICATION TO EOD MOBILE UNIT TWO, DETACHMENT DAHLGREN IF REQUIRED. BASE SAFETY WILL INITIATE NECESSARY ACTIONS FOR FINAL DISPOSITION OF THESE ITEMS, INCLUDING TRANSPORTATION AND STORAGE.**

Response: *The text will be revised to incorporate this information.*

Comment 4: **Para 3.4.2. Contact ROICC and Base Safety who in turn will make necessary notification to EOD, Mobile Unit Two. Base-Safety may make an assessment that SOP's and Qualified/Certified Indian Head personnel are available for handling and treatment of the hazardous UXO. If determination is made that Indian Head can handle and treat the hazardous UXO, then storage, transportation and treatment will be done by Indian Head personnel. The on-site UXO team will establish UXO EZ based on the Q-D arc for the munition. Once notified, Base Safety will make the necessary arrangements for safe disposal. Note: We do not have an inter-service support agreements with EODTECHDIV to perform UXO assessments.**

Response: *The text will be revised to incorporate this information.*

Comment 5: **Attachment A, para 1.0 Base Weapons Group should read, Base Safety Department. Note: All notification to EOD Mobile Unit Two will be made by Base Safety.**

Response: *The text will be changed accordingly.*

Comment 6: **Attachment A, para 3.0 "Ordnance Related Scrap Metal Container", items in this category can be heat treated and certified 5X by the SWR facility on the Activity.**

Response: *The text will be changed accordingly.*

Comment 7: **Attachment A, para 4.0 OE related Scrap metal**

Response: *Intent of this comment is not clear.*

Comment 8: **Recommendation All material remain on-site (segregated) except those items deemed "Non-OE Scrap Metal", which can be emoved**

via Attachment A, para 3.0. Contractor would segregate piles as appropriate.

Response: *The material requiring off-site removal will be segregated into separate piles according to material makeup and disposal destination.*

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LIST OF ACRONYMS

Acronym	Title
AHA	Activity Hazard Analysis
CAD/PAD	Cartridge Actuated Devices/Propellant Actuated Devices
CBF	Confined Burn Facility
CEHNC	U.S. Army Engineering and Support Center, Huntsville
DRMO	Defense Reutilization and Marketing Office
EOD	explosive ordnance disposal
EP	Engineer Pamphlet
EZ	exclusion zone
IHDIV-NSWC	Indian Head Division, Naval Surface Warfare Center
MU	Mobile Unit
NAVSEA	Naval Sea Systems Command
NAVSEAINST	Naval Sea Systems Command Instruction
OE	ordnance and explosives
OP	Ordnance Publication
PPE	personal protective equipment
QC	Quality Control
Q-D	quantity distance
ROICC	Resident Officer in Charge of Construction
Site 12	Site 12 - Town Gut Landfill
SOP	Standard Operating Procedure
SSHASP	Site Specific Health and Safety Plan
SSO	Site Safety Officer
UXO	unexploded ordnance

1.0 INTRODUCTION

This UXO Support Plan has been prepared by Shaw Environmental, Inc. to support the remedial action activities of the Site 12 – Town Gut Landfill (Site 12) at the Indian Head Division - Naval Surface Warfare Center (IHDIV-NSWC) in Indian Head, Maryland. This plan will be used to guide the performance of unexploded ordnance (UXO) support operations. This UXO Support Plan provides the technical basis for observing, locating, identifying, reporting, and demilitarizing UXO while conducting excavation activities that may unearth potential or suspect UXO items.

This plan contains the following sections:

- Section 2.0 - Site Background and Objectives
- Section 3.0 - UXO Support Plan
- Section 4.0 - Site Safety and Personal Protective Equipment.

The following Standard Operating Procedures (SOP) for performing UXO support are included as attachments to this plan:

- Attachment A - UXO Related Scrap Metal Collection and Inspection Procedures
- Attachment B - UXO Transportation Procedures.

The UXO Support Plan procedures incorporate the guidance and requirements of Naval Sea Systems Command Instruction (NAVSEAINST) 8023.11, Naval Sea Systems Command (NAVSEA Ordnance Publication (OP) 5, and U.S. Army Engineering and Support Center, Huntsville (CEHNC) Engineer Pamphlet (EP) 75-1-2. The UXO Support Plan addresses the standard operating procedures to be used by all Shaw Environmental, Inc. personnel to minimize the risk from ordnance and explosives (OE). The procedures for conducting the UXO support are detailed in the following sections of this plan.

2.0 SITE BACKGROUND AND OBJECTIVES

The purpose of the UXO Support Plan is to prevent site workers from coming into contact and accidentally disturbing hazardous items while performing excavation operations.

2.1 BACKGROUND AND SITE CONDITIONS

The main goal of IHDIV-NSWC is to provide services in energetics, ordnance devices and components, and other related ordnance engineering standards, including chemicals, propellants, and their propulsion systems, explosives, pyrotechnics, warheads, and simulators. The landfills located at Site 12 on the base may contain rejected ordnance items and as such, UXO precautions should be considered when conducting landfill operations. Since OE/UXO are suspected at the landfill areas, a two-man UXO team should be on call in order to perform UXO construction support duties. If suspect UXO items are uncovered, the UXO team will be notified for mobilization to the site.

The landfill sites may contain common military munitions. In general, military ordnance must receive certain forces to become armed, ready to function, and capable of detonating on impact or proximity. Since most landfills are not ordnance impact areas, common military ordnance items should be in the unarmed condition. All site workers shall be aware that unusual and possibly hazardous ordnance items may be encountered at the landfill site and UXO personnel should be contacted.

2.2 OBJECTIVES

The objective of this work is to ensure that the soils and waste removed from landfills during excavation activities are checked as much as possible for hazardous OE/UXO. If found, the OE/UXO will be removed from the area along with other debris and properly disposed of in accordance with site-specific procedures. Soils that have been carefully visually screened for debris will be placed within the landfill limits and included under the final soil cap. Sediment removed from around the erosion control structures may or may not be removed from the site. The sediment will be a result of erosion during grading/capping activities and should not contain any explosively contaminated items. Inert UXO will be demilitarized to 5x standards in accordance with Appendix A and turned into Defense Reutilization and Marketing Office (DRMO). Other UXO will be handled as described in below.

3.0 UXO SUPPORT PLAN

The following OE/UXO support procedures will be followed by all site workers during remedial excavation operations at Site 12. These OE/UXO procedures will be implemented to prevent site workers from accidentally coming into contact with UXO and for delineating the methods that the Shaw Environmental, Inc. UXO team will use if OE/UXO is encountered. The recommended procedures to be followed and equipment to be used by the UXO team in the performance of their duties are provided in the following subsections.

3.1 UXO TEAM COMPOSITION

As required by EP 75-1-2, the UXO team will be comprised of a minimum of two Shaw Environmental, Inc. UXO personnel designated by the Shaw Environmental, Inc. OE Service Center who are qualified in accordance with CEHNC EP 1110-1-18. The supervisor for the team will have the minimum experience of a UXO Technician III and the other member will have the minimum experience of a UXO Technician II.

3.2 UXO TRAINING

The UXO Supervisor will conduct Explosive Ordnance Recognition training to other members of the field crew prior to conducting operations at Site 12. Training will consist of describing basic UXO characteristics, identification, certification procedures, demilitarization techniques, disposal procedures, and safety precautions. The Site Safety Officer (SSO) will not present the initial training unless he/she is a qualified UXO technician to avoid the possibility of conveying inaccurate information on UXO items.

3.3 GENERAL OE/UXO SUPPORT

UXO technicians will be present at all excavations conducted in areas suspected to contain OE to visually locate and identify UXO. The UXO team will oversee each excavation activity to identify and safely remove UXO from the excavation site in accordance with the procedures in Attachment A. One UXO technician will observe the excavation operation by standing in a safe area to the side of the excavator outside of the swing radius and will be responsible for examining the face of the excavation and the material as it is removed from the excavator bucket. The surface of the excavation will be carefully observed to visually detect UXO before they are disturbed. The UXO technician will take advantage of natural or placed protective structures to shield himself from the potential hazard of falling or projected debris. Another UXO technician will be positioned at the material staging area to observe the soil for UXO as it is stockpiled.

Using hand signals, the UXO technician(s) will communicate with the excavator operator to stop the excavation if suspected UXO are observed (Hand held radios can be used if approved by the Base Safety Department). Upon receiving the signal to stop, the excavator operator will immediately place the excavator bucket on the ground and shut down the excavator. The UXO team will then examine the item to determine if it is UXO. If the item is determined to be UXO, a determination will then be made by the UXO team to move or not move the UXO.

3.4 OE REMOVAL, DEMILITARIZATION, AND DISPOSAL

If a suspected UXO item is encountered, the UXO team will positively identify the item and determine its condition. If the item is determined hazardous or its condition is unknown, the UXO team will establish an Exclusion Zone (EZ) based on the quantity distance (Q-D) arc for the munition to protect the public and other site workers from exposure to the UXO hazards. The EZ will encompass the area of activity and will have access and egress control. Only UXO support personnel and safety specialists will be authorized for unescorted access in the EZ. All UXO work activities will cease immediately if non-UXO or unauthorized personnel enter the EZ.

3.4.1 UXO Safe to Move

When UXO has been found and determined safe to move, the UXO team will remove the item from the excavation area to a safe holding area on site. This area will be located close to the site but at a distance sufficient so as not to interfere in ongoing operations. The ROICC and Base Safety Department will be notified immediately and will notify Explosive Ordnance Disposal (EOD) Mobile Unit (MU) Two Detachment Dahlgren, if necessary. Material requiring off-site removal will be separated into piles according to material makeup and disposal destination. Base Safety Department will make arrangements for final disposition of the item, including transportation and storage. If Shaw Environmental, Inc. becomes involved with UXO transportation, the procedures in Attachment B will be followed.

3.4.2 UXO Not Safe to Move

Hazardous UXO items that are either unsafe to move or whose condition is unknown will be marked by brightly colored flagging tape. The ROICC and Base Safety Department will be immediately notified. All excavation activities will stop and a UXO EZ will be established based on the Q-D arc for the munition described by OP5. Only EOD/UXO qualified personnel or those designated by Base Safety Department will be allowed in the EZ without a safety escort. The UXO team will notify site management personnel of the type and hazard of the UXO located and marked. Base Safety Department will assume responsibility for contacting EOD MU Two Detachment Dahlgren to arrange for final disposition if needed or will utilize base personnel certified to utilize an appropriate SOP for the item in accordance with NAVSEAINST 8023.11.

3.5 QUALITY CONTROL

The UXO Supervisor will also act as the on-site UXO Quality Control (QC) Specialist. He will perform site QC inspections as a collateral duty. He will inspect certification and demilitarization documentation for compliance with QC documentation standards.

4.0 SITE SAFETY AND PERSONAL PROTECTIVE EQUIPMENT

UXO personnel performing work at Site 12 will follow the Site Specific Health and Safety Plan (SSHASP) presented in Appendix D of the Work Plan. Exceptions to the SSHASP are as follows for the UXO personnel:

- Safety boots will be worn during UXO support operations
- Hard hats will not be worn unless an overhead hazard exists. Hard hats may create an unsafe condition by falling off of the head of a UXO technician at a critical moment.

Otherwise, personal protective equipment (PPE) may be worn by IT UXO personnel in accordance with the guidance in the referenced document. This is anticipated to be Level "D" PPE modified to include non-steel toed protective boots and to eliminate the requirement for wearing a hard hat if no overhead hazard is present. Both of these modifications comply with the requirements of the CEHNC's EP 385-1-95a *Basic Safety Concepts and Considerations for OE Operations* (June 2001).

A Shaw Environmental, Inc. SSO will work with the UXO team to ensure that the requirements of the SSHASP are followed and a review of the Activity Hazard Analysis (AHA) is conducted by the UXO team members.

ATTACHMENT A
UXO RELATED SCRAP METAL COLLECTION AND INSPECTION PROCEDURES

UXO Related Scrap Metal Collection and Inspection Procedures
For
UXO Support at IHDIV-NSWC Indian Head, Maryland

June 2002

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1.0 Purpose

This SOP is intended to guide Shaw Environmental, Inc. UXO Technicians in the safe and efficient handling and disposal of ordnance explosives (OE)/unexploded ordnance (UXO) related scrap metal found at Shaw Environmental, Inc. project sites. The inherently dangerous characteristics of Ammunition Explosives Dangerous Articles (AEDA) dictate that special precaution be taken to ensure that demilitarization is performed only by properly trained and technically qualified personnel. This procedure is general in nature and may contain more information (i.e., on-site detonations) than is required for this project. UXO items that are determined to be inert will be demilitarized on site. Other items such as safe-to-move and unsafe-to-move will either be shipped off site for disposal (safe-to-move) or remain in place and notification made to the Indian Head Division-Naval Surface Warfare Center (IHDIV-NSWC) Safety Department

2.0 Background

The procedures below are designed to reduce the potential pitfalls of improperly handling (co-mingling of hazardous and non-hazardous scrap) OE scrap items.

References

DoD 4160.21-M	Department of Defense Reutilization and Marketing Manual
DoD 4160.21-M-1	Department of Defense Demilitarization Manual
TB 700-4	Department of the Army Technical Bulletin - Decontamination of Facilities and Equipment

3.0 Collection Procedures

At the operating site, Shaw Environmental, Inc. will preposition two scrap metal containers. One container will be marked "Non-OE Scrap Metal" and will be used to collect general metal debris. The other container will be marked "Ordnance Related Scrap Metal" and will be used to collect nonhazardous ordnance related scrap metal (i.e. Metal components that do not contain any explosives or other hazardous materials). They will be heat treated and certified 5X by the SWR facility at IHD-NSWC.

A UXO technician will examine any inert OE or metal removed from the landfill at Site 12 and categorize it as OE or non-OE Scrap. The item will then be placed in one of the two designated separate piles.

Prior to any movement of OE/UXO the following disposition procedures will be followed:

- OE/UXO determined to be inert by exterior and interior inspection by UXO Technicians will be demilitarized on site. UXO Technicians will ensure that each range residue item is cut, crushed, or otherwise deformed to meet Department of

Group 1a includes firing range expended small arms cartridge and inert metals. Metals include material for which the only use is for its basic material content (e.g. clean shrapnel, target metal, etc.) and does not include material with any residual utility or capability or that is considered to be Munitions List Items (MLI) or Commerce Control List Items (CCLI). Such material is eligible under the Resource Recovery and Recycling Program for disposition by a Qualified Recycling Program (QRP) in accordance with DoD 7514.1, Pollution Prevention. DoD Components may exercise direct sale authority for firing range expended small arms cartridge cases provided that it is crushed, shredded or otherwise destroyed prior to release from DoD control.

4.1.2 Group 1b Scrap Metal

Group 1b includes any certifiable material or item not meeting the criteria in 1a above. A determination shall be made as to whether the material/item requires demilitarization. Damage sustained to a UXO item does not necessarily constitute demilitarization. Destruction shall, at a minimum, satisfy the provisions of DoD 4160.21-M-1. This material is not eligible for a QRP.

4.2 Group 2 Scrap Metal

Group 2 includes inherently dangerous items that may potentially contain munitions residue and cannot be certified as inert, such as practice bombs.

5.0 Disposition of Munitions List Items

Demilitarization should be accomplished by the most cost effective method consistent with adequate security and surveillance as practical in accordance with existing environmental standards, safety and operational regulations, to the point of assuring freedom from explosives, toxic or incendiary materials, smoke content or design hazards by one of the following methods:

- By a sales contractor, as a condition of sale. Unless otherwise authorized, property to be demilitarized by this manual must be demilitarized prior to transfer of title to a purchaser.

- By the Defense Reutilization and Marketing Office (DRMO), generating activity, designated Military Service/Defense Agency or contractor personnel (having qualified UXO personnel).

- Under a service/performance contract.

Prior to attempting to demilitarize an item, the following determination must be made:

- Is the item a UXO item or part of a UXO item?

  - If "NO," then continue on with the work.

  - If "YES," then a determination needs to be made if it is inert or potentially live.

- If the item is determined to be inert, it can then be demilitarized then disposed of on site.

- If the item cannot be identified as inert, then it must be determined if the item is safe to move or unsafe to move.

  - If the item is safe to move, it can be relocated to another part of the site, followed by notification to Base Weapons and Dahlgren EOD Detachment. The EOD committee at Dahlgren will then determine if and when the item can be accepted at their facility.

  - If the item is unsafe to move, a 300-yard no-work zone will be established around the item, then notification made to Base Weapons and Dahlgren EOD Detachment. Navy EOD personnel will then respond at their earliest availability to take charge of the item.

5.1 Assignment of Demilitarization Codes

The proper procedure requires that OE scrap be assigned a demilitarization code and that code determines the type of processing required. For almost all OE scrap the assigned code should be "G". Assignment of this code is the responsibility of the generating activity.

Definition of Demilitarization Code "G":

"G" MLI -- Demilitarization required - AEDA, Demilitarization, and if required, declassification and/or removal of sensitive markings or information, will be accomplished prior to physical transfer to a DRMO. This code will be used for all ADEA items, including those, which also require declassification and/or removal of sensitive marking or information. [When in doubt assign Demilitarization Code G for all recovered OE related scrap.]

5.2 Demilitarization Requirements

Demilitarization and decontamination of OE scrap is based on a system that assigns decontamination levels commensurate with the post treatment use. For metal that is being released to the public as recyclable, 5X is the acceptable degree of decontamination.

Three Xs indicate the equipment or facilities (in this case OE scrap) have been examined and decontaminated by approved procedures and no contamination can be detected by appropriate instrumentation, test solutions, or by visual inspections on easily accessible surfaces or in concealed housings, etc. and are considered safe for the intended use. Items decontaminated to this degree cannot be furnished to qualified DoD or Industry users or subjected directly to open flame cutting, welding, high temperature heating devices), or operations which generate extreme heat, such as drilling and machining. Newly implemented certification procedures require two signatures for certification, of which only one signature may be from a government contractor if demilitarized or decontaminated items are to be hauled off site as scrap.

The only acceptable way to get to 5X decontamination is by partial or complete removal, neutralization, or destruction of explosives/explosive residue by flashing, steaming, neutralization, or other approved desensitizing methods such as shredding. This is often expensive and nullifies the value of the scrap. However to leave OE scrap on a site increases the possibility of residues such as RDX, HBX, and TNT entering the ground water and causing a more expensive problem.

5.2.1 Ammunition - Method and Degree of Required Demilitarization

- **Artillery/Mortar Ammunition Components and Similar Items of All Types** including but not limited to high explosive, practice, inert loaded, incendiary, and smoke fillers. Remove explosive filler from projectile (wash out, burn out, etc.). Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Burn propellant unless otherwise instructed to retain for sale or other purposes. Deform fin assembly threads or fin blades. Cartridge cases will be deformed by off-center punch-out of primer or split case neck or puncture the lower sidewall with a minimum of 3/4 inch hole or deform lower sidewall, which will prevent chambering, or crush or press. Burn out smoke mixture or detonate smoke canister.

- **Inert Loaded Ammunition, Projectiles, and Similar Items of All Types** loaded with inert filler to simulate service item. Remove rotating band from artillery projectiles and open the closure of the projectile body to expose the inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent reloading or resealing.

  NOTE: For inert loaded items (concrete, sand, plaster) a potential explosive safety hazard exists when the internal filler is not exposed or unconfined during burning. Melting, or cutting. Heat generated from a demilitarization process can cause the filler, moisture and air to expand and burst sealed casings. For this reason, DRMOs will not accept inert loaded items unless the internal filler is exposed and unconfined. The internal filler may be exposed by removal of the fuze well from the cavity, removal of base plates, or by puncturing/drilling holes in the bomb casing.

- **Category III Ammunition and Components Which Have Been Fired or Expended and Other Non-Explosive Items.** All items will be rendered free of energetic materials prior to accomplishment of demilitarization. Range residue will be processed in accordance with the defense Material Disposition Manual, DoD 4160.21-M, Chapter 4, paragraph B.3, after all required demilitarization is accomplished.

  - **Artillery/Mortar Ammunition Components and Similar Items of All Types.** Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Score practice round with a torch, displacing a minimum of one cubic inch of metal or shear into two pieces. Deform fin assembly threads and fin blades.

- **Inert Loaded Ammunition, Projectiles, and Similar Items of All Types** loaded with inert filler to simulate service item. Remove rotating band from artillery projectiles and open the enclosure of the projectile body to expose the inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent relocating or resealing. **NOTE:** For inert loaded items (concrete, sand, plaster) a potential explosive safety hazard exists when the internal filler is not exposed or unconfined during burning, melting, or cutting. Heat generated from a demilitarization process can cause the filler, moisture and air to expand and burst sealed casings. For this reason, DRMOs will not accept inert loaded items unless the internal filler is exposed and unconfined. The internal filler may be exposed by removal of the fuze well from the cavity, removal of base plates, or by puncturing/drilling holes in the bomb casing.

- **Other Nonexplosive Filled Items** that perform a major function essential to the basic mission of the end item. Cut, crush, or process through a deactivation furnace. Burn or cut cartridge case lines and propelling charge bags. Cut, burn, or crush aircraft and ground signal cases. Crush or detonate piezoelectric (lucky) elements.

- **Technical data** will be demilitarized by burning, shredding, or pulping.

5.2.2 Category V. Military Explosives, Solid and Liquid Propellants, Bombs, Mines, Incendiary Agents, and Their Constituents - Method and Degree of Required Demilitarization

- **Artillery/Mortar Ammunition Components and Similar Items of All Types** including but not limited to high explosive, practice, inert loaded, incendiary, and smoke fillers. Remove explosive filler from projectile (wash out, burn out, etc.). Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Burn propellant unless otherwise instructed to retain for sale or other purposes. Deform fin assembly threads or fin blades. Cartridge cases will be deformed by off-center punch-out of primer or split case neck or puncture the lower sidewall with a minimum of 3/4 inch hole or deform lower sidewall, which will prevent chambering, or crush or press. Burn out smoke mixture or detonate smoke canister.

- **Inert Loaded Projectiles, Warheads and Similar Items of All Types** loaded with inert filler to simulate service item. Remove fuze and/or spotting charge, where applicable, and burn or detonate. Remove rotating band from artillery projectiles and open the enclosure of the projectile body to expose inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent reloading or resealing.

- **Bombs and Similar Items of All Types,** including but not limited to high explosive, practice, inert loaded, incendiary and photo flash fillers, military explosive excavating devices, demolition blocks, and grenades. Demilitarization will be accomplished by removal of explosive filler in an approved manner (e.g., wash-out, burn-out, etc.) And by deforming fuze cavity threads or removing base plate by other than normal disassembly (such as sawing) or by detonation. Grenades will be demilitarized by cutting or crushing (a minimum of 75% compression) the grenade body after item has been defuzed and explosive removed or by detonation.

- **Small Explosive Items**, including but not limited to fuzes, boosters, primers, detonators, firing devices, ignition cartridges, blasting caps, grenade cartridges, tracer assemblies, and similar components. Demilitarization can be accomplished by processing through a deactivation furnace at settings of 1150 degrees at burner end and 450 to 500 degrees at stack end or by mutilation. Incendiary projectiles will normally be decored to expose and assist in the compete burning of the incendiary composition. Where decoring of projectile is not necessary, processing through the deactivation furnace is adequate. Burn out 20mm high-explosive (HE) projectiles by processing through the deactivation furnace or detonate. Processing complete small arms ammunition cartridges, all calibers, through the deactivation furnace at controlled temperatures will result in adequate demilitarization. Fuzes and boosters can be disposed of by disassembly and cutting, drilling, or punching to deform metal parts. Explosive components generated through disassembly are to be burned or detonated. Fuzes may also be processed through a deactivation furnace as a complete item when disassembly is not feasible. For grenades demilitarization may be accomplished by removal of explosive components by crushing, cutting, breaking, melting, burning, or otherwise to fully preclude their rehabilitation or further use as grenade components. Demilitarization may also be accomplished by detonation or burning as appropriate for the particular item involved.

- **Rocket Motors, Warheads, Components and Similar Items of All Types,** including high explosive, inert, loaded, practice and smoke. Wash out or burn out rocket warhead filler and mutilate casing by crushing or cutting by torch and deforming threaded area. Disassemble and remove or burn out rocket motor propellant and cut or crush case, and deform threaded area of cases. Rocket motors and warheads may also be detonated.

- **Mines, Anti-Personnel/Anti-Tank Explosive, Components and Similar Items of All Types** including high explosive, practice, inert loaded associated explosive components. Wash out or burn out filler and mutilate by crushing, cutting by torch, deforming threaded area or detonate. Process mine fuzes, activators, and firing devices through a deactivation furnace, burn in a cage or detonate. Mine firing such as the M56 or M61 types should be crushed, cut, or burned.

- **Ammunition and Components Which Have Been Fired or Expended and Other Non-Explosive Items.** All items will be rendered free of energetic materials prior to accomplishment of demilitarization. Range residue will be processed in accordance with the defense Material Disposition Manual, DoD 4160.21-M, Chapter 4, paragraph B.3, after all required demilitarization is accomplished.

  - **Artillery/Mortar Ammunition Components and Similar Items of All Types** including but not limited to high explosive, practice, inert loaded, incendiary, and smoke fillers. Remove explosive filler from projectile (wash out, burn out, etc.). Remove rotating band and deform fuze cavity threads or score or deform bourrelet or gas check band. Score practice round with a torch, displacing a minimum of one cubic inch of metal or shear into two pieces. Deform fin assembly threads and fin blades. Defective cartridge cases will be deformed by off-center punch-out of primer or split case neck or puncture the lower sidewall with a minimum of ¾ inch hole or deform lower sidewall, which will prevent chambering, or crush or press. Burn out smoke mixture or detonate smoke canister.

  - **Inert Loaded Ammunition, Projectiles, and Similar Items of All Types** loaded with inert filler to simulate service item. Remove rotating band from artillery projectiles and open the enclosure of the projectile body to expose the inert filler. On items without rotating bands, open the body closure to expose the inert filler and damage the closure surface to prevent relocating or resealing. **NOTE:** For inert loaded items (concrete, sand, plaster) a potential explosive safety hazard exists when the internal filler is not exposed or unconfined during burning, melting, or cutting. Heat generated from a demilitarization process can cause the filler, moisture and air to expand and burst sealed casings. For this reason, DRMOs will not accept inert loaded items unless the internal filler is exposed and unconfined. The internal filler may be exposed by removal of the fuze well from the cavity, removal of base plates, or by puncturing/drilling holes I the bomb casing.

  - **Bombs and Similar Items of All Types**, including but not limited to high explosive, practice, inert loaded, incendiary and photoflash fillers, military explosive excavating devices, demolition blocks and grenades. Demilitarization will be accomplished by deforming fuze cavity threads or removing base plate by other than normal disassembly (such as sawing) or by detonation. Grenades will be demilitarized by cutting or crushing (a minimum of 75% compression) the grenade body after item has been defuzed and explosive removed or by detonation.

  - **Rocket Motors, Warheads, Components and Similar Items of All Types**, including high explosive, inert loaded, practice and smoke. Demilitarize casing by crushing or cutting by torch or deforming threaded area. Cut, crush case, or deform threaded area of rocket motor cases.

- **Mines, Anti-Personnel/Anti-Tank, and Similar Items of All Types** including high explosive, practice, inert loaded and associated components. Demilitarize casing by crushing, or cutting by torch, and deforming threaded area or detonate. Mine firing devices such as the M56 or M61 types should be crushed, cut, or burned.

- **Instructions For Specific Ordnance Items:**

  - **BDU-50 Practice Bomb:**

    a. Each bomb must be inspected by qualified EOD/UXO personnel to ensure that bombs are BDU-50s and that the bomb is expended. If the EOD/UXO personnel cannot verify both fuze wells, or absence thereof, it must be op- opened remotely by detonation.

    b. A 1/4-inch hole will be punched in each of the two spanner wrench receptacles, fracturing the metal to a depth in excess of 1/10 inch into the concrete filler material.

    c. A 1/4-inch punch will be utilized to further damage the threads of the nose plate, ensuring that the plate cannot be removed and replaced.

    d. Fins will be deformed or broken and paint will then be used to place a mark of contrasting color on the bomb or near the nose.

- **Technical data** will be demilitarized by burning, shredding, or pulping.

5.2.3 Venting of OE Related Scrap

Prior and current practices have taken this to mean that if the OE item is intact and resembles a piece of military ordnance, such as a 105mm High-Explosive Anti-Tank (HEAT) (Practice) projectile, it should have a hole punched through the side to expose the filler as non-explosive. This is typically accomplished through the use of a shape charge attack. The explosively created hole exposes the filler and disfigures the projectile so that it could not be used again. For a 105mm HEAT (Practice) round this approach is sufficient because the projectile never contained any explosives or energetic material used as a spotting charge. For a MK- 82 Low Drag General Purpose (LDGP) Bomb (Practice) this approach may not be sufficient because the bomb can contain various types of explosively activated spotting charges that have the capability to cause injury or death if exposed to the right elements such as flame from a cutting torch. And there is always the possibility that a shape charge attack may punch a hole in an explosive ordnance item exposing the filler but not causing a detonation. Because some explosive fillers look like inert fillers the possibility for mis-identification and improper certification is real.

UXO known or suspected to be inert (filled with an inert substance to simulate the weight of an explosive filler) will be explosively vented with conical-shaped charges. For the purpose of determining the fragmentation hazard area for explosive venting, it will be assumed that the UXO has an explosive filler and that a high-order detonation will occur. Venting will be

considered successful when the inert filler is exposed. The vented inert ordnance item can be treated and disposed as scrap after the venting and demilitarization process is complete.

6.0 Certification/Disposal of Scrap Metal

The generating activity will ensure that the quantities of demilitarized property turned in to the DRMO are accurate and that these quantities are readily verifiable by the DRMO. DRMOs will not accept any property unless the Department of Defense (DD) Form 1348-1A contains the demilitarization code or clear text statement of the demilitarization required. The generating activity is responsible for issuing a letter specifying who is authorized to sign the statement of inert certification. This letter will be kept in the project files, at the local DRMO, and with the generating activity. It must be update as needed.

All material generated from the firing and/or demilitarization of AEDA will be rendered **free from explosives** before being referred to a DRMO for sale. All scrap metal, generated at the site, will be disposed of through the local DRMO or when appropriate and approved to a local scrap metal dealer, and will be transferred using DD Form 1348-1A. Prior to release of the material, the Senior UXO Supervisor will physically inspect the material in the containers to ensure that they are free of dangerous items or conduct demilitarization operations. The Senior UXO Supervisor will sign the certificate, typed on the DD Form 1348-1A, which states:

"I certify that the property listed hereon has been inspected
by me and, to the best of my knowledge and belief, contains
no items of a dangerous nature."

or

"I certify that (identify items) were demilitarized in accordance
with cite specific instructions (Appendix and Item number)
that were complied with in the DoD 4160.21-M-1
and other applicable regulations."

The certification will be verified (countersigned) by a technically qualified U.S. government representative (U.S. citizen) designated by the responsible commander/generating activity.

Scrap will be segregated into like metals (mainly steel, aluminum, and mixed metal) and placed into pelletized wooden shipping boxes. Each item placed into an inert-certified box will be inspected. The boxes will be filled, the covers will be nailed on, and a lead seal will be affixed. A Statement of Inert Certification will then be attached to the box. The box can then be picked up by a local scrap yard for disposal or recycling.

Using these procedures, Shaw Environmental, Inc. ensures that the collected scrap metal is properly inspected and classified. Our method includes three distinct inspections, which are performed by persons of increasing levels of responsibility. The first inspection is performed at the operating grid by a qualified UXO Technician, the second is performed by the supervisor responsible for the operating grid, and the final inspection is performed by the Senior UXO Supervisor who is vested with overall responsibility.

ATTACHMENT B
UXO TRANSPORTATION PROCEDURES

Unexploded Ordnance (UXO) Transportation Procedures
For
UXO Support at IHDIV-NSWC Indian Head, Maryland

June 2002

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1.0 Purpose

This Standard Operating Procedure (SOP) is intended to guide Shaw Environmental, Inc. UXO Specialists in the procedures for safely transporting demolition materials and unexploded ordnance (UXO).

The general criteria and procedures detailed in this plan will be augmented by state and local regulations as appropriate as well as Base procedures. Basic procedures for transportation of demolition materials and the recovery and transportation of UXO for storage and disposal are outlined in this section.

2.0 UXO Transportation Regulations

The following guidance and regulations are applicable:

- DoD 6055.9-STD - DoD Ammunition and Explosives Safety Standards
- EM 385-1-1 - Army Corps of Engineers Safety and Health Requirements Manual
- U.S. Army Engineering and Support Center, Huntsville, (CEHNC) "Basic Safety Concepts and Considerations for UXO Operations."
- ATFP 5400.7 - Alcohol, Tobacco, and Firearms Explosives Laws and Regulations
- 27 Code of Federal Regulations (CFR) Part 55 - Commerce in Explosives
- 49 CFR Part 100 - 199 – Transportation
- DA Pam 385-64 - Ammunition and Explosives Safety Standards
- Selected EODB Publications.

3.0 Transportation of OE/UXO

On-site transportation of recovered UXO will be performed in support of UXO/OE characterization and removal activities in compliance with 49 CFR Parts 100 through 199. Routes from Site 12 to the designated magazine will be established by Base Safety Department for movement of recovered ordnance explosives (OE) that the UXO team has determined safe to move. Any deviation from the routes should be treated as a change to the work plan and properly approved. This procedure is intended to eliminate the possibility of being unable to locate a disabled explosives-laden vehicle.

Recovered military munitions or UXO will not be moved unless safe to do so. Movement of UXO is the last consideration and only performed when the two UXO specialists can make a positive identification that the munition is unfuzed and safe to move. The following transportation rules are to be followed:

- Per the requirements of 49 CFR 172 Subpart H – Training, all personnel who meet DOT's definition of "hazmat employee" for this project will fulfill the training requirements outlined in the Subpart, including General Awareness/Familiarization Training, Function-Specific Training, and Safety Training. Requirements found in 49 CFR 177.816 for driver training will be fulfilled as applicable.

- The UXO will be properly classified, packaged, marked, labeled, placarded, and shipping papers prepared as specified in 49 CFR 172 and 173.

- Emergency response information and an emergency response telephone number will be supplied with the shipments according to 49 CFR 172 Subpart G.

- The subcontractor supplying trucks and drivers is subject to the Department of Transportation (DOT) Registration Program requirements per 49 CFR 107 Subpart G.

- The driver of any explosive-laden vehicle will ensure that the load is properly braced and that the initiators are carried separately from main charge explosives.

- The vehicle used to transport the safe-to-move UXO items will have a non-sparking bed liner, and all explosive loads will be covered prior to departure.

- The UXO Supervisor will ensure that the driver and any passengers are not carrying any smoking products or flame producing devices. Smoking is strictly forbidden by all personnel involved in the handling or transportation of UXO items.

- All vehicles transporting UXO items will be equipped with reliable communications, a first aid kit, and two 10-pound (lb) BC fire extinguishers.

- Drivers transporting UXO items on roads that are not controlled by the U.S. Government must posses a valid commercial drivers license with a hazardous materials (HAZMAT) endorsement.

- If loose pyrotechnic, tracer, flare, and similar mixtures are to be transported, they shall be placed in #10 mineral oil or equivalent to minimize fire and explosion hazards.

- If an unfired rocket motor must be transported, it shall be positioned in such a manner as to offer the maximum protection to personnel in the event of an accident.

- If base-ejection type projectiles must be transported to a disposal area or collection point, the base will be oriented to the rear of the vehicle and the projectile secured, in the event the ejection charge functions in route.

- If an UXO, with exposed hazardous filler (HE, etc), has to be moved to a disposal area, the item shall be placed in an appropriate container with packing materials to prevent migration of the hazardous filler. Padding should also be added to protect the exposed filler from heat, shock, and friction.

- Vehicles transporting UXO items will be inspected daily when in use and the inspections will documented. A DOT Form DD626 will be completed prior to transportation onto public roadways.

In addition to the procedures cited in the above, the following actions will be taken to maintain regulatory compliance whenever UXO items are being transported over public roads:

- A hazardous waste manifest will be used (generator number required) and will be reviewed by the P2 and C lead.

- The transporter must have an Environmental Protection Agency (EPA) identification number

- Reporting requirements in the event that a signed manifest is not received from the transporter and the storage location within 45 days will be complied with.