ARMY, MARINE CORPS, NAVY, AIR FORCE, SPACE FORCE



EO

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR EXPLOSIVE ORDNANCE

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MCRP 10-10D.1
NTTP 3-02.4.1
AFTTP 3-2.12

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MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

This multi-Service tactics, techniques, and procedures (MTTP) publication is a product of the Air Land Sea Space Application (ALSSA) Center in accordance with the memorandum of agreement between the Headquarters of the United States (US) Army, Marine Corps, Navy, and Air Force doctrine commanders directing ALSSA to develop MTTP publications to meet the immediate needs of the warfighter.

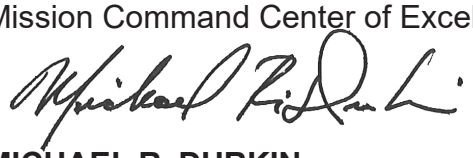
This MTTP publication has been prepared by ALSSA under our direction for implementation by our respective commands and for use by other commands as appropriate.



BRYAN L. BABICH
Colonel, US Army
Director
Mission Command Center of Excellence



K. R. ARBOGAST
Colonel, US Marine Corps
Director, Policy and Standards Division
Training and Education Command



MICHAEL R. DURKIN
Senior Executive Service, US Navy
Director
Navy Warfare Development Center



PARKER H. WRIGHT
Major General, US Air Force
Commander
Lemay Center for Doctrine
Development and Education

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(http://www.doctrine.af.mil/); and Joint Electronic Library Plus
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PREFACE

1. Purpose

This MTTP publication provides commanders and their units guidelines and safety recommendations for planning and operating in an explosive ordnance environment while minimizing the impact of explosive ordnance to friendly operations. This publication also familiarizes all military personnel, Department of Defense (DoD) civilians, and contractors with recognition, appropriate reaction, and reporting procedures for explosive ordnance.

2. Scope

This MTTP publication provides personnel, at the operational and tactical levels, information to optimize safety and increase efficiency when dealing with explosive ordnance. This will eliminate or reduce personnel and equipment losses and other mission impacts due to hazards associated with explosive ordnance.

3. Applicability

This MTTP publication applies to commanders, leaders, planners, staff, and warfighters. It will assist the commanders, their staffs, and anyone responsible for force protection of personnel and resources. This MTTP publication applies to all commanders and their staffs that conduct operations involving explosive ordnance hazards.

4. Implementation Plan

Participating Service command offices of primary responsibility will review this publication; validate the information; and, where appropriate, use it as a reference and incorporate it in Service manuals, regulations, and curricula as follows.

Army. Upon approval and authentication, this publication incorporates the TTP contained herein into the United States (US) Army Doctrinal and Training Publishing Program as directed by the Commander, US Army Training and Doctrine Command. Distribution is in accordance with applicable directives listed on the authentication page.

Marine Corps.[1] The Marine Corps will incorporate the procedures in this publication in United States Marine Corps (USMC) doctrine and training publications as directed by Commanding General, Training and Education Command (TECOM). Distribution is in accordance with Marine Corps Order 5600.31, *Marine Corps Printing, Publishing, and Reprographics Equipment Regulations*.

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Air Force. The Air Force will incorporate the procedures in this publication in accordance with applicable governing directives. Distribution is in accordance with Department of the Air Force Instruction 90-160, *Publications and Forms Management*.

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5. User Information

a. US Army Combined Arms Center; USMC, TECOM; NWDC; LeMay Center for Doctrine Development and Education; and Air Land Sea Space Application (ALSSA) Center developed this publication with the joint participation of the approving Service commands. ALSSA will review and update this publication as necessary.

b. This publication reflects current joint and Service doctrine, command and control organizations, facilities, personnel, responsibilities, and procedures. Changes in Service protocol, appropriately reflected in joint and Service publications, will be incorporated in revisions to this document.

c. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to:

Army

Commander, US Army Combined Arms Center
ATTN: ATZL-MCD
Fort Leavenworth, KS 66027-6900
DSN 552-4885 COMM (913) 684-4885
E-mail: usarmy.leavenworth.mccoe.mbx.cadd-org-mailbox@army.mil

Marine Corps

Commanding General, Training and Education Command
Policy and Standards Division, Doctrine Branch
ATTN: C466
Quantico, VA 22134
DSN 278-6228 COMM (703) 784-6228
E-mail: doctrine@usmc.mil

Navy

Director, Navy Warfare Development Center
ATTN: N5
1528 Piersey St, Building O-27
Norfolk, VA 23511-2723
DSN 341-4185 COMM (757) 341-4185
E-mail: nwdc_nrfk_fleetpubs@navy.mil

Air Force

Commander, LeMay Center for Doctrine Development and Education
ATTN: DDJ
401 Chennault Circle
Maxwell AFB, AL 36112-6428
DSN 493-5421 COMM (334) 953-5421
E-mail: afddec.ddj@us.af.mil

ALSSA

ALSSA Center
114 Andrews Street
Joint Base Langley-Eustis, VA 23665-2785
DSN 575-0902 COMM (757) 225-0902
E-mail: ALSSAINFO@army.mil

SUMMARY OF CHANGES

ATP 4-32.2/MCRP 10-10D.1/NTTP 3-02.4.1/AFTTP 3-2.12, *Multi-Service Tactics, Techniques, and Procedures for Explosive Ordnance*.

This revision:

Updates:

- Chapter 1 for flow and readability.
- Tasks to figure 6, chapter 3.
- Counter unmanned systems to Chapter 1.

Removes:

- 4 categories of explosive ordnance (EO) from Chapter 2 to align with method of reporting in explosive ordnance disposal 9-line report.

Adds:

- Military criminal investigative organizations (MCIO) as enablers to EO.
- Duties of the intelligence officer related to EO.
- Reporting procedures to preserve forensics of EO.
- Unmanned aircraft system delivered EO vignette to highlight MCIO and explosive ordnance disposal cross organization support against emerging threats.
- Visual representations of underwater and airborne hazards.

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AFTTP 3-2.12

ATP 4-32.2 US Army Training and Doctrine Command
Joint Base Langley-Eustis, Virginia
US Army Combined Arms Center
Fort Leavenworth, Kansas

MCRP 10-10D.1 USMC, Training and Education Command
Quantico, Virginia

NTTP 3-02.4.1 Navy Warfare Development Center
Norfolk, Virginia

AFTTP 3-2.12 LeMay Center for Doctrine
Development and Education
Maxwell Air Force Base, Alabama

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EO

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR EXPLOSIVE ORDNANCE

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EXECUTIVE SUMMARY

EO

Multi-Service Tactics, Techniques, and Procedures (MTTP) for Explosive Ordnance establishes tactics, techniques, and procedures (TTP) for planning, recognizing, reacting to, and reporting explosive ordnance found in the operational environment.

Explosive ordnance disposal (EOD) units are responsible for render safe, exploitation, clearance, and disposal of explosive ordnance. Army engineer and explosive ordnance clearance agents (EOCA) may dispose limited, known, single unexploded explosive ordnance (UXO) by detonation (blow-in-place). Primarily, combat engineer units are responsible for breaching and clearing land-based minefields. Personnel not specifically trained in explosive ordnance (EO) should mark and report EO hazards using the methods prescribed by this publication.

NOTE

This publication does **not** train Service personnel as explosive ordnance experts.

This MTTP publication does not address improvised explosive device (IED) procedures. Although a component of an IED may include explosive ordnance, commanders should refer to EOD specialists on their staff, joint publications, Service regulations, and theater-specific guidance for IED mitigation TTP.

Military operations use explosive ordnance that affect mobility, personnel, equipment, facilities, and mission accomplishment. Understanding the impact of explosive ordnance, when they pose a hazard, and the procedures used to minimize their effects can maximize the efficiency of resources available during operations. Establishing procedures and training the force to react to these hazards enhances joint force capabilities. This publication contains TTP to mitigate explosive ordnance threats. Specifically, it:

- Describes the EO hazards to friendly forces and provides information for operations.
- Provides guidelines for planning, recognizing, reporting, marking, and taking immediate action when encountering explosive ordnance.
- Provides commanders several options for applying protective measures against EO hazards.
- Delineates the roles of EOD, EOCAs, and combat engineer units regarding EO hazards.
- Describes Service-specific EO missions and capabilities.

Chapter I Planning and Operational Considerations

Describes the responsibilities and considerations for planning and executing a joint operation with EO hazards. It also defines options and considerations commanders may use when confronting EO hazards.

Chapter II Recognizing Explosive Ordnance

Explains and shows the general identifying features of the different types of United States (US) and foreign ordnance. This chapter discusses the five main types of EO which are: dropped, projected, placed, possible IED, or thrown.

Chapter III Reacting to Explosive Ordnance

Outlines explosive ordnance mitigation capabilities available to support commanders, including common and Service-specific capabilities, command and control (C2) structures, and operational planning support.

Chapter IV Explosive Ordnance Reporting

Explains the EOD 9-line and follow-on reports.

Appendix A Service Capabilities

Depicts common and Service-specific EO hazard mitigation capabilities and C2 structures.

Appendix B Quick-Reference Guide

Describes general identifying features of common US and foreign ordnance types and demolition materials most likely encountered by units during operations. Two explosive ordnance quick-reference guides are provided at the end of this appendix that can be printed and passed to all personnel.

Appendix C Barricade Protective Measures

Describes types, construction, placement, and considerations of barricades for force protection.

PROGRAM PARTICIPANTS

The following commanders and agencies participated in creating this publication.

Army

US Army Combined Arms Center, Fort Leavenworth, Kansas
US Army Combined Arms Support Command, Fort Lee, Virginia
US Army Training and Doctrine Command, Joint Base Langley-Eustis, Virginia
US Army Maneuver Support Center of Excellence, Fort Leonard Wood, Missouri

Marine Corps

Training and Education Command, Quantico, Virginia
Policy and Standards Division, Doctrine Branch, Quantico, Virginia
EOD Company, 8th Engineer Support Battalion, 2nd Marine Logistics Group
Camp Lejeune, North Carolina
Explosive Ordnance Disposal Advanced Training Center, Twentynine Palms, California
I Marine Expeditionary Force, Camp Pendleton, California
II Marine Expeditionary Force, Camp Lejeune, North Carolina
III Marine Expeditionary Force, Okinawa, Japan

Navy

Navy Warfare Development Center, Norfolk, Virginia
Expeditionary Warfare Development Center (N5), Norfolk Virginia

Air Force

US Air Force Headquarters, Directorate of Civil Engineers, Explosive Ordnance Disposal Branch, The Pentagon, Washington D.C.
LeMay Center for Doctrine Development and Education, Maxwell Air Force Base, Alabama
Air Force Civil Engineer Center, Tyndall Air Force Base, Florida
Department of Air Force Office of Special Investigations (OSI), Futures and Doctrine, Headquarters OSI, Quantico, Virginia

Chapter I
PLANNING AND OPERATIONAL CONSIDERATIONS

NOTE

Explosive ordnance (EO) training considerations for unit standard operating procedures (SOPs) should align with procedures outlined in this multi-Service tactics, techniques, and procedures (MTTP) publication. Units should conduct EO awareness training concurrently with pre-deployment individual and collective skills training. Also, units should conduct continuation training throughout operational deployments to remain proficient with EO hazard recognition, reaction procedures, and reporting. Explosive ordnance disposal (EOD) personnel can assist with unit EO awareness training.

1. Introduction

a. The presence of EO in an operational area constitutes a hazard that often affects mission accomplishment. Although EO may not pose an immediate threat to mission accomplishment, EO may cause needless loss of life and materiel.

b. This MTTP publication familiarizes commanders and their personnel with EO and how to plan for, recognize, react to, and report EO encountered in the operational environment. Discussions in this MTTP publication follow these definitions:

(1) EO. All munitions containing explosives, nuclear fission or fusion materials, and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket, and small arms ammunition; grenades; all mines, torpedoes, and depth charges; demolition charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices (IEDs). (National Defense Authorization Act)

(2) Unexploded Explosive Ordnance (UXO). EO which has been primed, fuzed, armed, or otherwise prepared for action and has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other cause. (Joint Publication [JP] 3-42, *Joint Explosive Ordnance Disposal*)

c. All personnel must be properly trained and able to identify and react to EO hazards to survive on the battlefield. Units should identify areas expected to contain EO during intelligence preparation of the operational environment/battlespace planning. Supporting intelligence, artillery, and air liaison personnel can provide this information. The expected presence of EO affects the scheme of movement, maneuver, and force protection. Personnel must arrange for appropriate EOD and

engineer support to mitigate the hazard. This chapter discusses planning considerations for EO hazard mitigation during operations.

Explosive Ordnance Operations on Today's Battlefield

The United States (US) establishes presence for a joint task force (JTF) embarked aboard amphibious warfare ships with a mission to conduct operations from expeditionary advanced bases within the contested littorals of the theater. Joint intelligence preparation of the operational environment has prepared commanders with information on offensive and defensive explosive ordnance capabilities and initial planning for their employment to enable a scheme of maneuver. The JTF uses a system of unmanned vehicles to detect and identify submerged, buried, and exposed EO from amphibious warfare ships to expeditionary advanced bases and littoral objectives. The JTF common operational picture is updated and navigation lanes are transmitted to multidomain support, combat, and tactical systems.

During the initial phases of the operation, information on defensive EO is transmitted to maneuver units, engineers, and explosive ordnance disposal teams. Elements move in support of the ground scheme of maneuver to neutralize dense patterns of EO or exploit anomalous threats to increase awareness. Other teams maneuver to reconnoiter and clear EO from restrictive terrain, potential landing zones, and inland waterways with systems to enable maneuver. Information on offensive and defensive EO is reported to intelligence centers for fusion and analysis.

As the operation continues, the number of improvised EO increases, challenging operations in a congested urban environment. Integrated systems counter these attacks and target enemy networks with speed and lethality due to increased situational understanding. Unmanned systems leverage artificial intelligence to detect, locate, and identify defensive EO and transmit information to intelligence cells to expand the knowledge base of the EO network.

As the mission transitions from offensive to security operations, elements enable offensive action and logistics operations by detecting and clearing mobility corridors, landing zones, and main supply routes of defensive EO to maintain ground lines of communication. The growing information base on EO exploited to identify the forces that employ them enables continued offensive action to reduce the EO, reinforce partner nation security, and strengthen the strategic alliance.

Source: Capt John Hall, USMC
Operations Officer, Marine Corps EOD Advanced Training Center

DANGER

Failure to recognize and plan for explosive hazards in the operational environment could cause unnecessary deaths, casualties, and loss of material.

2. EO Threat Environment Hazards

a. Hazards to Dismounted Forces. EO poses a great risk to dismounted forces. To reduce this risk, dismounted forces must be aware of reported EO and understand procedures for avoiding, recognizing, reacting to, and reporting EO hazards appropriately.

b. Hazards to Nonarmored Vehicles. Nonarmored vehicles are vulnerable to damage and destruction from EO. Nonarmored vehicle occupants face similar risk of injury from EO as dismounted forces.

c. Hazards to Combat Vehicles. Armored combat vehicles (such as tanks, armored personnel carriers, and Bradley fighting vehicles) offer variable protection against EO. Although some EO disable armored vehicles by breaking tracks or flattening tires, other EO may cause catastrophic injury and vehicle loss. Therefore, armored crews can reduce risk of injury from some EO hazard areas by remaining mounted. Consider the potential type, size, and quantity of EO likely to be present in a hazard area when assessing risk to force.

d. Hazards to Aviation Forces. EO poses a risk to air assault and aviation forces. Aviation units should be aware of potential EO hazard areas and conduct a thorough reconnaissance and a preliminary area sweep for EO before occupying assembly areas and forward arming and refueling points, or conducting casualty evacuation tasks and other operations.

e. The following are impacts of EO on air operations:

(1) Launching, recovering, and supporting aircraft.

(2) Receiving combat forces and their movement to forward areas.

(3) Moving materiel, replacement personnel, and support forces.

(4) Evacuating patients, other casualties, and human remains.

(5) Evacuating United States (US) nationals, other noncombatants, and allied and coalition partners.

(6) Evacuating enemy prisoners of war, dislocated civilians, detainees, and refugees.

(7) Retrograding materiel.

f. Hazards to Waterborne Vehicles. EO can cause significant damage to certain types of landing craft and inflict casualties on embarked personnel. Mines can deny

access to selected landing sites and sea lanes. Mitigating such hazards before landing forces requires adequate planning and resources allocation.

g. Hazards to Civilians and Civil Infrastructure. EO poses a significant hazard to civilians and infrastructure in the area of operations (AO), and can create significant, undesirable, diplomatic, economic, and information impacts. Most civilians are unfamiliar with military ordnance and are unaware of the hazard EO presents. Therefore, civilians, children in particular, sometimes pick up and handle EO items with devastating effects. For example, in an effort to reclaim homes and reestablish lives during post conflict operations, local civilians may collect and return hazardous EO items to US forces. Additionally, buried EO kills civilians performing routine activities, such as walking or digging. The EO threat to civilian personnel may continue long after cessation of military operations.

3. Operational Planning Considerations

a. When planning to conduct operations in an EO environment, commanders and staffs should support EO operations with security, logistic support, safe holding areas, and disposal sites.

b. Commanders and staffs should plan for the exploitation of EO. The technical information on munitions and weapons systems generated during this process is critical to providing updated threat analysis, informing threat mitigation best practices and force protection guidance, and supporting attribution. For additional information see JP 3-42, *Joint Explosive Ordnance Disposal,* and Navy Tactics, Techniques, and Procedures (NTTP) 3-10.4.1, *Navy Expeditionary, Technical Exploitation*.

c. General EO planning considerations include the following:

(1) The impact of EO on current and future military operations including:

(a) Terrain.

(b) Timing.

(c) Positioning forces.

(d) Routes for movement and maneuver.

(e) Force protection.

(2) Identification of known EO locations and densities.

(3) Leverage existing capabilities and emerging technology to conduct explosive ordnance reconnaissance (EOR), clearance, and exploitation operations such as:

(a) Electronics maintenance personnel.

(b) Nondestructive inspectors.

(c) Cyberspace warfare personnel.

(d) Signals intelligence analysts.

(4) Method for reporting the location of found EO to facilitate response by enablers and ensure friendly forces avoid, if possible.

(5) Increased personnel and logistical requirements due to enablers and associated vehicles and equipment.

(6) Designation of recovery, disposal, and safe holding areas.

(7) Provision and construction of protective measures.

(8) Destruction of EO to mitigate threat to friendly forces and civilians, and preclude recovery and use by enemy forces/hostile actors.

d. EO can limit or prevent access to an area of operation, and inhibit air, ground, and maritime-based mobility by:

(1) Restricting the use of terrain due to concentrated explosive hazards (EHs), such as when scatterable munitions are utilized to deny advantageous terrain.

(2) Reducing momentum (to include speed, maneuver, and rates of march) due to EHs encountered on avenues of approach.

(3) Requiring the allocation of trained forces and other resources to conduct time consuming clearance and marking of lanes.

(4) Increasing intelligence, surveillance, and reconnaissance personnel and equipment requirements.

(5) Reducing combat effectiveness due to attrition of personnel and equipment.

e. Variables affecting the degree of risk include:

(1) Type, size, and quantity of EO employed by enemy and friendly forces.

(2) Protection available to personnel, equipment, and facilities (such as armored vehicles versus dismounted infantry, sheltered aircraft versus exposed aircraft, or fortified positions versus no fortified positions).

(3) Mission and degree of mobility required.

(4) Terrain and climatic conditions.

(5) Threat from direct or indirect fire while securing the site.

4. Enabler Support Considerations

a. Enabler support is critical to operations in an EO environment and should be planned for and requested if these enablers are not organic. The following enablers all play significant roles during EO operations:

(1) EOD support.

(2) Explosive ordnance clearance agent (EOCA) technicians.

(3) Military criminal investigative organization (MCIO) special agents, intelligence analysts, and forensic specialists. Service-specific MCIOs are:

(a) Air Force Office of Special Investigations.

(b) Army Criminal Investigative Division.

(c) Marine Corps Criminal Investigative Division.

(d) Naval Criminal Investigative Service.

(e) Defense Criminal Investigative Service.

(f) United States Coast Guard Investigative Service.

(4) Medical support.

(5) Firefighting support.

(6) Military intelligence analyst support.

(7) Military working dog support.

(8) In-theater exploitation capability linked to a reach back capability such as:

(a) EOD.

(b) Weapons intelligence teams.

(c) Combined explosives exploitation cell.

(d) Forensic exploitation laboratory.

(e) Exploitation attribution center.

b. Enabler Support Planning Considerations.

(1) Security for technical enablers.

(2) Equipment for enablers such as:

(a) Specialized armored vehicles.

(b) Communications support.

(c) Unmanned system support.

(d) EO exploitation tools and equipment. (See JP 2-0, *Joint Intelligence,* and JP 3-42).

(e) Airfield damage repair (ADR) personnel and support.

(f) Signals intelligence analysts.

5. Planning Roles and Responsibilities

a. The commander is responsible for planning, directing, managing, and executing the joint EO mission, which may include coordination with host-nation personnel. Prior to operational commitment, unit commanders should ensure forces receive EO hazard recognition training and immediate-action training, including hazard reporting. Commanders, at all levels, maintain situational awareness of EO in their AO via individual spot reports, EOD 9-line reports, intelligence reports, and obstacle overlays.

b. The supported commander's guidance may address specific considerations for EO hazards. During operational planning, additions to a commander's primary staff should include EOD, engineer, and chemical, biological, radiological, nuclear (CBRN) officers, to take advantage of their ordnance, mine clearing, and breaching expertise.

c. When required, forming a standalone or subordinate EOD JTF to execute EOD functions as its primary mission may occur. These JTFs control two or more Service-component EOD organizations, via operational or tactical control of attached units, to support the joint operations area. The EOD JTF commander analyzes the mission and recommends EOD and enabler employment options to accomplish assigned missions to the senior joint force commander. See JP 3-42 for additional information.

d. EO hazards are likely to exist during all phases of an operation. Commanders and their staffs must consider responses to EO during planning.

e. Planning staffs have assigned EOD; engineer; intelligence; and CBRN personnel. They provide detailed information on available EO capabilities and intelligence regarding enemy EO capabilities and intent in the AO.

(1) It is the EOD staff officer's responsibility for planning, recognizing, reacting, reporting, rendering safe, recovering, exploiting, and disposing EO. The EOD staff officer leverages the coordinating staff to:

(a) Provide recommendations to the commander on the employment of EOD assets in support of operations.

(b) Support operational planning related to EO operations.

(c) Advise and coordinate Service, multinational partner, and civilian EOD resources.

(d) Manage EOD incident reporting procedures and oversight.

(e) Assist in intelligence analysis of the EO hazard.

(f) Support identity operations to assist in the development of threat networks that attribute activities to those networks.

(g) Review the ordnance order of battle.

(h) Support EO collection and reporting requirements and liaises with appropriate intelligence agencies.

(2) The engineer officer's responsibilities include:

(a) Providing recommendations to the commander on the employment of combat engineering (i.e., mobility, counter-mobility, and survivability), general engineering, and geospatial engineering capabilities in support of joint operations.

(b) Planning, reporting, and tracking barriers and obstacles.

(c) Planning for the removal of obstacles.

(d) Receiving, consolidating, and disseminating obstacle information to the staff and affected units.

(e) Incorporating known hazard area information onto the obstacle overlay.

(f) Maintaining all reports and historical data on obstacles and hazard areas for use during current and future operations.

(g) Tracking all known obstacles and EO with assistance from the EOD staff officer.

(h) ATP 3-34.20/MCRP 10-10.1, *Countering Explosive Hazards,* for more details on specific engineer planning and tasks.

(3) The CBRN officer or noncommissioned officer develops procedures for monitoring survey and decontamination hotline support to EOD efforts for CBRN device detection, identification, recovery, evaluation, and final disposition in coordination with the EOD staff officer.

(4) The intelligence officer integrates EO planning into the overall intelligence picture for force protection and collection. This can include (see JP 2-0 for further details):

(a) Coordination with the intelligence community (IC) technical exploitation.

(b) Integrating EO reports into the intelligence common operational picture (COP).

(c) Planning for and collecting biometrics and forensics including chemical, engineering, mechanical, or trace material exploitation.

(d) Electronic or digital exploitation.

(e) CBRN defense support.

(5) The mine countermeasures commander controls the operations of mine countermeasures (MCM) forces (surface MCM vessels, airborne MCM squadrons and detachments, and underwater MCM elements) in the operational area.

(6) EOD Support to Counter-Unmanned Aircraft Systems (C-UASs).

(a) There is no single solution to countering the low-slow-small, unmanned aircraft system (UAS) threat. Training the force to recognize and neutralize low-slow-small UAS threats prior to an attack is the preferred method but is not always feasible. If an air attack is imminent, the commander should use the most efficient method available to protect the unit and minimize effects. Combined arms forces must maintain flexibility in their options to quickly recognize and counter the effects from enemy low-slow-small UAS. Ultimately, achieving the best C-UAS defense is through proper planning, training, coordination, and execution of unit training strategies. The maneuver force must plan, train, and execute operations as an integrated combined arms team employing all forms of passive air defense techniques when active air defense is limited or not available.

WARNING

When approaching a downed UAS take necessary precautions for unknown inhalation hazards.

(b) While C-UAS is not solely an EOD operation, the use of these systems is to deliver payloads of various sizes and functions, and low-slow-small UAS may become the responsibility of EOD. Either because of their own internal C-UAS operations or by being requested to respond in an emergency capacity by another unit in the area. EOD personnel must ensure they practice the utmost safety when encountering a downed UAS platform, regardless of size, because of the multitude of hazards associated with the payloads and the system itself, treating the entire package as an IED operation.

Note: Refer to JP 3-42, *Joint Explosive Ordnance Disposal*; JP 3-34, *Joint Engineer Operations*; JP 3-15, *Barriers, Obstacles, and Mines in Joint Operations*; JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments*; and JP 2-0 *Joint Intelligence,* for more on these roles and responsibilities.

6. EO Incident Site Command and Control (C2)

a. When establishing guidance for EO activities, the senior commander should ensure subordinate commanders understand the following responsibilities.

b. The incident commander:

(1) Establishes and maintains an initial cordon of the area containing the EO.

(2) Upon EOD team arrival, adjusts the cordon (as needed) to facilitate EOD activities.

(3) Ensures inner cordon access is coordinated with the on-scene EOD team leader.

(4) Collaborates with MCIO special agents and intelligence specialists to ensure timely exchange of threat intelligence critical to inform tactics, techniques, and procedures (TTP), preservation of evidence/testimonial integrity for potential judicial proceedings, and identification of larger threat networks/impending secondary attacks.

c. The EOD team leader is the operational authority for all explosive-related issues within the inner cordon during an EOD mission. This ensures the safety of the EOD team and personnel in the surrounding area. The EOD team leader advises the incident commander on:

(1) Security and safety requirements for on-scene activities, including use and positioning of all electronic countermeasures and communications equipment.

(2) Options available to mitigate the EO.

(3) Risks involved in mitigating the EO.

(4) Protection measures available for the EO.

(5) Notification of controlled detonations during EOD activities.

(6) Quick report and terminating the cordon upon completion of the EOD mission.

Chapter II
RECOGNIZING EXPLOSIVE ORDNANCE

DANGER

Leaders, at all levels, are responsible for ensuring personnel are aware of and trained to react appropriately to explosive ordnance. Failure to train personnel properly can result in death or injury.

1. Introduction

a. There is a multitude of EO on the battlefield and all EO has the potential to become a hazard to friendly forces. Friendly forces may create as many EO hazards as the enemy. Commanders and staffs should train their forces to recognize and minimize EO impacts on current and future operations.

b. Recognizing EO is the first and most important step in reacting appropriately to an EO hazard. Accurate recognition is critical to force protection and mitigating associated risks to mission accomplishment. This chapter discusses general identifying features of common US and foreign ordnance types encountered by units during operations.

WARNING

DO NOT continue movement towards a suspected explosive hazard. Some types of ordnance have magnetic or motion-sensitive fuzing and will detonate if they sense a target. Others may have built-in, self-destruct timers. Once you recognize EO, STOP, leave the area by the same path you entered, and make necessary observations with binoculars or other optical devices.

DO NOT move or remove anything on or near EO. It may contain a firing pin under spring tension or be a component of an IED.

NEVER move, jar, strike, or touch EO.

ALWAYS transmit communications emitters from a minimum safe distance of 100 feet (30 meters). EO may be highly susceptible to detonation via electromagnetic radiation emanating from communication devices.

2. EO Hazards

DANGER

Avoid the area where explosive ordnance is located. Upon identification of a submunition, leave the area by the same path you entered. There may be many more submunitions in the same area. Small size does not diminish the danger of submunitions.

Many types of explosive ordnance may contain an incendiary (fire producing), chemical, or biological hazard in addition to explosives.

Training and practice ordnance may contain explosives.

a. EO is classified and reported according to the ordnance's employment method. EO hazards can exist both above and below water. The five main types of EO are dropped, projected, placed, possible IED, or thrown.

(1) Dropped. Dropped ordnance encompasses five subgroups: bombs, dispensers (which contain submunitions), submunitions, sea mines, and torpedoes. Figure 1 depicts examples of dropped ordnance.

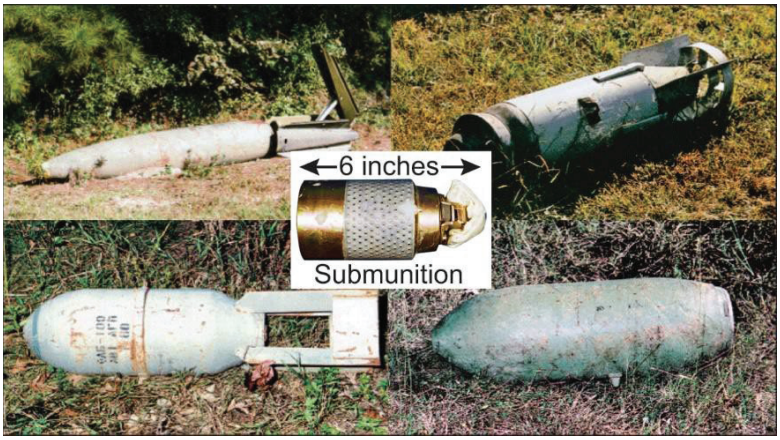


Figure 1. Examples of Dropped Ordnance

(2) Projected. Projected ordnance encompasses five subgroups: projectiles, mortars, rockets, guided missiles, and rifle grenades. Figure 2 depicts examples of projected ordnance.



Figure 2. Examples of Projected Ordnance

(3) Placed. Land mines may be scattered or placed. Limpet mines can attach to target vehicles, ship hulls, and underwater infrastructure. Figure 3 depicts examples of placed ordnance.

WARNING

Consider all mines booby-trapped or to have anti-disturbance fusing. Never attempt to uncover or remove placed ordnance.



Figure 3. Examples of Placed Ordnance

(4) Thrown. Thrown EO is known, commonly, as a hand grenade. Figure 4 depicts examples of thrown EO.



Figure 4. Examples of Thrown Ordnance

DANGER

NEVER approach a thrown grenade that did not detonate even if you threw the grenade. **DO NOT** move, jar, or disturb it. The fuse may function at any time. **NEVER** pick up, move, or disturb a found grenade even if the spoon or safety pin is attached and the grenade is in the original packaging. The grenade may be booby-trapped to explode.

b. Although not a distinct category of EO, figure 5 depicts EO commonly found underwater.

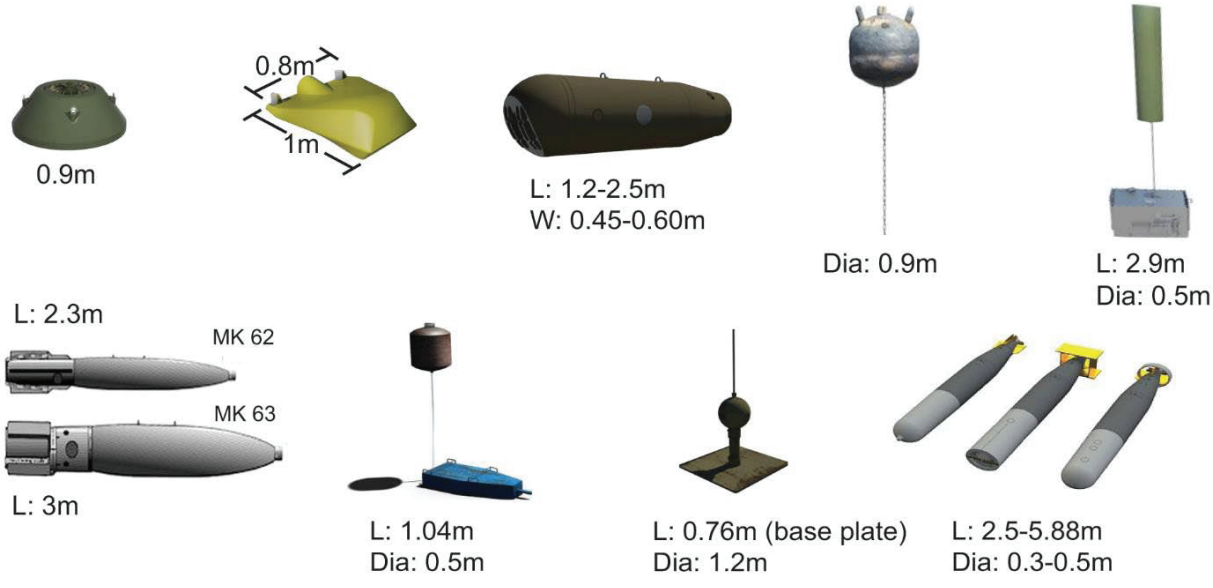


Figure 5. Examples of Underwater Explosive Ordnance

c. Unknown. If EO does not clearly meet one of these categories the type should be reported as unknown with as much other information as possible. Report for example:

(1) Suspected placement by unmanned or robotic systems via land, air, or water.

(2) Any notable characteristics that may help identify which category the EO belongs.

DANGER

DO NOT approach or investigate unknown explosive ordnance to gain any additional information beyond first observation. Since unknown explosive ordnance could be any of these categories it must be treated with the same caution and only be further investigated by trained explosive ordnance disposal.

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Chapter III
REACTING TO EXPLOSIVE ORDNANCE

WARNING

Consider an enemy force can use explosive ordnance as a component of an IED. Render safe operations of EO and IEDs are the exclusive responsibility of EOD units.

1. Introduction

a. EO encountered in the AO can adversely affect mission accomplishment. This chapter discusses the required individual and unit-level reactions and capabilities to minimize the effects of EO. Figure 6 depicts these reactions and capabilities.

Individual

Is trained to recognize, react, report, and avoid EO.

Combat Engineer

- Is trained to use and handle demolition material.
- Is trained in obstacle and minefield breaching.
- Is trained in land mines/booby traps.
- EO clearance agent (*Officially an Army capability, USMC engineers have similar training.)

EOD Operator

- Conducts RSP of UXO, AEH, and all IED missions.
- Conducts multi-ordnance operations.
- Conducts RSP/disposal of chemical and radiological UXO.
- Conducts small arms ammunition disposal.
- Is trained in HME identification, reduction, and safety precautions.
- Verifies RSP.
- Has diagnostic capability.
- Is trained in protective works.
- Is trained in non-energetic RSP techniques.
- Is trained to use unmanned systems.
- Is trained to use energetic tools.
- Is trained to use and handle demolition material.
- Conducts EO exploitation.
- Can provide maritime EO support.

*Note: See appendix A for capabilities of explosive ordnance disposal clearance agents.

Legend:

AEH—aircraft explosive hazards
EO—explosive ordnance
EOD—explosive ordance disposal
HME—homemade explosive
IED—improvised explosive device
RSP—render safe procedures
USMC—United States Marine Corps
UXO—unexploded ordnance

Figure 6. EO Reaction Capabilities

b. Balancing risk-to-force and mission accomplishment are inherent to any course of action. Commanders must consider the objectives of the current phase of operations when determining the appropriate reaction to EO.

c. When an EO hazard remains from a recent enemy attack, consider protecting personnel and equipment by evacuating the area. Avoiding or bypassing the UXO is the safest option for personnel and equipment. If mission parameters do not allow avoiding or bypassing the hazard, take protective measures to reduce the risk to personnel and equipment. Regardless, units must properly mark the location of UXO in accordance with unit SOPs.

d. Staffs must consider the collection of information from EO to update threat awareness (intelligence preparation of the operational environment), support attribution, directed information collection requirements to develop network analysis, limit enemy and adversary advantage, and assist in countermeasure development.

2. Protective Measures

a. There are three methods for protecting personnel and equipment: evacuate, isolate, and barricade.

(1) Evacuate. Evacuating nonessential personnel and equipment is the best protective measure. Evacuation distances, depicted in table 1, provide a reasonable degree of safety for barricaded personnel and equipment. It is important to note, these distances rely on an accurate estimate of the amount of explosive filler in the EO. Using protective barricades around the EO can reduce the distances depicted in table 1.

Table 1. Evacuation Distances

WARNING
Fragmentation may travel farther than the distance written in this table.

Explosive Weight (pounds)	Evacuation Distances (meters)
27 and less	300
30	310
35	330
40	350
45	360
50	375
100	475
150	550
200	600
300	675
400	725
500	800

(a) The general rule for estimating blast effects from the amount of explosive in an ordnance item is to assume 50 percent of the total ordnance weight

equals the net explosive weight. For example, the calculation for a 500-pound bomb would result in an estimate of 250 pounds of explosive. According to table 1, the safe distance for unprotected personnel is 637.5 meters (interpolated from averaging the values for 200 and 300 pounds explosive weight in the table).

(b) After evacuating personnel and equipment, keep movement within the EO area to essential operations only. If evacuating equipment is not possible, allow only mission essential personnel in the area to operate it. Have personnel employ personal protective equipment and protect equipment with barricades.

(2) Isolate. When it is not possible to evacuate people or equipment due to mission-related or other reasons, isolate the assets from EO by establishing a safe area and limiting exposure. Contact EOD, if personnel must work in an area where EO may be present.

(3) Barricade. If a unit is stationary, evacuate all nonessential personnel and equipment out of the EO hazard area. When equipment must remain in place, protect it with barricades. In addition to wearing personal protective equipment, units can protect personnel by reinforcing fighting positions on the side facing the EO and adding overhead cover to frontal protection: See appendix C for further guidance.

3. Immediate Action

a. Units encountering EO should take immediate action (i.e., use confirm, clear, cordon, check, and control [5-Cs]) to mitigate delays to mission accomplishment. Immediate actions consist of a layered approach depending upon the current phase of the operation and the size, type, quantity, and location of EO. Following the 5-Cs will assist in dealing with the EO situation quickly and safely. Figure 7 depicts an immediate action decision tree to assist the decision-making process.

(1) CONFIRM the presence of the suspected EO from a safe distance, when possible, and with the maximum use of hard-cover and spotting equipment. Never compromise safety for positive identification of the item.

(2) CLEAR all personnel from the area to a tactically safe distance. Conduct 5- and 25-meter checks of the area for secondary hazards as a secondary detonation may be imminent. The minimum safe distance for exposed personnel is 300 meters from EO or in accordance with table 1.

(3) CORDON off the danger area to all vehicles and foot traffic and establish an incident control point to prevent entry of unauthorized personnel. Mission, enemy, terrain and weather, troops and support available—time available (METT-T) determines the size of the cordon.

(4) CHECK the immediate area for secondary devices using the 5- and 25-meter checks. Expand the search area as time and the hazard permit.

(5) CONTROL the area inside the cordon to ensure only authorized personnel (i.e., EOD, medical, or firefighting) have access. Maintain security at the

established safe distance while maximizing available cover to afford protection from the hazard.

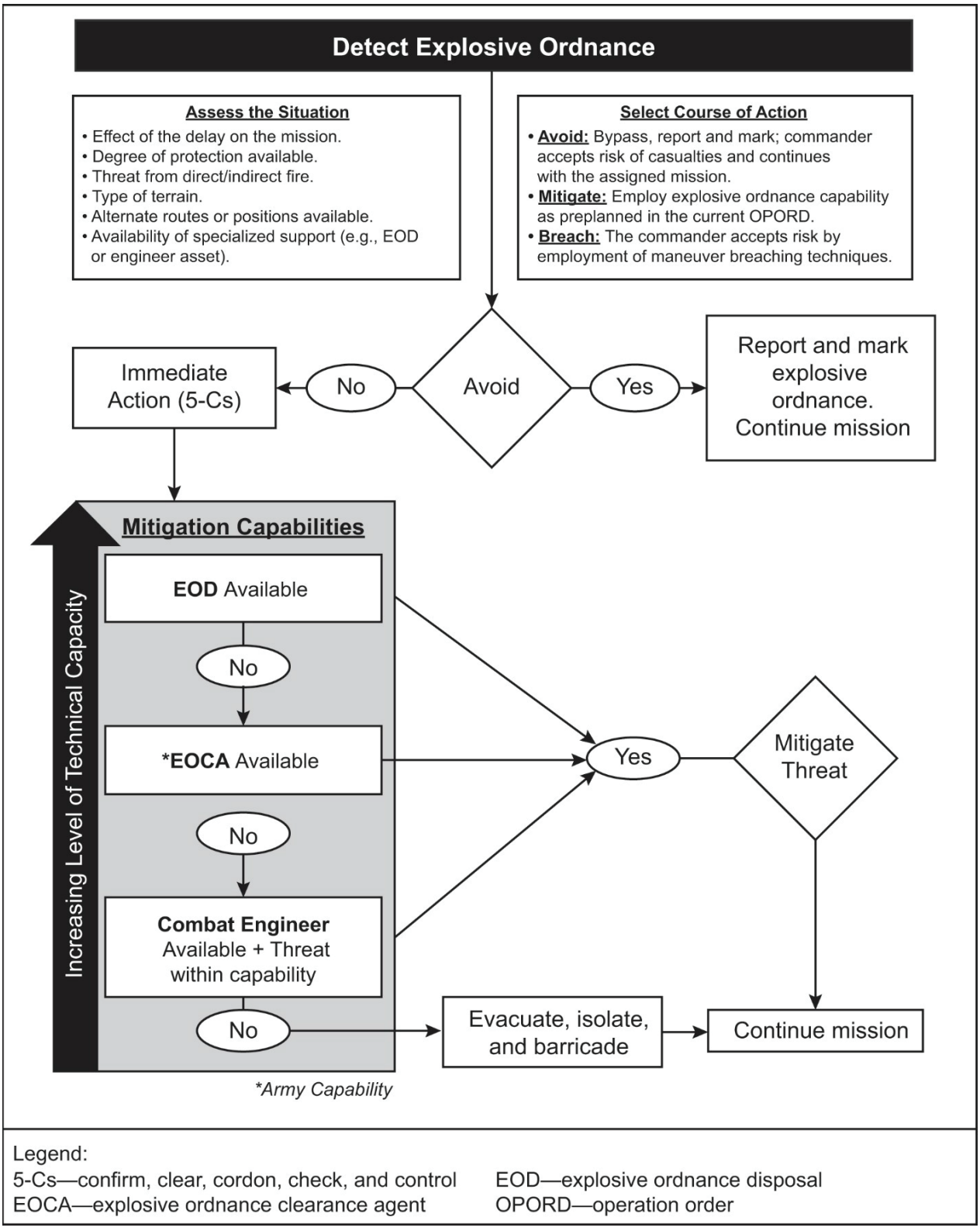


Figure 7. Immediate Action Decision Tree

4. Self-extraction

a. After an indirect fire attack, immediate action drills should include a plan to report and mark EO.

b. After entering an EO saturated area, evacuate by the same route, marking the area as the situation permits.

5. Mark UXO

a. Marking a UXO danger area is as important as marking other danger areas (such as CBRN contaminated, minefield, and booby trapped areas). Mark hazards with colored triangular signs to indicate the danger involved. Figure 8 depicts the standard UXO marker. The background is red with a white bomb inset. UXO markers have the same dimensions as the other military warning markers.

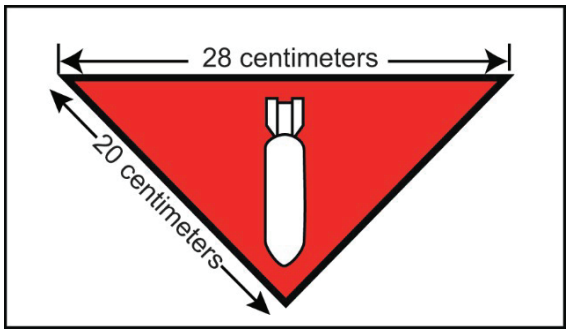


Figure 8. Standard UXO Marker

b. To identify the location of UXO, place UXO markers above ground, at waist level (about three feet), with the bomb pointing down. Place the marker no closer to the UXO than the point where UXO is first recognized. Attach the marker to a stake, a tree, or other suitable holder. Ensure the marker is clearly visible. Figure 9 depicts a marker attached to a stake.

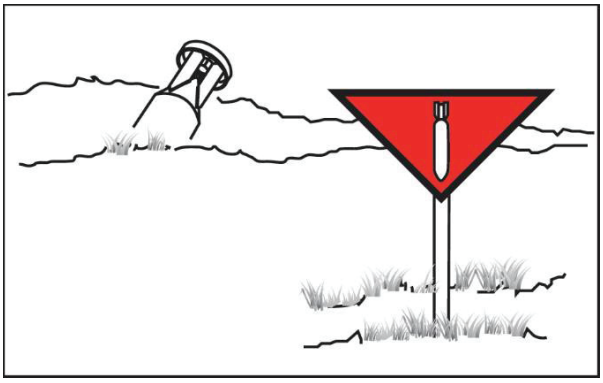


Figure 9. Marking a UXO with a Standard UXO Marker

c. Mark all logical approach routes to the area containing UXO. If UXO is near a road, place a marker on each side of the road approaching the UXO, at a minimum. If there is a large concentration of UXO, such as submunitions, mark the area the same as for a scatterable minefield, placing markers approximately every 15 meters around the area's perimeter.

d. UXO are hard to detect due to environment, terrain, and weather effects on the ordnance. Easily identifiable marking assists in keeping others away from a UXO hazard area. Clear marking also assists the EOD team in finding the UXO area.

e. If standard UXO markers are not available, use other suitable materials (such as engineer tape or colored ribbons) in accordance with the unit's SOP. Use a consistent marking system, when possible, to avoid confusion. When using improvised marking materials, the same principles used for the standard markers apply for their placement. Place all markers about three feet off the ground and easily visible from all approach routes. See figure 10.

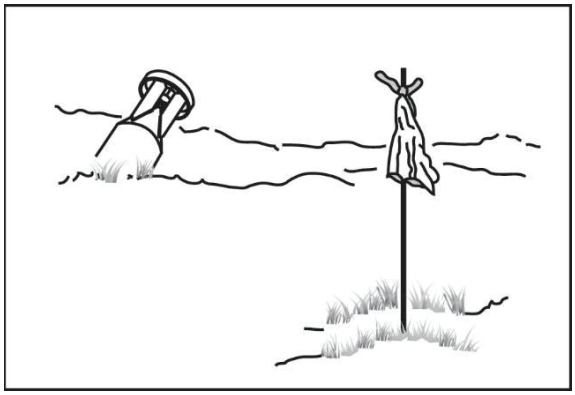


Figure 10. Marking UXO with Another Suitable Material

6. Chemical and Biological Munitions

a. There are additional considerations for unit evacuation procedures when encountering possible agent dispersion, such as the downwind effect on the area. Refer to ATP 3-11.37/MCRP 10-10E.7/NTTP 3-11.29/AFTTP 3-2.44, *Multi-Service Tactics, Techniques and Procedures for Chemical, Biological, Radiological, and Nuclear Reconnaissance and Surveillance,* for additional information.

b. EOD uses a standard isolation radius and downwind protection zone when responding to an incident. ATP 4-32, *Explosive Ordnance Disposal (EOD) Operations*, directs responders to create a 381-meter isolation zone around the response site and a 2,000-meter downwind isolation and evacuation zone as shown in figure 11.

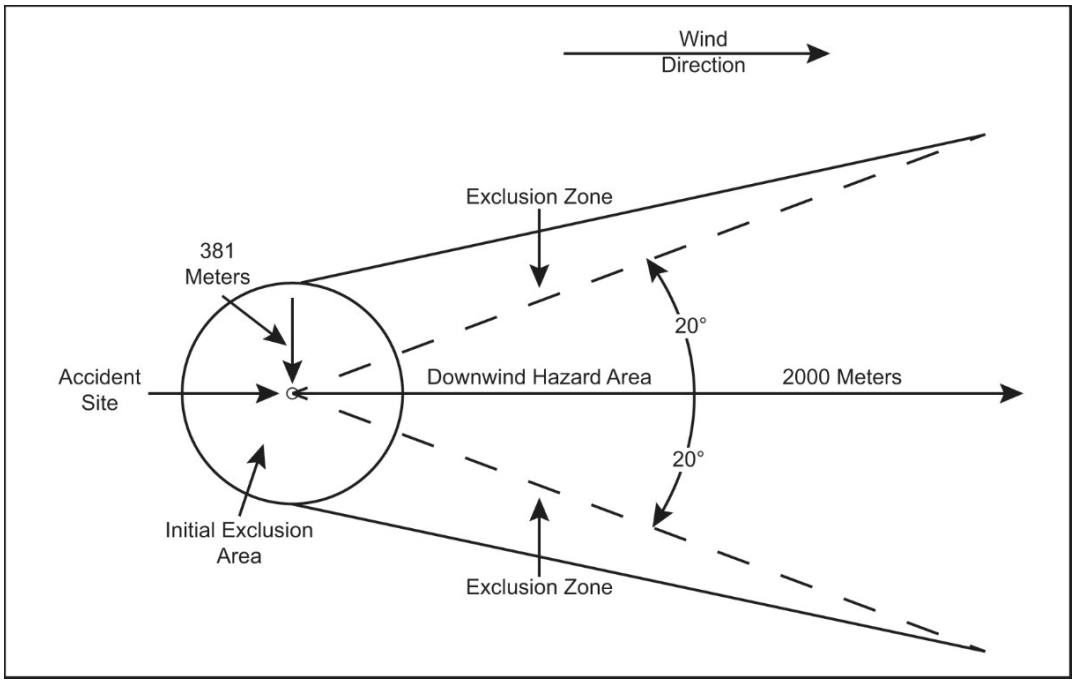


Figure 11. Downwind Isolation and Evacuation Zone

c. For planning purposes, JP 3-11; JP 3-41, *Chemical, Biological, Radiological, and Nuclear Response;* and Field Manual (FM) 3-11, *Chemical, Biological*, *Radiological, and Nuclear Operations,* provide guidance for initial isolation and protective action distance for chemical and biological devices and ordnance.

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Chapter IV
EXPLOSIVE ORDNANCE REPORTING

1. Introduction

Accurately identifying the location of EO is vital to C2 elements when projecting maneuver, movement, and support to combat units. EO directly affects combat capabilities of any element encountering the ordnance. Commanders must implement an effective EO reporting system to allow appropriate concentration and shifting of EOD, engineer, and CBRN assets to support the commander's priorities.

2. EOD 9-line Report

a. Purpose. An EOD 9-line report (refer to table 2) is detailed and relays the location of suspected EO, recommended priority for clearance, and unit affected. The EOD 9 line is the first report sent upon detecting EO and is transmitted by the fastest means available. The label, EOD 9-line report, also includes all types of EO (i.e., UXO, EO, and IEDs). In addition to the report requesting EOD support when units encounter suspected EO, the report assists commander prioritization of resources. Detected ordnance suspected to involve CBRN agents requires the transmission of a nuclear, biological, chemical spot report.

b. Routing. Route the EOD 9-line through the chain of command. Each commander in the incident chain is responsible for setting the proper priority for the report. Because mission priorities may change to reflect the current tactical situation or future plans, commanders should remain informed of the status of EO in their AO.

c. Prioritization. The supported unit commander's guidance establishes EO hazard reaction priorities. The EOD commander coordinates incident response priorities with the supported commander's staff. Table 2 explains the four established incident priorities for an EOD 9-line.

d. Recommended Priority (IMMEDIATE, INDIRECT, MINOR, or NO HAZARD). Ensure the recommended priority corresponds with the tactical situation described on line 7 of the report. These priorities refer only to the EO's impact on the current mission. A priority of MINOR or NO HAZARD does not indicate the EO is safe.

Table 2. Sample EOD 9-Line Report		
Line	**Description**	**Example**
Line 1	Date-Time Group (DTG): DTG of item discovery.	131200ZAUG20
Line 2	Reporting Activity Identification and Location: Unit identification code and location (8-digit grid of explosive ordnance).	2/505 IR, A CO, 2 PLT, BS13221433
Line 3	Contact Information: Radio frequency, call sign, POC, and telephone number, email, or chat.	F400, SHOCKWAVE3, Lieutenant Radcliffe
Line 4	Type of Explosive Ordnance: 1. Method of emplacement: Dropped, projected, placed, possible IED, unknown, or thrown. If possible, provide the total number of items. 2. Description: Without touching, disturbing, or approaching the item, include details about size, shape, color, and condition (intact or leaking). 3. Method of discovery.	Possible 155MM, wrapped in wires and tape, 1 visual confirmed, multiple suspected.
Line 5	CBRN Contamination: Be as specific as possible (i.e., include visible and physiological effects). If CBRN contamination or hazard is suspected, follow up this report with an nuclear, biological, chemical spot report.	No
Line 6	Resources Threatened: Report any units, equipment, facilities, or other threatened assets.	Items located 1 meter off MSR SLEEPY
Line 7	Impact on Mission: Provide a short description of the current tactical situation and how the presence of the explosive ordnance affects that status.	Vehicle traffic restricted/stopped
Line 8	Protective Measures: Describe any measures taken to protect personnel and equipment.	Perimeter established, traffic halted.
Line 9	Recommended Priority: Recommend a priority for response by EOD technicians.	Immediate
Incident Priority	Description	
Immediate	Incidents constituting grave and immediate threats. They stop the unit's maneuver and mission capabilities or threaten vital assets. These incidents are to be given priority over all other incidents. EOD procedures are to be started immediately.	
Indirect	Incidents constituting indirect threats. They slow the unit's maneuver and mission capabilities or threaten important assets. Before beginning EOD procedures, a safe waiting period will normally be observed to reduce the threat to EOD personnel.	
Minor	Incidents constituting a minor threat. They reduce the unit's maneuver and mission capabilities or threaten noncritical assets of value. Typically, EOD personnel will deal with these incidents after immediate and indirect incidents, as the situation permits, and with minimum threat to personnel.	
No threat	Incidents constituting no threat at present. These have little or no effect on the unit's capabilities or assets.	
Legend: CBRN - chemical, biological, radiological, and nuclear EOD - explosive ordnance disposal IED - improvised explosive device	MM - millimeter MSR - main supply route POC - point of contact	

3. Follow-on EO Incident Reports and Reporting

a. Hazard mitigation actions, material collection, and reporting conducted by the EOD teams, engineers, and CBRN elements are critical components to the exploitation process. Exploitation feeds the intelligence and targeting cycles thereby increasing the understanding of enemy networks and enabling the development of target packages.

b. Follow-on incident reporting provides theater-level situational awareness of EO hazards, establishes trends, and becomes a record of technical facts. While EOD reporting procedures and formats are similar across the Service components, submission and dissemination procedures differ. Timely, standardized EO technical reporting and dissemination provide the joint force the ability to counter EHs.

c. In addition to theater threat exploitation, EO teams play a critical role in supporting subsequent law enforcement investigations. EO teams and MCIOs must maintain a mutually supportive relationship to create fusion and a unity of effort in response to EO incidents ensuring the safety of Department of Defense (DoD) personnel and resources.

EOD and MCIO Mutual Support

In a forward deployed location, explosive ordnance disposal (EOD) responded to the report of a downed unmanned aircraft system (UAS). As part of their response, they contacted their servicing military criminal investigative organization (MCIO) special agents. EOD cleared the site and preserved the UAS. MCIO special agents collected the UAS and used available resources through partner agencies for forensic analysis. The UAS was sent off to a lab and further exploitation provided key information to develop the threat network and combat future attacks.

Source: Special Agent Phil Sweet, Air Force Office of Special Investigations, June 2022

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Appendix A
SERVICE CAPABILITIES

1. Introduction

a. This appendix outlines available Service component-specific explosive ordnance (EO) hazard mitigation capabilities to support multi-Service EO interoperability.

b. Service explosive ordnance disposal (EOD) units achieve interoperability through common EOD training, equipment, and technical manuals. Service EOD units provide the following capabilities with respect to foreign and United States (US) ordnance.

(1) Perform actions to locate and gain access to recovered munitions, unexploded ordnance (UXO), improvised explosive devices (IEDs) and chemical and biological munitions.

(2) Conduct diagnostic actions to identify and evaluate all EO devices.

(3) Perform render safe procedures.

(4) Direct action to recover or perform final disposition of EO devices.

(5) Perform technical intelligence (TECHINT) and weapons technical intelligence (WTI) collection and exploitation of first seen or previously unknown ordnance and IEDs.

2. United States Army

a. EOD

(1) Army EOD supports the mission of prompt, sustained land dominance across the range of military operations by identifying, diagnosing, rendering safe, exploiting, and disposing EO and comparable threats. Army EOD supports joint, interagency, and multinational missions, as required. It supports the United States Secret Service (USSS) and the Department of State (DOS) to protect the President and Vice-President of the US, the Secretary of State, and foreign dignitaries, as requested. Army EOD also supports federal, state, and local civil and law enforcement authorities when requested and within Army authorities.

(2) For Army EOD operations and command and control (C2) structures, refer to Army Techniques Publication (ATP) 4-32, *Explosive Ordnance Disposal (EOD) Operations*; ATP 4-32.1, *Explosive Ordnance Disposal (EOD) Group and Battalion Headquarters Operations*; and ATP 4-32.3, *Explosive Ordnance Disposal (EOD) Company, Platoon, and Team Operations*.

(a) The EOD group is the functional C2 headquarters for EOD operations. An EOD group is attached to, or under operational control (OPCON) of, a theater Army, corps, or joint task force (JTF) in support of a specific operation, operation order, operation plan, or concept plan. The EOD group headquarters conducts staff planning and technical control of assigned and attached EOD assets in a theater of operations and provides EOD staff liaison to the Army Service component commander. The EOD group headquarters coordinates counter-explosive ordnance (C-EO) and weapons

TECHINT operations while exercising command and control of two to six EOD battalions. The EOD group provides support, analysis, and advise to execute targeting efforts, theater exploitation, and countering weapons of mass destruction (CWMD) to provide maneuver support and force protection in all operational environments. The EOD group can form the core of a specialized JTF with command and control of protection and exploitation enablers such as C-EO, exploitation, and CWMD task forces (ATP 4-32.1).

(b) The EOD battalion is the functional command and control headquarters for EOD operations. An EOD battalion is attached to, or under OPCON to, a theater Army, corps, division, JTF, or combined JTF in support of a specific operation, operations order, operation plan, or concept plan. The EOD battalion headquarters conducts staff planning and controls C-EO assets within a division area of operations (AO). The EOD battalion can exercise EOD command and control for two to seven EOD companies (ATP 4-32.1).

(c) The EOD company provides command and control of one to six EOD platoons and provides administrative planning and support, including special staff augmentation for a brigade combat team (BCT). EOD companies provide EOD service, throughout the theater, AO and direct support to designated BCT or special forces group. (Refer to ATP 4-32.3).

(d) The EOD operational support company provides freedom of maneuver in contested environments within the rear area to include the strategic support area and the operational support area as well as fort to port and port to divisional contested battle space in large scale combat operations, when necessary, the company can be divided into two formations. Operational support company provides capability for defense support of civil authorities (DSCA), installation support, and very important persons protection support activity. Operational support company also provides capability for unique missions such as support to special operations, building partner capacity, theater security cooperation, and homeland defense.

b. Select chemical, biological, radiological, and nuclear (CBRN) companies perform the technical escort mission with EOD-qualified personnel assigned to four CBRN response teams. The companies provide to military forces or civilian authorities:

(1) Advice.

(2) Assessment.

(3) Sampling.

(4) Detection.

(5) Verification.

(6) Render-safe.

(7) Packaging.

(8) Escorting chemical and biological devices and hazards.

(9) Surveilling biological hazards.

(10) Providing limited consequence management.

(11) Technical escort EOD teams are trained and equipped to perform conventional EOD operations as well.

c. Army Engineers.

(1) Mission. Army engineers provide a full range of engineering capabilities to the joint force commander including mobility, countermobility, survivability, general engineering, and geospatial support. Specific engineering missions regarding EO include minefield and obstacle reconnaissance, detection, breaching, clearing, proofing, and marking. During operations, engineers employing an explosive ordnance clearance agent (EOCA) may perform route and area clearance operations. Engineers may assist EOD assets in EOD operations, as directed by the theater commander for more information see ATP 4-32, *Explosive Ordnance Disposal (EOD) Operations*.

(2) C2. Joint Publication (JP) 3-34, *Joint Engineer Operations*; Field Manual (FM) 3-34, *Engineer Operations*; and ATP 3-34.20/Marine Corps Reference Publication (MCRP) 10-10.1, *Countering Explosive Hazards* provide more details on specific engineer C2, units, and tasks.

d. EOCA

(1) EOCAs are combat engineers trained to perform limited EOD on the battlefield. EOCA-certified engineers can remotely identify and detonate (blow-in-place) explosive hazards (EHs) for which they are trained and authorized. Produced and approved by the EOD Commandant's Office and the EOD Technology Division, respectively, the theater EOD commander publishes the supplemental EOCA ordnance list as part of the ordnance order of battle. EOCA capabilities include:

(a) EO Area Marking. EOCA personnel can mark the EO area according to the standard EH marking system.

(b) Increased Survivability Support. EOCA personnel can support survivability efforts to isolate the blast and fragmentation danger area of an identified EO. EOCA personnel also may provide an estimated blast and fragmentation danger area for items similar to, but not included in, the EOCA identification guide and supplemental list. EOCAs will advise the on-scene commander regarding recommended personnel and equipment protective measures. Commanders should increase survivability efforts to protect personnel and equipment from the blast effects when personnel must remain in the hazard area.

(c) EO and IED Disposal. EOCA personnel are authorized to destroy individual EO identified in the EOCA identification guide, the supplemental EOCA ordnance list, and theater policy.

(2) EOCA Limitations:

(a) EOCA cannot move, combine, or destroy multiple EO (such as a cache).

(b) EOCA cannot conduct IED reconnaissance of or handle IEDs (including vehicle- or person-borne IEDs) not specified in the EOCA identification guide, the supplemental EOCA ordnance list, or specific theater policies and directives.

(c) EOCA can only work with captured enemy ammunition, under the direct supervision of EOD personnel.

(d) EOCA cannot be used for EH response calls unless EOD is not available, as determined by the maneuver commander.

3. United States Marine Corps (USMC)

a. Mission. The Marine Corps EOD mission is to support the Marine air-ground task force (MAGTF), supporting establishment, homeland defense, special operations forces (SOF) and other Government agencies. This includes detecting, locating, accessing, diagnosing, rendering safe, neutralizing, recovering, exploiting and disposing of hazards from foreign or domestic UXO, IED, and weapons of mass destruction (WMD) that present a threat to operations, installations, personnel, or materiel.

United States Marine Corps Explosive Ordnance (EOD) Exploitation

In 2020, USMC EOD personnel conducted a detailed examination of four AT-4B Spigot Anti-Tank Guided Missiles, which were recently obtained by partner forces in southern Syria. “During the exploitation process, EOD technicians were able to gather valuable weapons data and retrieve biometric information to be analyzed. The final results assist partner forces in understanding both advanced weapons employment and provide a better understanding of illicit weapons trafficking patterns in the region” Capt Joshua Hays, the Special Purpose Marine Air Ground Task Force Crisis Response Central Command spokesperson. The forensic data collected will help partner forces continue clearing out ordnance which threaten innocent bystanders. (photo in figure 12 below)

- **Source: US Central Command Press Release 2 DEC 2020**
- **Special Purpose Marine Air-Ground Task Force Crisis Response, Central Command**



Figure 12. Photo of Captured Antiarmor Missile Systems

(1) USMC EOD personnel are trained through the USMC Explosive Ordnance Exploitation Course to conduct level 1 and 2 exploitation. All USMC units are authorized to conduct EO TECHINT collection and exploitation on collected exploitable materiel, foreign systems, and ordnance exploitation. Personnel receive formal and on-the-job training relating to ordnance disassembly, stripping, fragmentation analysis, post-blast investigation, evidence collection, crater analysis, captured enemy ammunition evaluation/inspection, and radiographic interpretation.

(2) Units provide technical data and information for processing by level 3 through 5 entities.

(3) USMC EOD units conduct inerting operations to support training and development.

b. Marine Corps EOD operations and C2 structures. For additional information refer to Marine Corps Order (MCO) 3571.2, *Explosive Ordnance Disposal (EOD) Program,* and Marine Corps Tactical Publication (MCTP) 10-10D, *MAGTF Explosive Ordnance Disposal*.

(1) EOD operations are planned and executed by the operations section of the MAGTF headquarters. It is staffed with an EOD staff officer and an EOD planner (staff noncommissioned officer). The MAGTF EOD officer manages requests for support, plans and prioritizes missions, and provides liaison when conducting joint operations.

(2) The Marine logistics group (MLG) of a Marine expeditionary force (MEF) includes one EOD company residing within an engineer support battalion. The EOD company organization includes four to six sections (one EOD officer and twelve enlisted EOD technicians per section) and a headquarters element. Manning and equipping to support battalion-sized elements not conducting distributed operations requires one section of EOD personnel. EOD support to distributed operations requires mission analysis to determine the concept of support. Initial staff estimates should align one EOD section for each battalion-sized element. This does not include direct support to route clearance and reconnaissance platoons. Support categories of an EOD company include:

(a) Combat service support throughout the range of military operations.

(b) General EOD operations ashore in support of the joint force. Marine Corps tasks include the following operations: conventional ordnance; unexploded ordnance; IEDs; WMD (including chemical, biological, and radiological); and weapons accidents and incidents.

(c) Defense security cooperation assistance through the development of EOD and humanitarian mine action programs of foreign partners.

(d) DSCA.

(e) Maritime Domain Awareness and Intelligence Preparation of the Operational Environment (also referred to as IPOE) Development. Unmanned

system/sensor assets/operators, ability to update integrate information into the COP, and maintenance that support EO operations.

(f) Littoral explosive ordnance neutralization (LEON) capable EOD sections within designated MLG units support advanced amphibious force mobility within littoral transition points (referred to as LTPs) during all phases of the competition continuum. A LEON capable EOD section is manned, trained and equipped to detect, classify, locate, identify, neutralize, and exploit EHs in two littoral transition points. LEON sections are interoperable with Navy expeditionary mine countermeasures (EXMCM) companies and mine countermeasures (MCM) platoons during doctrinal MCM operations.

(g) A multi-discipline exploitation team (MDET) can be formed with organic MEF capabilities. The MDET provides responsive information to supporting level 3 to 5 facilities to limit communications and movement requirements to meet directed information requirements.

(3) An EOD section of one EOD officer and 12 enlisted EOD technicians is organic to each combat logistics battalion and provide support to the Marine expeditionary unit (MEU). The scope of mission requirements dictates EOD section reinforcement or breakdown into task organized response elements. Categories of support include:

(a) Direct and general support to the command element maritime raid force battalion landing team, combat logistics battalion, and aviation combat element during contingency operations.

(b) Defense security cooperation assistance through the development of EOD and humanitarian mine action programs of foreign partners.

(c) DSCA.

(4) Support to the Marine air wing includes three Marine wing support squadrons (MWSSs). Within each MWSS is an organic section of one EOD officer and eight EOD enlisted technicians. Although their main mission is to provide aviation ground support, EOD section manning, training, and equipping enables them to support the range of MAGTF operations.

(a) Forward arming and refueling point support.

(b) Base recovery after attack.

(c) Large area clearance.

(d) Installation support.

(5) Three enlisted EOD technicians provide organic EOD capability to the Marine expeditionary force information group (referred to as MIG) residing in the intelligence battalions and primarily focus on the development of TECHINT of foreign weapons systems and identity operations support.

(a) Personnel can be deployed as part of a Marine exploitation cell or individually as an EOD team. Teams provide support to joint, interagency,

intergovernmental, and multinational exploitation teams. Elements are tailorable and scalable to satisfy emerging requirements.

(b) Identity operations support full modality exploitation of collected exploitable materiel.

- Biometrics.
- Forensics.

(6) The Marine Corps component of US Special Operations Command is Marine Forces Special Operations Command (MARFORSOC). The MARFORSOC headquarters is supported with one EOD officer and one senior EOD staff noncommissioned officer responsible for the coordination of operations and manpower management. One enlisted EOD senior noncommissioned officer supports the Marine Raider Regiment acting as the EOD liaison responsible for training coordination. Each Marine Raider battalion has an organic EOD section composed of one EOD officer and six EOD enlisted technicians, that are manned, trained, and equipped to support the range of special operations. Within each Marine special operations company are 12 EOD technicians that are directly integrated into the Marine special operations team. Due to the unique concept of employment, MARFORSOC EOD technicians will normally conduct EOD operations independently which include:

(a) Assault support to the Marine special operations team.

(b) TECHINT in support of the exploitation analysis cell.

(c) Development of EOD personnel and programs in support of Foreign Internal Defense.

(7) The Chemical-Biological Incident Response Force (CBIRF) has an EOD section of one EOD officer and nine enlisted EOD technicians that provide support to the credible threat of a CBRN/WMD incident. The scope of mission requirements dictates EOD section reinforcement or breakdown into task organized response elements. Categories of support include:

(a) Direct and general support to local, state, or Federal agencies and designated combatant commanders in the conduct of CBRN or WMD consequence management operations.

(b) DSCA.

(8) Most Marine Corps bases and stations have an organic EOD section. Installation EOD sections of one EOD officer and six enlisted EOD technicians are a force protection asset and are first responders along with other applicable emergency services. They can:

(a) Provide installation emergency response and defense support of civil law enforcement agencies for accidents and incidents involving EHs.

(b) Assist range operations through routine EOD response for explosive ordnance related issues.

4. United States Navy

a. Navy EOD is a combat support force manned, trained, and equipped to eliminate hazards from UXO, IEDs, WMD, land and water mines, and all other types of weaponry. Navy EOD provides specially trained, combat-ready, and highly mobile forces in support of joint force maritime component commands, unified theater commanders, carrier strike groups, amphibious forces, (SOF), joint interagency partners, and allies throughout the range of military operations in all domains, worldwide. Navy Warfare Publication (NWP) 3-10 *Navy Expeditionary Combat Command Forces*, JP 3-42 *Joint Explosive Ordnance Disposal*, and Chief of Naval Operations Instruction 8027.1H provide detail for Navy EOD-specific operations and C2 structures. Naval Tactics Techniques and Procedures (NTTP) 3-10.4.1 *Navy Expeditionary Technical Exploitation* provides details for Navy EOD and other expeditionary forces in the collection and exploitation of foreign weapons, EO, and other collected exploitable material on the battlefield.

(1) A Navy explosive ordnance disposal group (EODGRU) is a deployable echelon IV, O-6 afloat command and is operationally task-organized under the appropriate combatant commander and numbered fleet commander. An EODGRU exercises service authorities, administrative control, and/or OPCON, over assigned EOD, expeditionary salvage, other Navy Expeditionary Combat Command (NECC), or joint forces and can form a headquarters staff as the core of a joint task group or force. The EODGRU can provide C2 of operations at a level comparable to an Army brigade or Army EOD group. The EODGRU provides Navy EOD services to the operational commanders through an explosive ordnance disposal mobile unit (EODMU).

(2) EODMUs are deployable, echelon V, O-5 afloat commands, and are responsible for the operational readiness of their subordinate EOD unit of action (referred to as UoA) (companies, platoons [PLTs], and EOD shore-based detachments [SBDs]). Navy EODMUs C2 joint EOD operations as the headquarters element for a JTF or an NECC mission-based task organization. In joint EOD operations, an EODMU provides C2 at a level comparable to an Army EOD battalion.

(3) Navy EOD SBDs are geographically located at select shore activities where a full-time requirement for EOD presence exists and are assigned in direct support of a Navy region and hosted by a Navy installation. EOD SBD capabilities may differ and they maintain tailored EOD equipment to support their base and Navy regional commander requirements. The supporting commander is the commanding officer of the EODMU exercising Service authority and administrative control over the EOD SBD.

(4) Navy EOD companies are subordinate activities of EODMU. Navy EOD companies are comprised of two or more EOD PLTs combined with a C2 element.

(5) The Navy EOD PLT is the primary tactical element for Navy EOD and is assigned under Service authority to a parent EODMU. EOD platoons may be deployed independently and have the capability to break down into smaller task

elements depending on mission scope and operational requirements. EOD PLTs eliminate conventional explosives, and CBRN hazards from dropped, projected, thrown, or placed ordnance. EOD PLT personnel have special training and equipment to render EO safe, make intelligence reports on such ordnance, and supervise the safe removal thereof. All EOD PLTs conduct diving, demolition, and Level 1 technical exploitation operations. They can be used as force multipliers to support ordnance recovery, land range and underwater clearance, as well as EOD support and augmentation to land forces, shore detachments, contingency, and special operational support, as tasked. In addition, Navy EOD PLTs are assigned to SOF where continuing EOD requirements exist. They are equipped with EOD-specific tools, vehicles, and equipment, including demolition materials, explosive tools, robotics, electronic warfare systems, and specialized search and detection equipment. EOD PLTs are trained and equipped differently depending on their assigned mission, but all EOD PLTs maintain some common EOD response capabilities.

(6) An EXMCM company enables access for combat forces and allow mobility and maneuver. The EXMCM company integrates the underwater MCM capabilities of an MCM PLT, an EXMCM company C2 element, and a unmanned systems PLT into an effective task unit or as disaggregated units of action. They are capable of rapidly performing all phases of MCM consisting of planning, searching, classifying, mapping, reacquiring, identifying, neutralizing, and limited exploitation of mines, maritime improvised explosive devices (MIEDs), and waterborne improvised explosive devices (WBIEDs).

b. The mission of Navy EOD is to provide specially trained, combat ready, highly mobile forces that enable access to areas denied by EO, and facilitate operational mobility and maneuver in support of:

(1) Maritime component commanders, unified theater commanders, joint forces, carrier strike groups, expeditionary strike groups.

(2) Amphibious ready groups/MEUs, MCM task forces and groups, SOF, continental US Navy region commanders, interagency partners, and allies.

(3) The USSS and DOS for protection of designated dignitaries.

c. Navy EOD units support missions in all domains, worldwide, in which there is a requirement to mitigate EHs that threaten operations or personnel. Such missions include:

(1) Amphibious operations.

(2) Airfield damage repair (ADR).

(3) Port damage repair.

(4) Littoral, coastal, maritime, and blue water MCM.

(5) Range and waterway clearance.

(6) Handle fused ordnance in conjunction with aircraft carrier and amphibious assault ship flight deck operations.

(7) Eliminate EHs in any environment.

(8) Post-blast investigations.

(9) Ordnance disassembly.

(10) Foreign materiel acquisition and exploitation.

(11) Collect WTI.

(12) Prevent civilian and military casualties.

(13) Preserve critical infrastructure.

(14) CWMD.

d. Navy EOD operates across the range of military operations and conflict continuum. Contingency operations include foreign humanitarian assistance, including assistance in the development of allied nation EOD programs; disaster relief; DSCA; very important personnel protection support activity; and providing support to other operations as directed by higher authority.

e. Navy EOD personnel are manned, trained, and equipped to perform EOD tasks to deliver the following capabilities:

(1) EXMCM. EXMCM include the search for, classification, mapping, requisition, identification, neutralization, exploitation, and disposal of naval and sea mines. It also includes MCM operations and exercises that require Navy EOD technicians for mine recovery, technical exploitation, and neutralization operations.

(2) Counter-Improvised Explosive Device (C-IED). C-IED is conducted to defeat unconventional ordnance and collect associated material to support technical exploitation operations. Examples include booby traps and all types of IEDs, such as MIEDs and WBIEDs.

(3) UXO. UXO response includes actions to identify UXO and mitigate their effect on operations. This includes UXO remaining in former combat zones, training areas, and target ranges. It also includes incidents involving explosive items that have become or are suspected to be hazardous or unserviceable by damage or deterioration. When foreign ordnance items are involved, acquisition and exploitation provides value to the intelligence community via TECHINT, and to the joint-Service EOD community for tactics, techniques, and procedures (TTP) and publications development.

(4) Counter CBRN ordnance. CBRN operations are conducted to counter WMD. Examples include nuclear weapons, improvised nuclear devices, radiological dispersal devices, and other devices incorporating chemical or biological warfare agents. This may involve handling and/or storage of concentrations of chemical, nuclear, or unusually hazardous bulk explosives or EO.

(5) Expeditionary Acquisition and Exploitation. This capability is near-real-time technical exploitation operations on captured and recovered enemy weapons and ordnance in support of the joint force. It includes operations intended to acquire

enemy weapons systems and associated components for technical exploitation and analysis to support the intelligence community and joint-Service EOD.

(6) Airfield Recovery. A tactical mission with a heavy engineering component in a time-sensitive environment; EH is a subset of the broader capability of ADR. It requires the EOD force to conduct EH identification and mitigation to enable the naval construction force ability to restore air operations within timelines specified by the operational commander.

f. Expeditionary Exploitation Unit ONE (referred to as EXU-1) general categories of support. These include:

(1) Near-real-time weapons technical exploitation operations on captured and recovered enemy weapons and ordnance in all weather conditions and CBRN environments on land and underwater in support of the joint force.

(2) In theater and national post blast investigations (levels 1 and 2). These encompass tactical evaluation of the incident site and identification, collection, and neutralization of EO. Also included are electronic analysis of post-blast components, producing detailed intelligence reports used for rapid development of C-IED TTP, counter-bomber target development, and EOD render safe procedures.

(3) In-theater identification and acquisition of unknown, foreign ordnance and packaging it for shipment to US locations for further exploitation and to rapidly develop TTP and EOD render safe procedures.

g. Navy Expeditionary Rapid Airfield Damage Repair (ExR-ADR). ExR-ADR is a subset of the broader capability of ADR. ExR-ADR is tactical mission with a heavy engineering component in a time-sensitive environment. It requires the naval construction force augmented by the EOD force to conduct EH identification and mitigation, airfield damage assessment, minimum airfield operating surface selection, ADR, and emergency airfield lighting system installation to restore air operations within timelines specified by the operational commander. During an airfield attack, the enemy could use a combination of munitions: some that detonate on impact, others with time delay-fuses, and possibly some antipersonnel (AP)/materiel devices. The enemy's use of a combination of munitions could drastically hinder ADR efforts. Explosive ordnance reconnaissance (EOR) is the investigation, detection, location, marking, initial identification, and reporting of suspected EHs by EOD technicians to determine the need for further action and inform the minimum airfield operating surface selection process. This activity is not intended to fully mitigate EHs, but to be an initial appraisal where EHs or suspected EHs have been found to quickly establish safe routes for the damage assessment team (DAT).

WARNING

**It is critical that ONLY EOD personnel conduct mitigation and disposal of explosive hazards. Non-EOD personnel are not directly involved in mitigation, but they should be prepared to assist EOD personnel in other aspects of these operations, when required. Explosive hazard mitigation should be in conjunction with, or immediately following, the explosive ordnance reconnaissance and damage assessment teams conducting their assessments. If explosive hazard mitigation is conducted after explosive ordnance reconnaissance, damage assessment, and minimum airfield operating surface selection, damage assessment team members may need to accompany the EOD technicians to record and report the locations of any collateral damage created by explosive hazard mitigation.

5. United States Air Force (USAF)

a. Mission.

(1) Prime base engineer emergency force (Prime BEEF) EOD teams are deployed to protect people, resources, and the environment from the effects of EO caused by accidents or enemy attacks. Program requirements are identified in Air Force Policy Directive 32-30*, Explosive Ordnance Disposal,* and Air Force Manual (AFMAN) 32-3001, *Explosive Ordnance Disposal* (*EOD) Program*.

(a) USAF EOD teams are manned and equipped to provide a deployable, response capability. EOD members provide an emergency response capability for Air Force and joint commanders to detect, locate, access, diagnose, render safe, recover, and dispose of EO.

(b) Direct combat support missions include the destruction of stockpiled and abandoned enemy ordnance, route clearance, post-attack investigation, and C-IED operations.

(c) Special capabilities include:

- Systems to rapidly clear heavy concentrations of area denial or UXO submunitions from aircraft operating surfaces at key locations.
- Standoff munitions disruption, using projectile attack as an expedient means of rapidly disrupting large numbers of UXO.
- Specialized vehicle-borne IED and chemical, biological, radiological, nuclear, and explosives (referred to as CBRNE) capabilities.
- Explosive demolition for base denial effects.

(2) USAF EOD teams are trained in small-unit tactics and support a JTF's joint operations area beyond the base and base defense zone. In these roles, EOD teams must be able to operate, maintain, and employ weapons, including individually assigned small arms, crew-served weapons, and remote weapon systems.

b. USAF EOD Teams. EOD teams are comprised of a minimum of two EOD-qualified personnel based on the risk. The EOD team leader is a technical sergeant (E-6) or above who has completed all required upgrade training and completed the USAF EOD Team Leader Course. An EOD team is incomplete without special training, publications, and specialized equipment to perform EOD-related procedures. EOD is the only Air Force Specialty authorized to render-safe, dispose of, and mitigate hazards posed by EO. (AFMAN 32-3001)

c. EOD Forces. USAF EOD forces primarily support air base operations for the commander, USAF forces. USAF EOD can deploy as part of a joint, interagency, or multinational force using counter-explosive unit type codes organized for specific missions. In deployed environments, USAF EOD teams typically reside at every main operating base supporting combat sortie generation and force protection by eliminating EO to airfield operations. Priorities of USAF EOD employment are base security zones and EOD missions outside of the base security zone, in support of air operations. Other priorities include supporting battle-space owners during combined or joint campaign execution.

d. Prime BEEF Units. Prime BEEF units are the primary organizational structures supporting mobility and in-place requirements. USAF EOD forces are part of this structure. Prime BEEF unit support to EO operations and EOD forces include:

(1) Providing EOR.

(2) Augmenting for ordnance removal.

(3) Plotting, tracking, and identifying EO.

(4) Providing heavy equipment support.

(5) Constructing barriers for EO effects mitigation.

(6) Detecting CBRN.

e. Rapid Engineer Deployable Heavy Operational Repair Squadron Engineer (RED HORSE) Squadrons. Normally, RED HORSE units are assigned OPCON to the USAF forces and are tasked through the commander, USAF forces, to provide construction, heavy repair, general demolition capabilities (such as key infrastructure demolition and airbase denial) or other general engineering capabilities as needed throughout the theater of operations. RED HORSE squadrons provide a more robust engineering capability than Prime BEEF units, but do not have assigned firefighter or EOD personnel.

f. C2. The USAF task organizes Prime BEEF mobility units as expeditionary civil engineer (CE) groups, expeditionary CE squadrons, or CE flights assigned to support specific operating locations. USAF EOD organizes as a flight reporting to the

CE squadron. The senior officer assigned to the Prime BEEF unit acts as the EO coordination element. For further task organization breakdown, refer to table 3.

Table 3. USAF EOD Expeditionary Flight Structure

Threat	Total USAF EOD for Standard Force Generation Operations	Total USAF EOD for IW Operations or Airfield Recovery Operations
High	16 (4 EOD teams/C2)	28 (6 EOD teams/C2)
Medium	12 (3 EOD teams/C2)	22 (4 EOD teams/C2)
Low	8 (2 EOD teams/C2)	12 (3 EOD teams/C2)
C2 Centers (without In Place EOD Support)	4	4

* Air Force EOD manpower is under review at time of publishing. Make sure to contact EOD team leadership for exact manning and capabilities.

Notes:

1. Locations that do not have a high terrorist threat (i.e., openly hostile enemy or insurgent activities), or an airfield recovery operations, follow guidance in the USAF War and Mobilization Plan (WMP-1), *Civil Engineer Supplement*, Enclosure G, Attachment 10.
2. High-threat locations support primarily aerial port, hub, spoke, on load, off load, enroute, and tanker task force operations. If USAF EOD supports eight or more personnel at a base, this satisfies hub and air mobility, low-threat requirements, and no additional personnel are required.
3. The USAF EOD expeditionary flight structure could change from the published date of this TTP. Refer to the USAF WMP-1, for the most current EOD flight structure.

Legend:
C2 – command and control
EOD – explosive ordnance disposal
IW – irregular warfare
USAF – United States Air Force
WMP – war and mobilization plan

Appendix B
QUICK-REFERENCE GUIDE

1. Introduction

a. Accurately recognizing hazards is critical to force protection and mitigating the associated risk to mission accomplishment. This appendix describes general identifying features of common United States (US) and foreign ordnance types and demolition materials most likely encountered by units during operations.

2. Dropped Ordnance

a. General Purpose Bombs. As depicted in figure 13, general purpose bombs come in many shapes and sizes depending on the manufacturing country and the specific employment method. General purpose bombs consist of a metal container, a fuze, and an aerodynamic stabilizing device. The metal container (called the bomb body) holds an explosive or chemical filler. The body may be in one piece or multiple pieces.

b. Chemical Bombs. Chemical-agent-filled bombs are built the same as general purpose bombs. US chemical bombs are general purpose bombs with a chemical filler in place of an explosive filler.

WARNING

Many countries do not follow commonly accepted color code standards.

Do not use color for positive identification because numerous factors may change the color of munitions over time.



FAB-250, M46, Bomb, General Purpose
Total Length, Maximum: Unknown **Diameter:** Unknown
Net Explosive Weight: 104kg **Total Weight:** Unknown



BLU-110A/B, BOMB, 1,000LB
Total Length, Maximum: 1.9 m **Diameter:** 356 mm
Net Explosive Weight: 202kg **Total Weight:** Unknown



BLU-111A/B, BOMB, 500LB
Total Length, Maximum: 1.54m **Diameter:** 274 mm
Net Explosive Weight: 87.1kg **Total Weight:** Unknown

Legend:
kg—kilogram
lb—pound
m—meter
mm—millimeter

Figure 13. Examples of General Purpose Bombs

c. Dispensers. Dispensers, depicted in figures 14 and 15, come in a variety of shapes and sizes depending on their payload. Some dispensers are reusable, and some are one-time-use items. Never approach a dispenser or any part of a dispenser found on the battlefield. The payload of submunitions may be scattered in the area where the dispenser hit the ground.

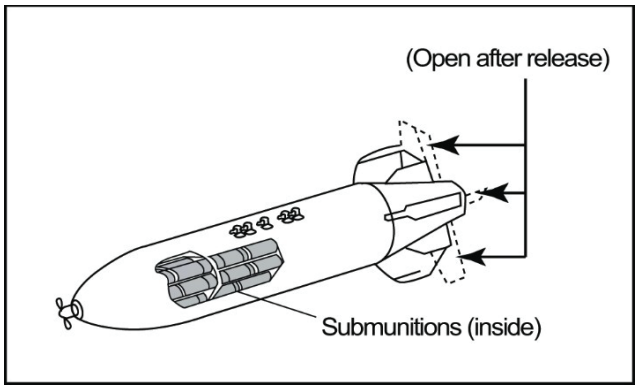


Figure 14. Example of a Dispenser

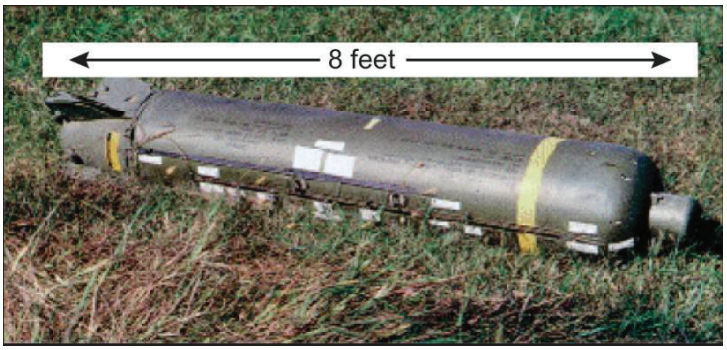


Figure 15. Example of Submunitions Dispenser CBU-87/B

d. Submunitions. Submunitions, depicted in figures 16 and 17, are small, explosive or chemical filled items designed for saturation coverage of a large area. They may be antipersonnel (AP), antimateriel, antitank (AT), dual-purpose, incendiary, or chemical. Dispensers, missiles, rockets, or projectiles may spread submunitions.

WARNING

DO NOT touch or disturb trip wires associated with submunitions. To avoid detonating the submunition, **DO NOT** touch or disturb its stabilization parachute or ribbon.

If a submunition is found, many more submunitions may be in the same area. The small size of a submunition does not diminish its danger.



BLU-97/B, BOMB FRAG/HEAT
Total Length, Maximum: 168mm
Diameter: 64mm
Net Explosive Weight: 294g
Total Weight: 1.54kg



PTAB 2.5, TG 70, BOMB, HEAT 2.5KG
Total Length, Maximum: 356mm
Diameter: 62mm
Net Explosive Weight: Unknown
Total Weight: 12.1kg



AO 1 SCH, BOMB, HE
Total Length, Maximum: 156mm
Diameter: 48mm
Net Explosive Weight: 51g
Total Weight: 1.16kg



BOMB, AT, MK 118 MOD 0, ROCKEYE
Total Length, Maximum: 343mm
Diameter: 53mm
Net Explosive Weight: 175g
Total Weight: 558g



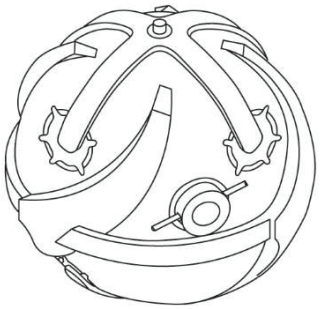
KB-1, SUBMUNITION.,HEDP
Total Length, Maximum: 90mm
Diameter: 40mm
Net Explosive Weight: Unknown
Total Weight: 235g



EM-20, EM-20/4R, M412, P-5, P-5/AR, SB-33/AR, SB-33/AR-AN, AP, ANTI-DISTURBANCE
Total Length, Maximum: 88mm
Diameter: 32mm
Net Explosive Weight: 17g
Total Weight: 160g

Legend:
AP—antipersonnel
AT—antitank
FRAG—fragmentation
g—gram
HE—high explosive
HEDP—high explosive dual purpose
HEAT—high explosive antitank
kg—kilogram
mm—millimeter

Figure 16. Examples of Types of Submunitions



POM-1, POM-1S, LANDMINE, AP
Diameter: 80mm
Net Explosive Weight: 100g
Total Weight: 750g



Legend:
AP—antipersonnel
g—gram
mm—millimeter

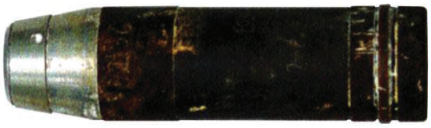
Figure 17. Examples of AP Submunitions

3. Projected Ordnance

a. Explosive ordnance (EO) originating from a launcher or gun tube is projected ordnance (as depicted in figures 18 and 19). Projectiles can have a variety of fillers; including explosives, chemicals (i.e., riot-control agents such as tear gas), white phosphorus, illumination flares, or submunitions. Projectile bodies can be one piece of metal or multiple sections fastened together.



M792, 25-MM, HEI-T
Total Length, Maximum: 117mm
Diameter: 25mm
Net Explosive Weight: 33g
Total Weight: 183g



VOG-26, 30-MM, FRAGMENTATION
Total Length, Maximum: 113mm
Diameter: 30mm
Net Explosive Weight: 33g
Total Weight: 276g



M60, M60A1, M60A2, M60E1, 105-MM, SMOKE, WP
Total Length, Maximum: 399mm
Diameter: 105mm
Net Explosive Weight: 95.2g
Total Weight: 19.5kg



M721, 60-MM, MORTAR, ILLUMINATING
Total Length, Maximum: 361mm
Diameter: 60mm
Net Explosive Weight: 18g
Total Weight: Unknown

Legend:
g—gram
HEI-T—high explosive incendiary-tracer
mm—millimeter
WP—white phosphorous

Figure 18. Example of Projected EO



M406, 40-MM, HE
Total Length, Maximum: 77mm
Diameter: 40mm
Net Explosive Weight: 32g
Total Weight: Unknown



BK 3, 100-MM, HEAT-FS-T
Total Length, Maximum: 579mm
Diameter: 100mm
Net Explosive Weight: 870g
Total Weight: 9.87kg



OG-9M, 73-MM, HE-FRAG
Total Length, Maximum: 650mm
Diameter: 73mm
Net Explosive Weight: 669.82g
Total Weight: 3.4kg



3BK 13, BK-13, BK13, ZBK-13, 122-MM, HEAT-FS-T
Total Length, Maximum: 637.3mm
Diameter: 122mm
Net Explosive Weight: 1.812kg
Total Weight: 18.2kg

Legend:
FRAG—fragmentation
g—gram
HE—high explosive
HEAT-FS-T—high explosive antitank fin stabilized tracer
kg—kilogram
mm—millimeter

Figure 19. More Examples of Projected EO

b. Rockets (figures 20 and 21) consist of a warhead section, motor section, and fuze. Fins or canted nozzles attached to the motor stabilize rockets in flight.



PG-7G, 58-MM, HEAT-T
Total Length, Maximum: 698mm
Diameter: 58mm
Net Explosive Weight: 800g
Total Weight: 2.1kg

M72A1E1, M72A2, 66-MM, HEAT (LAW)
Total Length, Maximum: 508mm
Diameter: 64mm
Net Explosive Weight: 520g
Total Weight: 1.04g

Legend:
g—gram
HEAT—high explosive antitank
HEAT-T—high explosive antitank tracer
kg—kilogram
LAW—light antitank weapon
mm—millimeter

Figure 20. Examples of HEAT Rockets



S-8-OF, 80-MM, HE/FRAG, AIR-TO-SURFACE
Total Length, Maximum: 1.28m
Diameter: 80mm
Net Explosive Weight: 5.02kg
Total Weight: 11.34kg



FADJR 1, 107-MM, HE/FRAG (HASEB, HASEB 1)
Total Length, Maximum: 760mm
Diameter: 107mm
Net Explosive Weight: 4.93kg
Total Weight: 18.2kg



M-13, M-13UK-1, 132-MM, SURFACE-TO-SURFACE, FRAG-HE
Total Length, Maximum: 1.45m
Diameter: 132mm
Net Explosive Weight: 4.8kg
Total Weight: 42.5kg

Legend:
FRAG—fragmentation
HE—high explosive
kg—kilogram
m—meter
mm—millimeter

Figure 21. Examples of Rockets

c. Figures 22, 23, and 24 show examples of guided missiles. Various guidance systems direct guided missiles to a target. Some smaller rockets are wire guided to the targets by a gunner. Radar guides most large missiles (such as the Patriot and the Sparrow) to their target. The radar may be internal to the missile (like the Patriot) or external (like the Sparrow), which uses the airplane's radar system. Fins, controlled by internal electronics, usually stabilize guided missiles in flight.

WARNING
Most guided missiles use internal proximity fuzing. Therefore, do not approach any guided missile lying on the battlefield.



FIM-92A, SURFACE-TO-AIR, (STINGER)
Total Length, Maximum: Unknown
Diameter: 70mm
Net Explosive Weight: 4.97kg
Total Weight: 10.4kg



BLOWPIPE, K103AI MK 2, SURFACE-TO-AIR, SURFACE -TO-SURFACE
Total Length, Maximum: 1.36m
Diameter: 80mm
Net Explosive Weight: 3.98kg
Total Weight: 10.5kg

Legend:
kg—kilogram
m—meter
mm—millimeter

Figure 22. Examples of Surface-to-Air Guided Missiles



AGM-65E, GUIDED MISSILE, AIR-TO-SURFACE (MAVERICK) (LASER GUIDED) (USMC)
Total Length, Maximum: 2.48m
Diameter: 305mm
Net Explosive Weight: 67kg
Total Weight: 290kg



AGM-154A, GUIDED MISSILE, AIR-TO-SURFACE, (JSOW)
Total Length, Maximum: 4.06m
Diameter: 336mm
Net Explosive Weight: 43kg
Total Weight: 483kg

Legend:
JSOW—joint stand-off weapon
kg—kilogram
m—meter
mm—millimeter
USMC—United States Marine Corps

Figure 23. Examples of Air-to-Surface Guided Missiles



SA-2D, GUIDELINE
Total Length, Maximum: 10.9m **Diameter:** 500mm
Net Explosive Weight: 85kg **Total Weight:** 2282kg

Legend:
kg—kilogram
m—meter
mm—millimeter

Figure 24. Examples SA-2D Guided Missile

4. Thrown Ordnance (Hand Grenades)

a. Thrown ordnance, commonly known as hand grenades (depicted in figure 25), have three main parts: a body, a fuze with a pull ring and safety clip assembly, and a filler. Never pick up a grenade on the battlefield, even if it still has the spoon and safety pin attached. Consider all grenades found lying on a battlefield booby trapped.



UNKNOWN, HAND, FRAG, STICK
Total Length, Maximum: 203mm
Diameter: 48mm
Net Explosive Weight: Unknown
Total Weight: 700g



M84, XM84, HAND, STUN NONLETHAL
Total Length, Maximum: 123mm
Diameter: 45mm
Net Explosive Weight: Unknown
Total Weight: 176.93g



MK 1 MOD 0, MK 1 MOD 1, HAND, ILLUMINATING
Total Length, Maximum: 109mm
Diameter: 53mm
Net Explosive Weight: Unknown
Total Weight: 295g



(F-1 COPY) FANG-1, TYPE 1, HAND, FRAG
Total Length, Maximum: 86mm
Diameter: 55mm
Net Explosive Weight: 54g
Total Weight: 511g



MK 14 MOD 0, HAND BLAST, ANTISTRUCTURAL MUNITION (ASM)
Total Length, Maximum: 136mm
Net Explosive Weight: 404.24g
Total Weight: 530g

Legend:
ASM—antistructural munition
FRAG—fragmentation
g—gram
mm—millimeter

Figure 25. Examples of Hand Grenades

5. Placed Ordnance

a. Terms. The common term for placed ordnance is land mine. Land mines are categorized as either persistent or nonpersistent. Both categories may include antivehicle and AP capabilities. There is a major difference between placed mines and scatterable mines. Camouflaging or burying (placing) mines underground makes visual detection difficult. Scatterable mines land on the surface, usually making visual detection easy. If approaching a suspected minefield, report it through the chain of command using the explosive ordnance disposal (EOD) 9-line reporting format.

WARNING

Consider all mines to be booby trapped or to have anti-disturbance fuzing. Never attempt to uncover or remove placed ordnance.

b. AP Mines. AP mines are small and come in different shapes and sizes, as depicted in figure 26. AP mine construction incorporates a variety of materials, including plastic and wood. Some AP mines function when stepped on (pressure

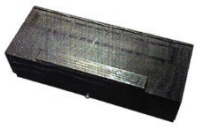
activated); and some AP mines (such as the US Claymore mine) may be set up to function by command detonation. Other AP mines are set up to function as improvised explosive devises (IEDs), such as those depicted in figure 27. These mines are set up to function by using a trip wire laid out across a path or road. Pulling or cutting the trip wire will cause the fuze to function and the mine to detonate.



NO 4, AP, PLASTIC
(PEDAL) (H-56-2-2) (18572)
Total Length, Maximum: 137mm
Width, Maximum: 66mm
Net Explosive Weight: Unknown
Total Weight: 347g



C19, AP, CLAYMORE
(H-5-2-3) (38016)
Total Length, Maximum: 216mm
Width, Maximum: 35mm
Net Explosive Weight: 682g
Total Weight: 1.58kg



YAM-5, AT, WOOD
(H-35-2-9) (6542)
Total Length, Maximum: 244mm
Width, Maximum: 129mm
Net Explosive Weight: 5.198kg
Total Weight: 6.4kg



MRUD, AP, CLAYMORE
(H-37-2-11) (6858)
Total Length, Maximum: 231mm
Width, Maximum: 46mm
Net Explosive Weight: Unknown
Total Weight: 1.5kg

Legend:
AP—antipersonnel
AT—antitank
g—gram
kg—kilogram
mm—millimeter

Figure 26. Examples of AP Mines



P7 MK 1, AP, JUMPING
(H-55-5-3) (7112)
Total Length, Maximum: 160mm
Diameter: 71mm
Net Explosive Weight: Unknown
Total Weight: Unknown



VALMARA 59, AP, BOUNDING
(H-9-2-15) (4421)
Total Height, Maximum: 201mm
Diameter: 104mm
Net Explosive Weight: 564g
Total Weight: 3.6kg



TYPE 58, AP, STAKE MINE
(H-17-2-6) (10616)
Total Length, Maximum: Unknown
Diameter: 60mm
Net Explosive Weight: Unknown
Total Weight: 1.58kg



RAP NO. 2, ZAP-2, AP
(H-58-2-1) (10941)
Total Length, Maximum: 195mm
Diameter: 36mm
Net Explosive Weight: 140g
Total Weight: 200g

Legend:
AP—antipersonnel
g—gram
k—kilogram
mm—millimeter

Figure 27. Examples of AP Booby Traps

c. AT Mines. AT mines are much larger than AP mines and may use a variety of fuzing, including pressure, magnetic, or tilt-rod. Some of the more modern AT mines have plastic bodies, which make them hard to detect with a metallic mine detector. The AT mines depicted in figure 28 function by direct pressure from a tank or vehicle, or employ a tilt-rod fuze sticking out of the ground. Moving or pushing the rod causes the mine to detonate.



TMD-1, AT, WOOD
(H-37-2-27) (8133)
Total Length, Maximum: 320mm
Width, Maximum: 280mm
Net Explosive Weight: 5.5kg
Total Weight: 7.7kg



GS MK V HC, MARK 5 H.C. (HEAVY CHARGE), AT
(H-3-2-7) (3434)
Total Height, Maximum: 102mm
Diameter: 203mm
Net Explosive Weight: Unknown
Total Weight: 5.7kg



P2 MK 2, AT, NONMETALLIC
(H-55-2-7) (10540)
Total Length, Maximum: 270mm
Diameter: 270mm
Net Explosive Weight: Unknown
Total Weight: 6.5kg



M/80, TC/2.4, AT
(H-9-2-8) (4419)
Total Height, Maximum: 106mm
Diameter: 204mm
Net Explosive Weight: Unknown
Total Weight: 3.3kg

Legend:
AT—antitank
kg—kilogram
mm—millimeter

Figure 28. Examples of AT Mines

6. Demolition Material

a. The term, demolition material, identifies explosives, incendiaries, and necessary accessories (depicted in figure 29) that are deliberately placed to destroy enemy property, breach barricades, or dispose of EO. Such materials include explosive initiators; demolition charges; and instruments, tools, and equipment used with charges for performing various demolition operations.

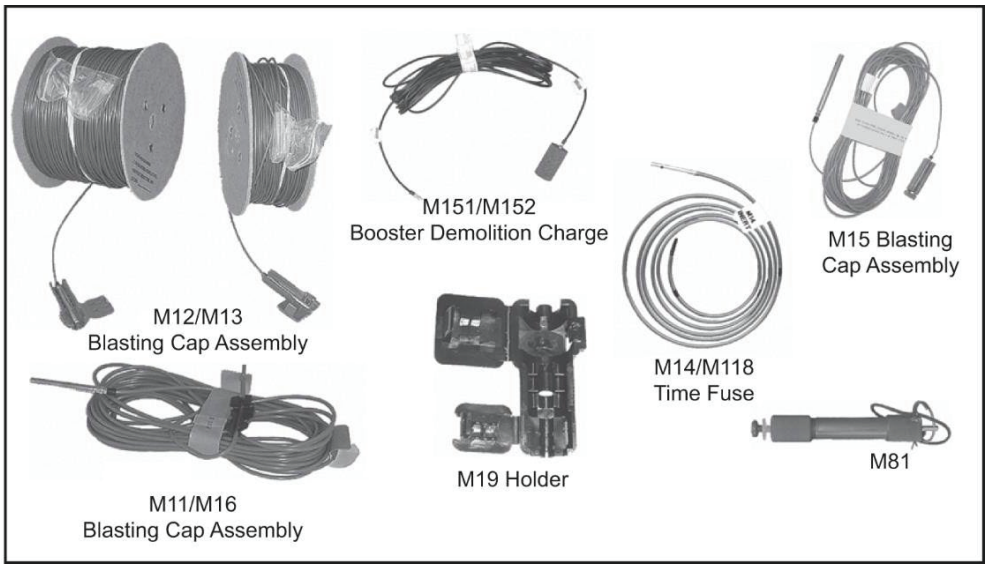


Figure 29. Examples of Demolition Material

7. Training and Practice Rounds

a. Many types of training and practice ordnance contain EO, as depicted in figure 30. Never assume practice or training ordnance is safe to handle.

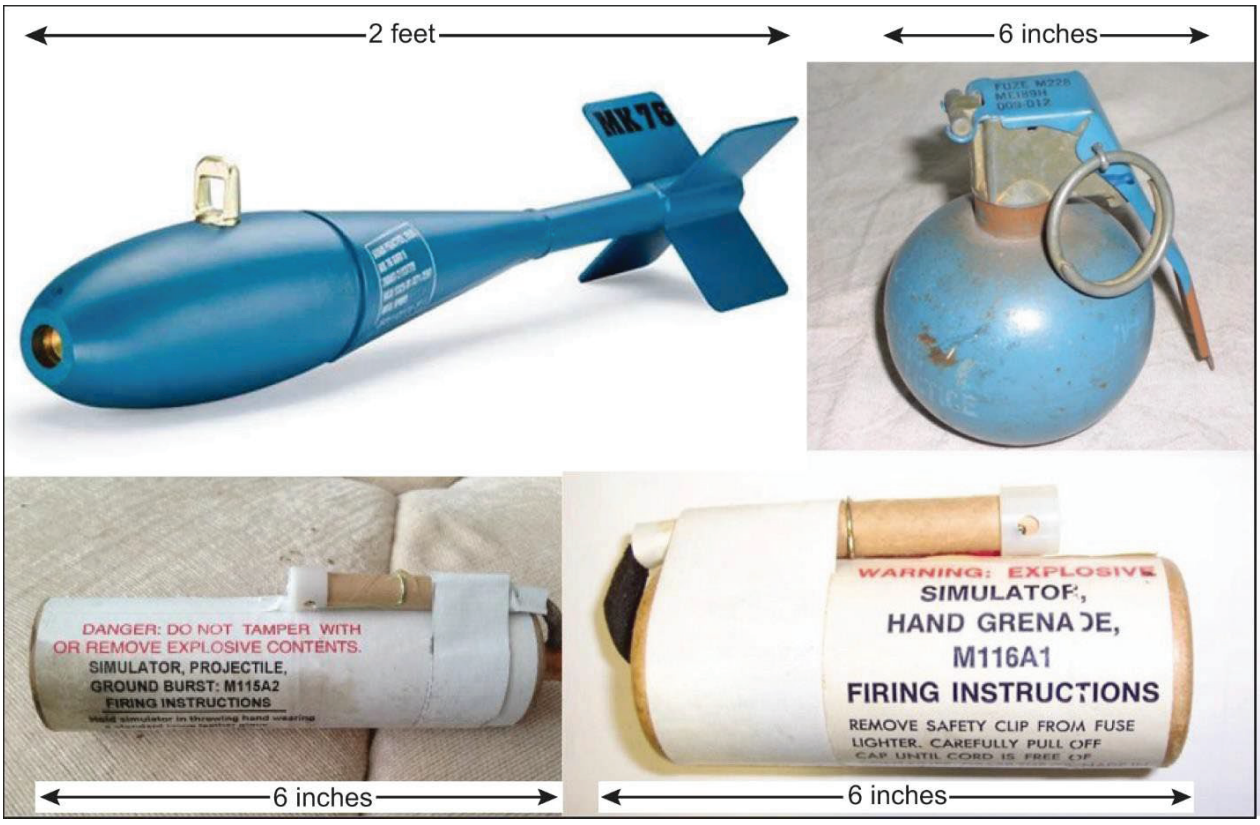


Figure 30. Examples of Training and Practice Rounds

8. One Page Quick Reference Guides

Figures 31 and 32 are one-page quick reference guides.

Quick Reference Guide

Explosive Ordnance (EO) and Unexploded Explosive Ordnance (UXO) Cordon Distances by Type

These distances are for SINGLE EO/UXO. When more than one EO/UXO is found the CORDON should be extended by 50 meters or more.

CONFIRM the presence of the suspect EO/UXO. When possible, this should be done from a safe distance, with the minimum use of hard cover and spotting equipment. NEVER compromise safety for positive identification of a suspected EO/UXO.

CLEAR all personnel from the area to a tacticallysafe distance. Detonation may be about to happen. Minimum safe distance for exposed personnel is 300 meters from EO/UXO. If you can identify the EO/UXO by TYPE use the recommended safe distances below.

CORDON off the danger area to all vehicles and foot traffic and establish an incident control point (ICP) to prevent entry of unauthorized personnel into the established cordon zone.

CHECK for other EO/UXO at ICP and other cordon posts. Conduct 5 and 25 meter search around the ICP: report any additional EO/UXO found, mark EO/UXO with an EO/UXO sign, re-establish cordon to a safe distance, and conduct 5/25 meter search around the new ICP.

CONTROL the area inside the established cordon zone to ensure only authorized personnel have access.

Type of EO/UXO	Average Weight of EO/UXO	Cordon Distance in Meters
 Grenades, Landmines, Submunitions	27 LBS or Less	300
 Projectiles and Mortars	50 LBS or Less	375
 Missiles and Rockets	100 LBS or Less	475
 Large and Guided Missiles	200 LBS or Less	600
 Bombs and Dispensers	300 LBS or Less	675
 Stockpiles of EO or UXO	500 LBS or Less	800

Figure 31. Cordon Distances by Type Quick Reference Guide

Quick Reference Guide
Explosive Ordnance (EO) and Unexploded Explosive Ordnance (UXO)
Recognition and Reporting Chart

DROPPED ORDNANCE

Bombs and Dispensers
1m-2m (3ft-6ft) Long

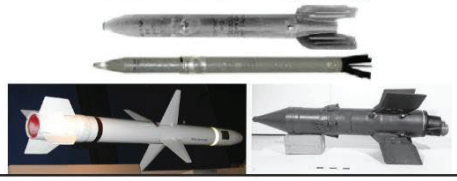


Bomblets
6cm-30cm (2in-1ft) Long



PROJECTED ORDNANCE

Rockets and Missiles
1.5m-3m (5ft-8ft) Long



Projectiles and Mortars
30cm-60cm (1ft-2ft) Long



THROWN AND PLACED ORDNANCE

Grenades - Thrown
10cm-30cm (4in-1ft) Long



Landmines
15cm-60m (3in-2ft) Long



EO/UXO Sign



Report EO/UXO to your chain of command using the EOD 9-Line Report.

Execute the 5-Cs upon initial observation an EO/UXO.

Confirm - Verify the presence of a suspect EO/UXO item.
Clear - Clear all personnel to a tactically safe position and location.
Cordon - Restrict all foot and vehicular traffic.
Check - Look for other EO/UXOs.
Control - Allow only authorized personnel in the area (medical, firefighting, EOD).

Legend:
cm—centimeter
EOD—explosive ordnance disposal
ft—feet
in—inches
m—meter

Figure 32. Recognition and Reporting Quick Reference Guide

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Appendix C
BARRICADE PROTECTIVE MEASURES

1. Introduction

a. Operational area contamination by explosive ordnance (EO) can cause confusion. A recognized and rehearsed system of alerting personnel to EO and evacuating an area are essential. Alerting systems may include loudspeakers, radios, and messengers. Unit standard operating procedures (SOPs) should include procedures for evacuating personnel from a hazard area and reestablishing operations at another location. Rehearsed and flexible evacuation plans can reduce personnel and vehicle losses.

b. Commanders must consider EO when establishing bases, base camps, and work sites. An evacuation plan should include procedures for unit elements to investigate and mark clear paths or link paths from other unit positions to their position and to the nearest hard-surfaced road. When evacuation is not possible due to mission constraints, units must employ barricades.

2. Barricades

a. Overview. A barricade is an artificial barrier that provides limited protection by channeling a blast and fragmentation emanating from a hazard area. Use barricades to lessen blast effects and limit necessary evacuation areas. Estimated probable damage from an EO detonation dictates barricade requirements. Building artificial barricades is time consuming and resource intensive. Depending on the size of the EO, consider constructing barricades immediately around the EO to protect the entire area, or construct barricades next to exposed equipment.

b. Barricade Types. The three types of barricades are circular, semicircular, and wall. Barricade selection depends on the EO hazard and the area requiring protection.

(1) Circular. A circular barricade is the best choice for small EO hazards because circular barriers provide complete protection for personnel and equipment. A circular barricade 8 feet in diameter, 3 feet tall, and 3 sandbags thick requires approximately 400 sandbags. The barricade, depicted in figure 33, forces the blast upwards and contains the majority of the fragments.

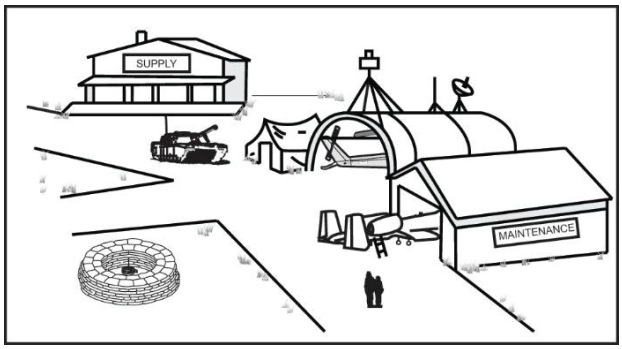


Figure 33. Circular Barricade

(2) Semicircular. Use a semicircular barricade for small and medium-sized EO hazards. Semicircular barricades channel the blast and fragmentation through the open side and away from the protected area, as depicted in figure 34.

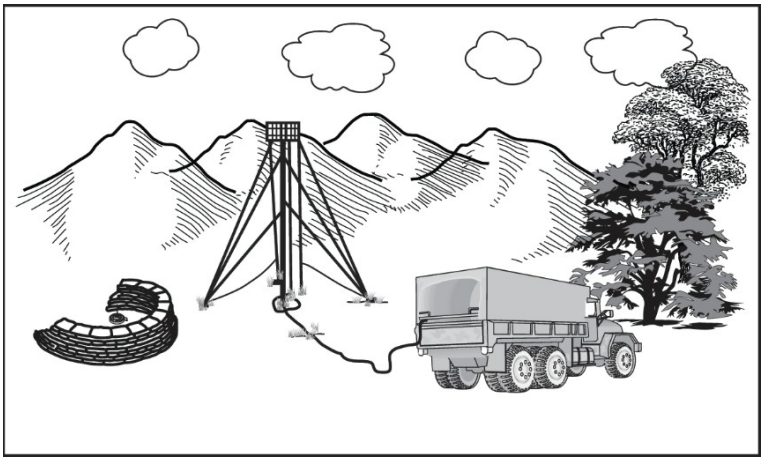


Figure 34. Semicircular Barricade

(3) Wall. The wall barricade protects specific equipment or personnel areas. Use the wall barricade when the EO hazard is too large to contain by using a circular or semicircular barricade. The number of wall barricades needed will depend on how much equipment and how many personnel must be protected. A wall barricade 12 feet long, 6 feet high, and 3 sandbags thick requires 700 sandbags. As shown in figure 36, the wall barricade should extend beyond, and be at least as tall as, the equipment or personnel areas. Barricaded equipment must remain functional. For example, the radar shown in figure 35 is still able to detect threats.

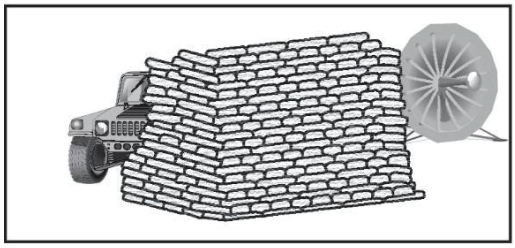


Figure 35. Wall Barricade

c. Barricade Construction Guidelines.

(1) Calculate the total destructive power of the EO hazard. Multiply the number of items by their net explosive weight to identify how resistant your barricade will need to be.

(2) Determine which assets must remain in the EO contaminated area.

(3) For assets remaining in the area, decide on the type of barricade required to protect them. Sandbags or other dirt or water filled barriers can be used.

(4) Concrete barriers employed near EO produce secondary fragmentation and, therefore, are not the preferred option when other barricade materials are available.

(5) Minimize personnel exposure by using the minimum number of personnel to construct barricades.

(6) Maximize earth-moving equipment use and consider constructing earthen barriers rather than sandbag barricades.

(7) When using sandbag barricades, fill sandbags away from the EO hazard area to reduce exposure and transport the filled sandbags to the barricade site.

(8) Ensure personnel constructing barricades employ appropriate personal protective equipment.

d. Placement and Size of Barricades.

(1) Construct barricades between the EO and protected equipment. Construct barricades no closer to the EO than the height of the barricade plus three feet. For example, the barricade shown in figure 36 is 5 feet tall. By adding an additional 3 feet, the barricade is positioned no closer to the EO than 8 feet. Positioning barricades in this manner maximizes protection from the blast and flying fragments.

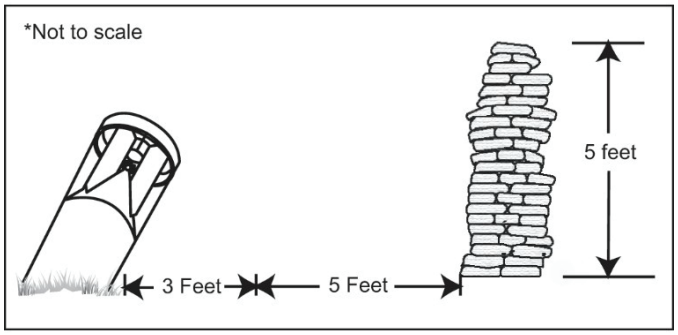


Figure 36. Placement Distance for a Barricade

(2) Interlock the sandbags for stability when building barricades, as depicted in figure 37. Failing to interlock sandbags reduces protection and causes barricade instability.

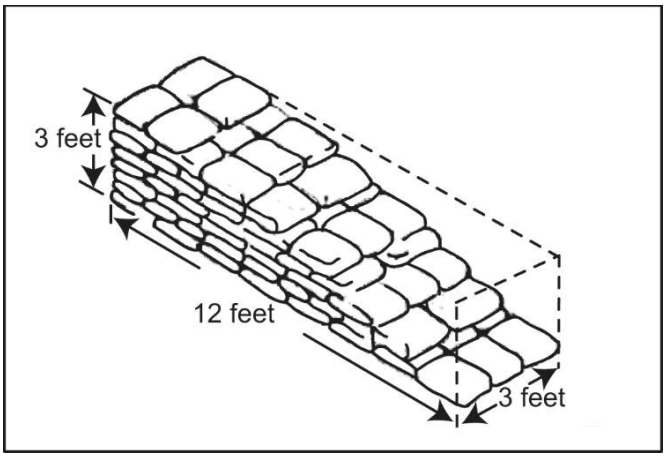


Figure 37. Interlocking Sandbags

(3) Small EO includes missiles and rockets less than 70 millimeters in diameter, projectiles less than 75 millimeters in diameter, and submunitions and grenades. When barricading small EO, a double-wall thickness of sandbags surrounding the EO affords sufficient protection. Stack sandbags at least 3 feet high in a semicircular or circular configuration.

(4) Medium-sized EO includes missiles, rockets, and projectiles up to 200 millimeters in diameter. For medium- and large-sized EO and surface-placed munitions, surround the area with a wall 4 or 5 sandbags thick. Stack sandbags at least 5 feet high in a semicircular configuration to protect assets.

(5) Large unexploded explosive ordnance, such as projectiles, missiles, and general-purpose bombs cannot be barricaded effectively. In these cases, barricade equipment and personnel activity areas. A wall barricade between the affected area and the EO hazard provides the best and easiest protection. Use concrete barriers to protect assets in this situation. See Army Techniques Publication (ATP) 3-37.34/Marine Corps Tactical Publication (MCTP) 3-34C, *Survivability Operations* for more information on constructing protective works.

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GLOSSARY

PART I – ABBREVIATIONS AND ACRONYMS

5-Cs	confirm, clear, cordon, check, and control
	A
ADR	airfield damage repair
AFMAN	Air Force manual
AFTTP	Air Force tactics, techniques, and procedures
ALSSA	Air, Land, Sea, Space Application (Center)
AO	area of operations
AP	antipersonnel
ASM	antistructural munition
AT	antitank
ATP	Army techniques publication
	B
BCT	brigade combat team
BN	battalion
	C
C2	command and control
CBRN	chemical, biological, radiological, and nuclear
CE	civil engineer
C-EO	counter-explosive ordnance (Army)
C-IED	counter-improvised explosive device
C-UAS	counter-unmanned aircraft system
CL V	class V
COP	common operational picture
CWMD	countering weapons of mass destruction
	D
DA	direct action
DAT	damage assessment team
dia	diameter
DoD	Department of Defense
DOS	Department of State
DSCA	defense support of civil authorities

DTG	date-time group
	E
EH	explosive hazard
EO	explosive ordnance
EOCA	explosive ordnance clearance agent
EOD	explosive ordnance disposal
EOR	explosive ordnance reconnaissance
EXMCM	expeditionary mine countermeasures
	F
FM	field manual
	G
g	gram
GP	group
	H
HE	high explosive
HEAT	high explosive antitank
HEAT-T	high explosive antitank tracer
	I
IED	improvised explosive device
	J
JP	joint publication
JTF	joint task force
	K, L
kg	kilogram
	L
LEON	littoral explosive ordnance neutralization
	M
m	meter
MAGTF	Marine air-ground task force
MARFORSOC	Marine Forces Special Operations Command
MCIO	military criminal investigative organization
MCM	mine countermeasures
MCO	Marine Corps order
MCRP	Marine Corps reference publication

MCTP	Marine Corps tactical publication
MDET	multi-discipline exploitation team
MDO	multi-domain operations
MEF	Marine expeditionary force
MEU	Marine expeditionary unit
MIED	maritime improvised explosive device
MLG	Marine logistics group
MTTP	multi-Service tactics, techniques, and procedures
MWSS	Marine wing support squadron

N

NECC	Navy Expeditionary Combat Command
NTTP	Navy tactics, techniques, and procedures
NWDC	Navy Warfare Development Center
NWP	Navy warfare publication

O

OPCON	operational control

P, Q

PLT	platoon
Prime BEEF	prime base engineer emergency force

R

RED HORSE	rapid engineer deployable heavy operational repair squadron engineer
RSOI	reception, staging, onward movement, and integration
RSP	render safe procedures

S

SBD	shore-based detachment
SOF	special operations forces
SOP	standard operating procedure

T

TECHINT	technical intelligence
TTP	tactics, techniques, and procedures

U

UAS	unmanned aircraft system

US	United States
USAF	United States Air Force
USMC	United States Marine Corps
USSS	United States Secret Service
UXO	unexploded explosive ordnance

V, W, X, Y, Z

WBIED	waterborne improvised explosive device
WMD	weapons of mass destruction
WTI	weapons technical intelligence

PART II – TERMS AND DEFINITIONS

countering weapons of mass destruction—Efforts against actors of concern to curtail the conceptualization, development, possession, proliferation, use, and effects of weapons of mass destruction, related expertise, materials, technologies, and means of delivery. Also called **CWMD**. (DoD Dictionary. Source: JP 3-40)

dispenser—In air armament, a container or device which is used to carry and release submunitions. (Source: NTRP 1-02)

explosive hazard—1. Any material posing a potential threat that contains an explosive component. (JP 3-15) 2. In explosive ordnance disposal, a condition where danger exists because explosives are present that may react in a mishap with potential unacceptable effects to people, property, operational capability, or the environment. Also called EH. (DoD Dictionary. Source: JP 3-42)

explosive ordnance—All munitions and improvised or clandestine explosive devices, containing explosives, propellants, nuclear fission or fusion materials, and biological and chemical agents. (DoD Dictionary. Source: JP 3-42)

explosive ordnance disposal— The process to detect, locate, access, diagnose, render safe/neutralize, recover, exploit, and dispose of explosive or improvised explosive threats. Also called **EOD**. (DoD Dictionary. Source: JP 3-42)

improvised explosive device—A weapon fabricated or emplaced in an unconventional manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals. Also called **IED**. (DoD Dictionary. Source: JP 3-42)

mine—1. In land warfare, a munition placed under, on, or near the ground or other surface area and designed to be exploded by the presence, proximity, or contact of a person or vehicle. 2. In naval mine warfare, an explosive device laid in the water with the intention of damaging or sinking ships or of deterring shipping from entering an area. (DoD Dictionary. Source: JP 3-15)

munition—A device with explosives; propellants; pyrotechnics; or chemical, biological, radiological, or nuclear material for use in operations including demolitions. (DoD Dictionary. Source: JP 3-42)

render safe procedures—The portion of the explosive ordnance disposal procedures involving the application of special explosive ordnance disposal methods and tools to provide for the interruption of functions or separation of essential components of unexploded explosive ordnance to prevent an unacceptable detonation. (DoD Dictionary. Source: JP 3-42)

spot report—A concise narrative report of essential information covering events or conditions that may have an immediate and significant effect on current planning and operations that is afforded the most expeditious means of transmission consistent with requisite security. Also called **SPOTREP**. (Note: In reconnaissance and surveillance usage spot report is not to be used (DoD Dictionary. Source: JP 3-09.3)

unexploded explosive ordnance—Explosive ordnance that has been primed, fused, armed, or otherwise prepared for action and that has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded either by malfunction or design or for any other cause. Also called **UXO**. (DoD Dictionary. Source: JP 3-42)

weapons of mass destruction—Chemical, biological, radiological, or nuclear weapons capable of a high order of destruction or causing mass casualties, excluding the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon. Also called **WMD**. (DoD Dictionary. Source: JP 3-40)

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RANDY A. GEORGE
General, United States Army
Chief of Staff

Official:



MARK F. AVERILL
Administrative Assistant
to the Secretary of the Army
2405400

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