



**FINAL
REVISED
UXO SUPPORT PLAN
REMEDIAL ACTION FOR SITE 41 – SCRAP YARD
INDIAN HEAD DIVISION – NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND**

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LIST OF ACRONYMS

<u>Acronym</u>	<u>Title</u>
AHA	Activity Hazard Analysis
CAD	Cartridge Actuated Device
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
OHM	OHM Remediation Services Corporation
OP	Ordnance Publication
PAD	Propellant Actuated Device
PPE	personal protective equipment
QC	Quality Control
Q-D	quantity distance
ROICC	Resident Officer in Charge of Construction
Shaw E&I	Shaw Environmental and Infrastructure, Inc.
Site 41	Site 41 - Scrap Yard
SOP	Standard Operating Procedure
SSHASP	Site Specific Health and Safety Plan
SSO	Site Safety Officer
UXO	unexploded ordnance

1.0 INTRODUCTION

This Unexploded Ordnance (UXO) Support Plan has been prepared by OHM Remediation Services Corporation (OHM) to support the remedial action activities of the Site 41 - Scrap Yard (Site 41) 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 UXO support operations. This UXO Support Plan provides the technical basis for observing, locating, identifying, separating, demilitarizing and disposing of UXO items 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 Activities
- Section 4.0 - Site Safety and Personal Protective Equipment.

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

- Attachment A - UXO Related Scrap Metal Collection, Inspection and Demilitarization 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 and Infrastructure, Inc. (Shaw E&I) 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 provide the standard operating procedures to be used at Site 41 by Shaw E&I UXO and support personnel and to provide the methodology to prevent Shaw E&I employees and base personnel from coming into contact and accidentally disturbing potentially hazardous UXO items while performing UXO location, identification, separation, and demilitarization activities prior to, during, and after soil removal and excavation operations.

2.1 SITE BACKGROUND AND EXISTING 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. Site 41 is located along the Mattawoman Creek on the Base and contains scrap metal as well as numerous ordnance items including Cartridge Actuated Devices (CAD)/Propellant Actuated Devices (PAD), rocket motors, bomb casings, and bomblets. All items appear to be inert; however, UXO procedures will be used when conducting excavation operations. A UXO team will mobilize to the site to identify, separate, and demilitarize the surface UXO prior to conducting other remedial activities at the site. In addition, a two-man UXO team will be on site in order to perform UXO support duties for the removal and screening of contaminated soil.

Site 41 consists of a large concrete pad used to store scrap metal and other items and an adjacent area consisting of flat ground and railroad tracks. The concrete pad contains a variety of scrap metal and contaminated soil as well as 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 the site is not an ordnance impact area, 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 site and the workers are required to inform UXO personnel of any suspect items discovered.

2.2 OBJECTIVES

The objective of this work is to ensure that the soils and waste removed from the site during excavation activities are screened for OE/UXO. Any OE/UXO items discovered will be visually inspected to insure that these items are free of energetic material, and separated from the non-OE debris. Demilitarization and scrap management procedures will be employed in accordance with site-specific procedures. Soil remaining on the concrete pad will be visually inspected then mechanically screened to separate smaller OE/UXO items from the contaminated soil. Inert UXO will be demilitarized to 5x standards in accordance with Appendix A and returned to the Defense Reutilization and Marketing Office (DRMO) or hauled off site for metal recycling. Other UXO will be handled as described in this support plan.

3.0 UXO SUPPORT ACTIVITIES

This UXO Support Plan has been prepared to provide procedures that will allow for the safe identification, movement, and disposal of the OE-related items on the concrete pad and mixed with other soil to be excavated. Currently, the site contains a variety of OE-related items. The larger items have been segregated from the PCB-contaminated soil and are staged on the concrete pad at various locations near the entrance. These staged items include items previously certified as inert and items not yet identified as such. Many of the larger items contain concrete or asphalt as the filler. Other smaller items, such as the CAD items, are inner-mixed with the contaminated soil and will require mechanical screening. In addition, there are numerous non-OE related items, such as reinforcing and structural steel also mixed in with the soil. The handling and disposal of the non-OE related items is discussed in the Work Plan. This plan deals specifically with the handling and disposal of OE-related items and shapes.

The specific OE/UXO-related activities for this site will include the following:

- Initially identify which segregated OE-related items are inert and further separate into groups.
- Visually identify additional OE/UXO items scattered throughout the site and collect and separate into groups.
- During the mechanical screening operation, continue to identify and separate the OE/UXO items.
- Conduct demilitarization of inert items.

All Shaw E&I site employees and base personnel working at Site 41 during UXO-related remedial operations will follow the following OE/UXO support procedures. 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 E&I 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 the U.S. Army Engineering and Support Center, Huntsville, Engineering Pamphlet (EP) 75-1-2 (UXO Support During HTRW and Construction Activities), the UXO team will be comprised of a minimum of two Shaw E&I UXO personnel designated by the Shaw E&I 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 for other members of the

field crew prior to conducting operations at Site 41. Training will consist of describing basic UXO characteristics, identification, certification procedures, demilitarization techniques, disposal procedures, and safety precautions. The Site Safety Officer (SSO) will assist in the training but will not lead initial training unless he/she is a qualified UXO technician. This will avoid the possibility of conveying inaccurate information on UXO items.

3.3 GENERAL OE/UXO SUPPORT

The UXO technicians will mobilize to the site to begin UXO support. The UXO technicians will initially identify and separate the large surface UXO. The field crew will mobilize to the site after the initial UXO activity. Because of the large volume of OE scrap present at Site 41, UXO technicians will be present at all excavation and soil removal activities, power screening operations, OE Scrap removal efforts, and inert OE Scrap demilitarization. Detailed operating procedures which must be followed are specified in Attachment A.

3.4.1 Excavations, Screening, and OE Removal

One UXO technician will observe the soil removal operation by standing in a safe area to the side of the excavator or loader outside of the swing radius. This UXO technician will be responsible for examining the face of the excavation and the material as it is being loaded into the excavator or loader bucket. The surface of the excavation will be carefully observed to visually detect UXO before they are potentially 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. Additionally, all excavated soils will be mechanically screened for UXO. The second UXO technician will be positioned at the mechanical screener to examine the materials as they are processed by the screener. Using hand signals, the UXO technicians will communicate with the equipment operators to stop the soil removal or screening process. If suspected UXO are observed (Upon receiving the signal to stop) the equipment operator will immediately place the bucket on the ground and shut down the equipment. The UXO team will then examine the item to determine if it is inert OE or potentially live. OE scrap will be moved to the appropriate area as outlined in Attachment A

3.4.2 OE Disposition

During the field screening and material handling operation, three types of OE items may be encountered. These include the following:

- Inert OE
- Potentially live but safe to move
- Potentially live and unsafe to move.

The following sections will discuss the procedures to be followed when each of these types of OE items are identified.

3.4.2.1 Inert OE

It is anticipated that all OE encountered will be inert. However, each item will be carefully examined before moving. OE items encountered that are believed inert but require additional internal inspection to

certify them as such will be moved to the area designated for this purpose as specified in Attachment A. Examples in this category include concrete filled MK83 bombs. OE found and determined inert will be moved to the appropriate designated area for demilitarization and certification as specified in Attachment A.

3.4.2.2 UXO Live But Safe to Move

If an OE item is found which upon investigation is determined to be potentially live but safe to move, the UXO team will remove the item from the excavation or screening 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 Resident Officer in Charge of Construction (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 E&I becomes involved with UXO transportation, the procedures in Attachment B will be followed.

3.4.2.3 UXO Live and Not Safe to Move

If an OE item is found and determined hazardous or its condition is unknown, IHDIV-NSWC safety personnel will be requested to establish an Exclusion Zone (EZ) based on the quantity distance (Q-D) arc for the munition to protect base personnel 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.

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 and/or screening 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. This may be the case for CAD/PADs.

3.5 QUALITY CONTROL

The UXO Supervisor or QC Manager will act as the on-site UXO Quality Control (QC) Specialist. 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 41 will follow the Site Specific Health and Safety Plan (SSHASP) presented in Appendix D of the Work Plan. This work is anticipated to be conducted in Level “D” PPE. Since the major safety concerns are from heavy equipment operations and heavy pieces of OE scrap the UXO technicians will wear steel toed safety boots and hardhats both of which are normally excepted from OE operations.

An Shaw E&I 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, Inspection and
Demilitarization Procedures
For
UXO Support at IHDIV-NSWC Indian Head, Maryland**

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LIST OF ACRONYMS

AEDA	Ammunition Explosives Dangerous Article
CCLI	Commerce Control List Items
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EOD	Explosive Ordnance Disposal
HE	High-Explosive
HEAT	High-Explosive Anti-Tank
IHDIV-NSWC	Indian Head Division – Naval Surface Warfare Center
IWP	Industrial Waste Processor
LDGP	Low Drag General Purpose
MLI	Munitions List Items
OE	Ordnance Explosives
OHM	OHM Remediation Services Corporation
QRP	Qualified Recycling Program
ROICC	Resident Officer In Charge of Construction
Shaw E&I	Shaw Environmental and Infrastructure, Inc.
SOP	Standard Operating Procedure
UXO	Unexploded Ordnance

1.0 Purpose

This standard operating procedure (SOP) will be followed by UXO Technicians in order to safely demilitarize and dispose of OE related scrap found at Site 41 IHD NSWC. 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

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 and Segregation Procedures

At the operating site, Shaw Environmental and Infrastructure, Inc. (Shaw E&I) UXO technicians will examine any inert OE or metals removed from the site and categorize it as OE or non-OE Scrap. The items will then be segregated into three areas. One area will be designated for metal Scrap (non-OE). Another will be designated for certified inert OE scrap that requires additional demilitarization. A third will be designated for Suspected inert OE but requires additional inspection due to inability to gain access to the interior of the item. Once inert OE items have been demilitarized in accordance with DODD 4160.21-m-1 they will be designated 3X scrap or 5X Scrap if the item never contained energetic materials such as training bomblets. All 3x must be heat treated by the Industrial Waste Process (IWP) facility at IHDIV-NSWC and certified 5X before it is ready for release from DoD control to a DRMO designated Scrap dealer

4.0 Demilitarization Methods

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. Due to the number of large bomb cases and rocket boosters a plasma cutter will be used to demil a considerable amount of the inert OE materials that have been certified visually free of energetic material. Smaller items will be crushed by a backhoe where possible. Only individuals trained in its use and following the operating instructions provided by the manufacturer will use the plasma cutter. **SAFETY 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. The internal filler must be exposed by removal of the fuze well from the cavity, removal of base plates, or by puncturing/drilling holes in the bomb casing before plasma cutting.

4.1 Assignment of Demilitarization Codes

The level of demilitarization necessary is specified in the paragraphs below. The proper procedure requires that OE scrap is assigned a demilitarization code and that code determines the type of processing required. For almost all OE scrap the assigned code should be "G". The site UXO supervisor and the base explosives safety representative will assign the appropriate code when completing and signing the DD1348-1A. Consult the requirements specified in DoD 4160.21- m-1

4.2 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 OE scrap has 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 is 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.

4.2.1 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.

4.2.2 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 complete 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 $\frac{3}{4}$ 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 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 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.

4.2.3 Venting of OE Related Scrap

Due to the lack of QD Arc Space at IHD NSWC, OE material which is believed inert but whose contents cannot be verified without penetrating the case will be explosively vented by EODMUTWO Detachment Dahlgren at their facility in Dahlgren. This will necessitate transport of the items to Dahlgren Divisions NSWC. IHD NSWC will arrange for this procedure. Once vented and determined inert appropriate demil procedures can be accomplished.

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.

5.0 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 updated 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 palletized 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, OHM 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**

October 2002

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List of Acronyms

CEHNC	U.S. Army Engineering and Support Center, Huntsville
CFR	Code of Federal Regulations
DoD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
HAZMAT	Hazardous Materials
HE	High-Explosive
IHDIV-NSWC	Indian Head Division – Naval Surface Warfare Center
OE	Ordnance Explosives
Shaw E&I	Shaw Environmental and Infrastructure, Inc.
SOP	Standard Operating Procedure
UXO	Unexploded Ordnance

1.0 Purpose

This Standard Operating Procedure (SOP) is intended to guide Shaw Environmental and Infrastructure, Inc. (Shaw E&I) 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 – Department of Defense (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 41 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 the Department of Transportation’s (DOT) 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 subcontractor supplying trucks and drivers is subject to the 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 possess 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 be 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.
- 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.