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DISTRIBUTION:

Active Army, USAR, and ARNG: To be distributed in accordance with DA Form 12-1lE, requirements for FM 9-15, *Explosive Ordnance Disposal Service and Unit Operations* (Qty rqr block no. 0850).

* U.S. GOVERNMENT PRINTING OFFICE: 1996-728-027/40097

Field Manual
No. 9-15

HEADQUARTERS
Department of the Army
Washington, DC , 8 May 1996

EXPLOSIVE ORDNANCE DISPOSAL SERVICE AND UNIT OPERATIONS

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DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

*This publication supersedes FM 9-15, 20 March 1989.

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PREFACE

This FM prescribes EOD doctrine for conducting EOD operations during war and OOTW. It develops and defines the EOD perspective on the Army's keystone warfighting doctrine described in FM 100-5. This manual identifies the EOD mission, organization, roles, capabilities, and employment to support national security strategy. It serves as a guide for commanders and staff who will use EOD support for operations on conventional, chemical, nuclear, and improvised explosive ordnance. It also provides the EOD unit commander, staff, and personnel general and technical guidance for conducting EOD unit operations.

FM 9-15 discusses several doctrinal changes: the implementation of the heavy and light EOD response team concept, the effect on EOD of the removal of the Army's tactical nuclear weapons from its inventories, and the role of Army EOD in the postnuclear Army. The contents of this manual are consistent with FM 100-5.

This publication implements the following STANAGs:

STANAG 2002, *Warning Signs for the Marking of Contaminated or Dangerous Land Areas, Complete Equipment, Supplies, and Stores,* Edition 7.

STANAG 2079, *Rear Area Security and Rear Area Damage Control,* Edition 4.

STANAG 2143, *Explosive Ordnance Reconnaissance/Explosive Ordnance Disposal (EOR/EOD),* Edition 4.

STANAG 2389, *Minimum Standards of Proficiency for Trained Explosive Ordnance Disposal Personnel,* Edition 1.

STANAG *2834, The Operation of the Explosive Ordnance Disposal Technical Information Center (EODTIC),* Edition 2.

STANAG 2929, *Airfie!d Damage Repair (ADR),* Edition 4.

STANAG 2957, *International System (SI) used by Armed Forces in the Nuclear Field,* Edition 3.

The proponent of this publication is HQ, TRADOC. Send comments and recommendations on DA Form 2028 (or in 2028 format) directly to Commander, USACASCOM&FL, Training Directorate, Attn: ATCL-AM, 801 Lee Avenue, Fort Lee, VA 23801-1713.

Unless this publication states otherwise, masculine nouns and pronouns do not refer exclusively to men.

CHAPTER 1

THE EXPLOSIVE ORDNANCE DISPOSAL CHALLENGE

This chapter implements STANAGs 2079, 2389, and 2929.

EOD service helps preserve the commander's combat power. It enables the commander to integrate and coordinate a variety of functions to prevent degeneration of combat power at the operational and tactical levels. The challenge for EOD is to help maintain the maneuver, firepower, sustainment, and protection functions across the full range of Army operations.

THE THREAT

The strategic environment, even after the Cold War, is both dangerous and ambiguous. Increased instability in the world has resulted in regional conflicts, civil wars, insurgences, terrorist attacks, drug trafficking, and a variety of attempts at intimidation. These challenges arise even during times of relative peace. With this threat, UXO and IEDs will reduce the commander's combat power and national political, economic, military, and informational power during OOTW.

Because of this threat, commanders at all levels must incorporate EOD support into their planning process. This will ensure commanders will be able to respond to these worldwide strategic challenges across a full range of operations as part of a joint team.

The continuing development of foreign and US high-technology munitions that disperse numerous submunitions and area denial ordnance has led to the proliferation of UXO. These munitions are available for a range of weapon systems, including artillery, ballistic and cruise missiles, rockets, and bombs. On the battlefield, UXO can be conventional HE; chemical, biological, or nuclear ordnance; or IEDs. UXO limits battlefield mobility, denies the use of critical assets, and threatens to injure or kill soldiers at levels unprecedented in past wars. The vast amounts of UXO found in Iraq and Kuwait during and atter Operation Desert Storm testify to the increased proliferation.

All units in the Army must be able to cope with UXO on the battlefield. This calls for awareness training for all soldiers and for procedures that limit the effects of UXO on operations. Refer to FM 21-16 for more information on the UXO problem. At times, EOD units will operate jointly with other non-EOD units, other services, or allied EOD units to perform counter-UXO operations.

ARMY OPERATIONS TENETS

Five tenets of Army operations are described in FM 100-5: initiative, agility, depth, synchronization, and versatility. How EOD relates to each is described below.

Initiative

Initiative sets or changes the terms of battle by action. It implies an offensive spirit in conducting all operations. Applied to the force as a whole, it requires a constant effort to force the enemy to conform to ***our*** operational purpose and tempo while keeping our own freedom of action. Applied to individual soldiers and leaders, it requires a willingness and ability to act independently within the framework of the higher commander's intent. As in the past, EOD must excel at independent action to provide time-critical support across the entire spectrum of Army operations. EOD must anticipate requirements and act ***before*** the needs are identified at higher echelons.

Agility

Agility is friendly forces acting faster than the enemy. It is a prerequisite for seizing and holding the initiative. Such greater quickness permits the rapid concentration of friendly strength against enemy vulnerabilities. EOD is task-organized to ensure a rapid and focused response.

Depth

Depth is the extension of operations in space, time, and resources. High technology weapons and the enemy's capability to deliver them require EOD

support throughout the theater of operations. EOD protects the commander's freedom of action and conserves flexibility and endurance. EOD preserves operational plans and coordination by eliminating or reducing the hazards of conventional, nuclear, chemical, and biological munitions and IEDs that threaten personnel, military operations, critical facilities, materiel, and whatever else is needed to sustain combat operations.

Synchronization

Synchronization uses time, space, and resources to maximize combat power at the decisive time and place. It is both a process and a result. Synchronized activities (such as intelligence preparation, logistics, and fires) coordinated with maneuver forces lead to synchronized operations. EOD actions to neutralize the threat of conventional, nuclear, chemical, and biological munitions and IEDs serve both the synchronization process and result by providing protection, mobility, firepower, security, and intelligence. EOD actions require explicit coordination among the various units and activities participating in any operation. EOD plans its activities to quickly focus assets within other synchronized activities such as maneuver, logistics, and intelligence. EOD commanders must ensure a unity of purpose. This requires anticipation, mastery of time-space-resource relationships, and complete understanding of the ways in which friendly and enemy capabilities interact.

Versatility

Versatility is the ability to shift focus, to tailor forces, and to move from one mission to another rapidly and efficiently. It implies being multi-functional, operating across regions throughout the full range of military operations, and performing at tactical, operational, and strategic levels. Versatility denotes performing in many roles during war and OOTW. It allows for the smooth transition from one mission to another. EOD is equally adept at clearing UXO from critical facilities, providing support to the US Secret Service for presidential and VIP protection, or examining, identifying, and reporting new and unusual explosive ordnance for technical intelligence purposes.

Versatility requires supported units and EOD to interface on a consistent basis. This permits the tailoring of EOD support to the supported units' mission/function. It also fosters an understanding of each other's capabilities and limitations.

COMBAT POWER

Commanders generate combat power using the four combat power elements of maneuver, firepower, protection, and leadership to anticipate future operations. These elements are supported by the effects of battlefield functions, tactical units, and joint operations and missions. Their effective application and sustainment with each other will decide the outcome of campaigns, major operations, battles, and engagements. EOD performs an important role in preserving the commander's combat power.

Maneuver

Maneuver is the first element of combat power. It is the movement of combat forces to secure or to keep an advantageous position. Moving and positioning units during deployment to a theater and within a theater before operations are both forms of maneuver. They greatly influence the outcome of battles and campaigns. Maneuver depends upon mobility to mass forces, attain surprise, reduce vulnerability, exploit success, and preserve freedom of action. It is concentrating forces at decisive points to achieve surprise, psychological shock, physical momentum, and dominance.

The positional advantages gained by ground maneuver forces are unique to maneuver warfare. Seizing. holding, and denying terrain leads to victory and the ultimate attainment of strategic ends. Since denial of terrain limits maneuver, UXO will thus have a large impact on operations. Furthermore. the enemy will attempt its own maneuvering to get our forces into disadvantageous positions and subject to an ambush.

High technology weapons and the enemy's capabilities to deliver them may severely restrict maneuver. In addition. the availability of ICMs has dramatically restricted maneuver on the battlefield.

EOD protects the freedom of maneuver. Teams quickly respond to assist the maneuver element by identifying, advising on. and (if necessary) neutralizing UXO, EOD can also provide technical assistance to maneuver elements. including the engineers.

The breeching of minefield is an engineer matter. The proliferation and advancing technology of area denial submunitions and scatterable mines blurs the distinction between mines and UXO. EOD units will neutralize area denial submunitions and scatterable mines (UXO). All units must be able to apply countermine warfare techniques when faced with these types of munitions. Any unit that cannot self-extract from scatterable minefield risks being fixed in place and destroyed.

Firepower

Firepower is the second element of combat power. It provides destructive force and destroys the enemy's ability and will to fight. Our firepower facilitates maneuver by suppressing the enemy's fires and disrupting the movement of forces. Used apart from maneuver, it can destroy, delay, or disrupt the enemy's critical capabilities and uncommitted forces. The extended ranges and lethality of direct-fire weapons, precision-guided munitions, and accurate, massed fires make firepower devastatingly effective against troops, materiel, and facilities. Precision fires enhance our own maneuverability, while area denial fires reduce the enemy's.

On the other hand, UXO and area denial munitions generated by enemy fires may restrict the steady supply of the proper munitions in quantities adequate to ensure that the enemy remains continuously vulnerable. To ensure that this steady flow is not hindered, EOD acts to eliminate or reduce the hazards of munitions and IEDs that threaten personnel, military operations, facilities, and materiel. EOD can also restore the commander's firepower when dislodging a projectile stuck in an artillery tube.

Protection

Protection is the third element of combat power. Protection conserves the fighting potential of a force so that commanders can apply it at the decisive time and place. It has four components -- OPSEC and deception, soldier morale, safety, and fratricide prevention.

Operations Security. EOD counters the residual effects of enemy firepower and maneuver. EOD identifies, provides recommendations on, conducts technical intelligence for, and, if required, immediately neutralizes UXO and ICMs that threaten activities critical to maximum combat power. The enemy firepower may be enhanced and our maneuver ability diminished through the use of special operations forces or small groups trained to conduct raids against critical targets. These forces may utilize IEDs against such targets. EOD is prepared to locate, identify, and eliminate this threat.

Soldier Morale. High soldier morale means soldiers are healthy and able to maintain their fighting spirit. Tactical commanders take care of their soldier's basic health needs and prevent unnecessary exposure to debilitating conditions. EOD service helps maintain soldier morale on the battlefield in two areas -- safety and fratricide prevention. EOD provides advice and training on UXO hazards to all soldiers. Additionally, EOD reduces or eliminates the effects of UXO wherever found.

Safety. Safety is the third component of protection, Commanders must embrace safety in all they do. Safety in training, planning, and operations is crucial to successful combat operations and the preservation of combat power.

EOD ensures that safe training is performed by disposing of UXO on dedicated impact areas and temporary impact areas. During planning, EOD technicians may advise the commander of the hazards associated with maneuver through an area covered with ICMs and train his soldiers on UXO recognition and counter-UXO procedures. Technical intelligence tasks performed by EOD may provide the commander valuable insight concerning the threat of new, first-seen foreign ordnance.

Fratricide Prevention. The fourth component of protection is preventing fratricide, the unintentional killing of our own soldiers by our own fire. The power and range of modern weapons and the intensity and tempo of battle increase the likelihood of fratricide.

Limiting fratricide are strong command, disciplined operations, and detailed situational awareness. With these mechanisms, commanders can exercise positive control over fires, troop movements, and operational procedures. The key is to lower the probability of fratricide while not overly constricting boldness and audacity in combat.

The threat of fratricide increases when friendly maneuver occurs through areas where friendly fires using ICMs have deposited a blanket of UXO. All leaders and soldiers must be able to handle the threat

presented by UXO. Soldiers also must be able to recognize and react to UXO that poses a threat so that EOD can eliminate or neutralize it. EOD can assist a commander in training his soldiers on identification and reaction techniques prior to deployment or mission. EOD service also helps the commander identify, provide recommendations concerning, and (if required) neutralize UXO. See FM 21-16 for more on reacting to UXO.

Leadership

The fourth and most essential element of combat power is competent and confident leadership. Leadership provides purpose, direction, and motivation in combat. The leader determines the degree to which maneuver, firepower, and protection are maximized, ensures these elements are effectively balanced, and decides how to bring them to bear against the enemy. Thus, no peacetime duty is more important for leaders than continuing to grow by studying their profession, becoming tactically and technically proficient, and preparing for war. The regular study of military doctrine. theory, and history is invaluable in this regard.

THE EOD MISSION

This section implements STANAGS 2079 and 2834.

The mission of EOD is to support national security strategy during operations, in war or OOTW, which reduce or eliminate the hazards of explosive ordnance that threatens personnel, operations, installations, or materiel.

During war, preserving the commander's combat power becomes more challenging for EOD because of the increasingly complex and lethal battlefield. EOD integration into staff planning must be sufficiently explicit to provide for battle synchronization yet flexible enough to respond to change or to capitalize on fleeting opportunities. EOD command and control itself must respond quickly and be flexible to the rapid changes on the battlefield. UXO, to include ICMs, has greater emphasis now because of the possible critical impact on the commander's combat power ICMs have significantly multiplied the work to be performed by EOD in order to preserve the commander's combat power. The increased use of special forces or sabotage groups increases the need for EOD assets to eliminate the threat of IEDs at critical facilities.

EOD FUNCTIONS

Army doctrine determines the nature of the five primary EOD functions in the operations environment -- mobility, survivability, logistics, security, and intelligence. Table 1-1 lists the primary tasks under each function.

Mobility

EOD can help keep the routes of maneuver open by reducing or eliminating the hazards of UXO. EOD can also provide valuable information concerning the types of and hazards associated with UXO. This will allow the commander to make informed decisions concerning maneuver.

Survivability

On the battlefield, EOD neutralizes UXO that hinders the commander's maneuver and increases the chance of fratricide. Range clearance operations, IED/UXO response. and realistic training scenarios reinforce this function in OOTW. Additionally, EOD can provide the commander with valuable information on the hazards associated with UXO, enabling him to make informed decisions on the protection of personnel and equipment.

Logistics

Logistics includes disposition of supplies. EOD may help with the unit training on demolition procedures for the destruction of ammunition. An EOD unit may also help with the routine destruction of ammunition stocks if there are no qualified ammunition personnel available. It may also assist in the emergency destruction of ammunition.

Security

EOD operations protect against strategic, operational, and tactical threats to US security during war as well as OOTW. The CONUS is not exempt from hostilities even during periods of relative peace. EOD provides support to the US Secret Service and the US Department of State for presidential and VIP protection. EOD service

Table 1-1. EOD battlefield tasks by combat function

MOBILITY	SECURITY	SURVIVABILITY	LOGISTICS	INTELLIGENCE
UXO/IED elimination	VIP protection	UXO/IED elimination Range clearance	Routine/ emergency ordnance destruction Civil authority cooperation Nuclear, chemical, or biological shipments	Technical intelligence on new or unusual ordnance

locates, identifies, and neutralizes IEDs across a wide variety of Army operations.

Intelligence

EOD provides the commander with an intelligence collection capability by examining, identifying. and reporting new and unusual explosive ordnance for technical intelligence purposes. Knowing the capabilities and lethality of enemy ordnance may be critical to the commander when planning maneuver through areas that have been covered by ICMs.

EOD ORGANIZATIONS AND STRUCTURES

In the following paragraphs, EOD organizations, their roles, and their structures are detailed. Principles on operation will also be discussed so that users of the EOD service better understand how it works.

There are three types of EOD units, each having its own mission and capabilities. The first two, the Ordnance Group (EOD) and the EOD Battalion, are command and control units. The third type of EOD unit is the Ordnance Company (EOD). This unit provides the EOD mission response. Appendix A gives more information on each of these units.

Ordnance Group (EOD)

The primary functions of this group are theater EOD planning and EOD command and control. The role, activities, and structure of this group are detailed below.

Role and Acivities. This group provides command and control for two to six EOD battalions, each with 3 to 10 EOD companies (Figure 1-2, page 1-9). Additionally. the group provides staff planning for EOD operations throughout the entire TO, making the group EOD commander the EAC EOD staff officer.

The duties and responsibilities of the EAC EOD staff officer are important to the overall support capability of EOD. This officer advises the commander on organizing and using EOD assets. He helps establish work load priorities, but it is the theater commander's responsibility. through his staff, to prioritize assets and operations. It is also the EOD staff officer's responsibility to work with the unit commander's staff to ensure that provisions for EOD support are included in all orders and other directives. Orders and directives should include such details as UXO reporting procedures and locations of EOD companies and their areas of responsibility.

The EOD staff officer plays a key role in ensuring technical intelligence from the battlefield reaches EOD units in the TO. In dealing with first-seen ordnance, the EOD staff officer ensures that command procedures are set up to screen EOD reports. He works closely with the joint. general, or staff intelligence officer (J2/G2/S2) to ensure proper handling of the materiel. He must be the point of contact for technical intelligence coordination.

The EOD command structure sets up a system to screen the EOD company's intelligence reports for

important information about munitions and ordnance evaluation. After prompt and reliable evaluation, the EOD command sends the technical intelligence reports to the proper agencies for exploitation. To ensure that intelligence efforts are not duplicated in the EOD community, the EOD command passes the proper information down the chain to each EOD company.

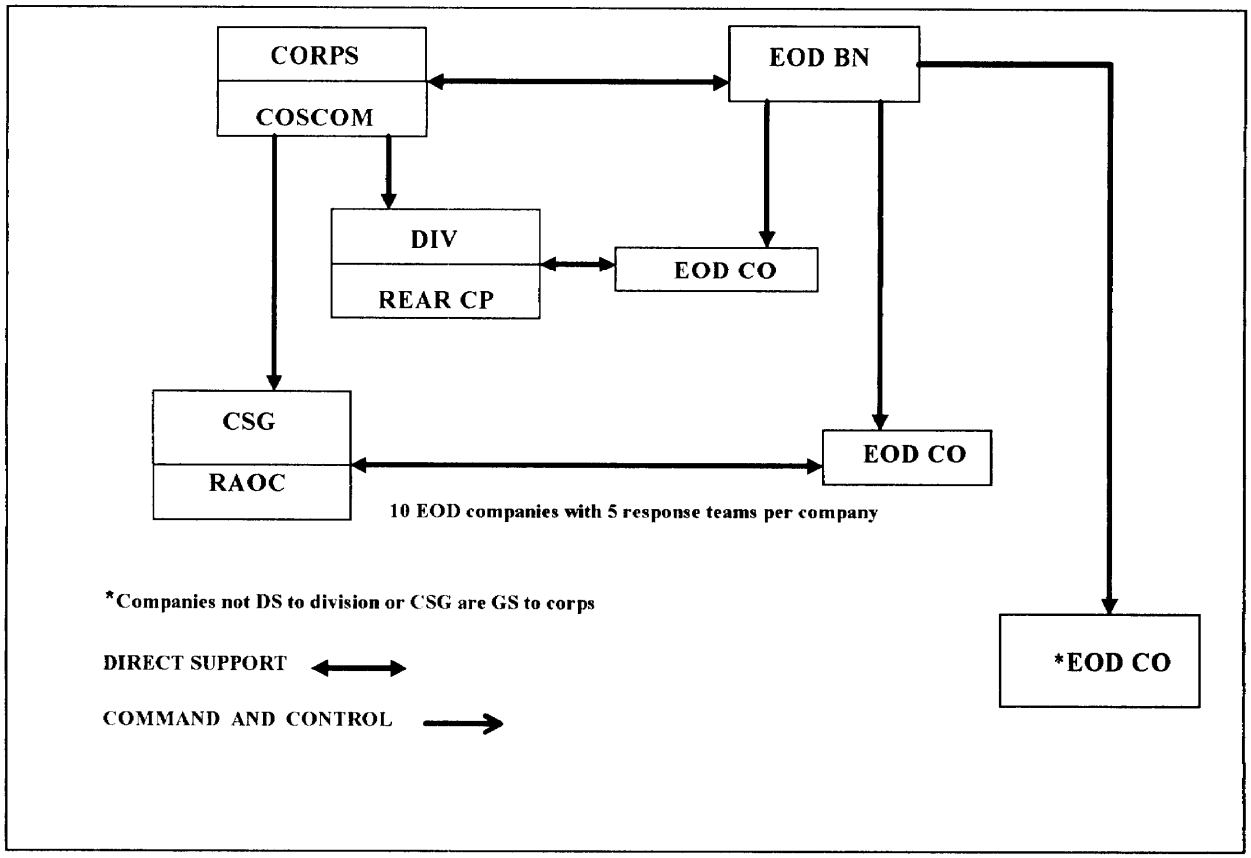


Figure 1-1. EOD in TAACOM/corps

This section implements STANAG 2143.

Structure. The Ordnance Group (EOD) directs and controls the activities of the Army's EOD support effort. The group exercises command and control of the EOD service and special staff within a TACOM. It implements the TACOM commander's priorities for EOD service support of operations within the theater.

The operations section is responsible for all operations, plans, training, and intelligence efforts within the group. This includes the commandwide dissemination of new developments (friendly and enemy) in munitions and the initiation and coordination of training for all personnel. including EOD and support personnel. The operations officer coordinates with the supported command's operations officer (G3) on EOD support and routinely interfaces with senior executives from DOE, FBI, and USSS. Additionally, he conducts external evaluations of subordinate EOD commands and supervises the security and operations (S2/3) section.

EOD Battalion

The EOD battalion serves a command and control function for EOD units in the corps/AACOM. Its role, activities, and structure are detailed below.

Role and Activities. The EOD battalion provides command and control for 3 to 10 EOD companies. An EOD battalion is allotted for each corps and

TAACOM (Figure l-l). In a fully deployed corps, the EOD battalion has ten EOD companies. In the TAACOM, the EOD battalion has eight EOD companies. The commander of the EOD battalion is the EOD staff officer for the corps or TAACOM. In the corps, the EOD battalion operates out of the COSCOM and provides a coordination team to the corps RCP. The coordination team helps the corps staff prioritize and assign categories for UXO incidents by providing technical information to the corps RCP.

Structure. The commander of an EOD battalion, as the special EOD staff officer, monitors operations and develops plans to meet the needs of the battlefield. These plans are submitted to the corps or TAACOM.

The **operations section** of the EOD battalion interfaces with corresponding operational levels of other units, ensures the priorities of the TAACOM/corps commander are followed, and stays aware of the status of subordinate EOD companies and the battlefield.

This section of the EOD battalion helps to coordinate and operate the reporting system at locations outside the EOD battalion. It helps establish EOD reporting procedures. troubleshoots incident reporting breakdowns, and coordinates EOD support requirements with supporting units. The section also coordinates EOD operations that are isolated from the EOD battalion. It can set up and operate a temporary field CP at critical ordnance incident sites. Finally, the section helps subordinate EOD companies get external support for their operations.

Ordnance Company (EOD)

The primary function of the EOD company is to provide support for corps and TAACOM units. It does this in a variety of ways. Its role, activities, and structure are detailed below.

Role and Activities. EOD companies support corps and TAACOM units. In the TAACOM, they provide DS missions to ASGs. EOD companies cover the ASG's area of responsibility and all units within it. In return, the ASG provides all non-EOD-specific support to the EOD company. Any EOD company not assigned to the DS support role will be tasked by the EOD battalion to provide GS to the TAACOM. EOD companies in the GS role can be collocated with the EOD battalion to protect critical CSS assets and LOC within the TAACOM.

In the corps, the companies are at the CSG and in the CSBs. Each division in the corps is supported by a CSB. which will in turn be supported by EOD. The EOD company that supports the CSB can be tasked to go forward to support operations in the division area. EOD companies not in DS to a CSB are tasked with GS responsibilities within the corps. The CSG or CSB that the EOD company supports in turn supports the company in all classes of supply, messing, billeting, and maintenance above unit level. GS EOD companies perform the following:

- Augment other EOD companies when manpower and time are critical.
- Perform work on high-priority incidents throughout the TAACOM or corps.
- Support units and special operations in a DS role.

Whether in a TAACOM or corps, EOD companies are assigned according to the needs of the battlefield as seen by the EOD battalion commander and, ultimately, the MACOM commander. The flexibility of the EOD structure using METT-T permits the tailoring of EOD assets to support the commander's scheme of operations.

This section implements STANAG 2389.

Structure. A fully staffed EOD company has a mix of EOD personnel and support personnel. The commander of an EOD company has command and control duties of leading the company. He must also coordinate and conduct liaison with various supported and supporting units, to include civil authorities and other government agencies. He has additional responsibility as an EOD team leader. While his primary function is to command, he must be technically qualified to perform the EOD team leader functions on any type of incident.

Each EOD company has an operations NCO. This NCO monitors EOD operations and helps the

first sergeant establish and operate the CP. He can perform as an EOD response section NCO or as the EOD team leader, if required.

The EOD response team section NCO is the link between the individual response teams and the first sergeant. This NCO is responsible for all aspects of the response teams operations, maintenance, and training. He acts as the EOD heavy response team leader.

A typical EOD team is usually made up of a SSG as the team leader and one or two assistants. For nuclear incidents. the team leader must be an EOD-qualified officer. The EOD team leader performs RSPs on conventional, chemical, and biological ordnance and on IEDs. Enlisted team leaders help in the RSP on nuclear incidents as an EOD team member.

The heart of the company consists of heavy and light response teams. The light response teams can handle most conventional ordnance incidents. These teams can be detached individually for direct support to requesting units. They can operate independently from the EOD company for up to 72 hours. Additionally, several light response teams can be grouped together to work on large multi-UXO incidents or other high-priority incidents.

The EOD heavy response team augments the light response teams as necessary. This team provides special tools and equipment and augments the light team with additional manpower as needed. Situations where the EOD heavy response team would be used include:

- Any incident that involves multi-EOD teams or that requires special tools and equipment or the one-of-a-kind items not normally carried by the light response teams.
- Incidents involving nuclear weapons or materiel.
- Chemical incidents beyond the capabilities of the light response team.

EOD LIMITATIONS

EOD units are small and have limited assets (weapons, vehicles, and personnel). This makes them highly mobile but restricts their capability for sustained operations without support. When deployed they will require support above the operator level in maintenance and in all classes of supply. This support must be provided by the units that are designated to support EOD. The only support that will come through EOD channels will be for EOD-specific tools and equipment and for replacement personnel. Additionally, EOD detachments have very limited personnel available for base security and other miscellaneous details.

EOD COMMAND AND CONTROL

Command and control of EOD units depends on the geographical location of the units. The command and control structures for both CONUS and OCONUS units are described below.

CONUS

Command and control of EOD units in the CONUS is exercised by FORSCOM through the 52d Ordnance Group (EOD). The group commands four EOD battalions which in turn command all EOD companies in CONUS. The group is designated to deploy to any MRC to support operations. As such, the 52d Ordnance Group (EOD) has defacto command of all EOD units worldwide.

OCONUS

Command and control of EOD units located OCONUS is through the respective MACOMs to which the units are assigned. Under the MRC concept. HQDA has divided the world into three threat areas. These areas can be associated directly with three current JCS unified commands--MRC West in the PACOM. MRC East in CENTCOM, and MRC Europe in EUCOM. Ideally, each of these commands should have an EOD battalion assigned to the Army component command that supports them (Figure 1-2). The EOD units within the theater would then be placed under the command and control of this EOD battalion. The battalion commander would act as the theater Army EOD staff officer and ensure proper coordination with appropriate staff elements and commands.

EOD PLANNING

The scope of all military planning covers OOTW and war. The military may find itself operating in both these environments at once. All military operational planning begins with the assignment of a mission or with the commander's recognition of a requirement. It continues until the mission is accomplished. The keys to successful planning are anticipation of future events and preparation for contingencies. EOD operations planning and execution must incorporate agility for not only combat missions but also those activities that happen before and after hostilities.

In the planning process EOD can assist the commander in developing a risk analysis plan for

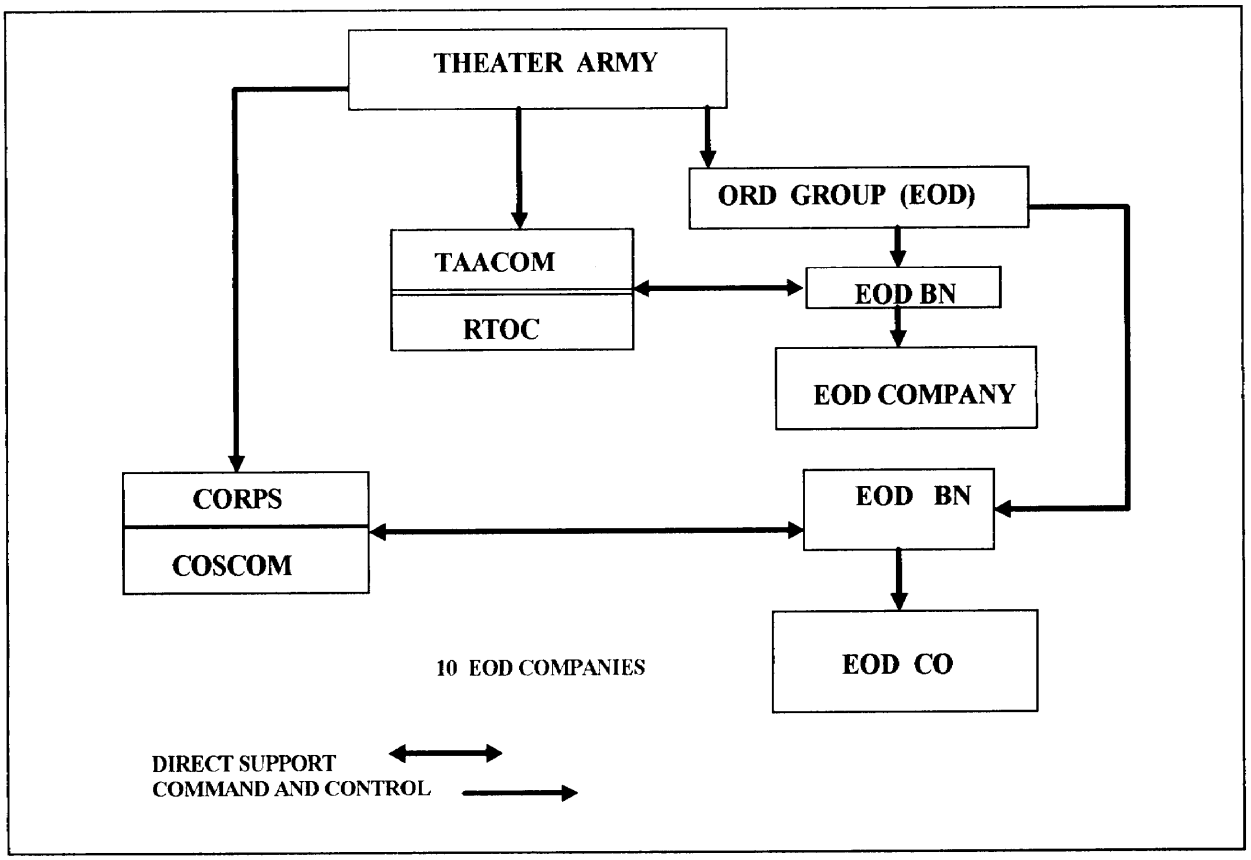


Figure 1-2. EOD companies in a theater

UXO that may be encountered in any type of operation. Working closely with the J2/G2 section and using METT-T. EOD can assess the enemy's potential concerning UXO and develop plans to counter it. Additionally, EOD can advise on the UXO problems that our own friendly fires cause and then design strategies to mitigate them. With the risks identified early in the planning process, EOD can provide useful soldier training to reduce further the effects of UXO on operations.

When planning for EOD support, commanders must ensure that the most effective support is provided with the limited EOD assets available. Overall, the factors are the combat environment, the enemy, operational policies, and incident classification.

Combat Environment

Meeting the challenges of the combat environment includes human and physical considerations. These are discussed in more detail below.

Human Factor. More specifically, the human dimension deals with soldiers' physiological and psychological needs and the challenges to leadership

that these needs pose. Because EOD work is dangerous and exacting, fatigue can cause unnecessary loss of personnel and critical assets. Operational policy gives the EOD commander ultimate responsibility for the safety of the EOD response teams. During high-density work loads, the EOD commander has to rotate teams to provide rest periods for them. Supported commanders must also be aware of the connection between rest and safety. With this in mind, low-priority UXO incidents may have to wait until they can be handled safely.

Physical Factors. The physical dimension consists of three major elements: geography, weather, and infrastructure. Each of these is defined below.

Geography. In a TO, the terrain may vary significantly. In the desert, there may not be many choke points that could prevent EOD from reaching the incidents quickly. But in the desert, units can be dispersed over a large area. This may mean a long drive to reach some of the incidents. A consideration here would be the availability of aviation assets to reach some high-priority incidents quickly. The advantage of desert terrain is that its lack of population means units can easily bypass areas with heavy concentrations of UXO. Jungles and mountains cause greater restrictions on mobility. In these types of terrain, especially lacking much infrastructure, choke points can easily be exploited by using obstructions, mines, and booby traps.

Weather. Weather plays an important part in military operations. Commanders may have to tailor operations to seasonal changes to prevent weather from having a negative impact on operations. The theater climate must be a consideration in planning all operations.

Infrastructure. On a European-type battlefield, the Army will be crowded together because of the terrain and urban development. This limits mobility and, with a highly developed infrastructure (with many important facilities), UXO will have a greater impact on operations. The demand for EOD to "turn off" ordnance will be greater in any type of built-up or restricted terrain. These factors and enemy interdiction will cause many choke points, which can impact response time.

The Enemy

How well the enemy conducts operations on the battlefield will affect EOD planning. The availability of high-technology weapons and the enemy's ability to deliver them must be integrated into EOD planning. Combine the enemy's capabilities with the evaluation of his intentions to determine the deployment of EOD assets. Other things to consider include the following:

- How effectively can the enemy launch air strikes or conduct long-range attacks with missiles, rockets, or artillery. If the enemy can, the EOD work load will be multiplied many times. With ICMs available to all the armies of the world, the UXO incident scenario has changed dramatically.

- Does the enemy have special forces in place with small groups trained to conduct raids and sabotage? For example, in Viet Nam the enemy struck with terrorist methods, using IEDs in such places as restaurants and hotels. They also used sappers to infiltrate military bases with explosive charges and booby traps. The lack of technology and other resources combined with the advantage of restricting terrain would force some other countries into this situation.

- Advanced technology in ordnance development has led to "smart munitions" that create an even greater hazard on the battlefield. These types of munitions are rapidly becoming available to all countries.

Operational Policies

EOD operational policies and planning will be influenced by a number of things, including enemy use of minefield, EOD coordination requirements, and EOD-specific training. These are touched upon below.

Minefield. The proliferation and advancing technology of area denial submunitions and scatterable mines complicate and blur the difference between mines and UXO. EOD units will neutralize area denial submunitions and scatterable mines (UXO) that threaten the commander's combat power. While large-scale minefields are not specifically an EOD matter, EOD can provide technical assistance when needed. However, all units must be able to apply countermine warfare techniques when faced with these types of munitions. Any unit that cannot self-extract from scatterable minefield risks being fixed in place and destroyed. Countering area denial submunitions and scatterable mines may require

support from various units along with EOD to cope with the quantity of scatterable mines expected. Refer to FM 21-16 and FM 20-32 for more information.

Procedures between EOD and other supporting units need to be established prior to war or conflict. See Chapter 2 for more information on coordinating operations.

EOD Coordination. All levels of command must coordinate with EOD staffs. EOD battalions, and EOD companies **before** hostilities. This will permit the establishment of a logical and systematic approach to EOD support. Giving proper consideration to the supported commander's scheme of operations. EOD can anticipate the plan and provide the most effective support possible.

Training. EOD units must plan and train for battlefield survival. In doing so, they must remember that their mission is to preserve the commander's combat power. EOD does this by coordinating, planning, and executing their own mobility, survivability, and intelligence functions. Planning and training should emphasize those tasks that support these functions. UXO operations and technical intelligence on foreign ordnance are the critical EOD tasks that enhance the commander's combat power.

Because the UXO threat can be found anywhere, all soldiers have to be aware of and trained in the proper procedures to help reduce it. EOD can assist other units in this area, either by training soldiers in basic soldier skills or training leaders on how to incorporate UXO considerations in their planning.

This section implements STANAG 2143.

Incident Classification

Because there may be more UXO than available EOD response teams, incidents must first be categorized by their potential threat and then by the area commander's priorities. Local and regional or civil defense officials estimate potential damage if items were to detonate. Since these people may not know the amount of damage that can be expected, their estimates may not be accurate. Still, local civil defense and military commanders use this information to suggest the categories and priorities to be assigned.

Categories. Command decisions categorize EOD incidents according to their potential threat. Categories may later be adjusted depending on the tactical situation. the target, any updated intelligence. or field evaluation feedback from the EOD response team on site. Incident categories established in Annex E of STANAG 2143 are as described below.

Category A. Category A UXO incidents prohibit a unit's maneuver and mission capabilities or threaten critical assets vital to the war effort. Category A is assigned to these incidents because they constitute a grave and immediate threat. These are incidents that can cause mass destruction, widespread contamination, major reduction of combat personnel, or loss of critical installations or facilities. Category A incidents are to be given priority over all other incidents, and disposal operations are to be started immediately regardless of personal risk. This category correlates with the ***immediate*** priority of the UXO report.

Category B. Category B is assigned to EOD incidents that constitute an indirect threat. Indirect UXO incidents impair a unit's maneuver and mission capability or threaten critical assets important to the mission. Items of technical intelligence value are normally assigned to this category. Before EOD operations are begun, a safe waiting period may be observed to reduce the hazard to EOD personnel. This category correlates with the indirect priority of the UXO report.

Category C. Category C is assigned to incidents that constitute little threat. Minor UXO incidents reduce a unit's maneuver and mission capabilities or threaten noncritical assets of value. These incidents can normally be dealt with by EOD personnel after Category A and B incidents, as the situation permits, and with minimum hazard to personnel. The category correlates with the***minor*** priority of the UXO report.

Category D. Category D is assigned to EOD incidents that constitute no threat at present. These UXO incidents have little or no effect on a unit's capabilities or assets. No threat, however, does not mean that the UXO is not dangerous. It means the UXO does not threaten any critical assets important to the war effort. UXOs in this category are still

deadly. These incidents may be marked and left for disposal as time permits. This category correlates with the ***no threat*** priority of the UXO report.

Priorities. Most UXO incidents are routed to a central operations center which passes the information to its supporting EOD company. In the TAACOM, this operations center is the RTOC of the ASGs. In the corps, it is the RTOC of the CSGs. The operations center sets UXO-incident priorities within its area of responsibility. Priorities are essential to keep limited EOD assets from being wasted. These priorities are then coordinated through the EOD battalion or the EOD company. UXO operations that require support from other elements. such as the engineers. are coordinated at this level.

Do not confuse categories with priorities. Categories are determined by both technical and operational considerations. Priorities are defined by operational considerations. The operations center may decide, for example, that ASPs have priority over POL storage sites because of the tactical situation. Therefore, a small projectile in an ASP posing little threat because of its size and distance from ammunition stocks would have a lower category than a large bomb with a long-delay fuze located in a POL storage area.

When there are too many incidents in a category to handle at one time, they are prioritized in order of importance. A numbering system is used. For example, Category B-10 stands for the tenth most important incident in Category B.

Wartime Operations

Today's tempo of operations has quickened. Campaigns during peace, crisis, and war can coincide, overlap. and merge. OOTW and war itself can occur within the same TO. EOD commanders must be prepared to conduct such operations at the same time and to synchronize these seemingly disparate efforts to bring about desired results. EOD performs a wide variety of tasks across the tactical battlefield in close and rear operations and during OOTW. The EOD commander's objective is to orchestrate all tasks to allow the supported commander to accomplish his mission.

Deployment. A key mission of today's Army is **force projection.** This calls for units to be prepared for rapid worldwide deployments in response to any situation. In planning for deployments, a balance of EOD assets needs to be programmed into the flow of units to the theater. The number of EOD companies and when they are deployed will depend on the analysis of IPB and METT-T.

In CONUS, all EOD units fall under FORSCOM command. While deployed, the units fall under the command of the operational theater command. In OCONUS, EOD units that are already forward-deployed can be sent to other theaters, as they were in Operation Desert Storm.

If an EOD staff office is not already in operation, the operational theater should establish one as soon as possible. This office is to be staffed with an officer and senior NCO assistants, all of who must be EOD-qualified. The EOD staff office coordinates all EOD activities. It should be able to answer all questions regarding the deployment, utilization, and support requirements of the deployed EOD companies. The office should be established regardless of the number of detachments deployed. It is especially important if no EOD command unit, either a EOD battalion or the EOD ordnance group, is deployed. The EOD staff officer should remain as the main point of contact for all EOD activities until the EOD companies have redeployed back to their home stations.

Another operational factor to be considered is that once deploying units have been identified. they may not be able to provide all the support for OOTW missions. These missions include supporting the training bases and protecting the Army from terrorist attacks. To keep this protection going, either nondeploying EOD companies would take over or EOD Reserve and National Guard units would be activated. In a fill-scale deployment, the Army might have to give up EOD support responsibility for CONUS, restricting support to critical strategic bases and assets.

Operations. EOD staffs and unit personnel should be familiar with close operations as well as rear operations. EOD support for the maneuver and survivability functions will be provided throughout the TO. UXO reports in the rear area enter EOD channels through the RTOC or the RAOC. UXO reports in the rear area behind the corps enter EOD channels through the ASG RTOC. In the corps area, UXO reports enter EOD channels through the CSB or CSG.

All EOD command headquarters manage EOD operations in their control areas. The EOD ordnance group headquarters operates the same as any group headquarters. while the EOD battalion headquarters operates like a battalion headquarters.

EOD may be tasked to help train ordnance soldiers (Ammunition Specialists) on ammunition demolition procedures. EOD may help with the routine destruction of ammunition stocks if qualified ammunition personnel are unavailable. Also, EOD may assist in the emergency destruction of ammunition to prevent it from falling into enemy hands. Commanders must remember, however, that when EOD personnel are used in ammunition destruction they are being diverted from other jobs. There will be fewer response teams available to handle UXO incidents and that could impact on assets or operations. Careful review of priorities is needed to ensure the most benefit from the limited EOD assets available. EOD may also be tasked to train non-EOD soldiers, both US and allied, in ordnance recognition, safety considerations, and other related tasks dealing with UXO.

Postconflict Considerations

EOD operations continue after the conflict ends. EOD activities in support of OOTW may include intelligence, security, and logistical support. Planning in this environment will require close coordination with allied forces, other government agencies, and other military units. Battlefield cleanup roles are determined by the US command authorities.

OOTW Considerations

The above EOD missions give some of the factors that need to be examined in planning for EOD support on the battlefield, including some general considerations for OOTW. For missions that do not involve the battlefield at all, see Chapter 4.

CHAPTER 2

COORDINATED COUNTER-UXO OPERATIONS

SCENARIOS

EOD teams of a minimum of two soldiers usually operate independently to respond to UXO incidents scattered across wide areas of the battlefield. These EOD teams have limited assets and may require additional support in the clearance of UXO. Additional personnel and heavy equipment may be provided by other units on the battlefield, to include engineer and ammunition units, when directed by appropriate command authorities. These units may provide valuable assets that act as an EOD force multiplier. However, they are not trained to perform the UXO mission.

Likely scenarios for EOD teams are multiple UXO clearances and disposal operations involving MSRs, airfield recoveries. ASPs, and port facilities. Multiple UXO operations are best defined as those involving areas saturated with UXOs that threaten the commander's combat power functions of maneuver, mobility, survivability, and logistics. These types of operations are time sensitive and personnel intensive and may require external support for the responding EOD team or unit. Successfully preserving the commander's combat power from the effects of multiple UXO may depend on a cooperative association between supporting and supported units. Chapter 5 has more details on multiple UXO incidents.

EOD RESPONSIBILITIES

The EOD team must positively identify the hazards and provide safety guidance for all supported units. It must render safe any UXO that cannot be destroyed by detonation. The EOD team leader prepares a plan of attack with concurrence from the supported unit commander. Before implementing the plan, the EOD team briefs supported and supporting units on what EOD will be doing so that everyone knows the safety considerations. The EOD team leader will maintain communications with the EOD chain of command and supported and supporting units' OIC and NCOIC to ensure safety is always the first priority. When unsafe activities needlessly expose soldiers to danger, the EOD team leader may revert to a role of only providing technical assistance. EOD teams and units will--

- Coordinate with the supported unit and develop a plan of action.
- Conduct an initial reconnaissance of the area.
- Provide positive ordnance identification and safety guidance.
- Perform render safe and/or disposal procedures.
- Provide a dedicated technical advisor to the on-scene commander.
- Provide overall supervision of a consolidated UXO demolition area that can be moved.

SUPPORTED AND SUPPORTING UNIT RESPONSIBILITIES

A large UXO operation will most likely require action by the RAOC or the unit's G3 section. Mission parameters, such as timelines and priorities, have to be defined. While EOD can provide technical analysis and develop a plan of attack, supported units will be responsible for overall mission planning and coordinating and executing the plan.

In many situations the supported unit commander or his representative is in overall command of the operation. The EOD team leader provides technical guidance and helps the supported unit commander develop a plan of action. However, the location of the explosive ordnance, enforcement of safety measures, render safe procedures, and removal of the explosive ordnance are the responsibility of the EOD team leader.

Additional assets may be required which cannot be provided by the EOD team or the supported unit. Multiple UXO incidents could take several days or weeks to complete, threatening critical assets and restricting the commander's combat power. Supporting units could provide additional personnel to build protective works or remove supplies and

equipment. They could also provide equipment to assist in the operation. Additionally, host-nation support should be considered as a source of possible assets. Engineers, QASAS personnel, military police, transportation, ammunition, aviation assets, fire department, and medical personnel are some who could support a large UXO clearance operation.

Supported and supporting units will coordinate with the EOD operations section and develop a plan of action. The plan of action will--

- Establish safe areas.
- Establish demolition areas as required.
- Establish all safety procedures and necessary SOPs.
- Identify all logistical requirements.
- Determine personnel and equipment requirements.
- Establish a realistic timeline for completion of the mission.
- Prepare an after-action report and send it through the chain of command of all supporting elements.

A supported unit may also provide the on-scene commander as the situation demands. It may also provide the necessary equipment (such as M-9 armored combat equipment and trucks) and coordinate all necessary logistical requirements through the chain of command.

TYPICAL INCIDENT PROCEDURES

EOD units regularly assist ASPs during peacetime operations. For example, they might support the routine destruction of unserviceable ammunition by ASP personnel. They might also support the emergency destruction of ASPs or postattack cleanup. The following scenario shows how an EOD unit might respond to an incident at an ASP.

An ASP has been attacked and large amounts of unexploded ordnance are scattered in a relatively small area. Substantial quantities of useable ammunition remain. However, ASP operations are severely restricted and existing ammunition stocks are threatened. Since combat power has been jeopardized because of the reduced ammunition flow to combat units. this incident has been identified as the number one UXO priority. Therefore, all assets required for the incident should be directed to support UXO cleanup at the ASP.

UXO reports are sent to the area commander that has EOD in DS. The area commander and staff process the reports and analyze the situation and the impact the UXO problem has on operations. The commander's staff, which includes an EOD representative, recommends priorities. In determining a course of action, the area commander selects the highest priority (immediate) because the ASP is a critical asset. Immediate priority requires prompt EOD action to return the ASP to full mission capability.

After examining the UXO reports from the ASP, the EOD staff officer recommends that the area commander requests additional EOD assets. These assets may include the use of other services or host-nation EOD personnel. However, these EOD assets may not be available because of other battlefield UXO incidents. Therefore, other non-EOD assets may be required to support rapid recovery of the ASP. Once available assets have been identified and tasked to support this counter-UXO operation, you would concentrate on the actual steps of the operation as described below.

Establish a RCP. Near the ASP, but outside the blast/fragmentation area, establish a RCP. The RCP will be the support unit base and will act as the coordinating point for all operations. The RCP is the entry point for access to the area.

Complete a map reconnaissance of the area. Assemble an overall safety plan and brief emergency actions to all personnel. Then assign EOD teams to a grid for the hasty reconnaissance and immediate action phases of this operation. Base the grid size on the number and types of UXO, the overall size of the affected area, supported unit commander's priorities, type of terrain, the assets threatened by the UXO, and the manpower and equipment available. Take these actions before any non-EOD personnel proceed downrange. As the EOD teams start their hasty reconnaissance, the necessary support personnel and equipment should start arriving.

Perform the hasty reconnaissance and immediate action phases (EOD operation). Each EOD team proceeds to its assigned grid, conducts a reconnaissance, and completes immediate action procedures on the ordnance found. When finished, the EOD teams return to brief the RCP. The supported and supporting units and EOD then jointly develop a plan for the disposal phase. Based on the information from the EOD teams and the ASP commander's guidance, the RCP plots and then prioritizes the ordnance for the render safe/disposal plan. At the same time. the supported unit should do the following: examine the priorities of the UXO and the supported and supporting units' recovery operation, develop (with the recommendations of EOD) an overall plan of attack to clear the most important areas first, prepare a concept of operation to include safety considerations, and brief all personnel. Generally this will be a two-part brief, the supported and supporting units briefing the concept while EOD briefs safety.

Prepare a plan of attack. The plan of attack must be flexible. Each situation will be different and may demand adaptation of methods and procedures for the best solution. Unforeseen problems may mean halting the operation and developing a new plan. Depending on the size of the areas to be cleared and the priorities of clearance, all the actions could take place at the same time or in very controlled phases. Except where stated, these procedures can be accomplished jointly.

Consider what areas to clean up first and what is essential to make the ASP operational. Give priority to the roadways and to those bunkers or stacks that are vital to the war effort. Demolition-trained ammunition personnel can be used to help at the demolition range, under EOD supervision. They can also assist UXO destruction-in-place.

Perform hasty reconnaissance in order of priority. Each EOD team will conduct a hasty reconnaissance of its assigned area and perform any immediate action procedures. Once they have completed their reconnaissance they will return to the RCP to plan the cleanup and disposal phases.

Take action. Build protective works for those items that threaten assets. While building protective works, sweep and mark other areas. Prepare and place demolition charges upon completion of marking. In another area, an EOD team may be rendering safe UXO that cannot be destroyed by detonation. Many types of UXO may be destroyed by direct fire techniques using the basic guidelines in FM 90-13-1 and FM 20-32. Take UXO or residues that are safe to transport to a consolidated demolition area for disposal.

The steps above have been provided to give guidance and understanding of some of the factors involved when dealing with large, multiple UXO operations. Every situation will be different, but the principles of teamwork, safety, and effectiveness stay the same.

CHAPTER 3

EOD NBC OPERATIONS, IMPROVISED EXPLOSIVE DEVICES, AND TECHNICAL INTELLIGENCE

US forces can face many types of ordnance on the modern battlefield. These can include NBC weapons deployed by US, friendly, or threat forces. Unconventional warfare tactics or terrorist attacks may also include NBC material or the use of IEDs. These weapons pose a serious threat to all operations. Usually these munitions/devices require immediate response by EOD and other supporting elements. This chapter will help the battlefield commander choose the proper course of action to preserve combat power.

EOD NBC OPERATIONS

Armies engaged in modern combat will often have access to (or have to deal with) a variety of nuclear, chemical, and biological weapons. These weapons, when introduced on the battlefield, will present special handling and disposal problems for the battlefield commander and for supporting EOD personnel. Some of these are touched upon below.

Nuclear Weapons

During hostilities, it is possible that US, friendly, or threat forces will have or use nuclear weapons. These weapons may not have functioned as designed or may have been captured from the enemy in various conditions ranging from undamaged to extensively damaged. There is also the chance of a US or allied country nuclear weapon transportation accident in which US Army EOD may be the first on scene. Whatever the reason, the recovery of a nuclear weapon will require the involvement of EOD and supporting elements. Outlined below are some of the planning factors involved. Refer to AR 50-5 for responsibilities involving nuclear weapon incidents/accidents.

If the weapon is a threat system, Army EOD is responsible for preventing nuclear detonation or a high-explosive detonation. This includes identification, detection, performing RSP, assisting in the gathering of technical intelligence information, and preparing complete weapons or components for shipment.

If the weapon is a US system, the responsible service, either Navy or Air Force, will be notified. The specific service is ultimately responsible for any recovery actions required. Army EOD responsibility for the other service's weapons is to prevent a detonation or the spread of contamination. Once the other service's EOD personnel arrive, Army EOD personnel would help as needed and provide an EOD liaison between the services.

If it is a weapon system of an ally, Army EOD responsibility is to prevent detonation or the spread of contamination and to assist the friendly forces as authorized by command authorities.

The nuclear weapon recovery process could take several days and would require support from a large number of personnel. The area commander must obtain the initial security and support elements. Refer to Chapter 5 for an in-depth discussion of large recovery operations. Some of the support necessary for the recovery operation includes: messing, engineer, RADCON and decontamination, transportation, security, aviation, and medical. Coordination with the other services and the host nation (if applicable) will also be needed to help in the recovery operation.

Chemical and Biological Weapons

CB weapons are considered weapons of mass destruction. They demand a rapid response by EOD and other supporting units to reduce their effects. Army EOD personnel can render safe and dispose of CB ordnance. The responsibilities of EOD personnel in CB incidents are to prevent the spread of contamination; prevent a detonation; and detect, identify, and contain or eliminate explosive and toxic hazards. In the discussion that follows, chemical incidents/accidents are cited because they are more common than biological. However, the procedures are the same for biological, unless noted. For more information on responding to chemical incidents/accidents, refer to AR 50-6.

Upon arrival at the site, EOD positions an EOD CP to coordinate EOD and supporting unit

operations. The CP supervisor coordinates with the designated area commander or chemical officer for updated information and mission requirements. The EOD CP provides information on the expected type and extent of contamination. In an emergency, an EOD company can decontaminate EOD personnel and equipment only. NBC-trained personnel must supplement the EOD personnel as soon as possible to complete the mission. The area commander must provide all decontamination, resupply, medical, and security support.

The supported unit's commander or chemical officer handles the disposition of NBC munitions. This disposition is based on information provided by EOD and on the current tactical situation. Chemical (and biological) weapons of intelligence value must be rendered safe and removed to the rear area for exploitation by intelligence agencies. The area commander must coordinate with required supporting elements to secure the items and transport them to the designated area for release to technical escort personnel.

IMPROVISED EXPLOSIVE DEVICES

Unconventional warfare or terrorist activities in a TO can include the extensive use of IEDs. These IEDs are mostly conventional high-explosive charges, also known as homemade bombs. However, there is the threat that a CB agent or even nuclear material can be included to add to the destructive power and psychological effect of the device.

Usually, IEDs are of crude design. However, terrorist groups have been known to produce sophisticated devices. Since these devices are nonstandard. there are no specific guidelines for EOD personnel to use to positively identify or categorize them. Highly sophisticated IEDs have been constructed from arming devices scavenged from conventional munitions or from easily purchased electronic components. The degree of sophistication depends on the ingenuity of the designer and the tools and materials available. Today's IEDs are extremely diverse and may contain any type of firing device or initiator, plus various commercial, military, or contrived chemical or explosive fillers.

EOD personnel are trained in the render safe and disposal of IEDs. The addition of NBC material into an IED will require additional support as stated in the other situations above. As with other missions. the EOD CP provides the area commander with an assessment of the situation and of support needed to complete the mission.

This section implements STANAG 2834.

TECHNICAL INTELLIGENCE

Munitions captured or found on the battlefield can be of intelligence value. Commanders must allow for the evaluation of unidentified or modified munitions. FM 34-54 outlines the procedures for reporting this information through command channels to the intelligence agencies.

EOD personnel are trained to perform technical intelligence evaluations on first-seen ordnance items and to report the required intelligence information. This can include the render safe and transportation of the items to the rear area.

If the mission permits, secure the area until intelligence personnel or EOD determines what the items are and what the intelligence interests might be. If the mission requires that the area be left unsecured, certain considerations must be taken into account. Prior to the destruction of captured ammunition to prevent opposing force recapture, a positive identification of the munitions type and filler should be made by EOD personnel. Destroying ammunition when the contents are unknown can result in the possible release of nuclear, biological, or chemical contamination. EOD personnel are required to do this because it is not always possible to identify ordnance types by color codes or outside markings. Many countries use various markings depending on the type of ammunition involved. Some countries do not use standard markings for any kind of ammunition. Previous intelligence reports or information can be of some help. These reports can describe the type of munitions and may even provide enemy ammunition marking information.

The mission and current tactical situation dictate the action taken, but the commander must consider all factors before destroying unknown ammunition. Therefore, the more data that can be amassed about unknown ammunition, the more informed will be the decision maker.

CHAPTER 4

OPERATIONS OTHER THAN WAR

OVERVIEW

The primary focus for the Army is to fight and win the nation's wars. However. Army forces also function around the world in operations other than war. OOTW support US interests through the use of political and military actions that serve to deter war, resolve conflict, and promote peace.

OOTW happen in peace and conflict. EOD supports the five combat functions in OOTW both in the TO and in the CONUS. When planning and organizing EOD service, the following must be kept in mind: the available equipment and soldiers' skills, the area to be covered, and the degree of responsiveness needed. EOD has various tasks regularly performed in OOTW. Among these tasks are the following:

- Providing EOD support to the USSS and other federal agencies for presidential and VIP protection.

- Advising and assisting civil authorities in the removal of military ordnance that threatens public safety. See AR 75-15 for authorization information.

- Examining, identifying, and reporting new and unusual explosive ordnance for technical intelligence purposes.

- Supporting nuclear and chemical weapons shipments.

- Conducting range clearances. EOD supports range clearance operations by disposing of UXO on impact areas.

- Destroying ammunition. EOD personnel may help with unit training on demolition procedures for the destruction of ammunition. An EOD unit may also help with the routine destruction of special ammunition stocks in the absence of qualified ammunition personnel. It may help with emergency destruction of ammunition too, provided the tactical situation demands such measures to prevent capture of ammunition by the enemy and there is a command decision that the EOD unit must help.

- Neutralizing governrnent-owned ordnance shipments. If federal agencies or civil authorities ask for assistance in the interest of public safety, EOD technical assistance may be provided for the salvage, demolition. neutralization, or other disposition of government-owned shipments in transit. Approval for this support comes through command channels.

- Responding to IEDs. An EOD unit responds to devices or suspected devices when military or civilian law enforcement authorities request help with an incident that threatens public safety or when ordered to do so by the Army commander.

- Removing stuck rounds. For stuck rounds in artillery tubes and other large caliber weapons, the using unit must first do the downloading procedures stated in their technical manuals before requesting EOD assistance. When explosive methods are used by EOD personnel to remove stuck rounds, the EOD unit will not guarantee the weapon will be undamaged.

- Advising on mines and minefield clearance. Mines and minefield are not specifically an EOD matter. In addition, all troops must be able to apply land mine wartime techniques to counter enemy land mines. Even though all branches and services must clear land mines and booby traps. EOD personnel may give technical advice and assistance when asked and when priorities allow. Large-scale minefield breaching is an engineer function. The proliferation and advancing technology of area denial submunitions and scatterable mines complicate the issue. As a result, EOD and engineers must combine their skills and assets when the situation demands.

- Supporting the cleanup of UXO from formerly used defense sites and active installations. These cleanup operations are those conducted under the DERP. EOD support to these cleanup operations is required only when an item of UXO is deemed too hazardous to move or when it cannot be blown in place due to proximity of inhabited areas. In these instances EOD support is needed to render the UXO item safe so that it may be transported to a demolition range for disposal by the cleanup contractor. These cleanup

contractor personnel are normally ex-EOD personnel. They are authorized to perform normal detection, recovery, and disposal, but as civilian EOD technicians are not authorized to perform RSPs.

- Providing instruction to host or allied nation military or civilian EOD personnel on UXO hazards and disposal techniques.

EOD ROLE

EOD plays a major role in OOTW, during both periods of conflict and peace. During operations in both peacetime and conflict, EOD participates in security and advisory assistance, antiterrorism, counterdrug operations, training, ordnance disposal, arms control, treaty verification, and support to domestic civil authorities. Many of these roles are routinely performed within CONUS.

Compared to war, the threat to US forces is diminished during operations involving conflict. The EOD role during conflict is the same as in operations during war. During conflict, EOD maybe engaged with an increased antiterrorism role, such as responding to the threat posed by IEDs.

COMMAND AND CONTROL

Command and control of the EOD function and EOD units depends upon their geographical location. The CONUS and OCONUS command and control structures are described below.

CONUS

Command and control of EOD units in the CONUS is exercised by FORSCOM through the 52d Ordnance Group (EOD). The group commands four EOD battalions which in turn command all EOD companies in CONUS. The structure is set up exactly as stated in Chapter 1. The group is designated to deploy to any MRC to support operations. As such, the 52d Ordnance Group (EOD) has defacto command of all EOD units worldwide.

OCONUS

Command and control of EOD units located OCONUS is through the respective MACOM that the units are assigned to. Under the MRC concept, HQDA has divided the world into three areas of most likely conflict. These areas can be associated directly with three current JCS unified commands: MRC West in the PACOM, MRC East in CENTCOM, and MRC Europe in EUCOM. Ideally, each of these commands should have an EOD battalion assigned to the Army component command that supports them (Figure 1-2). The EOD units within the theater would then be placed under the command and control of this EOD battalion. The EOD battalion commander would act as the theater army EOD staff officer and ensure proper coordination with appropriate staff elements and commands.

To ensure ease of transition in wartime, each OCONUS MACOM should execute an MOU with FORSCOM and the 52d Ordnance Group (EOD) to ensure that standardized policies and procedures are followed worldwide. This should allow the OCONUS commands to maintain highly trained units that know how to fight under the wartime command.

Under this doctrine, OCONUS MACOMs retain the capability to provide EOD support for lesser regional contingencies and coordinate MRC response with organic EOD assets. Although a stovepipe command is not created, close ties with the warfighting command are established through an MOU.

IED INCIDENTS

The following paragraphs provide information on handling IED incidents in OOTW settings. Whether the incident is on an Army installation or off post in support of a local law enforcement agency, the principles remain the same.

Finding IEDs

When a bomb threat has been called in or is suspected, the building supervisor evacuates the area and coordinates search teams. Refer to FM 19-10 for threat and search procedures. The designated search teams for that building or area are responsible for searching for IEDs. Military police and EOD soldiers do NOT search for reported explosive devices in barracks. community areas, buildings, and offices. This is because they are not familiar with the area and its contents. The individual or group of individuals searching should work in that building and, if possible, have had training in systematic

search procedures. (The local EOD company can assist in providing search training.) The EOD company normally will not respond until a suspected bomb has actually been found.

Once the search teams find a suspected IED, they should not be touch or handle it in any way. The person in charge should contact the local civilian police if not on a military or federal installation. They will be responsible for contacting the military police who will. in turn, notify the nearest military EOD team. The search team leader should remain in the area so that EOD personnel can interview him upon their arrival.

Planning IED Operations

Once the incident is received, the commander or the company NCO will select a response team. This usually consists of a team leader and an assistant. More EOD assistants may be added if needed. Once the EOD response team arrives at the incident, it must be determined who is to be the incident-scene officer. In the Army, this normally is a command decision. The senior ranking person or his designated representative is in charge. If the incident is not on a military installation, the incident-scene officer can be the building security officer, the office manager, or anybody in authority. The individual designated as the incident-scene officer should have training in this subject area. The EOD team leader can provide technical information and advice to the incident-scene officer these matters.

Conducting Operations

When the EOD team arrives, they on all available information by the incident-scene commander or senior military police representative. The EOD team leader ensures that a complete and logical plan is developed according to guidance outlined in this manual and applicable EOD technical manuals. The EOD team leader coordinates with the area commander, military police, medical personnel, fire department, and engineers on matters concerning safety, command and control, and logistical needs. It is recommended that the PAO be notified so that he or she can respond to questions from the media.

Once the incident-scene officer coordinates with support personnel and the recommendations or plan of attack is approved, EOD operations may begin. The EOD response team may make an attempt to use RSP or to move the item by remote means in accordance with current Army EOD publications. Since there is a chance during the RSP that the IED may detonate, there must be extensive coordination between the incident-scene commander, police, and the EOD team leader. In particular. the EOD team leader must include detonation in his plan and be prepared to minimize damage and casualties.

Police (military or civilian) will be needed to control the flow of personnel in and out of the hazard area. Their duties may include stopping traffic and clearing buildings within the hazard area. Police should provide a 360-degree security perimeter around the area at a distance of at least 300 meters initially (if possible). This fragmentation zone can be adjusted after the initial reconnaissance.

Once an IED has been rendered safe by the EOD technician, the responsible law enforcement agency may want all of the components associated with it. This agency is usually the military police or CID, if the item is on a federal installation.

FORMERLY USED DEFENSE SITES

As US military forces continue to downsize and installations close or revert to civilian use, more and more FUDSs will be identified. This presents a challenge to EOD now and in the future. Many FUDSs are being cleared by civilian contractors who are using EOD resources to dispose of ordnance items they find. The challenge to EOD is to handle both the day-to-day EOD mission and the increasing number of these FUDSs.

The EOD unit may be called on to handle any type of ordnance at a FUDS. Most of the ordnance that is found is old and may not be found in the 60-series TMs. Even if the ordnance is found in these publications, there may not be an RSP listed. The collective experience of the company will have to be used to handle these situations. Many of the FUDSs may contain chemical ordnance or suspected chemical ordnance. This makes the problem even more complicated because the EOD company is already dealing with an environmental problem. The EOD officer must have liaisons with the local environmental office, technical escort personnel, local PAO. local law enforcement, and local Army

command staff. The EOD company should remember that it is not just their problem. The entire community is interested in its resolution. The EOD officer must keep all concerned personnel informed of the operation and any problems that develop.

Cleanup of FUDSs will be with EOD for many years to come, so EOD must make the solution part of its day-to-day mission.

POSSE COMITATUS ACT

The Posse Comitatus Act defines dealing with civil authorities or the public when Army EOD assistance may involve civil law. United States Code (18 USC 1385 (1964)) states that: "Whoever, except in cases and under circumstances expressly authorized by the Constitution or Act of Congress, willfully uses any part of the Army or the Air Force as posse comitatus (authority of the country) or otherwise to execute the laws shall be fined not more than $10,000 or imprisoned not more than 2 years, or both."

The term ***execute the laws*** includes conducting or assisting in criminal investigations or apprehending accused persons. The Posse Comitatus Act does not apply where such action is authorized by the Constitution or by an Act of Congress. The Posse Comitatus Act applies to EOD when the gathering of evidence is requested for the purposes of a criminal investigation. Generally, the act does not apply to EOD when a request regarding safety is involved (for example, for suspected IEDs and the recovery of hazardous items) as long as it is in the interest of public safety.

Under the Constitution and laws of the US, the protection of life and property and the maintenance of law and order within the territorial jurisdiction of any state are primarily the responsibilities of local and state governments. Authority to enforce the laws is vested in the authorities of those governments. This act does not apply in foreign countries. Congress has authorized a military justice system, the UCMJ, for the armed forces. Therefore, law enforcement actions within the UCMJ do not violate the Posse Comitatus Act. As a general principle therefore, Army personnel do not violate the act in the performance of properly authorized duties even if violation may indirectly or by chance aid federal, state, or local authorities.

DA policy regarding Army EOD use is to assist public safety and law enforcement agencies in developing a capability to deal with the IED threat and, when necessary, to provide EOD service in the interest of public safety. Army EOD personnel will not participate in bomb or IED search operations (except for VIP support operations) or assist in the enforcement of civil law. The normal response by US Army EOD to federal, state, and local requests for EOD service is based on the protection of public safety. Because of the nature of an IED threat, the EOD service response must be efficient and immediate to protect public safety effectively. US Army EOD personnel will respond to such requests when a suspected or actual device has been located and when the responsible agency has no EOD capability or its capability is overextended. They may function as technical consultants or advisors and assist in or perform disposal of hazardous residue. Under emergency conditions, EOD may attempt an RSP (in accordance with AR 75-15). For a particular situation, the advice and assistance of a legal officer are necessary.

EPA AND OSHA CONSIDERATIONS IN EOD

Many federal, state/local, and host-nation laws now hold commanders legally responsible for environmental damage caused by inadequate planning or supervision of operations or training. This could mean fines and/or imprisonment if convicted of environmental violations.

To avoid adverse environmental impact when planning or executing operations, refer to TC 5-400 and the *Commander's Guide to Environmental Management.* Also, be familiar with the provisions and requirements of ARs 200-1 and 200-2.

Many EOD operations, such as those involved in supporting civil authorities with IED response or conducting a post range clearance, present environmental and safety challenges, A general discussion of these is provided below. Specific questions on policy or regulations must be addressed to the appropriate specific agency.

In today's changing world, protection of the environment has become a top priority. In the daily peformance of EOD duties, EOD soldiers are asked

to eliminate hazards in the community. In the removal of these hazards, EOD teams may violate environmental protection laws. This applies whether the military ordnance is picked up and taken to a safe holding area or it is disposed of on site.

It is vital that EOD soldiers understand the environmental protection laws of the area they are working in. There are federal as well as state laws that must be met. The individual soldier may be held responsible for his actions under these laws. This means that the individual soldier may be fined and serve time in prison for environmental law violations. Many of the actions that EOD took a few years ago are now questionable or illegal under EPA rules and regulations.

During peacetime, there are two difficult challenges that EOD units must face. One is to protect the environment while performing the EOD mission. The other is to follow OSHA rules and regulations.

Environmental Protection and Compliance Policy

This section defines Army policy and procedures for complying with the RCRA (42 USC 3251, 21 Oct 76), DOD Directive 7310.1, and AR 200-1. Section 6001 of the RCRA states the following: "Each department of the Federal Government . . . engaged in any activity resulting in the disposal or management of solid or hazardous waste shall be subject to, and comply with, all federal, state, interstate, and local requirements, both substantive and procedural (including any requirements for permits and reporting)."

This section helps explain the requirements for complying with the federal requirements of the RCRA and the OSHA Act (29 CFR 1910.120 and 1200) as they apply to the management, handling, transportation, storage, and disposal of conventional explosive ordnance. AR 200-1, paragraph 6-2, states in part that all Army activities must "be fully aware of and comply with all applicable Federal, State, and local laws and regulations, both substantive and procedural, for generating, treating, storing, disposing, and transporting solid and hazardous waste, including the terms and conditions of State and Federal solid and hazardous waste permits and providing reports to Federal. State and local regulatory agencies."

RCRA Compliance

40 CFR 270.1(c) states that a RCRA permit is required for the owners and operators of any facility for the "treatment, storage, and disposal" of any solid or hazardous waste. The definitions of solid and hazardous waste are outlined in 40 CFR 270.2.

AR 200-1, paragraph 6-3, requires the installation commander to enter into compliance agreements and consent orders to achieve RCRA compliance. Army installations will obtain a RCRA permit to treat, store, and dispose of solid and hazardous waste (paragraph 6-4d). The IC will be considered the hazardous waste generator as defined in 40 CFR 260.10 for the purposes of signing RCRA reports and records and for getting an EPA identification number as outlined in 40 CFR 262.12 (paragraph l-25.f(7)).

All personnel involved in solid or hazardous waste operations or activities must be trained IAW 40 CFR 264.16 and 29 CFR 1910.120. This training must be documented and updated at least annually, unless otherwise stated as part of the RCRA permit. Currently, IAW the guidance from DA Office for Environment, Safety. and Occupational Health, completion of EOD school meets the requirements of 40 CFR 264.16 and 29 CFR 1910.120.

Under RCRA, a generator of a hazardous waste is responsible for that waste from its "cradle to its grave." A generator, as defined in 40 CFR 260.10, is "any person whose act or process produces hazardous waste identified or listed in 40 CFR 261, or whose act first causes a hazardous waste to become subject to regulation."

In accordance with DA policy and guidance of 1 November 1993, all generation, transportation, storage, treatment, or disposal of conventional explosive ordnance designated as hazardous waste is subject to RCRA requirements. Conventional explosive ordnance will be considered hazardous waste under the following conditions:

- An authorized official records in writing a determination that the conventional explosive ordnance will be discarded; **and**
- Custodians of the conventional explosive ordnance receive this written determination--that the

conventional explosive ordnance is to be discarded and. therefore, subject to RCRA regulation.

NOTE: Prior written authorization is not required if safety or other considerations preclude getting such. Examples are an emergency response conducted by an EOD unit and a response to mitigate an immediate hazard.

The authorized official must take into consideration the facts and circumstances applicable to each situation in making a determination to discard. The following guidelines should be used in making this determination:

- **First,** a determination to discard excess conventional explosive material that is safe and stable in normal logistical environments by military standards may be made only after al1 efforts have been exhausted to reuse, recycle, recover, or sell such material.

- **Second,** a determination to discard conventional explosive ordnance that may be unsafe or unstable to store or transport should be made by an authorized official after conducting appropriate testing or inspection, if conditions allow, or if it is readily apparent that there is no reasonable alternative to discarding the material.

Generally, conventional explosive ordnance manufacture, assembly, testing, training, intended use, or range management do NOT constitute hazardous waste as regulated by RCRA. However, some wastes generated by these operations may be subject to RCRA regulations.

According to the above guidance, conventional explosive ordnance that is safe for transportation and has not been classified as a hazardous waste can be transported according to DOT and DA guidelines.

In accordance with RCRA regulations (40 CFR 261.3(c)(1)), once a waste has been identified as a solid or hazardous waste, it will remain a hazardous waste until--

- It no longer exhibits a hazardous waste characteristic as described in 40 CFR 261, Subpart C.

or

- It has been specifically excluded by regulation (such as being delisted).

Section 2692 of Public Law 98-407 (10 USC 2692) states:

a. (1) Except as otherwise provided in this section, the Secretary of Defense may not permit the use of an installation of the Department of Defense for the storage or disposal of any material that is toxic or hazardous material and that is not owned by the Department of Defense.

(2) The Secretary of Defense shall define by regulation what materials are hazardous or toxic for the purpose of this section. including specifications of the quantity of a material that serves to make it hazardous or toxic for the purposes of this section. The definition shall include materials referred to in section 101 (14) of the CERCLA of 1980 (42 USC 9601(14)) and materials designated under Section 102 of the Act (42 USC 9602) and shall include materials that are of an explosive, flammable, or pyrotechnic nature.

b. Subsection a. does not apply to the following:

(1) The temporary storage or disposal of explosives in order to protect the public or to assist agencies responsible for federal law enforcement in storing or disposing of explosives when no alternative solution is available, if such storage and disposal is made per an agreement between the Secretary of Defense and the head of the federal agency concerned.

(2) The temporary storage or disposal of explosives in order to provide emergency lifesaving assistance to civil authorities.

Permit and Record Keeping Requirements

Army installations that generate, transport, treat, store, or dispose of solid or hazardous wastes as described in 40 CFR 261, Subpart C, must apply to local, state. or federal regulatory agencies for an EPA identification number as described in 40 CFR Parts 262, 263, 264, or 265, depending on installation requirements.

In accordance with AR 200-1, the installation commander submits any requests for permits required for the installation.

An EOD unit that uses a specific range for disposing of ammunition and explosives, explosive

residue, or ordnance that has been classified as hazardous waste must have a thermal treatment facility permit IAW Subpart P, 40 CFR 265.370-383, Section 382, which covers open burning/open detonation of explosive material and residue.

EOD units must submit the required information to the installation commander or his designated representative for completion of the Subpart X permit process. This information includes all material that is used on the EOD demolition range.

The installation will be required to submit certain reports and keep certain records IAW 40 CFR. The following reports are required for installations that are permitted on-site treatment, storage, or disposal: Biennial Report (40 CFR 265.75) and additional reports as noted in 40 CFR 265.77.

The installation is also required to keep an operating record as described in 40 CFR 265.73. This record must be kept for as long as the facility is licensed and operating. The EOD incident reports (DA Form 3265-R) on any regulated solid or hazardous waste as defined in DA guidance are considered part of the operating record. These incident reports, or at least copies of them, must be maintained as official records and handled IAW file number 200-1c, Hazardous Material Management Files, as prescribed in AR 25-400-2.

Explosive Ordnance Disposal Operations

The following policy and guidance was set forth by Headquarters, Department of the Army, on 1 November 1993. This policy supersedes paragraph 6-7, AR 200-1, and is in effect until issuance of a unified DOD policy or promulgation of the munitions regulations required under the Federal Facilities Compliance Act. This guidance does not supersede any local or state requirements that may apply to any installation. The EOD unit should coordinate with state and local agencies through the installation environmental office. An MOU should be prepared for all local and state agencies. A sample (Figure 4-5, page 4-12) is provided at the end of this chapter.

Generally speaking, EOD personnel conduct emergency response operations to protect life and property and to return military conventional ordnance discovered off-installation to DOD control. The EOD emergency response actions include on- and off-site treatment and transportation as necessary to minimize the immediate threat. For example, if conventional explosive ordnance is discovered at a civilian site, EOD personnel would provide support to the civil authorities off-installation and also to on-installation authorities if or when the conventional ordnance is returned to the DOD facility.

EOD emergency response actions required to minimize an immediate safety threat to personnel or property are specifically excluded from the standards and requirements IAW 40 CFR 264.l(g)(8) and 270.1(c)(3).

Some state and local environmental regulations may require an emergency interim permit for transportation or thermal treatment of conventional explosive ordnance that does not present an immediate threat to human life or property. The guidelines for this permit are in 40 CFR 270.61. The agency requesting EOD support is required to get whatever permits are required.

For **on-installation** emergency response operations, EOD actions are those associated with a call for immediate action by EOD personnel or civilian munitions destroyers to render safe conventional explosive ordnance. These emergency actions might involve destruction of the conventional ordnance in-place or removal to a safer location. For example, an item of explosive ordnance may be so damaged because of an accident or normal use that it poses an imminent threat to life, property, or the environment. In these cases, EOD units often respond to render assistance in mitigating the threat.

On-installation emergency actions include the treatment and transportation necessary to minimize immediate threats to human health and the environment. On-installation emergency actions to contain or treat conventional explosive ordnance are not subject to the TSDF standards or the permit requirements of RCRA regulations. Figure 4-1 (page 4-9) shows an on-installation response flowchart that indicates when RCRA regulations apply.

Response to any conventional ordnance item on an intended-purpose range can be treated in place without a permit and its requirements. If an item is not on an intended-purpose range, it should be

transported to a licensed EOD open burning or open detonation site. If it cannot be transported, an interim permit must be obtained for thermal treatment in place, IAW 40 CFR 270.61.

For **off-installation** response operations, EOD personnel may be called upon by federal or civil authorities to help with emergency responses involving conventional explosive ordnance off the military installation. These incidents may involve all types of conventional ordnance, including US and foreign military ordnance and IEDs.

Off-installation emergency actions include the treatment or containment activities needed to minimize immediate threats to human health and the environment. Off-installation emergency actions to treat or contain conventional explosive ordnance are not subject to the standards or permit requirements of RCRA regulations. The EOD team leader's determination of an emergency situation means the immediate response exception is in effect under 40 CFR Sections 264. l(g)(8) and 270. l(c)(3). Figure 4-2 shows an off-installation flowchart and indicates when RCRA regulations apply. If the conventional explosive ordnance is not safe for transportation but does not present an immediate danger to life or property, an interim permit is required for the transportation and treatment of the ordnance. If the local law enforcement agency has a licensed open burning or open detonation area for treating explosive material, that area should be used.

The authority or agency asking for help should notify the environmental protection authority of the emergency situation before the EOD unit arrives on scene. Notification and reporting required by the state or local regulatory authorities are the responsibility of the requesting agency. To the extent practical, EOD personnel should ensure that the authority or agency that requested assistance complied with applicable regulatory notification requirements.

Conventional explosive ordnance that is safe to transport IAW DOT and DOD regulations is not classified as a hazardous waste, and transportation is authorized for the purpose of returning the item to DOD control. Once back in DOD control, an authorized official must determine the final disposition IAW the RRDA guidelines.

EOD units that receive requests for assistance with the treatment or storage of non-DOD ordnance or explosive items should refer to 10 USC 2692 or earlier portions of this section. A sample MOU for off-installation cooperation with civil authorities and environmental regulatory agencies is at the end of this chapter.

Demilitarization Operations

Demilitarization is a necessary step in the life cycle of the management of conventional explosive ordnance. Conventional explosive ordnance that may be demilitarized will be managed in the RRDA ammunition account. This account is an asset-tracking system that ensures the appropriate disposition considerations are made. Demilitarization is only one of those considerations.

Placement of conventional explosive ordnance into the RRDA does not mean that it will be demilitarized. This ordnance should be considered for use in such programs as domestic and foreign military sales, EOD training, RDTE missions, and installation recovery and recycling programs, or it should be reworked to meet original or modified specifications for reuse.

Conventional explosive ordnance in the RRDA that an authorized official has decided to discard is transferred to the BHW account for accounting and management purposes until treatment or disposal. All conventional explosive ordnance that is in the BHW account is subject to the regulatory requirements of RCRA for transportation, treatment. storage, and disposal. Figure 4-3 (page 4-10) shows a flowchart for demilitarization and indicates when RCRA regulations apply.

Storage

Sometimes it is necessary to hold temporarily recovered conventional explosive ordnance in storage for a purpose other than treatment. These situations include its use as evidence in law enforcement proceedings and accident investigations and technical evaluations by EOD technicians or RDTE personnel. Storage of non-DOD ordnance or explosive material for other federal or civil authorities is subject to 10 USC 2692 (refer to earlier portions of this chapter). After the conventional ordnance or explosive material is no longer to be stored for any reason, it will be evaluated by an authorized official on whether it is to be used or

discarded. If a decision is made to discard the material, it becomes subject to all RCRA regulations.

Storage of hazardous material is authorized for a period not to exceed 90 calendar days. Any storage past that time must be in a licensed and permitted storage area. Material stored in the EOD holding area should be treated as soon as possible after its accumlation.

Training and Testing

Specific training required to develop and maintain proficiency in the use of special EOD procedures, tools, and explosives is done at designated demolition training ranges, also referred to as EOD training areas. Except, for basic EOD training, the amounts of explosives used at these ranges are small. These training operations are not considered waste treatment. They represent the use of conventional explosive ordnance for its intended purpose and, therefore, are not subject to RCRA regulations.

EOD training can only be conducted on a EOD range that is licensed for thermal treatment. No ordnance can be transported to any other range and disposed of without having a permit for thermal treatment. This violates the intended purpose criteria for range areas.

Conventional explosive ordnance firing and explosive activities considered conventional explosive ordnance used for its intended purpose include the following: personnel training and proficiency maintenance, safety testing, RDTE, range clearance, and quality control. These activities are not considered waste treatment or disposal operations and are not subject to RCRA regulations.

During some artillery and mortar live fire training exercises, not all propellant charges or increments are used. Because excess propellants present a safety threat in real combat situations, their elimination by open burning is considered part of the training exercise and is, therefore, not subject to RCRA regulations.

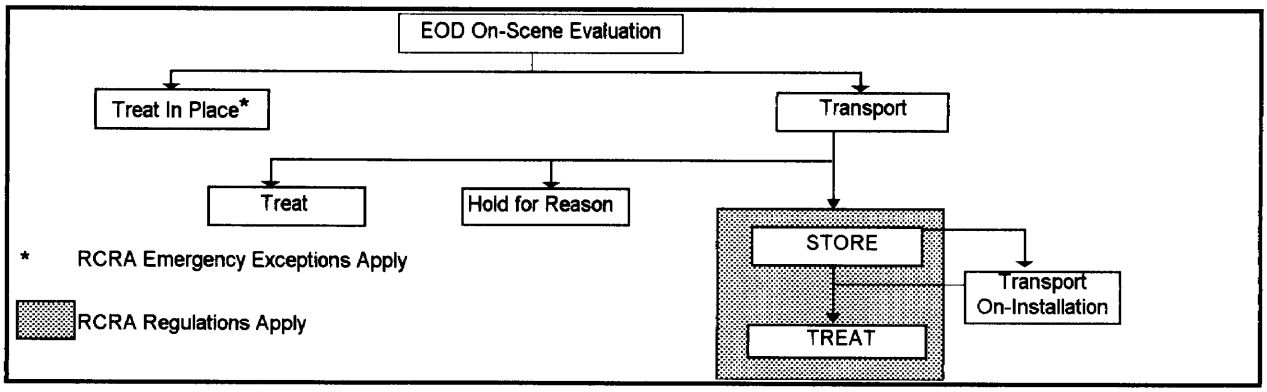


Figure 4-1. EOD emergency response (on-installation)

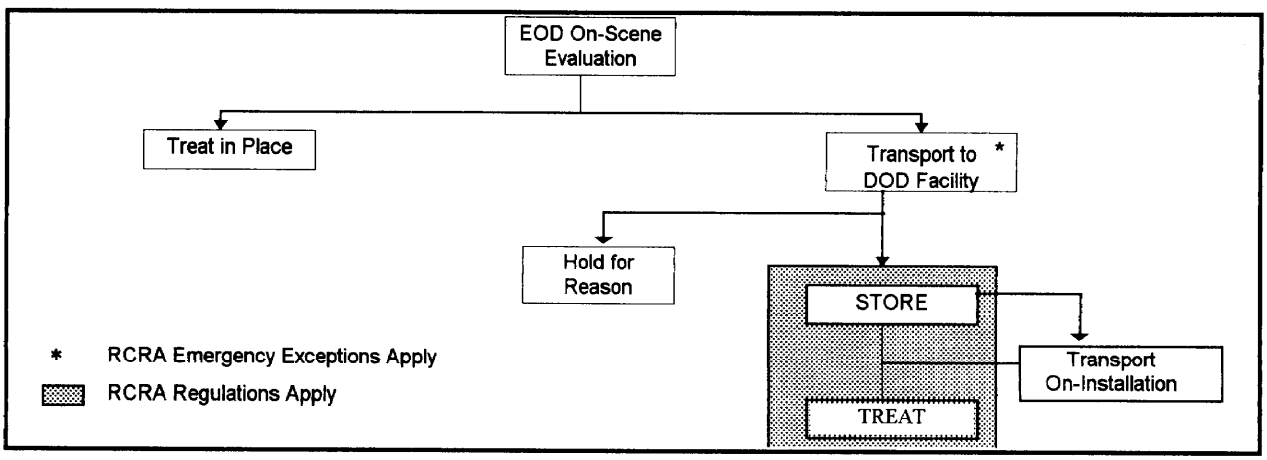


Figure 4-2. EOD emergency response (off installation)

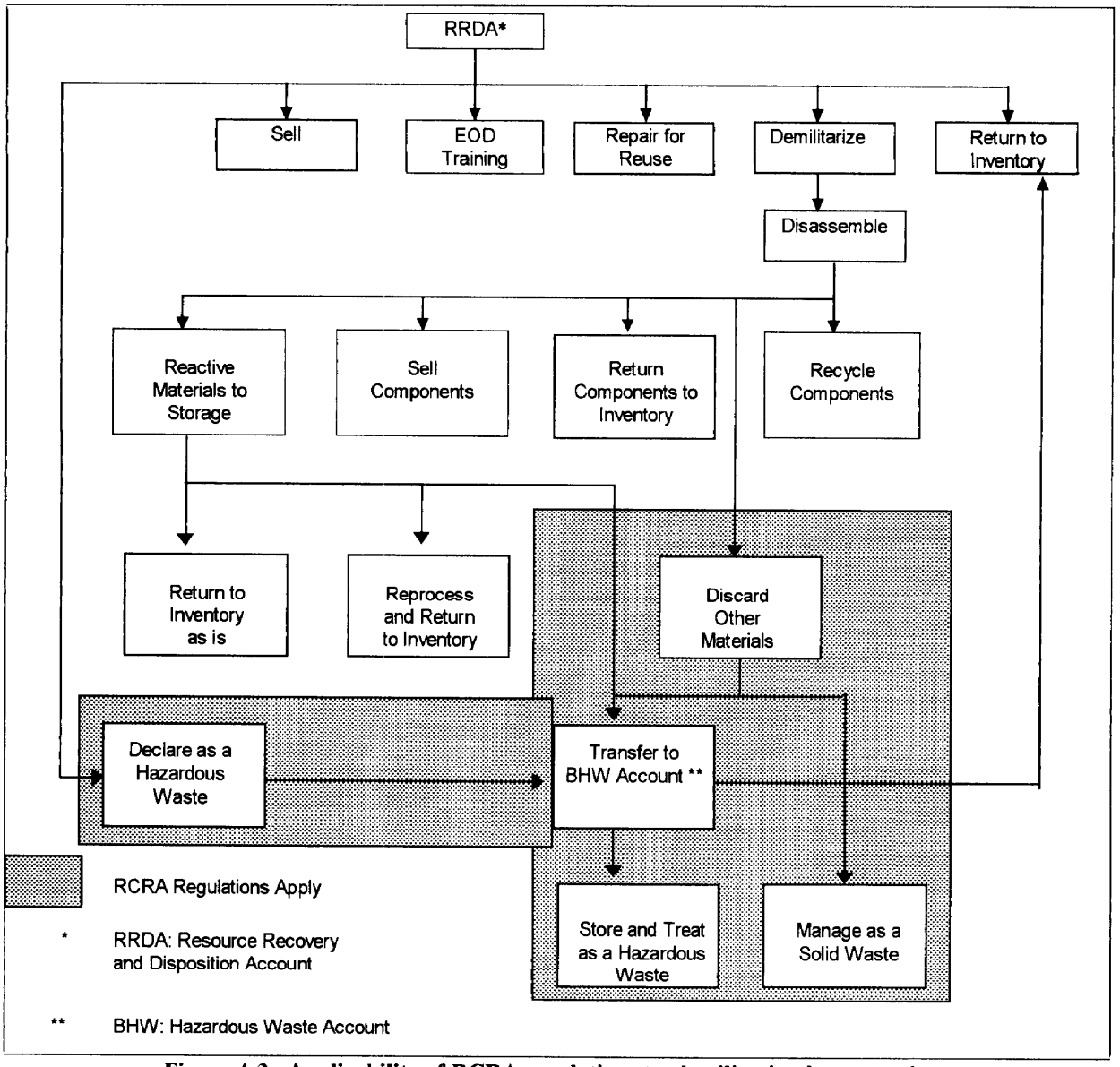


Figure 4-3. Applicability of RCRA regulations to demilitarization operations

EOD training cannot be conducted using ordnance that has been placed in the BHW or hazardous waste category.

Range Management

During the use of conventional explosive ordnance, a percentage is expected to fail to explode or otherwise malfunction. Range management activities include the collection and treatment of conventional explosive ordnance. This clearance is conducted by EOD personnel or civilian munitions destroyers to remove or treat propellants, explosives, and pyrotechnic materials that may threaten personnel safety or may lead to environmental contamination.

Conventional explosive ordnance that is treated on the spot or consolidated and treated on the same range is considered being used for its intended purpose and, therefore, is not subject to RCRA regulations.

Conventional ordnance that is accumulated during a range clearance and for some reason cannot be treated on site is considered hazardous waste and is subject to RCRA regulations for transportation, treatment, storage, and disposal.

RDTE material that is collected and transported for research or evaluation purposes off its initial

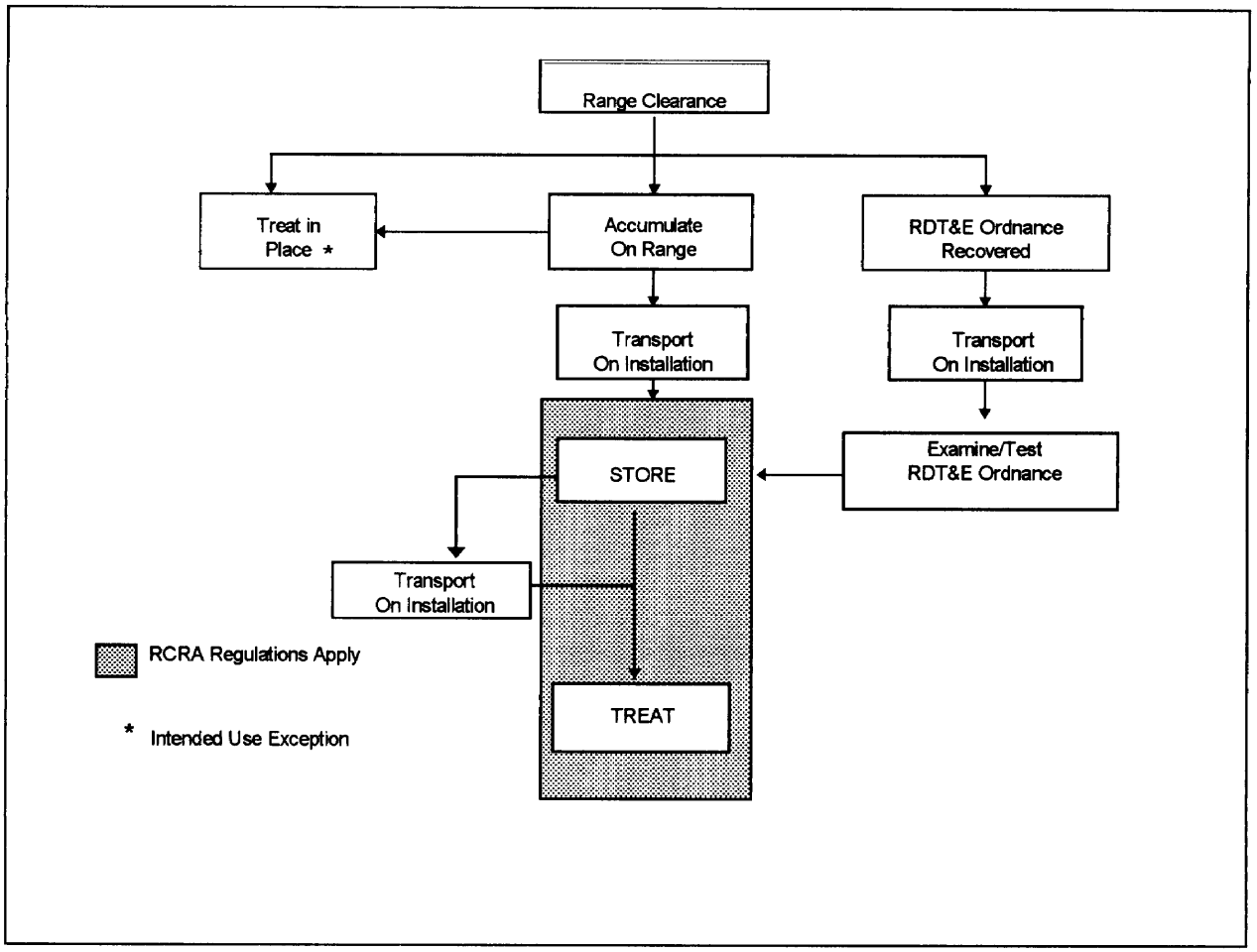


Figure 4-4. Applicability of RCRA to range management operations

range area will be considered hazardous waste after evaluation and research has been completed. This material is then subject to regulations of RCRA for transportation, treatment, storage, and disposal. Figure 4-4 above shows a flowchart of when the items become redated by RCRA.

Transportation

Transportation of a hazardous waste is regulated by RCRA (40 CFR 263.11 and 263.31) and DOT (49 CFR 171 through 179). Any transportation of a hazardous waste must be completed by a licensed EPA transporter having an EPA permit. The following three exceptions apply for EOD response and transportation requirements:

• **First,** transportation of conventional explosive ordnance to a DOD facility from an off-installation response for the purpose of determining if the ordnance should be discarded, returned to the inventory, or further studied.

• **Second,** on-installation transportation as long as the installation is a RCRA permitted site. This is considered transportation within the licensed facility and is not regulated, except by the owner/operator (DOD, DA, and local regulations and policies).

• **Third,** emergency response actions that require transportation to a remote site for immediate destruction.

Transportation on-installation is regulated by RCRA requirements if the transportation route crosses or involves any public access route.

Occupational Safety and Health Administration

The OSM is another organization that has created a challenge for EOD. The EOD company must find a way to implement the OSHA regulations into its daily operations. While many of these regulations may seem to be unduly restrictive, they are written to make the work places in the United States safer. EOD companies may receive an OSM

inspection without warning. EOD operations are inherently dangerous, and EOD leaders should be doing all that can be done to make them safer. Leaders should look to the OSHA regulations for ideas to make EOD operations safer. EOD personnel must become familiar with the requirements that affect the daily EOD mission.

SAMPLE
MEMORANDUM OF UNDERSTANDING
CONCERNING OFF-INSTALLATION
EMERGENCY ACTIONS ON EXPLOSIVES

1. Parties: The parties to this memorandum of understanding (MOU) are the Department of the Army (DA) Explosive Ordnance Disposal (EOD) unit at_____("DA EOD"), the_____State and/or local agencies ("civil authorities") and the_____federal, state, or local environmental regulatory agencies ("environmental protection authorities").

2. Background:

a. DA EOD personnel are specially trained and belong to units with the military services. They are trained to handle all types of explosives, including improvised explosive devices. Other federal agencies and civil authorities occasionally call upon DA EOD units for help with emergencies involving explosives. These situations call for immediate action to abate the safety threat by treatment in-place or by removal to a safe location. EOD emergency actions involving explosive materials and devices are not subject to regulation under RCRA.

b. Except for providing temporary storage for or treatment of explosives in order to provide emergency lifesaving assistance to civil authorities or to assist law enforcement agencies in accordance with established agreements between DOD and the head of the federal agency concerned, DOD is prohibited by law (10 USC, Part 2692) from using DOD installations for the storage or treatment of non-DOD-owned hazardous materials.

3. Purpose: This MOU addresses the roles and responsibilities of the parties regarding notification requirements during emergency response operations. The purposes of this MOU are:

a. To minimize the risk to public safety from DA EOD emergency actions,

b. To maximize the speed and efficiency of any explosive treatment or retrieval operation, and

c. To establish a framework for mutual assistance and consultation among the parties with respect to DA EOD emergency actions.

4. Scope: This MOU applies to DA EOD emergency actions in the public sector.

5. Definitions:

a. **Explosive emergencies** are sudden and unexpected events involving explosives that present a safety hazard to the public.

b. **DA EOD emergency actions** are DA EOD responses taken to emergencies involving explosives.

c. **DA emergency actions** in the public sector are responses to events outside the boundaries of military installations.

Figure 4-5. Sample EOD emergency action MOU

6. Roles and Responsibilities:

a. DA EOD Units.

(1) Provide EOD support to other federal agencies and civil authorities 24 hours a day, as requested.

(2) Provide a telephone point of contact for response to other federal and civil authorities.

(3) Provide incident information necessary for satisfying emergency requirements to civil authorities, as requested.

b. Civil Authorities/Agencies Requesting EOD Assistance.

(1) Upon identification of the emergency, contact the proper environmental protection authority regarding emergency notification requirements.

(2) Complete any reports and/or notifications required by the environmental protection authority. Request incident information from the responding EOD unit, as necessary, to complete the required reports.

c. Environmental Protection Authorities.

(1) Provide a telephone point of contact for emergency response calls.

(2) Help expedite issuance of any emergency permits that may be required.

7. Duration/Amendment/Withdrawal: This MOU will remain in force and effect until amended or terminated by mutual agreement of the parties. Any party may withdraw from the MOU upon 60-days written notice to the other parties.

For DA EOD Unit: (Specify unit)

_____ Date: _____

For Civil Authorities: (Specify Authorities)

_____ Date: _____

For Environmental Protection Authority: (Specify Authority)

_____ Date: _____

Figure 4-5. Sample EOD emergency action MOU (continued)

CHAPTER 5

EOD UNIT OPERATIONS

EOD supports the national security strategy during peacetime, conflicts, operations-in-war, and OOTW. The EOD mission is to reduce or eliminate the hazards of domestic and foreign conventional, nuclear, chemical, bioiogical and improvised explosive ordnance that threatens personnel, operations, installations, or material. During war, EOD preserves and protects the commander's combat power. During OOTW, EOD supports national security through security, antiterrotism, counterdrug, and domestic civil authority operations. This chapter discusses some of the ramicaticins of and requirements for providing this support.

Section I

General Considerations

FORCE PROJECTION

Entry into the area of operations (deployment) is not enough to accomplish the mission; it is just the first step. Force projection is a complex process. Each action, from the first on, impacts many others. The transition from one phase of deployment to the next is more obscure because of simultaneous planning and execution of other phases in the deployment process. Successful force projection depends on fully trained, well-led, and properly equipped and sustained units.

EOD AND FORCE PROJECTION

EOD has to execute multiple concurrent activities. For example, EOD may have to support both deployed forces and the CONUS support base. Whether in support of a humanitarian relief mission, a peacekeeping mission, or an actual wartime operation, EOD plays an important role in providing support to the deployed force.

READINESS

Anticipation demands that a unit expect alerts and deployments. Meeting the physical and mental challenges of anticipation depends on the preparedness of the EOD company. Physical preparedness includes the following:

- Creating load plans for all movement contingencies.
- Conducting EDREs.
- Having tested load plans.
- Conducting liaison with commands that deploy the unit.
- Conducting liaison with units designated for deployment.
- Preparing plans that identify command, intelligence, and other support relationships.
- Ensuring soldier and equipment readiness.

Mental preparedness comes with understanding the Army is more than a job and that its mission is to be able to respond to any situation worldwide. Mental preparedness includes:

- Receiving briefings by MILPO personnel, Army Community Services, and other agencies to deal with deployment issues.
- Including dependents in these briefings.
- Conducting liaison with the installation for rear detachment support during a deployment.

If the EOD company establishes a rear detachment or has backstop personnel provided, an SOP should be prepared and the dependents of deploying soldiers given a briefing on its contents.

TRAINING

The EOD company must cooperate with all Army units to be effective. This cooperation is reinforced by including the EOD company in general training exercises. These exercises can provide many benefits (for example, the display of EOD capabilities and support requirements). As a result, the Army commander learns how an EOD unit operates, and the EOD soldier learns how non-EOD units operate. The interaction provided by training exercises increases total effectiveness on the battlefield. Since conducting training exercises with every unit is impossible, regular contact at the commander and operations levels is important. It leads to better understanding, trust, and cooperation.

RESPONSE TEAM DEVELOPMENT

The EOD mission demands much of the response team leader. He must make many important decisions on his own. He is responsible both for his own life and the lives of his team members. Additionally, the team's actions could have a large impact on battlefield operations. Consider the information below when organizing and deploying response teams.

Spread the experience to all response teams. Consider experience and past job performance when assigning personnel to response teams. The best response team leader should have the least experienced team members. Conversely, the team leader who has the least experience should have the most experienced team members. This results in a balanced performance from all teams.

Do not have the response teams specialize. Teams must be able to handle any situation. They may not get to pick the incident to which they are assigned. Some situations may demand a more experienced team be dispatched. However, in most cases the team initially dispatched must accomplish the mission.

Build strong teams by making the response team leader responsible for his team. The key to well-trained and motivated teams is the team leader. Given proper supervision and guidance, the team leader should be held responsible for the condition of the team's equipment, training, and morale.

Ensure response teams are used most efficiently. The battlefield dictates the activities of EOD. Being able to handle high incident rates is the goal of each EOD company. To do this, the CP must carefully monitor the work load of the response teams. The CP must also ensure each team performs with minimal personal risk and maximum effectiveness.

METL

Unit mission-essential task lists must include appropriate mobilization (for the National Guard EOD companies) and deployment (both active and NG companies) tasks that support force projection.

SAFETY

Safety, including risk assessment and accident reporting, is an inherent duty at all levels of command. This is especially true for units and personnel engaged in EOD-related activities. The following discussion provides safety-related guidance of both a general and EOD-specific nature.

Responsibilities

We must all strive for safety in the workplace and in day-to-day operations. Each of us must ensure that we maintain a proactive posture towards safety and that this is evident to those in our charge. Specific responsibilities, from commander to individuals, are detailed below.

Commanders. Safety is a command responsibilies at all echelons. Commanders must take an active and aggressive leadership position toward safety. They need to appoint a safety officer or NCO IAW AR 385-10 and DA Pamphlet 385-1. They must determine the causes of accidents and take necessary corrective measures.

Safety Officer/NCO. Typical duties of the safety officer or safety NCO include:

• Preparing a unit safety program and a field safety SOP geared towards proactive safety awareness (instead of reactive safety reporting).

• Reviewing regulations and TMs for changes, recommendations, and procedures for increasing safety in unit operations and EOD response operations.

Recommending safety-related suggestions to the commander for review and adoption and inclusion, as necessary, in unit SOPs.

Leaders. Leaders must ensure that soldiers perform their duties safely by--

• Keeping soldiers aware.

• Stressing safety in operations.

• Halting unsafe operations.

• Preventing accidents through proactive planning and preparation.

Team leaders. EOD team leaders--

• Retain ultimate responsibility for the safety of their team members.

• Must be knowledgeable of both EOD and tactical operations.

• Inform the supported unit on safety issues of the ordnance involved. The supported unit is responsible for the safety of its personnel and equipment, based on the information provided by the team leader.

Individuals. As individuals, we retain some degree of personal responsibility for ensuring our own safety. This includes--

• Being familiar with the Army's general safety policies, including policies for ammunition, explosives, and related operations (AR 385-64 and TM 9-1300-206).

• Knowing explosive ordnance specific safety precautions for ammunition and explosive operations covered in TMs 60A-1-1-22 and 60A-1-1-31.

Safety SOP

Each unit should have on hand a current, detailed (as much detail as needed) safety SOP. This safety SOP should include:

• Safety education and promotion plans.

• Safety requirements and training frequency.

• Procedures to detect potential safety violations and ensure that corrections are made.

• Provisions for periodic updating sessions and briefings conducted by the unit command on new ordnance items and technical intelligence reports. This is an effective method of keeping soldiers informed and the safety awareness level high.

Risk Assessment and Management

Risk management is a decision-making process that balances operational demands against risks. Doing risk assessment and then applying risk management should become fully integrated parts of operational planning and execution. A good example of risk assessment and management is presented later in this chapter.

Identification of hazards and the effects they may have is called **risk assessment.** Leaders must learn to assess risks during training events and then apply the same techniques during combat operations. During combat risks must be taken, but only after the mission is evaluated and weighed as practiced during training.

Team leaders must use the risk assessment process in both their EOD operations and their safety briefing to the supported unit.

The supported unit must use the risk assessment process when faced with a UXO hazard. The EOD team leader will provide the commander with accurate information on the hazards or risks. It is the supported unit that must make the final decision on acceptable risks based on its current and projected tactical mission load.

Risk management is taking steps to eliminate, reduce. or control the amount of risk. It allows leaders to execute more realistic training scenarios not otherwise possible because of the high probability of accidents.

Accident Reporting

In addition to the recognition and control of safety hazards, it is essential, at every level, that the causes of accidents be determined. This will help to identify accident trends, unsatisfactory work performance, personnel losses, and property damage.

Therefore, all accidents resulting in injury or property damage must be reported.

DA Form 285 is the primary means of reporting accidents. For information on preparing this form, see AR 385-40.

When an accident happens, it is important to gather all essential information for reports and possible corrective action, the following information should be recorded:

- Who was injured or what damaged.
- Time and place of the accident.
- Severity and cost (in personnel or material) of the accident.
- Nature of the accident or injury.
- How and why the accident occurred.

Corrective action is based on specific facts about the accident or injury. Corrective actions can be in the form of removing hazards, improving operations, or training personnel. Moreover, the corrective action must be supplemented by proper management on the part of the unit leadership to ensure that familiarity with operations does not lead to complacency or contempt for safety awareness.

COMMAND POST SETUP

Two main factors--communications and the need for 24-hour service--govern the setup and operation of the CP. The only standard is that the unit be able to provide EOD support effectively. The fact that EOD supports larger units may dictate the location of the EOD CP. However, the supported unit may be flexible in other factors of setup and operation.

Communications is the most important factor in establishing a CP. The CP must have communications with the supported CP, with its own HQ, and with the rest of the company. The communications should be a combination of radio and land lines. During periods of nonmovement, the CP should link into the ACUS. This allows EOD rapid and direct communication within the theater. Because of the importance of communications, the recommended location of the EOD CP is near the supported unit's CP.

Section II
The EOD Response

ACCIDENT/INCIDENT DEFINED

Every time EOD responds to a reported UXO, it is an **incident.** Most incidents are caused by **accidents,** thus the two are commonly thought of together, as in **accident/incident.** Each EOD incident is unique because minor changes in tactics, variations in IED or UXO construction, fuzing design characteristics, human error, and the type of target and its surroundings can affect the situation. It is impossible to insist on the application of inflexible rules for an accident/incident. It is possible, however, to develop a technique that identifies immediate threats to safety. This enables the EOD team leader to make a thorough evaluation of the situation and to execute the plan with the greatest chance for success.

RESPONSE PLANNING

The rules and guidance provided below will help increase the chances of developing a realistic, safe plan of attack. They must always be kept in mind when conducting EOD operations. Together with the information provided in the following paragraphs, they give EOD personnel a sound basis on which to plan operations.

- Do not perform an RSP when a disposal can be performed.
- Always consider protective works, evacuation, or other procedures to reduce the category of the incident.

• Establish safe approach and exit routes for both remote and manual attacks. This is most important for manual attacks because of the possibility of secondary hazards such as trip wires, pressure mats, or other hidden devices.

• Resort to a manual approach **only** if a remote approach is not possible and **only** after waiting the minimum wait time (for Category A incidents wait times do not apply). If a technician makes a manual approach, he should try to take all tools and equipment needed and make only one approach. This will limit his exposure time. During a manual approach, take all personal protective measures available that will not physically interfere with the safe application of procedures. Perform all actions possible in a safe area to reduce time exposed to danger. Exposure time begins when the EOD technician steps from protective cover and lasts until he regains cover.

• Do not move an item, manually or remotely, until the item has been identified and the effects of movement (detonation or contamination, for example) have been estimated.

• If a RSP is to be performed, a separate member of the team should then perform a second reconnaissance to ensure a positive identification of the UXO. Some UXO situations may present an unacceptable risk in performing a second recon. This might occur if long-delay or influence-type fuzing is involved.

RSP TACTICS AND PLANNING

A number of factors should be considered before implementing a RSP. The first question the EOD team leader should ask is, "Can I do the RSP remotely?" If the answer is yes, consider all possible remote methods of attack. This thought process entails listing every weapon in the remote attack armory and asking of each:

• What is the best that can happen?

• What is the most likely thing that can happen?

• What is the worst that can happen?

If the worst that can happen carries an unacceptable risk, choose another method to reduce the risk. Only when every remote method has been considered. and improvisations thought about, can the team leader make the final choice. The method giving the best chance of success and the minimum risk is the best choice. Do not accept the decision without double-checking the whole process. If the second decision matches, proceed with the detailed planning. Consider a manual approach only when you have exhausted all avenues of remote attack.

Implementation of the RSP through remote or manual methods may need to be reevaluated after making the initial approach to the device. The EOD team leader should ask if the proposed RSP is still feasible. New factors may make it impossible for the team to implement the original plan. The EOD team leader must then consider other options.

If the EOD team leader ever feels that he is spending too much time at the incident scene, it is most probably true. It may indicate some weakness in the plan or implementation of the plan. The EOD team leader should stop, reevaluate, and develop another plan.

The EOD team leader should continuously ask if any action is likely to disturb the device. He should be sure the robotics equipment is placed to give the best results. If it is not, the EOD team leader must take corrective action.

The EOD team leader must never totally commit to one plan but should remain flexible, keeping safety paramount. Develop a contingency plan as a backup should it be necessary to abandon the initial plan.

MULTIPLE-UXO RESPONSE

The new UXO scenario is not just one EOD response team working on one bomb. It is multiple-team operations on dozens of UXO items with support from non-EOD units. Multiple-UXO incidents can happen in many situations: ASPs, FARPs, ammunition convoys, aircraft accidents, airfield recovery, and ordnance left after combined arms operations, both friendly and enemy. The paragraphs below provide useful information for EOD on procedures dealing with multiple-UXO scenarios.

It would be impossible to cover every scenario an EOD unit could face. Instead, the general methodology for conducting EOD operations at a

multiple-UXO incident is described. This methodology can be applied to all multiple-UXO incidents with only a slight tailoring to fit each situation.

In the past, EOD units have handled multiple-UXO incidents without any solid written guidance. While on the whole EOD units and teams have excelled in one-on-one ordnance incidents. the multiple-UXO incident presents new challenges. The following paragraphs of this chapter will establish procedures for the execution of the different phases of a multiple-UXO incident. The three generally recognized phases include: the initial planning phase. the hasty recon/immediate action phase (HRIAP), and the RSP/disposal phase.

The information presented here should be used as a guide by EOD units and teams involved in multiple-UXO incidents. Applicable procedures from this FM can be used as is or can be extracted. expanded, or modified to fit each multiple-UXO incident. A multiple-UXO procedural checklist is provided at the end of this chapter (Table 5-1).

Initial Planning Phase

The initial planning phase of a multiple-UXO incident includes gathering critical information. identifying and coordinating necessary support, determining equipment and personnel requirements, receiving area priorities, establishing an RCP, and gridding the affected area. Since initial planning is **so** important to success, it requires command emphasis within the EOD company. The company commander and NCOs must effectively interface with the division or area support group or higher commands and their affected units and supervise the overall operation.

Gathering information. Unlike single ordnance incidents, the multiple-UXO incident requires an extreme amount of legwork in gathering accurate information. Initial information is likely to be sent by radio to the division or area support group and then to the EOD company. However. this information may be very vague and not too useful.

If information and EOD communications are limited, the EOD commander, company NCO, or operations NCO may have to coordinate (through the division or area support group communications system) back to the affected local area commanders to get more information. It is essential to get information such as size, location, and markings of the UXO: approaches; protective works; and proximity to vital facilities. Depending on the amount of ordnance and number of affected units, this information may have to be gathered by the individual EOD teams who respond.

The type of information requested for single-ordnance incidents should also be requested for multiple-UXO incidents. However, the possible magnitude of the ordnance and affected areas may require an extensive information-gathering process. This information will require in-depth correlation and evaluation to be understandable for later use by the RCP and EOD team leaders. Additional information may need to be asked for, such as ordnance stores lists from aircraft, inventory of what was stored in the ASP, or ordnance types being transported in the convoy.

Determining area priorities. The division or area support group should be the primary prioritization authority for multiple-UXO incidents because these incidents may affect not only large areas but also several combat elements within the division or area support group. Since all the units may claim to be the most important to the war effort, EOD commanders and senior NCOs must closely coordinate with the division or area support group on what the actual priority is.

Responding teams may receive secondary priorities from the affected subordinate or local area commanders who have been identified by the division or area support group. For example: The division has identified the 4/7th Cavalry's area as having the first priority because it needs to move to a vital forward location. When six EOD soldiers arrive at the battalion headquarters, the battalion commander tells the EOD team leader that he needs A Troop's area cleared first so it can do a route recon for the battalion.

It is important for the EOD company commander, company NCO, and the RCP supervisor to remember that, while the division or area support group sets the priorities by area or unit, the EOD company also has to factor two things into the prioritization: the ordnance encountered and its hazards to EOD personnel during the RSP/implementation phase (discussed later).

Coordinating support. Coordinating support for a multiple-UXO incident is a multiechelon task shared by the CP, RCP, and EOD team leaders. Some types of support can be obtained by the on-site EOD team or by coordination with the affected local area commanders, such as aerial reconnaissance by helicopter. Teams must be able to request additional support, going through the RCP to the CP. The CP may more easily obtain the requested support from the division area support group. Teams should know that if the local area commander cannot provide the requested support, the division or area support group might.

Determining equipment and personnel needs. Each multiple-UXO situation requires different levels of personnel and equipment. If the incident is too large for the EOD company to handle alone, it must coordinate through the EOD battalion for additional EOD resources.

When the incident is within the EOD company capability, the commander and senior NCOs determine the best number of soldiers to deploy. Many times multiple-UXO incidents require all of the company's available personnel resources and a large amount of its equipment. The number of EOD soldiers and the amount of EOD equipment deployed is based on the type of ordnance expected to be encountered, the amount of ordnance, scheduled rest for soldiers, and the size of the affected area. However, EOD commanders and senior NCOs should be aware that the level of EOD soldier and equipment resources required may change as the incident goes through the HRIAP to the RSP/disposal phase.

Setting up the RCP. Setting up a RCP close to the affected area, yet outside the blast/fragmentation radius, is a must. Considering the amount of ordnance and the area covered, the commander should decide the proper manning requirements for the RCP. An incident may require the commander to remain at the division or area support group for coordination while the company NCO and recorder establish the RCP, with all remaining assets deployed to affected areas. Decisions will be based on the various factors previously discussed.

The RCP will be the center of information for the HRIAP and RSP/disposal phase. It is also the coordination point for all EOD teams involved in the operation. It must be the focal point in the planning and implementation of the next two phases. It is also the intermediary between the teams, EOD battalion, division or area support group, and, in many instances, the local area commanders. External pressures placed on the RCP are considerable and must be handled so that EOD response teams can continue their missions. The RCP supervisor may have to visit the affected areas if information is too unclear. He then can adjust plans and overlays and pass on accurate information to the division or area support group and other involved parties.

Establishing grid system. Once all the planning is complete, the RCP and EOD team leaders should prepare some type of grid system to help organize and control response to the incident. This grid may be an overlay.

The grid is based on the size of the affected area, quantity of ordnance, number of responding EOD soldiers, and area priorities. The numbers in each grid correspond with the division or area support group priority and provide the RCP with a control, planning, and reference measure. For instance, an airfield is designated number 1, which means its clearance is the division or area support group's first priority. Each successive number is the next priority. The RCP may also use the overlay to plot approximate ordnance locations. There may be many separate elements within an affected area. If this is the case. the RCP might decide to use all teams, two teams on the airfield and one team each in the remaining areas for the HRIAP.

When the grid has been established, the RCP needs to make EOD personnel assignments for each section of the grid. Included should be an overall team leader for each grid. The RCP supervisor should also conduct a briefing for all EOD soldiers involved in the operation. The briefing should include all available information and safety factors. The grid should be used throughout the operation, with the RCP making any necessary adjustments to the overlay as they occur. The grid and briefing should be available in writing at the RCP for all personnel working the incident. An important and mandatory part of the briefing is the safety plan for the site. This plan must include all known safety problems and other mitigating factors. All personnel, not just EOD, must be briefed and show

they understand the situation before they are allowed onto the site.

Hasty Recon and Immediate Action Phase

Once the RCP is operational, the RCP and EOD team leaders should develop the overall plan for the conduct of the HRIAP. This plan should be put into writing at the earliest opportunity to ensure continuity of the operation. The purpose of the HRIAP is to do a quick visual recon, to determine the need for any immediate action, and to classify the ordnance and fuzing by type and function.

Responsibilities. The RCP supervisor, grid team leaders, and individual team members all have specific duties and responsibilities during the HRIAP. These are covered in some detail below.

RCP Supervisor. The RCP supervisor must assign EOD personnel to each of the grids. He must ensure that each grid has an overall team leader designated as more than one staff sergeant may be assigned to it. He needs to maintain a log (by name) of who is operating in what grid. He also needs to ensure that all tools, both EOD-peculiar and common, are evenly distributed among the different grids. Where these tools are needed will depend on the ordnance being reported. For example, alien wrenches for fin removal will be needed where bombs are being reported.

The RCP supervisor must establish an effective communication system among himself, the EOD soldiers, affected local area commanders, and the division or area support group. It may require some external support from the area commander to be effective. If the RCP or EOD teams need more radios, the RCP supervisor should request them from either the affected local area commanders or the division or area support group. The consequence of failure to provide such support should be clearly made known.

The RCP supervisor sets reporting requirements from the grid team leaders. Following commonsense battlefield procedures, radio traffic should always be kept to a minimum. The RCP supervisor establishes who will communicate with the affected area commanders. This could be a joint responsibility shared by the RCP and grid team leaders. In any event, the RCP leader should provide as much of a buffer as possible between external elements and the teams working the grids.

Grid Team Leader. The grid team leader conducts a detailed briefing for all team members working in his grid. He should paint the "big picture" with all the information that is available. Ideally, this information includes reported ordnance locations, types of ordnance expected, safety precautions. size of grid, who is assigned to that grid, and the plan of attack. Grid team leaders may get more information from any guides provided by the affected local area commanders.

Grid team leaders may choose to break down their grid into smaller subgrids to make individual team member assignments. A rally point should be established where all team members will meet when they complete their area's HRIAP. Other than for any required "immediate action," no other hands-on procedures should be performed.

The grid team leader, along with the RCP leader. may establish a marking system for the ordnance encountered. This system may simply be to mark all ordnance with red flags and those that have had an immediate action peformed with a yellow flag. Just remember to make the marking system simple enough so that it will not be confusing to the team members. Even with a marking system, the team leader must require team members to keep an accurate notebook or log of what type of ordnance they encountered and where. This is so he can put all the information together at the rally point and give the RCP leader an accurate picture of the situation in each grid.

The grid team leader must establish the communications system for his grid. This system may include hand-held radios, verbal signals, or hand signals. The type of communication needed will vary based on the size of the grid. If hand signals are to be used by team members close to each other, they should be standardized so that all members can understand them.

The team leader sets up contingency plans for all potential problems the team members may encounter. These should include the plan of action if a member encounters an immediate action fuze while other members are close by. The answer may be to give verbal or hand signals to those members close by to seek the best available cover immediately.

Also included should be the plan of action in case a detonation in the grid causes the death or injury of a team member.

The grid team leader shoulders most of the responsibility for the incident's successor failure. He must be flexible enough to modify plans of attack based on the actual situation once he gets downrange. He needs to be an effective communicator, organizer, leader, and technician.

Team Members. Team members operating in the HRIAP perform independently. These soldiers must have skills normally associated with those of the team leader.

Team members are the workhorses of the operation. They will, however, have greater responsibilities in a multiple-UXO incident than in the normal EOD single incident. These responsibilities include maintaining their own logs and drawings. performing hasty recon, deciding if an immediate action is required, performing that immediate action, and marking the ordnance.

To keep an accurate log and drawings, the team member must be able to make quick, accurate notes and drawings about the type of ordnance he encounters. These notes should include the ordnance type by function, fuze type by function. and any immediate action applied. The team member must also be able to make an area sketch showing the location of the ordnance.

When an immediate action is required. the team member must be able to do it quickly. He must be aware of his environment and of any other team members close by. If other team members are close by, they must all communicate according to the prearranged system.

Finally. the team member must mark the ordnance item using the method established in the plan for the HRIAP.

Implementation. Once the RCP supervisor is satisfied that all the planning is complete, he dispatches the teams to their assigned grids to begin the HRIAP.

Upon arrival at the RP, the grid team leader deploys all team members to their assigned area of responsibility. He makes certain that the team members know to return and wait at the rally point when they have surveyed their areas.

When all team members have completed their hasty recon and immediate actions and have returned to the RP, the grid team leader and team members consolidate all the logs and sketches and add mental notes to the log. From this information, the team leader updates his grid overlay. He may add such features as new pieces of ordnance and their locations, ordnance classification type by function, and actual locations of reported ordnance. New ordnance should be photographed for the recon report to the RCP. Before returning to the RCP, the grid team leader should ensure that he and his team have made the picture of their grid as detailed as possible. This sketch and the other grid sketches are key to planning the last phase of the operation.

RSP and Disposal Phase

The ultimate goal of multiple-UXO incidents is to complete the RSP/disposal phase. This phase includes three steps: assembling all information from the HRIAP, planning, and implementing.

Gathering information. Once all the grid team leaders have returned (from the HRIAP) to the RCP, the RCP supervisor and grid team leaders will need to plot all gathered and researched information to map the entire affected area.

The RCP plots the location of all ordnance found on the overlay and devises a system to identify the ordnance and fuze by type and by function. This may be as simple as numbering the ordnance on the overlay and making a log using those numbers to identify the ordnance. During this period, the team members research UXO to positively identify as much of the ordnance as possible. Photographs of the ordnance found will help speed this process.

As planning progresses, team members from the various grids should be reporting the positive identification of as many pieces of ordnance as possible. Some pieces of ordnance may not be positively identified. If not, a second recon is needed to positively identify the UXO. The other team members must also know the exact situation of the UXO in order to fully advise and assist the team leader. This follows the old adage "Two heads are better than one." Team leaders may still accept a single recon in extremely hazardous situations.

When a more detailed recon is needed because of the priority of the area where the ordnance is or when vital facilities are nearby, the RCP leader dispatches a team to the ordnance to get a positive identification. This may be done while planning for the RSP/disposal continues or during its implementation, depending on the situation. Before a team actually departs to conduct a more detailed recon, the RCP leader should ensure that the team member who did the hasty recon has actually seen positively identified ordnance. It is very possible that while one team member cannot identify a certain piece of ordnance, another may be able to. This is especially true in multiple-UXO incidents.

The grid team leaders should tell the RCP of any new information they have that could affect the planning of the RSP/disposal phase. This information would include any unit movements that may have occurred within the grids, locations of vital facilities not previously identified, or anything else that helps provide an accurate picture of the situation.

Planning. Planning the RSP/disposal phase again requires the RCP leader and grid team leaders to work together. Planning should include prioritization, resources needed, additional detailed recon needed, simultaneous operations projected, and any outside support necessary. This planning should take less time than planning for the HRIAP because such things as communication, grids, and other considerations have already been set up.

Should the size and terrain of the affected area make simultaneous operations possible, the RCP supervisor briefs the team leaders who will be peforming those operations. This briefing includes the specific details of how the operation will be carried out. The topics of team location, the type of ordnance and fuzing involved, the type of RSP/disposal to be performed, safety factors. and the location of facilities around the operations area must be included. The RCP supervisor should make it clear that he is the central point of control and that all teams should coordinate their actions through the RCP. If the plan of attack is to set up two or three RSPs simultaneously and perform them separately but in a sequence, team leaders need to understand exactly what the sequence is and how they are to be prompted to proceed. The RCP should also coordinate between the affected area commanders and the teams.

Prioritizing. At this point, the RCP supervisor must set priorities. These priorities are based on any additional guidance received from the division or area support group, the information received from the HRIAP, area priorities assigned by the division or area support group, and the hazards of the ordnance found. The guidance received from the division or area support group and their areas of priority will be straightforward and easy to use. It is the ordnance-related information that requires some thought as to what to attack first. The RCP supervisor needs to identify ordnance item by item in the sequence of the plan of attack. Doing this, he needs to consider which items of ordnance are the most hazardous and which pose little or no real hazard to the area.

Distances between the various pieces of ordnance must be considered. For example: There is an item in an area that the division or area support group has identified as the number one priority. But another item has been found in an area identified as the group's priority number two. The second item has a fragmentation radius covering item one and contains a more hazardous fuzing, such as clockwork or delay. In this case, the RCP supervisor would attack the priority two item first. Any such EOD decision that seems to contradict the group's priority needs to be explained to the group.

Based on the size of the affected area, the RCP supervisor may decide to attack more than one piece of ordnance at a time. The teams can perform simultaneous operations provided they are outside each other's areas of responsibility and there is adequate cover between them. These simultaneous operations may be in the same or in different areas of priority. The RCP supervisor also decides how many teams are necessary for the mission. In most situations, the RCP supervisor can release some teams back to the division or area support group, but he should not do so until the RSP/disposal phase teams have departed. This is done so that all necessary information is passed on to those remaining and the RSP/disposal phase teams have all the equipment they need. It is ill-advised to have only one team complete the entire RSP/disposal phase of the operation unless only a few UXO require RSP or disposal. If multiple teams are to perform procedures simultaneously, they may have to swap various EOD tools between them.

Determining additional support. The RCP supervisor needs the grid team leaders to determine

required support. This should include the additional EOD and non-EOD support they will need to deal with each piece of ordnance they will encounter.

The RCP supervisor also needs to determine what specific types of external support are needed for the RSP/disposal phase. Additional non-EOD support should be requested from the area commander. Careful analysis of the total operation is needed to ensure that valuable support assets are released back to the area commander as safely and quickly as possible.

The RCP supervisor must plan how and when to use the support he has requested. Most likely, engineer support will be needed for the construction of protective works. To be effective, the support plan has to go hand in hand with the prioritization and simultaneous operations plans.

The RCP supervisor must determine the most effective use of the limited external support personnel and equipment. The first thing to be considered is keeping exposure of support personnel to the bare minimum. Using external support is complicated when two or more external support units in different areas are used at the same time. To simplify the situation, team leaders can coordinate these elements' actions to coincide with the plan for simultaneous operations.

Some support needs more time and manpower than others. The RCP supervisor, team leaders, and support element leaders must coordinate to estimate support completion time. This factor must be included in the overall plan to have an effective operation.

The RCP supervisor ensures that each support element is aware of any special hazards and protective equipment required.

Implementing. Once the RCP supervisor finishes the plan, he should begin to implement it. During implementation, there are two areas of emphasis--command and control and team operations.

The RCP must exercise **command and control** of the deployed teams. To do this, the RCP must become a proactive element. If teams remain out of contact for long periods of time without explanation, the RCP makes contact with them to verify their status. This is extremely important when implementing simultaneous operations. Team leaders often become so engrossed in their operations that they forget communications with the RCP. However, team members should operate the radios and update the RCP as necessary. The RCP updates the affected area commanders on progress and keeps acting as a buffer for the team leaders. Also, the RCP provides the division or area support group with regular updates.

Unlike in the HRIAP, the implementation of the RSP/disposal phase must use the normal team operation concept. Team members not working must stay in the safe area outside the fragmentation radius with adequate frontal and overhead cover. Once the RSP/disposal has been attempted. the team leader must check the results. One team member should perform as the RTO to keep the RCP leader up-to-date. The only variation from normal team operations is the requirement to stay in communication with the RCP. All other aspects of this phase are done as with conventional incidents.

Completing. After the teams have completed the RSP/disposal of the required ordnance, they should again rally at the RCP. The RCP supervisor should then conduct an outbriefing to be sure his after-action report accurately describes the incident's results.

The RCP supervisor should then inform the affected area commanders that EOD operations in their areas are finished. He should also identify the exact locations and precautions for any ordnance left in the area. The RCP should ensure that any ordnance not disposed of is clearly marked. If all pieces of ordnance reported and found were taken care of, the RCP should advise the affected local area commanders accordingly with the warning that other ordnance may still be in the area.

The RCP supervisor should then update the area commander and establish a plan of disposition for any remaining ordnance. This could include ordnance that was RSP'd but not taken to a safe holding or disposal area. The RCP supervisor must readjust the category of any remaining ordnance that has been RSP'd and left in place or any other hazardous residue left in place. The RCP must then determine the new priority of these items IAW procedures in Chapter 1. If they remain at a higher priority than other incidents that have been reported to the CP, the RCP supervisor and his teams continue to reduce the hazards of the ordnance.

Table 5-1. Multiple-UXO procedural checklist

SUGGESTED MULTIPLE-UXO PROCEDURAL CHECKLIST

INITIAL PHASE

___ Incident received.

___ Critical information gathered on areas affected and on ordnance.

___ Command and control established.

___ Necessary EOD and external assets identified.

___ Assets tasked.

___ Area priorities identified by division or area support group or higher command.

___ Remote command post established.

___ Map grid overlay made.

___ Grid team leaders identified.

___ Team members assigned.

HASTY RECON/IMMEDIATE ACTION PHASE

___ HRIAP planned.

___ Equipment cross-leveled.

___ Communication system established and checked.

___ External support coordinated.

___ HRIAP briefed to teams.

___ Division or area support group, corps, TAACOM, and EOD battalion updated.

___ Local area commanders updated.

___ Grid rally points identified.

___ Teams dispatched.

___ HRIAP action conducted.

___ Teams meet at rally points.

___ Information from grid HRIAP actions compiled at rally point.

Table 5-1. Multiple-UXO procedural checklist (continued)

___ Teams return to rear command post.

___ RCP compiles information and updates grid overlay.

___ Division or area support group, corps, TAACOM, and EOD battalion updated.

___ Local area commanders updated.

RSP/DISPOSAL PHASE

___ RCP and team leaders plan RSP/disposal phase.

___ Ordnance identified.

___ Priorities reevaluated based on area and ordnance hazards.

___ Necessary assets reevaluated.

___ Assets released or tasked.

___ Detailed recon conducted as necessary.

___ Simultaneous operations planned.

___ Use of support planned.

___ RSP/disposal plan briefed to teams.

___ Division or area support group, corps, TAACOM, and EOD battalion updated.

___ Local area commanders updated.

___ Teams respond and execute plan.

___ Teams return to RCP.

___ Disposition decision made on any remaining ordnance.

___ Division or area support group, corps, TAACOM, and EOD battalion updated.

___ Local area commanders briefed on any hazards remaining, locations, and how they are marked.

___ Incident completed.

CHAPTER 6

AREA CLEARANCE AND ROBOTICS

Section I

Area Clearance

DEFINITION

Area clearance deals with transportation accidents, ammo plant accidents, and accidents at a storage facility. These accidents can happen during war or OOTW. When area clearance is required, EOD maybe tasked to return the accident site to a safe condition. These accidents may require the team leader to work and coordinate with local authorities, civilian transportation authorities. the EPA, and other federa1 agencies.

PLANNING CONSIDERATIONS

Upon receiving an area-clearing tasking, EOD personnel need to take a number of factors into consideration. Regardless of the type of incident/accident they are responding to, EOD personnel need to consider the following:

• Number of Teams. Will a single EOD team be enough or will a forward CP and WPs be needed? Follow-on EOD response may be need for additional support.

• Transportation. Select the best mode of transportation. An MOU between the military post and the EOD unit for air supprt, if needed, should expedite arrival at the incident/accident site.

• Publications. Determine which publications will be needed. Make sure they will be available.

• Equipment. Does everyone have the personal equipment and response kits needed for the initial response? Follow-on response can transport more equipment. Done this way, the initial response team is in transit more rapidly.

• Explosives. How much will be necessary? The amount taken will depend upon the incident.

• Public Affairs. Is the press likely to be at the site? If so, contact the PAO. He or she may want to send a representative.

• Communications. Are concerned parties communicating with each other? The initial response team, and subsequent EOD teams on-site, need to communicate with higher headquarters reguarly.

Once the initial response team arrives at the accident/incident site, it needs to coordinate with the area commander or civilian authorities on the following:

• Priorities. What needs to be done and in what order? For example, remove the wounded and fatalities, act to prevent loss of life and property damage, and remove hazardous munitions or explosives.

• Area Security. What needs to be done to prevent further loss of life or injury? To secure publications, explosives, and procedures?

• Medical Support. What is needed?

• Fire Fighting Support. Will fire fighting support be needed?

• Other. What else is needed? Is there a need for heavy equipment, access equipment protective works, or communications?

Transportation accidents/incidents may present additional hazards normally not associated with an EOD incident. Fuels, battery acids, and electrical components are all hazards that should be factored into the plan of attack.

Ammo plant and storage facilities may present additional factors or hazards that need to be considered. Explosive dusts, high voltages, high-pressure bottles, gases, chemicals, hydraulic lines, and security and fire systems are some of the hazards or factors that may need to be considered in the plan of attack.

RESPONSE PROCEDURES

When involved in an area-clearing operation, EOD teams should first perform a hasty recon. Guidance from the area commander and the situation itself will dictate how immediate hazards are to be minimized and how any wounded or fatalities are handled. A good overall view of the down-range situation is needed for further planning.

Accident investigators may want the incident site left basically "as is." If so, EOD may be asked to guide the investigators downrange. Make sure hazards have been minimized to a point that investigators can safely go downrange. EOD helps the investigators and supplies them with information.

After the hasty recon is finished, the RCP supervisor formulates the overall plan of attack. The senior EOD representative briefs the area commander on the situation downrange, types and numbers of munitions, and how best to conduct the clearance. The area commander (with input from EOD, police, investigators, and other sources) decides the priorities. The plan of attack should include a systematic way of prioritizing the munitions and how they are to be dealt with. Other factors that may need to be included are:

- Adjustment and readjustment of exclusion area as necessary.
- Safe holding area site.
- Safe disposal site.
- Transportation of munitions to holding or disposal sites.
- Transportation of personnel.
- Sleeping and messing arrangements for personnel.
- Custodian of accident site and munitions.
- Security of tools and equipment restricted publications, and explosives.

Once the RCP supervisor determines that there is no longer a hazard on site, the senior EOD representative notifies the area commander, military representative, higher headquarters, and the on-site civilian authorities.

Section II

ROBOTICS

REMOTE ATTACK PHILOSOPHY

Life is irreplaceable. When planning an attack upon an IED or UXO, there is one overriding consideration. Simply stated: **Except when faced with a Category A incident, the safety of the EOD soldier is the first consideration. In all categories of incidents, the first aim will be remote neutralization.**

Robotic systems minimize the exposure of the EOD soldier to IEDs and UXO. Use them as much as possible when performing remote recon and render safe fictions. A well-trained operator and good questioning techniques are the keys to the succesful employment of EOD robotic systems. Use robotics as the tool of first choice.

EOD robotic systems have explosively actuated tools (semiautomatic disrupter; .50 caliber dearmer) and the ability to place explosive charges. Attach a clearly visible red streamer to an antenna or other fixture when the EOD robotic system is configured with explosively actuated tools.

When use of robotic systems is not possible, EOD soldiers use body armor to the maximum extent. The team leader may determine, under extreme circumstances, that the level of body armor be downgraded. Extreme circumstances include: handicaps that make continued wear inherently dangerous (fogging face shield, for example) or an IED that is inaccessible while wearing the body armor. Regardless of the incident or the size of the ordnance, EOD teams must wear, as a minimum flack vest helmets, and eye protection until all dangers are neutralized or eliminated.

ASSESSMENT TECHNIQUES

EOD response team success in dealing with an IED or UXO will depend on an accurate and logical

assessment of the situation. This requires the EOD team leader to do the following:

• Extract all information from all sources at the scene. Good questioning techniques will be useful here.

• Make a realistic assessment of the result if the IED or UXO was to function.

• Ask valid questions that will help him decide if the NP can be remotely accomplished and that will serve to reduce personnel risk to the absolute minimum.

QUESTIONING TECHNIQUES

Interview witnesses individually because people tend to conform to the group. Above all, be firm and friendly and show no hostility. Do not ask questions until the witness finishes his story. Fully exploit each answer. Ask direct questions, but do not ask questions that may make the witness withhold information.

Answers and statements do not always provide all the information EOD needs. The EOD team leader must determine what other information is required. He must then ask the appropriate questions to get that information.

The team leader will probably need to ask many questions to get all relevant information. Thus, it is always in the EOD soldier's interest to develop a good questioning technique. As a minimum, ask the following questions:

• Where is the item?

• What is it?

• When was it placed thrown. dropped, launched, or projected?

• Why was it placed, throw dropped, launched or projected?

• Was anything seen or heard?

Each of these lines of questioning is more fully developed below.

Where is the item? It is not unusual for deployed security forces to be too close to the device. For this reason, "Where is it?" is the first question asked. This will allow the security cordon to be moved back if necessary. The general location may already be firmly established before EOD arrives at the scene. However, in certain circumstances the precise location of the device may be required so that the EOD soldier can determine if robotics can be used (are doorways wide enough, are there any steps to negotiate?). The precise location is required in a manual approach, too, so that the least time is spent searching. A useful way to pinpoint the precise location is to have a diagram drawn and have it confirmed in detail during independent questioning of witnesses.

A subsequent, related question should be: "Has anyone been up to and returned from the device?" If so, they have inadvertently established cleared paths for EOD to use. If the answer is yes, did they notice anything unusual on the path taken (wires, boxes, disturbed ground, bomb fins, baseball-sized objects, or dead animals)? It may also be necessary to find out the position of the device. Is it near any material that is toxic, flammable, or of a chemical nature (petroleum oil, lubricants, fertilizers. or hazardous waste)? If it is, this material may add to the effect of the device should it function.

What is it? Specific evacuation action often depends on the device's size and the amount of explosives present. Witnesses may be able to tell what the device is constructed of. This may also help you select the EOD tools to use.

When was it placed, thrown, dropped, launched, or projected? The EOD team leader may wish to base the waiting time on this information. If he cannot accurately establish the true time of the IED placement or the impact of the UXO, the EOD team leader must begin the waiting period from when the security forces got on site and can guarantee that no one since has tampered with the device. If security forces have no input. use the time the EOD team was notified or arrived at the incident site.

Why was it placed, thrown, dropped, launched, or projected? The answer to this question may indicate the source of the device. If it is an IED, it may indicate the method of operation and degree of sophistication used in the construction of the device. If the item is a UXO, the answer may indicate the country of origin, the method of delivery, or if the UXO is a practice device or explosively filled and fuzed. The reason for targeting (why) may indicate the IED's likely method of operation. Remember though, the IED may be a trap

with the real target being the EOD response team. Inspect the safe area for the possibility of a secondary device.

Was anything seen or heard? Witnesses to IED placement or UXO impact may be able to give an account of what was seen and heard. Remember, however, eyewitness accounts are not always reliable.

Witness accounts can often aid the EOD team leader in deducing what type of fuzng is in the IED. For example, an account that a terrorist left the room and was away for a few minutes could indicate that the terrorist placed another device somewhere in the building in addition to the device placed where the witnesses stated. Often in this situation the terrorist gives only a warning without specfics. In this case, the security forces would enter the building after the first device functions to investigate. They are at risk because there may be a second, unreported device.

Witness accounts of military aircraft crashes and surface transportation accidents (including overturned trucks and derailed trains) can help the EOD team leader reduce or eliminate the hazards.

LIMITATIONS

Robotic systems of EOD application promise capabilities never before imagined. Systems designed specifically for the EOD mission have proliferated in the marketplace. Unfortunately, most have limited capabilities that restrict them to peacetime scenarios. No currently available commercial robotic system is battlefield-capable. The first EOD robotic systems that can operate under battlefield conditions are still under development.

Robotics have great potential for the EOD community, but there are limitations. It is envisioned that robots will assist in solving some of the critical and dangerous tasks facing EOD. The key word is “assist”; robotics is a force multiplier and not a force replacement.

CHAPTER 7

NBC OPERATIONS

Section I

Nuclear Incidents

OVERALL RESPONSIBILITIES

The **headquarters** having administrative control of the EOD company provides the location of the incident, identification of the explosive ordnance items, radiological survey and contamination information, and the name and location of the individual authorized to grant access to the incident site. It must also identify security and evacuation measures being enforced and provide positive identification of the person authorized to receive the explosive ordnance items.

When the **EOD company** is assigned a nuclear accident/incident, it prepares to go to the scene by the fastest means. The team notifies the EOD battalion and coordinates with the NAIRA officer. If the EOD team leader is the first military representative on-site, he will assume control. The EOD commander (or senior EOD person present) is responsible for the safety of EOD personnel when they enter the hazard area.

Either the **on-site commander** or the **NAIRA officer** is responsible for the management of nuclear incident operations. In hostilities, the on-site commander may assume all responsibilities of a NAIRA officer (IAW AR 50-5). Resources available to the NAIRA officer for supporting operations include at least the following:

- Communications equipment (civilian and military).
- NBC teams (survey and decontamination).
- Transportation (including air).
- Medical teams and facilities.
- Engineer personnel and equipment.
- EOD personnel.
- Security forces (military and civilian).
- Military police.

EOD OFFICER RESPONSIBILITIES

How the **EOD officer** handles the incident depends on resources available. It also depends on the current tactical situation, directives from the headquarters having operational control of the detachment, and quantity and type of weapons involved. Specific responsibilities of the EOD officer include:

- Locating a potential CP site. If the area is known to be free of contamination, it may be approached from any direction. There is no need to monitor the route or CP area. Suspect areas must be approached from upwind. If contamination is suspected, the area must be checked with an alpha survey meter and a low-range gamma survey meter. The alpha survey meter may be used for spot checks, but the gamma survey meter must be used continuously. Surveys should begin at least 1 mile from the proposed CP site.
- Designating the CP supervisor.
- Designating a recorder.
- Assigning an equipment specialist.
- Assigning available personnel to work for the CP supervisor.
- Designating the IEP members (at least two EOD personnel trained in NWs).
- Designating the work party members. The WP must consist of at least an NW-trained EOD officer and another NW-trained soldier (officer or enlisted). The most common WP includes an NW-trained

officer as team leader, two NW-trained enlisted personnel as workers, and one NW-trained person responsible for tools and communications.

• Assigning an ECCS supervisor.

• Selecting the communications system to be used.

• Determining respiratory protection required.

• Preparing the IEP/WP to enter the incident site.

• Determining and implementing EMR precautions as necessary. The NAIRA officer or on-scene commander must be notified of any EMR. This officer, in turn, notifies the support elements.

COMMAND POST SETUP AND RESPONSIBILITIES

The EOD response team goes to the site as fast as possible. Once at the site, they must set up a CP. The EOD officer must consider several factors when setting up the CP:

• The area must be free of contamination and, if possible, have advantageous terrain features IAW FMs 3-21 and 20-3.

• The mode of transportation to be used to go to the incident site must be considered.

• If the item is unknown. an initial HE exclusion area with at least a 610-meter fragmentation radius plus a 50-meter ECCS distance must be established.

The CP site must be upwind of the incident site or suspected contaminated area. It must also be close to, but separate from, support element operations. No other element should be established closer to the incident site than the EOD CP.

CP Supervisor

The CP supervisor organizes the CP for on-site operations and maintains contact with the headquarters having operational control of the EOD company. The CP supervisor is responsible for the following:

• Keeping the NAIRA officer informed of the incident progress.

• Inspecting the WP to ensure proper dress out and equipment setup.

• Ensuring dosimeters and film badges are worn properly. Dosimeters must be in the breast pocket of garments with pockets or on the upper arm of those without pockets. Film badges must be worn on the upper chest with the beta window uncovered and facing out.

• Adjusting the exclusion area as new information is received and making recommendations to the NAIRA officer or on-scene commander.

• Requesting disposition instructions for the contaminated waste. classified components, and other contaminated items.

• Notifying the survey team or decontamination team, or both, of the type and amount of radiological contamination.

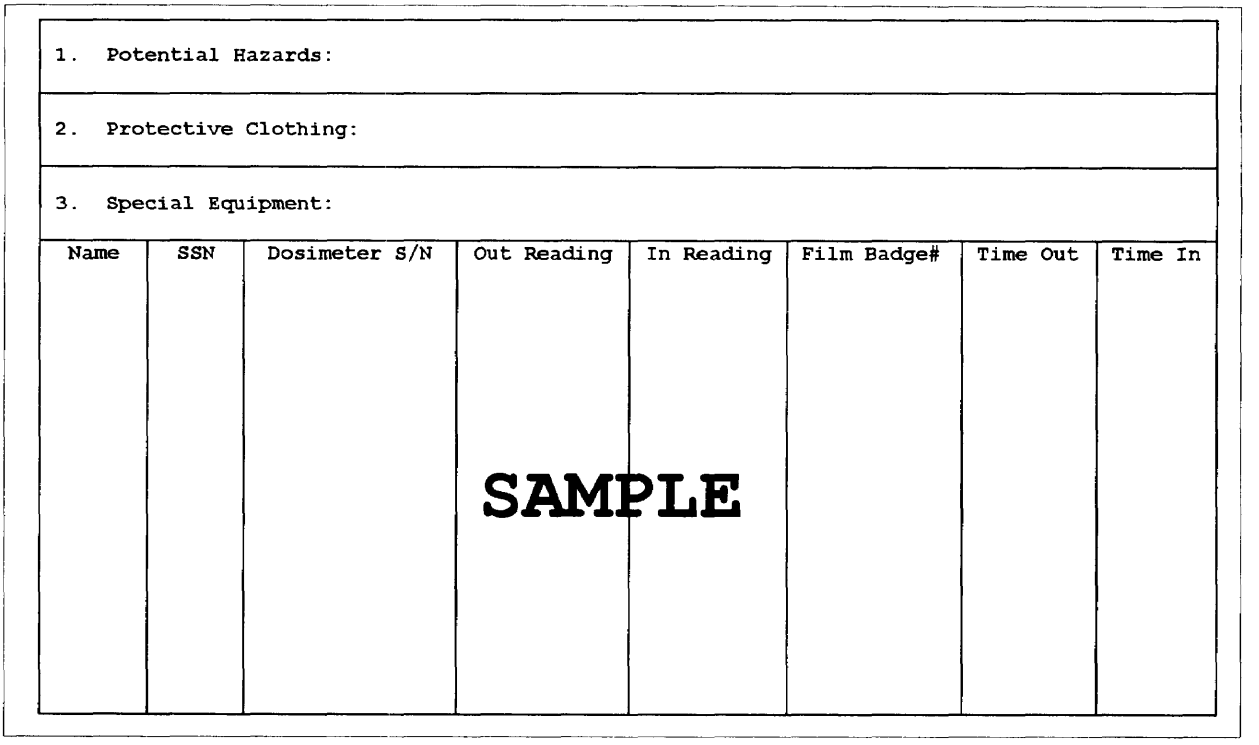
• Protecting classified information in the CP and making sure all classified materials are accounted for after the incident is completed.

• Preparing required reports and closing out the CP as required.

• Supervising the recorder, equipment specialist, and ECCS supervisor.

• Documenting radiation exposure using a radiation work permit IAW AR 40-14. Information from the RWP must be entered on the individual's DD Form 1141 or automated dosimetry record. The RWP should fit the needs of the situation and be produced locally. Figure 7-1 is an example. The RWP must include the following:

- Potential hazards.
- Protective clothing to be used.
- Special equipment requirements.
- Names and SSNs of individuals working at the site.
- Serial numbers of personnel dosimeters.
- Film badge numbers.
- Time entering the site.
- Time departing the site.
- Initial dosimeter readings.
- Final dosimeter readings.



1. Potential Hazards:

2. Protective Clothing:

3. Special Equipment:

Name	SSN	Dosimeter S/N	Out Reading	In Reading	Film Badge#	Time Out	Time In

SAMPLE

Figure 7-1. A sample radiation work permit

• Requesting and coordinating support needed for such things as protective measures, evacuation, medical, decontamination, and tactical security.

• Ensuring the RSP is completed.

Recorder

The recorder keeps a complete and accurate record of all actions and maintains communication with the WP. He also relays information received to the CP supervisor and ensures that classified paperwork generated in the CP is properly marked and safeguarded.

Equipment Specialist

The equipment specialist is in charge of tool assembly, equipment checkout, respiratory apparatus setup, preoperational and operational checks of equipment, and charging pocket dosimeters. He also assists the WP in putting on protective clothing and starting equipment. He also keeps a log of all equipment that is missing, broken, used up, or destroyed. Finally, he loads the tools and equipment for return to the unit.

EOD Officer

When the team is ready to leave the CP, the EOD officer briefs all personnel on the following:

• Identification and number of weapons involved, publication requirements, and location of the incident. He also briefs on the mode of travel, route of march, and assessment of the threat to the local area.

• Tool and equipment requirements.

• Any special instructions from the EOD battalion on-scene commander or the NAIRA officer. These may include additional instructions, issue of strip maps or overlays (if appropriate), review of publications about the weapons, and requests for military or civilian police escort (if required).

IEP/WP FUNCTIONS AND RESPONSIBILITIES

Since nuclear weapons can cause mass destruction, EOD personnel must consider **safety first.** Safety considerations include the two-person concept and contamination control. The following

extract from AR 50-5 summarizes the two-person concept:

"At least two authorized persons, each capable of detecting incorrect or unauthorized procedures with respect to the task being performed and who are familiar with applicable safety and security requirements. Both persons will be present during any operation that affords access to a nuclear weapon. The concept prohibits access to a nuclear weapon by a lone individual. Two authorized persons will be considered to be present when they are in a physical position from which they can positively detect incorrect or unauthorized procedures with respect to the task or the operation being performed. When the two-person concept must be applied, it will be enforced constantly by the persons who are the team while that team is accomplishing the task or operation assigned."

The **IEP** acts to contain and control the nuclear incident safely while conducting its IEP tasks. Some circumstances require the IEP to assume the functions of the WP. For this reason, when the WP is mentioned in this chapter, it includes the IEP as well.

The **WP** prevents nuclear detonation and prevents nuclear contribution to a high-explosive detonation. The response team must also identify, detect, and contain or eliminate explosive, radiological, and toxic hazards associated with nuclear weapons.

Before Response

Response to the incident involves several planning operations. These include gathering information, planning the route, and selecting the personnel, equipment, and procedures for the operation.

The EOD team should carry, as a minimum, detection equipment, first aid materials, a means of communication, and EOD tools and equipment.

Protective clothing and equipment requirements must be planned before the team arrives at the site. Information available about the situation helps the EOD team leader plan. If the extent of contamination is unknown, the EOD team leader must take the maximum protection possible without unnecessarily restricting operating efficiency. Nearly all situations require respiratory protection. The EOD team leader must use this information and carefully monitor personnel to prevent casualties.

During Response

The WP monitors for alpha, beta, and gamma radiation on the way to the incident site as well as on the item and in its immediate vicinity. The WP may use drop cloths to prevent the spread of contamination.

The WP sets up and maintains constant communication with the CP. They report to the CP the monitor instrument readings. The WP also observes fuze precautions for the munitions involved. The WP must report all activities to the CP as they occur. This includes RSP steps and any deviations. They make sure that classified information is passed on by secure means.

Some circumstances may require the WP to deal with criticality, fire, or other life-threatening problems prior to the RSP.

The WP identifies, or confirms the identity of, the weapons, components, or both, and tries to verify the serial numbers. The EOD officer designated to respond to the nuclear incident determines the EOD render safe procedure to use and supervises its conduct to conclusion. EOD render safe procedures may be started only in the presence of an NW-trained EOD officer. The WP then reports the physical appearance of the weapon to the CP and performs the RSP prescribed in the applicable nuclear EOD publication. The WP will not deviate from the published RSP without NAIRA officer agreement, except in case of emergency.

Then they systematically search the area to recover, identify, and segregate components of weapons. They separate recovered components into these categories: nuclear, nonnuclear, hazardous, classified, and explosive. This is done IAW TM 9-1185-240 and other TMs.

EOD may perform preliminary packaging if the weapon is contaminated or damaged. More extensive packaging for off-site shipment requires additional support from the NAIRA team. It is important that security measures IAW AR 50-5 be enforced when weapons and components are processed through the contamination control station.

Upon Closeout

To close out operations, the WP moves the weapons, tools, equipment, publications. and personnel to an area with the lowest radiation possible. Before departing. it places hazard markers IAW STANAG 2002. The WP must maintain security of the weapons and components until properly relieved by NAIRA-sponsored agents. The WP then returns to the CP after being processed through the contamination control station (if required).

Performing the EOD procedures on a weapon involved in an accident/incident does not constitute or imply change of custody of the weapon. After emergency procedures have been completed, custody of the weapon remains with the courier or custodian. Custody may be transferred, as directed by the on-scene commander, from the courier or custodian in order to make further transport easier. If custody is transferred, EOD personnel must give technical advice on weapon condition and the presence or absence of components.

ECCS SETUP AND OPERATIONS

Personnel and equipment entering and exiting the incident site must take the route least likely to cause exposure to or spread contamination. Therefore, all personnel and equipment returning from a contaminated area must proceed through a contamination control station. When there is no decontamination support, this is usually an ECCS set up and run by the EOD team. The EOD unit commander may establish an ECCS for limited contamination control and limited decontamination. When the nuclear emergency team arrives, it sets up a contamination control station and relieves EOD of this requirement.

The ECCS must be between the CP and the incident site and outside the fragmentation range of the munition. It must be set up in an area free of contamination, upwind of the incident, and at least 50 meters downwind from the CP.

A critical feature of the ECCS is the **hot line.** It is an imaginary line separating the contaminated area from the contamination reduction area. The hot line should be as close to the item as possible but outside its fragmentation radius (610 meters for unknown nuclear weapons). All personnel and equipment entering and leaving the incident area must process through the control point on the hot line.

The CCL separates the contamination reduction area from the redress area. Personnel do not cross into the redress area until they are free of contamination or have acceptable levels of contamination. The CCL also prevents personnel from entering the contamination reduction area without wearing proper protective clothing.

The ECCS should be protected from the weather, if possible. It must be run by at least one EOD soldier dressed in the proper protective clothing from the time personnel depart for the incident site until all personnel have been processed out. See Figure 7-2 (page 7-6).

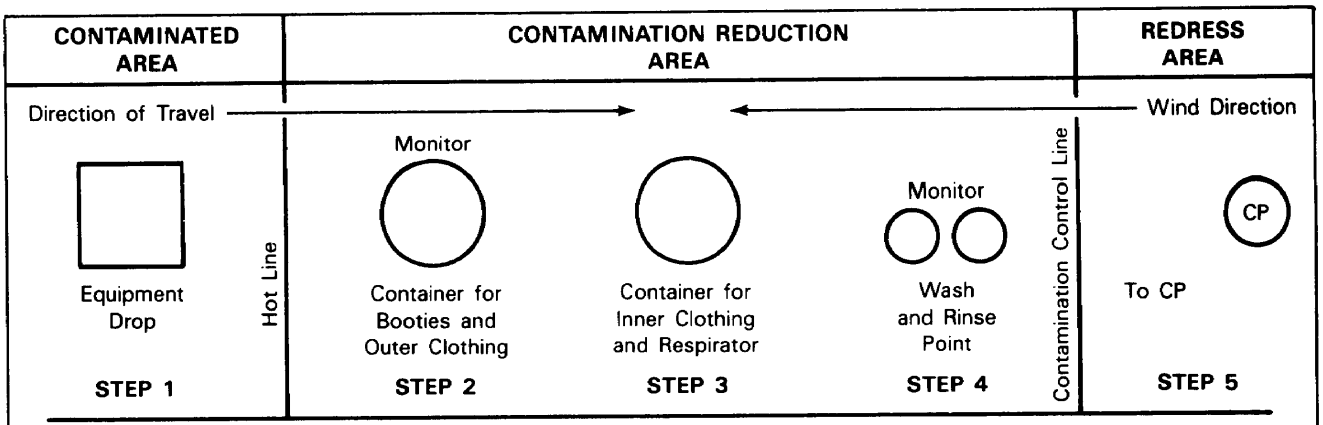
The contamination reduction area may be contaminated by personnel returning from the incident area. Therefore, once decontamination operations begin, the contamination reduction area is considered contaminated.

The operation of the ECCS should be turned over to an NBC team (the nuclear emergency team) on its arrival. If EOD operations are completed before the NBC team arrives. team members and other personnel should go through the ECCS. The ECCS team must be prepared to turn over the operation to the incoming decontamination team (part of the NBC team). The contamination reduction area must be marked with contamination markers until the area is decontaminated (see Appendix B).

There is no need to process through an ECCS if no contamination was encountered. There is one exception: personnel who handle or come in contact with nuclear components must wash their hands and face using hot soapy water and rinse them with clear water.

DEPLETED URANIUM INCIDENTS

Accidents/incidents involving ammunition or armor containing DU components pose special problems. Guidance for all personnel in dealing with DU is found in Chapter 6 of TB 9-1300-278. The chapter addresses EOD personnel protection and procedures. EOD soldiers should be familiar with its contents before responding to any incident that may involve depleted uranium.



STEP 1
Equipment Drop and Bootie Removal

Equipment

Any material, such as plastic bags or oilcloth, that prevents the contaminated equipment from contacting the ground.

Action

Place equipment on material provided. Remove film badge and dosimeters. Read dosimeters. Remove booties and step over the hot line; place booties in container.

STEP 2
Outer Clothing Removal and Monitoring

Equipment

Containers, such as plastic bags, for booties and outer clothing. Radiacmeters for contamination encountered. Dosimeter register.

Action

Remove outer clothing and gloves, taking care not to touch outer clothing. Step forward.

ECCS personnel monitor for contamination. If no contamination is detected or contamination has been determined to be acceptable IAW Table 3-1, the person removes respirator, washes, and moves to redress area. If any contamination above permissible levels is detected, the person immediately goes to Step 3.

STEP 3
Inner Clothing and Respirator Removal

Equipment

Container, such as plastic bags, for inner clothing and respirator.

Action

Remove inner clothing, including inner gloves and respirator, and place in container.

STEP 4
Wash and Rinse Point

Equipment

Container, such as plastic tubs, for soapy water and rinse water. Towels, radiacmeters, cornmeal, and powdered soap.

Action

Wash body with soapy water, paying particular attention to the fingernails and hairy portions of the body. Then rinse the body with clean water, dry, and monitor body for contamination. If contamination above permissible level is detected (Table 3-1), repeat washing, rinsing, and drying process, then remonitor. If the second washing and rinsing does not work, a paste mixture of 50 percent powdered soap and 50 percent cornmeal mixed with water is massaged onto the contaminated area for five minutes. The paste is rinsed from the body and the person is remonitored. If permissible level is still exceeded, medical assistance should be requested. If there is no contamination or contamination is below permissible level, the person crosses the contamination control line and redresses after washing face and hands.

STEP 5
Redress Area

Equipment

Personnel clothing. First-aid equipment. Self-sealing bags.

Action

Redress and receive first aid (if required).

Figure 7-2. Emergency contamination control station

Section II

Chemical And Biological Incidents

Because chemical agents are the most likely threat to be encountered, the word "chemical" is used in the following discussion. However, the possibility of biological agents being used must always be considered. All CB weapons have the same purpose--to spread contamination. Therefore, the EOD approach to deal with them is the same.

OVERALL RESPONSIBILITIES

The headquarters having administrative control of the EOD company provides the location of the incident, identification of the explosive ordnance items, survey and contamination information, and the name and location of the individual authorized to grant access to the incident site. It must also identify security and evacuation measures being enforced and provide positive identification of the person authorized to receive the explosive ordnance items.

When the **EOD company** is assigned a chemical accident/incident, it sends a response team to the scene by the fastest means. The team notifies the EOD battalion and coordinates with the CAIRA officer. In some cases, the EOD team leader may be the first military representative on-site and will assume control. The EOD team leader is responsible for the safety of EOD personnel when they enter the hazard area.

Either the **on-site commander** or the **CAIRA officer** is responsible for the management of chemical incident operations. In hostilities, the on-site commander may assume all responsibilities of a CAIRA officer (IAW AR 50-6 and DA Pamphlet 50-6). Resources available to the CAIRA officer for supporting operations include at least the following:

- Communications equipment (civilian and military).
- NBC teams (survey and decontamination).
- Transportation (including air).
- Medical teams and facilities.
- Engineer personnel and equipment.
- EOD personnel.
- Security forces (military and civilian).
- Military police.

The **light EOD response team** handles the incident based on the resources available, the current tactical situation, directives from the headquarters having operational control of the EOD company, quantity and type of weapons, and types of agents. The team may be able to complete the incident without additional support from the EOD company.

However, the situation may change and the light EOD response team leader may need to request assistance from the CP. The light EOD team leader must determine if his team can handle the incident by asking--

- How much contamination is present and how likely is gross contamination?

- How many ordnance items are involved and what are their fuze conditions?

- What procedures will be used on the ordnance (RSP or blow in place)?

- Can the unit being supported help the response team with additional personnel or equipment?

If additional support is requested, the **EOD officer** will first locate a potential fragmented CP site. If the area is known to be free of contamination, it may be approached from any direction. There is no need to monitor the route or CP area. Suspect areas must be approached from upwind, and team members must put on protective clothing in a clean area. If contamination is suspected, the area must be checked with detector paper/kits. Surveys should begin at least 1 mile from the proposed CP site. The team must take samples of suspect contamination during the approach to be sure the area upwind of the CP site is contamination free. If contamination is found at the proposed site, personnel must decontaminate themselves and select another site.

The EOD officer will also need to do the following:

- Designate the CP supervisor (usually the company NCOIC) and assign available personnel to work for him.

• Designate a recorder.

• Assign an equipment specialist.

• Designate the IEP members (at least two EOD personnel). These would include an SSG or above to be the IEP team leader, an EOD specialist to be the IEP assistant, and any available person trained to provide "buddy aid" for NBC casualties to be the safety observer.

• Designate the WP members. The same selection criteria are used as for the IEP.

• Assign an SSG or above to be the EPDS supervisor and two EOD specialists to be EPDS assistants.

• Select the communications system to be used.

• Determine protective clothing requirements.

• Prepare the IEP/WP to enter the incident site.

• Determine the need for and implement (if necessary) EMR precautions. The CAIRA officer or on-scene commander must be notified of any EMR. This officer, in turn, notifies the support elements.

COMMAND POST SETUP AND RESPONSIBILITIES

If necessary, the proposed site for the CP will be checked for possible contamination. There must be enough checks made to convince the EOD team leader that the entire CP area is free of contamination. If all tests are negative, he can use the unmasking procedures in FM 3-4. Since current field tests cannot detect biological agents, an area is not considered free of biological contamination unless intelligence information or physical evidence confirms it. If biological agent contamination is suspected, take samples and send them to a laboratory for identification.

When selecting a site for the CP, you must consider the mode of transportation to be used to get to the incident site. You will also have to establish an exclusion area as for conventional ordnance, with two exceptions. When there are no explosive components, you can reduce the exclusion area to a 50-meter radius. This is done with concurrence of the CAIRA officer or the on-scene commander. When the team has not yet determined what types or numbers of explosive components there are, the minimum exclusion area must have a 450-meter fragmentation radius plus a 50-meter EPDS distance.

A downwind hazard area must also be established. If the type of agent or its amount is unknown, the hazard area must extend 2,000 meters downwind from the incident site (Figure 7-3, page 7-9). TM 60A-1-1-11 gives detailed procedures for establishing the downwind hazard area. Evacuate all unprotected personnel from the hazard area or require them to wear chemical protective clothing. The on-scene commander should ensure the personnel conducting the evacuation also wear protective clothing.

The CP site must be upwind of the incident site or suspected contaminated area and be close to, but separate from, support element operations. No other element should be established closer to the incident site than the EOD CP.

CP Supervisor

The CP supervisor organizes the CP for on-site operations. He maintains contact with the headquarters having operational control of the EOD company as well as the company HQ or EOD battalion. In addition, the CP supervisor is responsible for the following:

• Keeping the CAIRA officer informed of the incident progress.

• Advising the commander on WP procedures and operations.

• Checking the WP methods and advising them on alternative courses of action.

• Directing research in support of the team.

• Monitoring log entries.

• Coordinating for external support.

• Inspecting the WP to ensure proper dress out and equipment setup.

• Adjusting the exclusion area and downwind hazard area as new information is received and making recommendations to the CAIRA officer or on-scene commander. He posts this information to the situation map.

• Requesting disposition instructions for the contaminated waste, classified components, and other contaminated items.

• Notifying the survey team and decontamination team of the type and amount of radiological contamination.

• Protecting classified information in the CP and making sure all classified materials are accounted for after the incident is completed.

• Preparing required reports and closing out the CP as required.

• Supervising the recorder, equipment specialist, and EPDS supervisor.

• Requesting and coordinating support needed for such things as protective measures, evacuation, medical, decontamination, and tactical security.

Recorder

The recorder keeps a complete, accurate record of all actions, maintains communication with the WP, relays information received to the CP supervisor, and ensures that classified paperwork generated in the CP is properly marked and safeguarded.

Equipment Specialist

The equipment specialist is in charge of tool assembly as well as the preoperational and operational checks of equipment. He also assists the WP in putting on protective clothing and starting equipment. He keeps a log of all equipment that is missing, broken, used up, or destroyed. Finally, he loads the tools and equipment for return to the unit.

Team Leader

When the team is ready to leave the CP, the EOD team leader briefs the team on the following:

• Identification and number of weapons involved, publication requirements, and location of the incident. He also briefs on the mode of travel, route of march, and assessment of the threat to the local area.

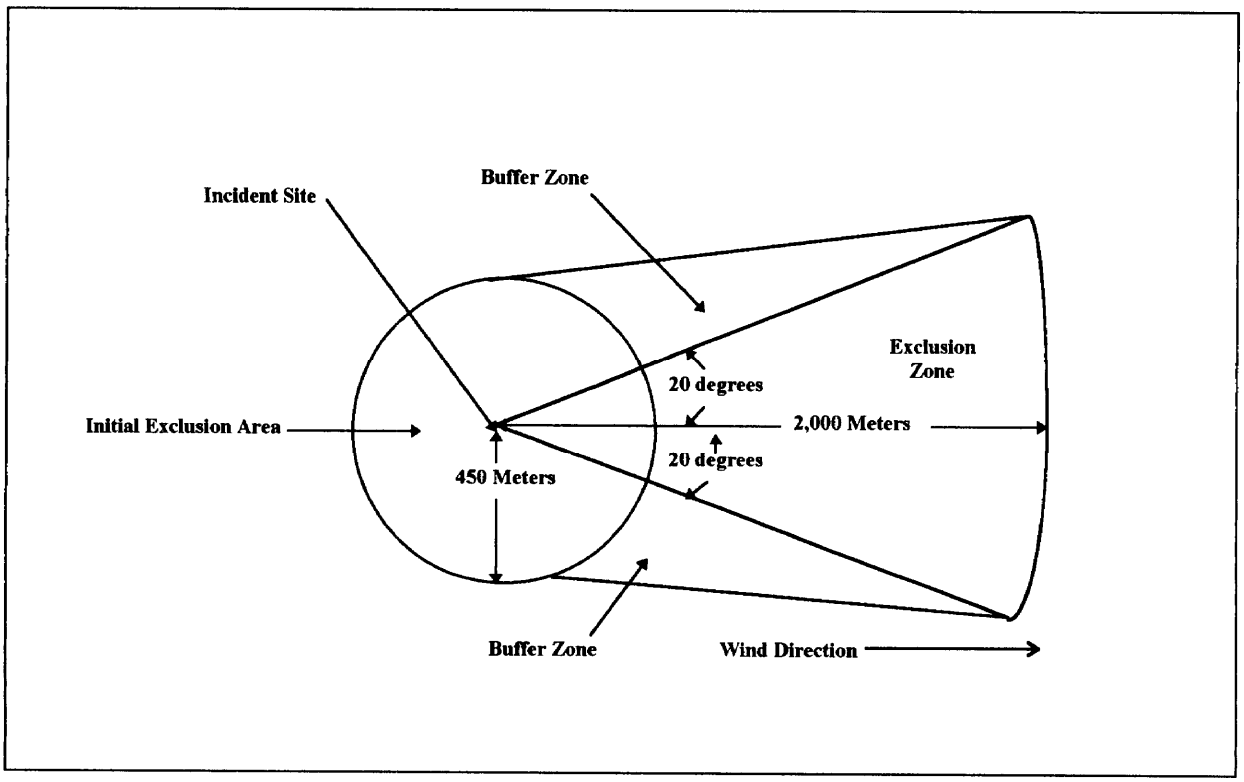


Figure 7-3. Initial downwind hazard area

• Tool and equipment requirements.

• Any special instructions from the EOD battalion, on-scene commander, or CAIRA officer. These may include additional instructions; issue of strip maps or overlays, if appropriate; review of publications about the weapons; and requests for military or civilian police escort, if required.

The EOD team leader must be prepared to take control of the situation on his arrival. There may be cofusion at the site as to what protective measures are required and who is responsible for the various jobs. The EOD team leader must direct protective measures, evacuation, and coordination for other support personnel.

IEP RESPONSIBILITIES

Safety measures are the foremost responsibility of EOD personnel because of the lethality of CB agents. Safety measures include the two-person concept, the exclusion area, the downwind hazard area, and contamination control. The two-person concept applies while any work is done on the ordnance. Chapter 3 of AR 50-6 provides details on this concept.

The IEP must determine the location, number, and condition of the munitions involved. They must also determine the fuzing and its condition, the presence or absence of agent leakage, and the weather conditions at the site. If rescue operations are required or there is a serious public health hazard, the IEP must quickly evaluate the situation and take emergency measures. This may mean the IEP will depart before the CP or EPDS is completely set up.

Performing the RSP and performing contamination control and decontamination are the two main functions of the WP. If the situation dictates, combine the EP and WP functions. This is only advisable when the exact situation is known.

Before Response

Response to the incident involves several planning operations. These include gathering information, planning the route, and selecting the personnel, equipment, and procedures for the operation.

The EOD team should carry, as a minimum, detection equipment, first aid materials, a means of communication, EOD tools and equipment, and limited amounts of decontaminants. Use TM 60A-1-1-11 to help select the appropriate decontaminants.

The size and number of the munitions involved will determine equipment requirements. If total agent disposal cannot be done on site, the items must be packaged suitably for transportation and subsequent storage and neutralization.

Protective clothing and equipment requirements must be planned before the team arrives at the site. Information available about the situation (type and amount of agent) will help the EOD team leader plan. If the type of agent and extent of contamination are unknown, the EOD team leader must take the maximum protection possible without unnecessarily restricting operating efficiency. See Table 7-1 (page 7-11) for recommended protective clothing.

Nearly all situations require respiratory protection. Refer to TM 60A-1-1-11 for the maximum wearing time of impermeable clothing. The EOD team leader must use this information and carefully monitor personnel to prevent casualties.

During Response

The IEP should approach by the most direct route, keeping upwind and avoiding heavy vegetation if possible. The team should look for obvious contamination, such as agent deposits (liquid or powder) in the area and people or animals showing symptoms of agent exposure. If suspect liquids are present, the team should check them with M8 or M9 paper. When the team is close to the incident site, the team leader should survey the area and situation and decide where best to place the safety observer. The safety observer must be able to watch the other team members and operate the communications equipment.

The IEP sets up and maintains constant communication with the CP. The IEP also observes fuze precautions for the munitions involved. The IEP must report all activities to the CP as they occur. They make sure that classified information is passed on by secure means.

Table 7-1. Recommended chemical protective clothing

CLOTHING	G-SERIES NERVE CHEMICALS	UNKNOWN FOREIGN, V-SERIES NERVE, BLISTER CHEMICALS, LIQUID BIO	DRY BIO, INCAPACITATING, RIOT, BLOOD, CHOKING AGENTS	FS OR HIGH CONCENTRATIONS OF SCREENING SMOKE	FUELS AND OXIDIZERS
Impregnated underwear, socks, and gloves	X	X			
Coveralls, TAP	X	X			
Coveralls, MFH[1]					X
Coveralls, explosive handler's or field clothing	X		X	X	X
Boots, TAP	X	X		X	X
Boot covers, TAP	X	X		X	X
Boots, combat			X		
Hood, TAP	X	X	X[2]		
Hood, M6A2			X[2]	X	
Hood, MFH[1]					X
Protective mask, M17-series			X[2]	X	
Protective mask, M9A1	X	X	X[2]		
Self-contained breathing apparatus[3]					X
Gloves, cotton			X		
Gloves, surgeon's	X				
Gloves, TAP	X	X	X	X	
Gloves, MFH[1]					X
Apron, TAP			X	X	
MOPP[4]	X	X	X	X	

1. Missile fuel handler's (MFH) gloves, hood, and coveralls must be color coded by the user: Red for fuels, green for oxidizers. Once used, they must not be mixed; e.g., green gloves may not be used on fuels.
2. Either the M9A1- or the M17- series masks may be worn.
3. Self-contained breathing apparatus should be used in lieu of protective masks whenever an oxygen-deficient atmosphere exists or in closed areas where high concentrations may exist.
4. During EOD operations in time of conflict, Level 4 MOPP (without body armor) and TAP apron may be worn.

FS = fuming smoke
MFH = missile fuel handler's
MOPP = mission-oriented protective posture
TAP = toxicological agent protective

The shuffle pit is used for controlling contamination at the incident site. It is made from a mixture of three parts earth and two parts STB spread out on the ground in an area about two feet square. All personnel entering or leaving the incident site area must shuffle through the pit.

The IEP must determine the location, number, and condition of the munitions involved. It must also determine the fuzing and its condition. presence or absence of agent leakage, and the weather conditions at the site. The IEP will take the following actions for leaking munitions:

• Separate the nonleaking munitions from the leakers, if fuze conditions permit.

• Test suspect liquids with either M8 or M9 paper. If the test is positive and there has been no decontaminant use, this check is adequate.

• Complete a vapor check if the paper test was negative and contamination is still suspected. Before beginning vapor tests, try to collect vapors. Drape a plastic bag or other impermeable material over the UXO and wait a few minutes. Stick the M18 detector tubes under or through the bag and test for contamination.

• Try to limit any spread of contamination. Place equipment on drop cloths, not the ground. If protective clothing becomes contaminated, decontaminate and rinse immediately. As an extra precaution, you can spread decontaminant on the ground around the UXO to neutralize agent that may have already leaked.

• Begin the RSP if the procedure itself will not spread contamination. If munition and fuze conditions permit, act to limit agent leakage. Place a temporary or permanent plug on the munition unless it means taking unnecessary risk. You may also position the munition so that the leak area is uppermost.

• Return to the CP upon completion of IEP duties or assume the duties of the WP. Performing the RSP and performing contamination control and decontamination are the two main functions of the work party.

WORK PARTY RESPONSIBILITIES

When possible, the WP will complete the RSP for the explosive components before decontamination starts. This will prevent the possibility of a detonation in case of accidental UXO movement. In some cases. the fuze and fuze condition may allow some decontamination while preparing for the RSP. The EOD team leader decides the safest method for the situation. In some cases it may be possible to detonate the UXO in place (for example, a heavily contaminated area or an isolated area). In all cases, the EOD team leader must have concurrence of the on-scene commander or area commander. In-place detonation is not a suitable option for nonhostile situations. After items are rendered safe, the work party will proceed with the leak-sealing, packaging, and disposal operations.

Leak-Sealing

Try to separate nonleakers from leakers, if not already done. Leak-seal (and package) the munitions before they are moved to the disposal area. Packaging is not required for on-site disposal.

If liquid leakage is not visible, move the items to a clean area for further checking and packaging. Decontaminate and rinse the items before making vapor checks. Check items for vapor leaks away from ground contamination and concentrations of decominants. Do this by placing the items in plastic bags or placing plastic sheets over them to collect vapors. Allow a few minutes for the vapors to collect before making the check. Nonleaking items require only a check to ensure they are clean for transportation to the EPDS.

If items are leaking, attempt to stop or reduce agent leakage by positioning the items with the leak uppermost. After identifying and controlling leaks, but before detailed leak-sealing or packaging, thoroughly decontaminate the items. TM 60A-1-1-11 details these procedures. Complete leak-sealing before final packaging of an item. There are many different ways to leak-seal the munition; see TM 60A-1-1-11 for details. Before packaging, ensure the seal is holding and that handling has not contaminated the item. Decontaminate and rinse gloves before beginning packaging procedures. Place the item on a clean drop cloth away from obvious contamination.

Packaging and Marking

The first step of the **initial packaging** operation is to make one more vapor check. This is done as follows:

• Place the UXO in a plastic bag and close it temporarily to allow vapor collection. If the UXO is too large for a bag, wrap it in plastic or place it in an airtight container.

• Open the bag or container slightly after 5-10 minutes and recheck. If the check is negative, seal the bag or container.

If, however, the check is positive, it indicates the UXO still has contamination on its surface. In this case, proceed as follows:

• Remove it from the bag or container.

• Inspect the leak seal, and repair it as necessary.

• Repeat decontamination and packaging.

If after two attempts you cannot achieve a negative check, place the item in a second bag and treat the bagged item as a unit. Check the bagged item as the UXO itself was. After achieving a negative check, seal the second bag.

To perform **final packaging** at the site, use a sturdy container that will hold the entire munition and provide a vaportight seal. This reduces the possibility of damaging the seal and plastic bag or spreading contamination on the way to the EPDS. Standard shipping containers and propellant charge cans are examples of suitable containers. Check the container for seal integrity prior to bringing it to the site. When packaging the munition, keep the following in mind:

• Do not use water. This creates a bigger problem for those who unpack the item since the water will have become contaminated too. In addition, the combined weight of the UXO, the water, and the container can make the package unmanageable.

• Package the munition with the leak uppermost, if practical.

• Support the munition in the container using some shock-absorbing material. This prevents movement and damage to the seal.

• Seal the container tightly to prevent vapor leakage.

While at the hot line, clearly **mark** the container with the following information: classification, munition nomenclature, filler, decontaminant used, "This End Up," fuze condition, explosive components, and any other information useful to persons handling the container or disposing of the item. Do final decontamination and checking at the hot line, just before moving the item across.

Post or mark the immediate area around the leaking munition IAW STANAG 2002 and plot it on a situation map. Forward the map to higher headquarters for future cleanup.

Disposal

Preparing for **disposal** is the next step in the chemical accident/incident. After the containers are double checked on the clean side of the hot line and decontaminated as required, take them to the disposal site or designated collection area. AR 75-15 lists the peacetime requirements for transportation and final disposal.

During extensive operations, immediate final disposal may not be feasible. In these situations, use designated collection points within the area of operations. Mark these collection points IAW STANAG 2002. Do not leave CB weapons or classified UXO at collection points without meeting safety and security requirements.

This FM is a guide for disposal procedures; do not use it as authority for the disposal of any quantity of CB agents. The CAIRA officer grants specific authority for disposal of toxic CB agents and UXO before disposal operations are conducted.

Chemical and biological ordnance can be disposed of on the battlefield if it will not increase the contamination of the area and would allow operations to continue immediately. When CB ordnance threatens operations or critical assets, the rendering safe of the ordnance may be required to allow asset recovery or mission continuation. Critical assets or areas that require immediate access may need additional EOD support. TM 60A-1-1-11 cites

methods for disposing of chemical munitions. FM 3-7 cites methods for biological agent disposal.

Personnel conducting disposal operations must wear protective clothing that provides adequate protection against the agents. This protection is required only while actually working with the items. Set up the disposal area without protective clothing if the area is contamination free.

Before selecting the disposal site, consider the following:

• Direction of prevailing winds. Knowing this is important in keeping the vapor cloud from drifting over populated areas.

• Elevation and openness of the terrain. An elevated and open terrain will allow the agent vapor clouds to disperse.

• Distance from any ammunition storage points, inhabited areas, training areas, highways, railroads. and airports. Consider fragmentation hazards as well as agent vapor cloud travel.

• Availability of an area of 60-meter radius cleared of combustibles. Label the area as a restricted area. Fence and post the area for regular usage with both visible and audible warning devices. Establish an exclusion area to prevent unprotected persons from exposure to agent vapors or clouds. Predetermine the size of the area and the amount of agent to be disposed of. Consider a 100 percent dissemination of agent and explosives when computing an exclusion area.

• Other features at the site, such as an aid station. EPDS, fire-fighting equipment, and a bunker or revetment for personnel protection from fragmentation. Also, communications between the disposal site and fire fighting and medical personnel is vital.

• Weather conditions which play an important role in disposal operations. Planners must be aware of the weather factors that affect disposal operations. For further information. see TM 60A-1-1-11.

EMERGENCY PERSONNEL DECONTAMINATION STATION

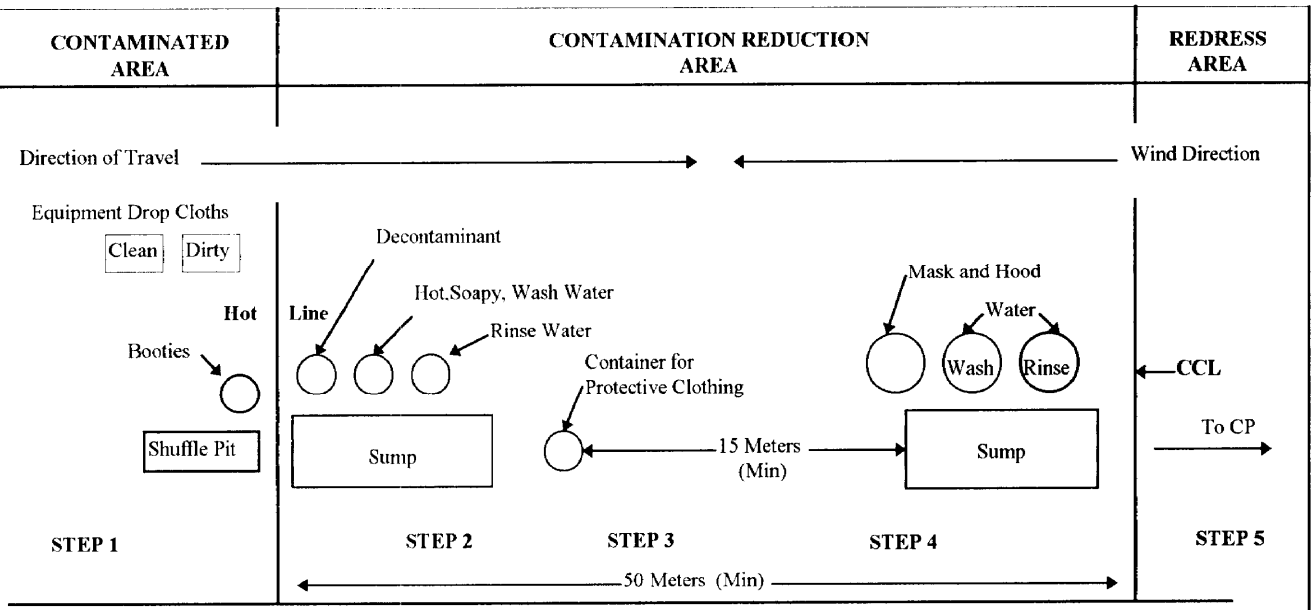
Personnel and equipment entering and exiting the incident site must take the route least likely to cause exposure or spread contamination. All personnel and equipment returning from a contaminated area must proceed through a decontamination station. The EOD team must prepare to provide its own hasty decontamination or use an EPDS as shown in Figure 7-4 (page 7-15) or in Figure 7-5 (page 7-16). The EOD unit commander may establish an EPDS for limited contamination control and limited decontamination. If NBC support arrives, it sets up a decontamination station or relieves EOD of this requirement. The lack of a decontamination team or EPDS should not delay the IEP response. Decontamination facilities may be set up after the IEP or the WP has begun operations.

The EPDS must be between the CP and the incident site and outside the fragmentation range of the munition. It must be set up in a contamination-free area clear of brush, trees, and other such vegetation. It must be upwind of the incident and at least 50 meters downwind from the CP.

A critical feature of the EPDS is the **hot line.** It is an imaginary line separating the contaminated area from the contamination reduction area. It should be as close to the item as possible but outside its fragmentation radius. All personnel and equipment entering and leaving the incident area must process through the control point on the hot line. If the EOD commander or team leader considers it necessary, a shuffle pit should be established at the hot line.

The **CCL** separates the contamination reduction area from the redress area. Personnel do not cross into the redress area until they have been decontaminated. The CCL also prevents personnel from entering the contamination reduction area without wearing proper protective clothing. Decontaminate everything before crossing the contamination control line.

The EPDS should be protected from the weather, if possible. It must be run by at least one EOD soldier dressed in the proper protective clothing from the time personnel depart for the incident site until all personnel have been processed out.



STEP 1
Equipment Drop

Equipment

Any material that prevents the contaminated equipment from contacting the ground, such as plastic bags, oilcloth, etc.

Action

Place all equipment used at the incident site on the protective material. If a shuffle pit is used all movement across the hot line is through it. Remove booties and put them in a container. Step across hot line onto the grate over the sump.

STEP 2
Decontamination

Equipment

Containers (with sprayers if possible), for the following items: decontaminant; hot, soapy water; rinse water; decontaminant in the sump; ABC M18A2 Detector Kit; and first aid for the agent(s) detected by IEP or WP. TM 60A-1-1-11 lists the decontaminants for personnel in the EPDS.

Action

Stand on grate over sump and spray, pour, or brush each person's impermeable protective clothing with decontaminant. Then spray, pour, or brush, this time with hot, soapy water and, once again, spray or pour rinse water on individual's protective clothing.

STEP 3
Clothing Removal

Equipment

Container for protective clothing.

Action

Remove all clothing, except protective mask and hood, and place in the container.

STEP 4
Mask and Hood Removal and Shower

Equipment

Container, such as a plastic bag, for protective mask and hood; another container, such as a 5-gallon can, for wash water; grate for sump; and towels.

Action

Step onto grate, take deep breath, remove mask and hood and place in container. Then rinse head and upper body and resume breathing. Pour water over body and wash with soap, rinse body, and proceed across contamination control line to redress area.

STEP 5
Redress Area

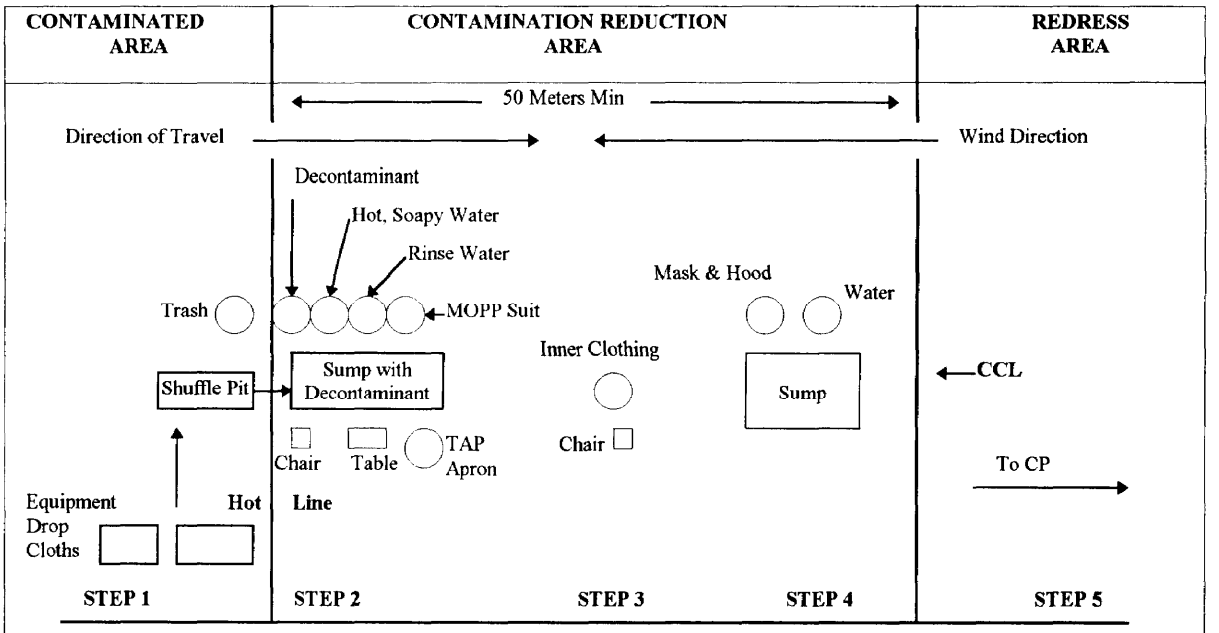
Equipment

Personnel clothing. First-aid equipment. Self-sealing bags.

Action

Redress and receive first aid (if required).

Figure 7-4. Emergency personnel decontamination station



STEP 1
Equipment Drop

Equipment

Drop cloths, trash can lined with plastic bag, and shuffle pit (if needed).

Action

Place all equipment used at the incident site on the protective material. If a shuffle pit is used, all movement across the hot line is through it. Place all trash in can provided. Step across the hot line onto the grate over the sump. Note: Hot line personnel should clean their hands with decontaminant and hot, soapy water and rinse every time after touching a soldier.

STEP 2
Decontamination

Equipment

Five containers lined with plastic bags--for TAP apron, MOPP suit, decontaminant, hot soapy water, and rinse water Each liquid-filled container should have a brush, sponge, and small can. Also needed: chair, grate over a sump with decontaminant in it, a table with first aid for any agent encountered, ABC M18A2 kit, an M256 or M256A1 kit, grease pencil, scissors or knife, plastic bags, and drop cloths.

Action

Stand on grate over sump and spray, pour, and brush protective boots, to include the bottom three or four inches of the MOPP pants. with decontaminant, then hot soapywater, then rinse water. Wipe mask, hood, apron, and gloves with a damp sponge, first with decontaminant, then hot soapy water, then rinse water. Remove apron and place it in apron bucket. Roll the hood: leave the zipper closed and lift the hood straight up off the shoulders by grasping the straps. Pull the hood over the head until most of the back of the head is exposed. Do not pull the hood completely over the face. Then roll the hood, starting at the chin and working around the mask. Roll it tightly, but do not pull it completely off the back of the head. You may place your hand over the voicemitter to prevent the mask seal from being broken. Remove the overgarment as described below:

Jacket: Untie the cord and unfasten the snaps on the front of the jacket, unzip the jacket, and unsnap the snaps in the back of the jacket from the trousers. Pull the jacket off, one arm at a time, turning the jacket inside out. Make a fist as each sleeve is pulled off to prevent the gloves from coming off. Place the jacket in the bucket marked MOPP.

Trousers: Remove the trousers by first opening the trouser cuffs, then the waist snap, zipper, and, if necessary, the waist tabs. Grasp the trousers by the cuff while the soldier pulls one leg at a time from the trousers. Place the trousers in the bucket marked MOPP.

(Continued)

Figure 7-5. Modified EPDS

Step 2 (Continued)

Overboots: Have the soldier sit in a chair at the end of the sump. Untie or cut the strings of the soldier's overboots. Pull them off, one leg at a time (right boot first). As the overboots are removed, the soldier steps on the ground at the end of the sump. Place the overboots in the bucket marked MOPP.

Rubber Gloves: The soldier removes his or her rubber gloves. Hot line personnel will assist so that the soldier does not touch the outside of the gloves. Place the gloves in the bucket marked MOPP. Proceed to inner clothing removal.

STEP 3 Inner Clothing Removal

Equipment
Chair, container for inner clothing (lined with plastic bag), and shower shoes.

Action
Remove all clothing, except protective mask and hood, and place it in the container for inner clothing. Proceed to the shower point.

STEP 4 Mask and Hood Removal and Shower

Equipment
Two containers lined with plastic bags--one for mask and hood and the other for wash water. A table with towels and soap.

Action
Step onto grate, take a deep breath, remove mask and hood, and place them in the container. Then rinse head and upper body and resume breathing. Pour water over body and wash with soap. Rinse body and proceed across contamination control line to the redress area.

STEP 5 Redress Area

Equipment
Redress kit, first aid equipment, litter.

Action
Redress and receive first aid (if required).

Figure 7-5. Modified EPDS (continued)

The contamination reduction area may be contaminated by personnel returning from the incident area. Therefore, once decontamination operations begin, the contamination reduction area is considered contaminated. Make all efforts to control the spread of this contamination.

Upon completion of work at the site, decontaminate all exposed personnel. The extent and scope of the decontamination will depend upon the size and scope of the operation. The decontamination for a three-man team is much less elaborate than for an entire company. Follow the EPDS fundamentals (explained later) regardless of unit size.

How you arrange the EPDS will depend on the amount of agent involved, the scope of the operation, and the terrain. Plan the EPDS to meet these requirements. Ensure personnel follow these four principles when using the EPDS:

- Move into the wind as undressing progresses.
- Decontaminate and remove the most heavily contaminated items of clothing first.
- Remove all articles of clothing worn at the incident site.
- Remove the mask and hood last before washing.

The EOD company should decontaminate as much of its own personnel protection items and mission-essential equipment as it can. Support personnel should decontaminate both the land in the area and nonessential equipment. When finished, EOD must mark the contaminated area of the EPDS for further decontamination.

The operation of the EPDS should be turned over to an NBC team on its arrival. If EOD operations are completed before the NBC team arrives, team members and other personnel should go through the EPDS. The hot line team must be prepared to turn over the operation to the incoming decontamination team (part of the NBC team). The contamination reduction area must be marked with contamination markers until the area is decontaminated (see Appendix B).

APPENDIX A

ORGANIZATION, STRUCTURE, AND MISSIONS OF EOD UNITS

This appendix gives information on the organization, structure, and missions of the TOE organization described and cited in this mmual. These organizations (Figures A-1 through A-4) and the individuals thereof can assist in the coordinated defense of the unit's area or installation. They depend on appropriate elements of theater, corps, separate division, or installation for food service, health, religious, legal, finance, and personnel and administrative services and for unit maintenace on COMSEC equipment.

ORDNANCE GROUP (EOD) TOE 09627L000

Mission

To command and control assigned or attached Ordnance Battalions (EOD).

Assignment

To a Theater Army (TA).

Capabilities

The group provides command, control, and staff planning for two to six Ordnance Battalions (EOD) (TOE 09446L000). It provides technical direction for the EOD mission operations of subordinate units. The group also disseminates technical intelligence information throughout the command and to other selected organizations. The group commander acts as the EOD SW officer for the Theater Army Command.

In addition to the dependencies cited at the top of this page, this unit is dependent on HHC, TA (TOE 51001L000) for maintenance support for organic vehicles and equipment and for food service support.

Basis of Allocation

One per theater of operation.

Mobility

This unit is required to transport 50 percent of its TOE equipment with organic vehicles in a single lift.

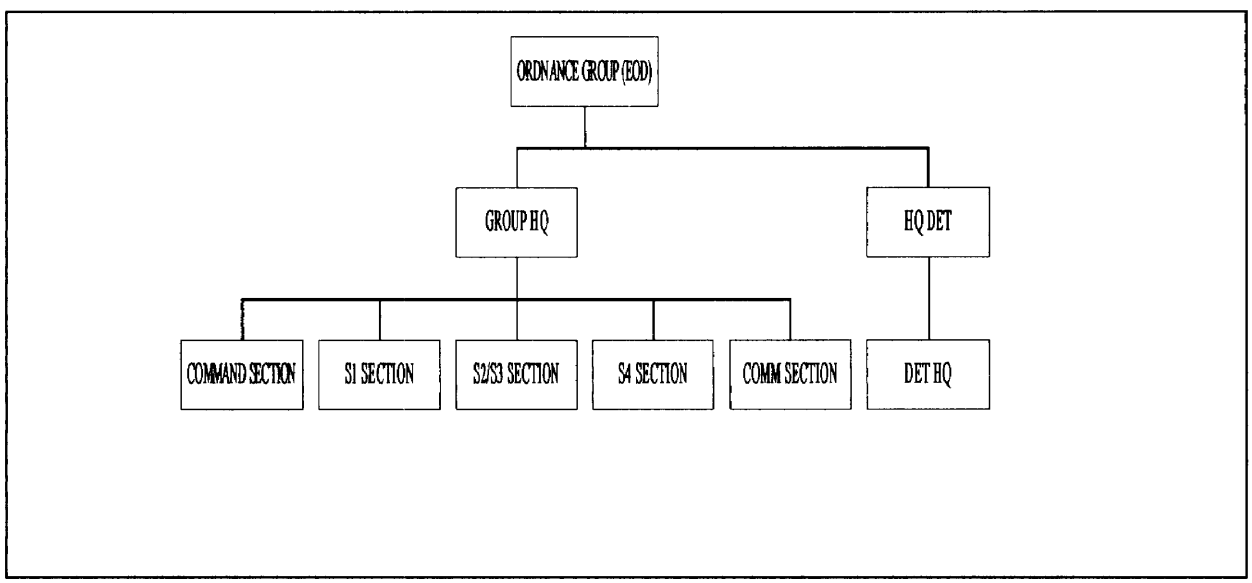


Figure A-1. Ordnance Group (EOD)

ORDNANCE BATTALION (EOD) TOE 09446L000

Mission

To command and control assigned or attached Ordnance Companies (EOD) (TOE 09447L000).

Assignment

To an Ordnance Group (EOD) at theater, corps, or division.

Capabilities

The battalion provides command, control, and staff planning for three to ten Ordnance Companies (EOD) (TOE 09447L000). It provides technical direction for the EOD mission operations of subordinate units. The battalion also disseminates technical intelligence information throughout the command and to other selected organizations. It provides S1 support to its subordinate Ordnance Companies (EOD) (TOE 09447L000).

Basis Of Allocation

One per theater, one per corps, and one per division operating independent of a corps.

Mobility

This unit is required to transport 100 percent of its TOE equipment with organic vehicles in a single lift.

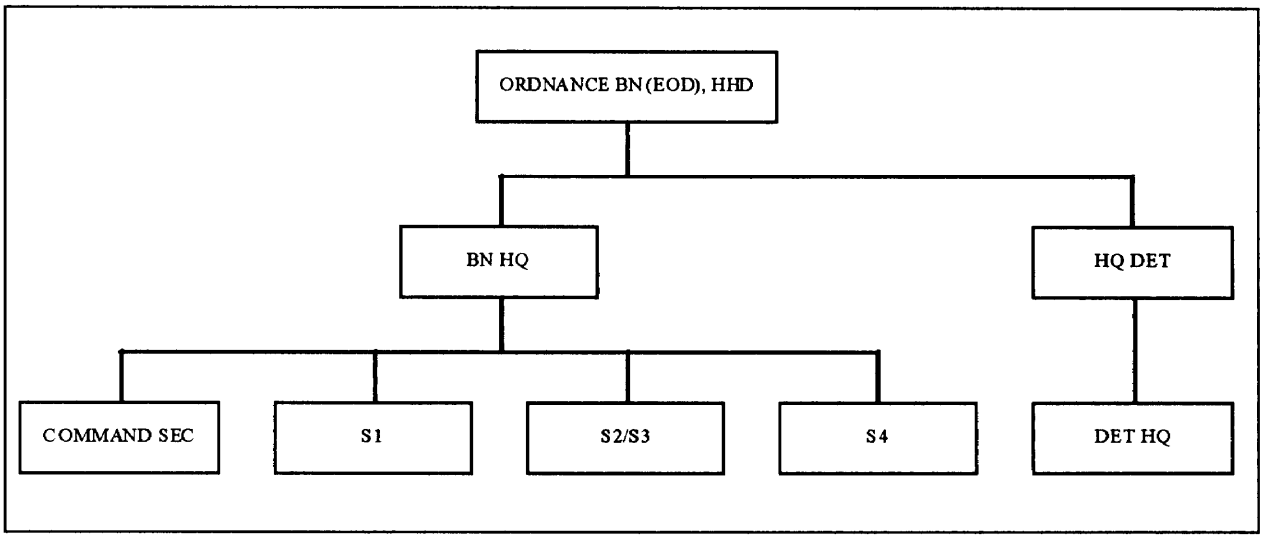


Figure A-2. Ordnance Battalion (EOD), HHD

ORDNANCE COMPANY (EOD) TOE 09447L000

Mission

To reduce or eliminate the hazards of munitions and explosive devices.

Assignment

To an Ordnance Battalion (EOD) (TOE 09446L000) at theater, corps, or division.

Capabilities

This company provides EOD service on an area basis for a maximum incident response capability as follows:

- 50 routine incidents (less than 2 hours in duration) based on five light teams and 10 incidents per team per day. Up to 70 routine incidents a day can be handled if no nonroutine incidents occur.
- 8 nonroutine incidents (more than 2 hours in duration based on two heavy teams and four incidents per team per day.

Additionally, this company may provide the following services:

• Exploitation of technical intelligence material by submitting reports on first-seen ordnance.

• Share EOD service with other services and foreign governments as directed by Status of Forces Agreements and Host-Nation Support Agreements.

• Response to civilian requests for EOD support.

• Assistance to public safety and law enforcement agencies (civil authorities) in developing a capability to deal with the IED and terrorist threats.

• Support to other federal agencies, such as the USSS and the FBI, as outlined in DOD directives.

• Support to installations for the clearance of ranges and destruction of unserviceable ammunition.

In addition to the dependencies cited previously (page A-1, top), this unit is dependent on the Ordnance Battalion (EOD) (TOE 09446L000) for S1 support.

Basis Of Allocation

Eight per Ordnance Battalion (EOD) (TOE 09446L000 at theater level. Ten per Ordnance Battalion (EOD) at corps level. Four per Ordnance Battalion (EOD) supporting an independent divisional operation.

Mobility

This unit is required to transport 100 percent of its TOE equipment with organic vehicles in a single lift.

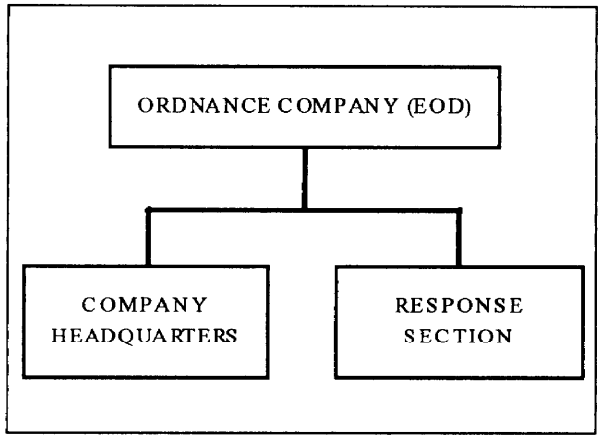


Figure A-3. Ordnance Company (EOD)

ORDNANCE COMPANY (EOD) (CONUS SUPPORT) TOE 09747L000

Mission

To reduce or eliminate the hazards of munitions and explosive devices throughout the continental United States.

Assignment

To FORSCOM.

Capabilities

This company provides EOD service on an area basis for a maximum routine incident response capability of 120 incidents per day (based on 12 teams and 10 incidents per team per day). Additionally, this company may provide the following services:

• Response to civilian requests for EOD support.

• Assistance to public safety and law enforcement agencies in developing a capability to deal with the IED and terrorist threats.

• Support to other federal agencies, such as the USSS and FBI, as outlined in DOD directives.

• Support to installations for the clearance of ranges and destruction of unserviceable ammunition.

• Support to the intelligence community for the exploitation of technical intelligence material.

Basis of Allocation

Three companies in CONUS.

Mobility

This unit is required to transport 100 percent of its TOE equipment with organic vehicles in a single lift.

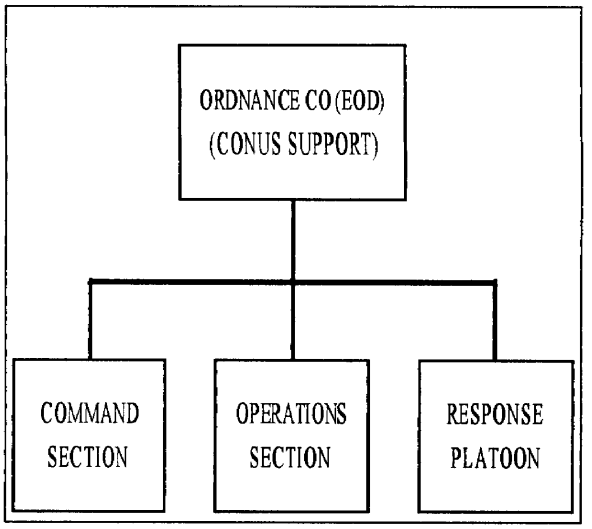


Figure A-4. Ordnance Company (EOD), (CONUS Support)

APPENDIX B

MARKING OF CONTAMINATED OR DANGEROUS LAND

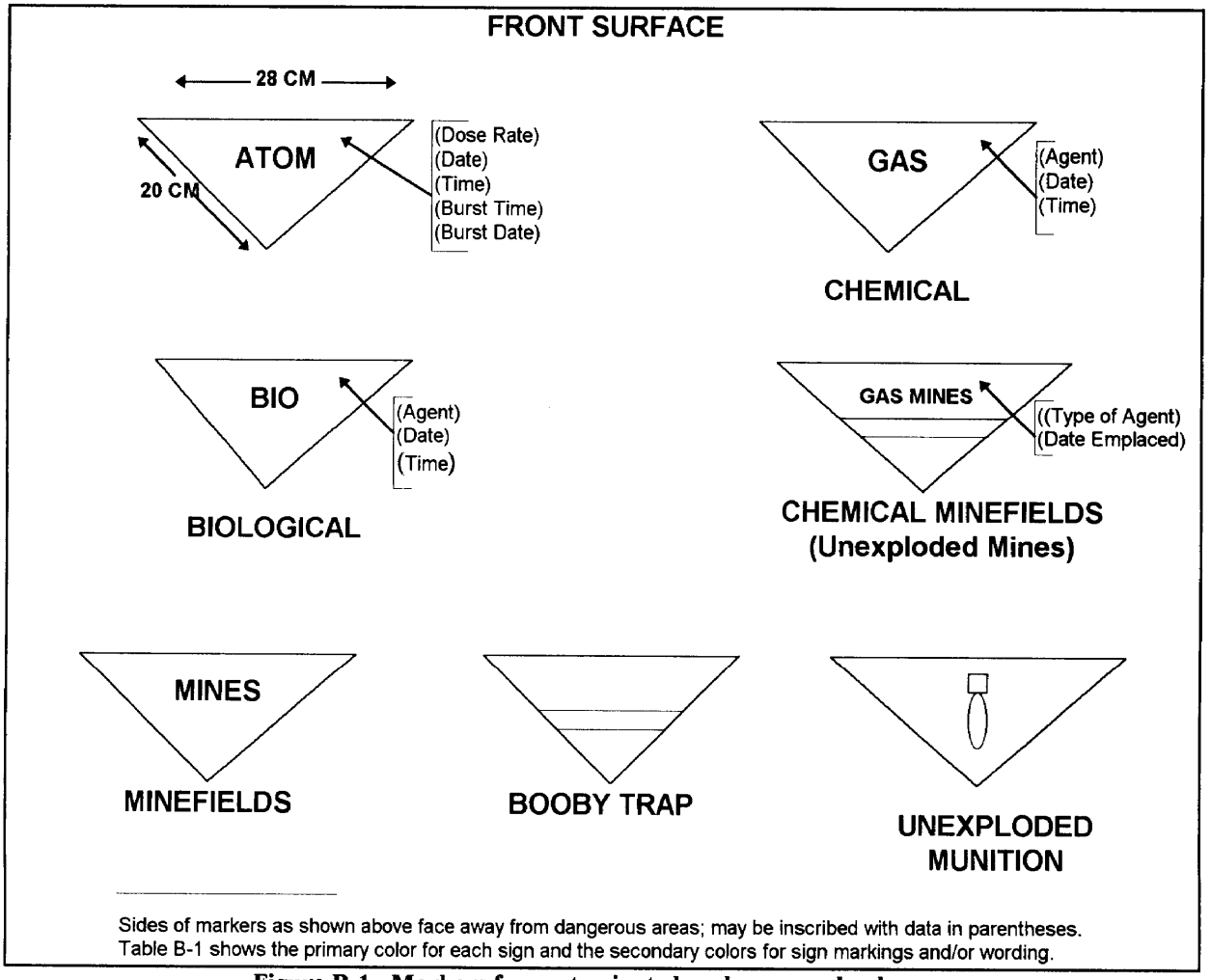
This appendix implements STANAG 2002.

PURPOSE

This appendix discusses the marking of land areas that have become dangerous because of radioactive or CB contamination, chemical minefield, minefields other than chemical, booby-trapped areas, and unexploded bombs. These dangers are marked by triangular signs, unless the area is to be abandoned to the enemy. The front of each sign must face away from the contaminated or dangerous area.

SIZE, SHAPE, AND COMPOSITION OF SIGNS

The shape of the sign is a right-angled isosceles triangle (see Figure B-1). The base of the triangle is approximately 11 1/2 inches (28 centimeters) and the opposite sides are approximately 8 inches (20 centimeters) each. These dimensions may be varied to suit local material. Composition may be wood, plastic, or whatever at hand is best suited. Existing stocks of colored triangular signs of slightly divergent shapes and sizes may be kept and used until stocks are exhausted. Signs may be locally procured or built. The Minefield Marking Set, Contamination (NBC), may also be used.



Sides of markers as shown above face away from dangerous areas; may be inscribed with data in parentheses. Table B-1 shows the primary color for each sign and the secondary colors for sign markings and/or wording.

Figure B-1. Markers for contaminated or dangerous land areas

COLOR AND WORDING OF SIGNS

The nature of the contamination or danger of the contaminated area is told by the colors and wording of the signs. The primary color is used for the background of the front and for the entire back of the sign. The secondary color is used for additional markings and inscriptions on the front. Color coding for various dangers is shown in Table B-1. The language to be used for the inscriptions is selected by the forces erecting the sign. These inscriptions are written parallel to the longest side of the sign (see Figure B-1).

In addition, when practical, details of CB or radioactive contamination are written on the front of each sign. For biological contamination and for persistent or moderately persistent chemical agents, the name of the agent used (when the agent is known) and the date and time of detection are required. In case of radioactive contamination, the following information is put on each sign: the dose rate, the date and time of reading, and the date and time of the detonation that produced the contamination (if known).

MARKING OF AREAS

Areas that contain more than one type of contamination must be marked with as many relevant signs as necessary placed near each other. The sign "Gas Mines" can be assumed to include high-explosive mines or booby traps. Mined and booby-trapped areas are fenced and marked on the friendly side to warn friendly troops. Two strands of wire, preferably barbed wire, are used. The lower strand of wire is placed at ankle height, and the upper strand is placed waist high. Fencing on the flank and enemy side may be added when required for protection of friendly troops. Marking simulated contaminated areas is exactly the same as marking those that are real.

Signs, right-angled apex downward, should be placed on fences, trees, rocks, or poles or should be stuck in the ground. They should be stuck in the ground only if there is no other way to place them, because they are hard to see in the ground and can be easily knocked over. Signs must be placed IAW NATO standards, at least one sign every 15 meters.

NIGHT SIGNING

There is no standard for lighting signs. Each unit provides lighting or reflective devices where necessary. Lit or reflecting markers should be faced away from dangerous areas.

Table B-1. Color coding for signs

		SECONDARY COLOR	
DANGER	**PRIMARY COLOR**	**MARKINGS**	**WORDING**
Radioactive contamination	White	None	Black ATOM
Biological contamination	Blue	None	Red BIO
Chemical contamination	Yellow	None	Red GAS
Chemical minefield (or barriers)	Red	Yellow stripe	Yellow GAS MINES
Minefield or barrier (other than chemical)	Red	None	White MINES
Booby-trapped area	Red	White stripe	None
Unexploded munition	Red	White bomb	None

APPENDIX C

US MUNITIONS

This listing is not complete, but it does include the principal US munitions of concern to EOD personnel. With this list, EOD personnel will likely be able to assess quickly the potential hazard of foreign chemical munitions. By comparing the characteristics of a foreign munition with those of the items listed in the following tables, you may be able to arrive at a rough estimate of the hazard involved.

Table C-1. White phosphorus munitions

MUNITION	NEW*	AGENT WT
Cartridge, 60-mm, Mortar, M302A1	11.0 g	12.0 oz
Cartridge, 81-mm, Mortar, M57A1	18.0 g	4.0 lb
Cartridge, 81-mm, Mortar, M375	12.0 g	1.6 lb
Cartridge, 4.2", Mortar, M2	3.4 oz	8.4 lb
Cartridge, 4.2", Mortar, M2A1	3.4 oz	8.4 lb
Cartridge, 105-mm, Howitzer, M60A1	3.4 oz	3.9 lb
Rocket, Smoke, 2.75", M156	1.9 oz	2.2 lb
Rocket, Smoke, 3.5", M30	8.0 g	2.4 lb
Grenade, Rifle, Smoke, M19A1	<1.0 g	8.5 oz

Table C-2. Chemical munitions

MUNITION	FILLER	NEW*	AGENT WT
Cartridge, 40-mm, M651	CS	<1.0 g	2.0 oz
Cartridge, 40-mm, M674	CS	3 g	3.3 oz
Rocket, 66-mm, M74	TEA	<1.0 g	1.4 lb
Rocket, 66-mm, M96	CS-2	12.0 g	8.0 oz
Cartridge, 105-mm, Howitzer, M360	GB	1.1 lb	1.6 lb
Cartridge, 105-mm, Howitzer, M60	H/HD	8.0 oz	3.2/3.0 lb
Cartridge, 105-mm, Howitzer, M629	CS	1.8 oz	3.3 lb
Cartridge, 4.2", Mortar, M2	H/HD	.16 oz	~6.0 lb
Cartridge, 4.2", Mortar, M2A1	H/HD	.16 oz	~6.0 lb
Cartridge, 4.2", Mortar, M630	CS	2.6 oz	1.0 lb
Rocket, 115-mm, M55	GB/VX	3.0 lb	11.4/10.5 lb
Projectile, 155-mm, Howitzer, M121	GB	2.8 lb	6.5 lb
Projectile, 155-mm, Howitzer, M121A1	GB	2.3 lb	6.5 lb
Projectile, 155-mm, Howitzer, M110	H/HD	10.0 oz	9.7 lb
Projectile, 155-mm, Howitzer, M121A1	VX	2.8 lb	6.0 lb
Projectile, 155-mm, Howitzer, M687	GB-2	2.2 lb	9.1 lb
Projectile, 155-mm, Howitzer, M122	GB	5.0 lb	6.5 lb
Projectile, 8", Howitzer, M426	GB	7.2 lb	15.9 lb
Projectile, 8", Howitzer, M426	VX	7.2 lb	14.1 lb
Bomb, 500-lb, MK94	GB	16.1 lb	108.0 lb
Bomb, 500-lb, Weteye, MK116 MOD0	GB	22.0 lb	347.0 lb
Bomb, 750-lb, MC-1	GB	14.5 lb	220.0 lb
Spraytank, TMU-28/B	VX	2.5 g	1350.0 lb
Landmine, M23	VX	13.0 oz	10.5 lb
Grenade, M54	CS	<1.0 g	~10.0 oz

*NEW refers to "net explosive weight."

APPENDIX D

EOD CANDIDATE ACCEPTANCE GUIDE

This appendix will assist personnel involved in the recruitment, evaluation, and acceptance of soldiers requesting MOS 55D/9lE training or assignment. The references used for this process are ARs 50-5, 600-8-10, 611-105, and 614-200 and DA Pamphlet 351-4.

Because of the nature of EOD work, it is extremely important that selected candidates be highly motivated personnel of good character. EOD candidates must be thoroughly screened to ensure that they meet the standards required of this MOS. Potential EOD candidates may be IET soldiers or may be identified from in-service recruiting. Whether the EOD candidate is IET, in-service, ARNG, officer or enlisted, all must be thoroughly screened and meet current standards.

The most important part of the initial screening process is the letter of acceptance. An EOD candidate can obtain this letter by being screened and interviewed by qualified EOD personnel The interview can be conducted by an EOD officer or senior EOD NCO. The interviewer must determine that the candidate possesses the necessary qualifications and that he does not have any disqualifies that would prevent him from becoming a fully qualified EOD soldier. The interviewer must also assess the motivation of the individual, his ability to learn, and his understanding of the hazards inherent in EOD duty.

Soldiers desiring to become EOD-qualified need to be made aware that they must meet several general requirements even *prior to* start of the initial screening process. They should be aware that they must--

• Possess normal color vision.

• Have a physical profile serial code (PULHES) of 111111 or 111121.

• Have achieved a GM score of 105 or higher on the ASVAB.

• Be capable of receiving a SECRET clearance with a background investigation.

None of these general requirements can be waived. Once a soldier determines that he can meet these requirements, he should arrange to receive a TAP suit test and an EOD interview from the nearest EOD company.

The interview checklist appearing on the following pages (Figure D-1) will assist EOD personnel involved in the screening process. The checklist should be followed closely to maintain uniform standards in the interview process. Information that is surfaced or obtained during the interview process may eliminate the waste of funds in training EOD soldiers who are later found unqualified.

EOD INTERVIEW CHECKLIST

NOTE: This form is intended to assist the EOD interviewer in the assessment of potential EOD recruits for EOD training. References are ARs 600-8-10, 611-105, 611-201, and 614-200 and DA Pamphlet 351-4.

LAST NAME: _____ FIRST NAME: _____ MI: ____

RANK: ____ SSN: _____ UNIT: _____

MOS: _____WORK PHONE: _____ HOME PHONE: _____

COMMANDER's NAME: _____ CDR's PHONE: _____

NCOIC's NAME: _____ NCOIC's PHONE: _____

DATE OF INTERVIEW: _____

PRESCREENER: _____

INTERVIEWER: _____

SAMPLE

SECTION 1

NOTE: A **NO** answer to any question in Section 1 automatically disqualifies soldier from eligibility.

1. Is soldier SGT or below (enlisted) or CPT or below (officer)?	YES	NO
2. Does the soldier have two or more years active duty time in service (In-service recruits only)?	YES	NO
3. Is soldier volunteering for EOD duties?	YES	NO
4. Is the soldier willing to work with nuclear and chemical weapons?	YES	NO
5. Does soldier meet AR 600-9 requirements?	YES	NO
6. Is soldier's GM score 105 or higher?	YES	NO
7. Is soldier APFT qualified?	YES	NO
8. Is soldier a US citizen?	YES	NO
9. Does soldier have normal color vision?	YES	NO
10. Does soldier meet the physical profile code of 111111 or 111121?	YES	NO
11. Will soldier have at least 25 months time remaining in service upon completion of EOD school?	YES	NO

NOTE: This 25 month requirement must be met **BEFORE** the soldier departs his/her home station.

SECTION 2

NOTE: A **YES** answer to any question in Section 2 automatically disqualifies the soldier from eligibility.

12. Is the soldier flagged IAW AR 600-8-2?	YES	NO
13. Is the soldier claustrophobic?	YES	NO

Figure D-1. EOD interview checklist

14. Is the soldier assigned to a unit alerted or on orders for overseas movement?	YES	NO
15. Is the soldier alerted or on orders for overseas movement?	YES	NO
16. Is the soldier alerted or on orders for assignment to units alerted for overseas movement?	YES	NO
17. Is the soldier under any court-martial proceedings?	YES	NO
18. Has the soldier ever been relieved from EOD training or duty for punitive action, cancellation of security clearance, academic failure, or personal request for relief from EOD duties? (Table 7-33, Rule 1, AR 614-200)	YES	NO
19. Does the soldier have lost time under 10USC972 within the last two years?	YES	NO
20. Is the soldier allergic to explosives?	YES	NO

SAMPLE

SECTION 3

NOTE: For **YES** answers in Section 3, consult your unit retention NCO for the latest information before determining eligibility.

21. Has the soldier received an enlistment bonus, variable reenlistment bonus, or selective reenlistmnent bonus for the current service obligation?	YES	NO
22. Is the soldier serving overseas?	YES	NO

NOTE: If yes, the soldier may only apply when he/she has between 10 months and 5 months overseas service remaining until DROS.

SECTION 4

NOTE: Section 4 deals with the soldier's security clearance. These conditions must be met before the soldier departs for EOD school.

23. Does the soldier have **AT LEAST** an interim secret clearance? (This is shown on DA Form 873.)	YES	NO
24. Does the soldier have a completed background investigation or has one at least been initiated? (Request for BI, DA Form 1879)	YES	NO

SECTION 5

NOTE: For **YES** answers in Section 5, the interviewer's discretion must be used to determine reliability of the soldier. The interviewer may contact his/her supporting security manager or the OMMCS Security Division, Redstone Arsenal (DSN 746-1561/3547 or (205) 876-1561/3547 (commercial)) for assistance in determining eligibility. Annotate explanations for YES answers in the remarks section at the end of the checklist.

25. Does the soldier have a history of drug or alcohol abuse? (Marijuana, Cocaine, Crack, Heroin, Hashish, LSD, etc.)	YES	NO
26. Has the soldier ever received psychiatric treatment?	YES	NO
27. Is there any other information that would disqualify the soldier from the PRP (medical; emotional; problems with authority; hears voices)?	YES	NO
28. Does the soldier have a history of serious or repeated civil convictions?	YES	NO
29. Is the soldier late on any payment (debt) by more than 30 days?	YES	NO

Figure D-1. EOD interview checklist (continued)

30. Is the soldier late on child support and/or alimony payments (to include disputed payments)? YES NO

31. Has the soldier ever had any debt accounts turned over to a collection agency? YES NO

32. Has the soldier ever had any debt written off as a bad debt by any lender? YES NO

33. Has the soldier ever had any property repossessed? YES NO

34. Does the soldier owe any money to any court for any purpose? YES NO
(To include fines and court costs)

SECTION 6

35. Has the soldier received the initial EOD briefing/slide presentation? YES NO

36. Interviewer's impression of soldier:

	Qualified	NOT Qualified
Maturity	☐	☐
Conduct	☐	☐
Financial Responsibility	☐	☐
Security	☐	☐
Medical (To include drug and alcohol abuse)	☐	☐
M3 TAP suit test	☐	☐

SAMPLE

NOTE: If soldier is qualified and recommended by the interviewer, ensure that the volunteer statement and letter of acceptance are completed.

NOTE: It is the soldier's company commander's responsibility to read the soldier into the PRP and MILPO's responsibility to ensure that the soldier's administrative requirements are met prior to the soldier's departure from the home station. The EOD commander may assist in making sure that the applicant is being properly serviced by his or her unit and MILPO by reviewing AR 600-8-10, procedure 3-20.

REMINDER: Before departing for EOD school, the soldier's DA Form 3180-R **MUST** be complete and, if needed, the soldier should have in his or her possession optical inserts for the M9 and M17 protective masks.

TEST SCORES

ASVAB

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
GT	GM	EL	CL	MM	SC	CO	FA	OF	ST

TABE

☐	☐
Reading	Math

Figure D-1. EOD interview checklist (continued)

APPENDIX E

ACCIDENT/INCIDENT REPORTING

This appendix implements STANAG 2143.

EOD DOCUMENTATION

Correct and properly prepared documentation of EOD accidents/incidents will serve as a record of items reported, personnel responding, disposition, and references used. Such data will be useful in case evidence information is requested of EOD personnel. This data will also be useful for unit historical data purposes.

Initial information on and documentation of an accident/incident at the first echelon level is usually received from a unit or individual by way of a UXO spot report. This report is discussed in some detail in FM 21-16 and in the supplemental information section of the Signal Operating Instructions.

Once an accident/incident is reported (by whatever means) through EOD channels, EOD personnel will transcribe relevant information onto a DA Form 3265-R. This form, formally titled *"Explosive Ordnance Incident Report,"* then becomes the official record of actions taken by EOD personnel in response to the reported accident/incident.

DA FORM 3265-R

A reproducible copy of this form is provided at the back of this field manual. It should locally be reproduced on 8 1/2- by 11-inch paper. The form can also be computer generated. Information should be entered in either blue or black ink. The reverse side can be used as a continuation for any of the information blocks on the front. When doing so, be sure to clearly identify (by block number and/or letter) the block being continued. Figure E-1 depicts a sample of a properly completed DA Form 3265-R. Instructions for completing the form follow.

Heading Information

The top of the form contains four blocks for header information--unit number, control number, and incident category (unusual or routine). Complete these blocks as follows:

Unit Number. The unit number consists of the unit designation, numerically sequenced incident identifier, and year of the incident. For example, 49-003-95 would mean that the 49th Ordnance Company (EOD) has had its third incident for 1995.

Control Number. The control number (as assigned by the EOD battalion) is entered.

Unusual (block 3) or ***Routine*** (block 4). This reflects the incident category as determined by the EOD unit commander according to policy established by the EOD Battalion. An "X" is put in the appropriate box.

Section A: Initial Information

Use Section A (blocks 5 through 11) to enter the following initial information received concerning the incident: Date/Time Reported, Reported By, Phone Number, Address, Incident Location, Point of Contact. and Item(s) Reported. Complete these blocks as follows:

Date/Time Reported. Enter the date and time the incident was reported to the EOD unit. List all times Zulu. Use the world map shown as Figure E-2 to determine the appropriate Zulu time.

Reported By. Enter the name of the person reporting the incident.

Phone Number. Enter the phone number of the person cited in block 6. This information, which may be a call sign and frequency, may be classified. If information is classified, the report must be secured IAW AR 380-5 and DOD 5200.2-R.

Address. Enter the address of the person cited in block 6.

Incident Location. In block 9, enter the street, city, state, coordinates, or landmarks as appropriate.

Point of Contact. Enter the name, location, and phone number (or call sign) of a person who knows the way to the incident site. You may need to add additional information for EOD team linkup with this individual.

Item(s) Reported. In block 11, tentatively identify or describe the items being reported. This block can also be used to list any protective measures taken by the person reporting the incident.

Section B: Action By EOD

Use Section B (blocks 12 through 18) to enter the following information concerning action taken by the EOD unit or team in response to an accident/incident: Personnel Dispatched, Date/Time, Travel Data, Work Hours, Confirmed Identification, Disposition, and Incident Narrative. Complete these blocks as follows:

Personnel Dispatched. In block 12, enter the name and grade of all persons dispatched to the incident site.

Date/Time. In the appropriate portion of block 13, enter the time the EOD team departed the unit area, the time the team arrived at the incident site, and the time the EOD team returns to the unit area after completion of the incident response.

EXPLOSIVE ORDNANCE INCIDENT REPORT
For use of this form, see FM 9-15; the proponent agency is US Army Training and Doctrine Command.

1. UNIT NUMBER	2. CONTROL NUMBER	3. UNUSUAL	4. ROUTINE
14-31-88		☒	☐

SECTION A: INITIAL INFORMATION

5. DATE/TIME REPORTED	9. INCIDENT LOCATION	11. ITEM(S) REPORTED
061500Z MAR 88	XT 992124	DUD ROCKET
6. REPORTED BY		
SSG DOUGLAS		
7. PHONE NUMBER	**10. POINT OF CONTACT**	
RAZOR BACK 6	LT GOODWIN	
8. ADDRESS		
B BTRY 1/52 FABN		

SECTION B: ACTION BY EOD

12. PERSONNEL DISPATCHED	13. DATE/TIME	14. TRAVEL DATA	15. WORK HOURS
SSG YOUNG	A. DPRT: 061510Z MAR 88	A. AIR: FLYING TIME:	A. TRAVEL: 2
SPC CLARKE	B. ARR: 061540Z MAR 88	B. VEH: MILEAGE: 13	B. INCIDENT: 1
	C. COMPL: 061830Z MAR 88		

16. CONFIRMED IDENTIFICATION	17. DISPOSITION
USSR ROCKET 122MM, HE MODEL 9M 22U WITH FUZE DK 2-V	RENDER SAFE IAW PARA 2-26 TM 60F 35-3-4 (c) AND TRANSPORTED TO SAFE HOLDING AREA.

18. INCIDENT NARRATIVE (INCLUDE ALL SIGNIFICANT DETAILS AND PROBLEMS)

A ROCKET IMPACTED APPROXIMATELY 1 METER FROM THE BATTERY'S FIRE CONTROL CENTER. AFTER INVESTIGATING, ITEM WAS DETERMINED TO BE A DUD USSR 122 MM ROCKET. ITEM WAS RENDERED SAFE IAW TM 60F 35-3-4(C) AND TRANSPORTED TO SAFE HOLDING AREA.

SECTION C: AUTHENTICATION

19. NAME AND GRADE AND SIGNATURE OF UNIT COMMANDER	20. TELEPHONE NO.	21. DATE
JOSEPH R. LANG, 1 LT Joseph R Lang	BLASTER 63	3 MAR 89

DA FORM 3265-R, FEB 89 EDITION OF 1 AUG 70 IS OBSOLETE.

Figure E-1. DA Form 3265-R (Explosive Ordnance Incident Report)

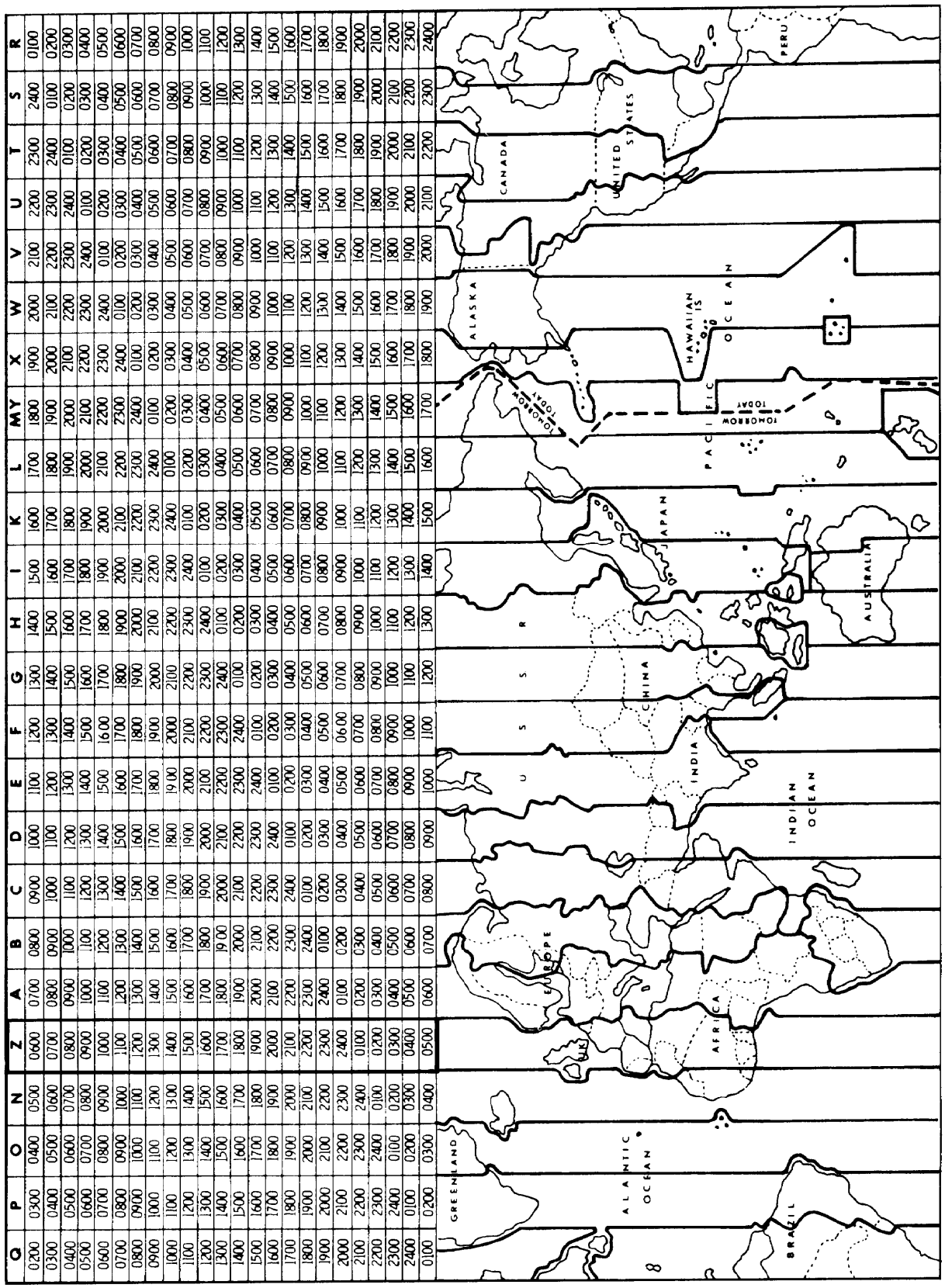


Figure E-2. World time map

Travel Data. In the appropriate portion of block 14, enter the time spent in aircraft traveling to and from the incident site (if appropriate) and the total mileage for any vehicles used in traveling to or from the incident site.

Work Hours. In the appropriate portion of block 15, enter the total work hours spent traveling to and from the incident site and the actual work hours spent in responding to an incident (from time of departure from the unit area to completion of disposal) excluding travel time.

Confirmed Identification. In block 16, enter model number (include lot number when available) for standard items for which you have confirmed identification. For nonstandard items, enter a description.

Disposition. In block 17, enter information concerning the disposition of the item. For example, was the item rendered safe, placed in a safe holding area, or destroyed? This information may include a reference citation (including specific paragraph number) if appropriate.

Incident Narrative. Use this block to cite significant actions and details as well as any problems encountered. If classified information is entered, the report must be secured IAW AR 380-5 and DOD 5200.2-R.

Section C: Authentication

Section C (blocks 19 through 21) is used to record (typed or printed) the name and grade of the EOD unit commander and his authenticating signature, the unit telephone number, and the date of signature.

GLOSSARY

AAD advanced access and disablement
AAR after-action report
AC a blood agent
ACE armored combat equipment
ACUS area common user system
AP armor piercing
APFT Army Physical Fitness Test
area denial ordnance ordnance items designed to deny area access by being activated by some means upon approach of personnel or vehicles. Examples range from a hand-emplaced mine which functions when a soldier steps on it to artillery- or aircraft-delivered mines which function when a sensor is activated by one or more of the following means: magnetic, acoustic, trip wire, random time delay, etc.
AR Army regulation
ARNG Army National Guard
ASG area support group
ASP ammunition supply point
ASVAB Armed Services Vocational Aptitude Battery
ATCCS Army Tactical Command and Control System
attn attention
bde brigade
BHW base hazardous waste
BI background investigation
bio biological
BIP blow in place
bn battalion
C2 command and control
CAIRA chemical accident/incident response and assistance
CB chemical/biological
CCL contamination control line
cdr commander
CENTCOM Central Command
CERCLA Comprehensive Environmental Response, Compensation, and Liability Act
CFR Code of Federal Regulations
CG a choking agent
CID criminal investigation division
CIMIC civil-military cooperation
CINC Commander in Chief
CK a blood agent
CL clerical
cm centimeter
CO company; combat (ASVAB code)
comm communications
COMSEC communications security
COMTECHREP complementary technical report
CONUS continental United States
COSCOM Corps Support Command
counter UXO operations EOD and other units performing tasks that reduce UXO hazards that threaten assets, personnel, or operations.
CP command post
CPT captain
CS a tear agent
CS-2 a tear agent
CSB corps support battalion
CSG corps support group
CSM command sergeant major
CSS combat service support
DA Department of the Army
DC District of Columbia
DD Department of Defense
DERP Defense Environmental Restoration Program
det detachment
DISCOM Division Support Command
div division
DOD Department of Defense
DODIC DOD Identification Code
DOE Department of Energy
DOT Department of Transportation
DPM disintegrations per minute
DR dose rate
DROS date returned from overseas
DS direct support
DSN defense service network
DU depleted uranium
EAC echelons above corps
ECCS emergency contamination control station
EDRE emergency deployment readiness exercise
EL electronics
EMR electromagnetic radiation
ENCOM engineer command
EOD explosive ordnance disposal
EODCT EOD control team
EODTIC EOD Technical Information Center
EPA Environmental Protection Agency
EPDS emergency personnel decontamination station
EUCOM European Command
FA field artillery
FARP forward area rearm/refuel point
FBI Federal Bureau of Investigation
FM field manual

FORSCOM US Army Forces Command
FS fuming smoke
FUDS formerly used defense site
g gram
G2 Assistant Chief of Staff, G2 (Intelligence)
G3 Assistant Chief of Staff, G3 (Operations and Plans)
GB a nerve agent
GB-2 a nerve agent
GM general maintenance
gp group
GS general support
GT general technical
GTA graphic training aid
H a blister agent
HD a blister agent
HE high explosive
HEAT high explosive antitank
HHC headquarters and headquarters company
HHD headquarters and headquarters detachment
HRIAP hasty reconnaissance/initial action phase
HQ headquarters
HQDA Headquarters, Department of the Army
IAW in accordance with
IC installation commander
ICM improved conventional munition
IED improvised explosive device
IEP initial entry party
IET initial entry training
IND improvised nuclear device
IPB intelligence preparation of the battlefield
J2 Intelligence Directorate
JCS Joint Chiefs of Staff
lb pound
LOC lines of communication (logistic routes)
LTC lieutenant colonel
LSD lysergic acid diethylamide
MACOM major Army command
MCM Munitions Countermeasures Manual
METL mission-essential task list
METT-T mission, enemy, terrain, troops, and time available
MFH missile fuel handler's
MI military intelligence; middle initial
MILPO military personnel office
min minimum
mm millimeter
MM motor maintenance
MOPP mission-oriented protective posture
MOS military occupational specialty
MOU memorandum of understanding
MP military police
MRC major regional contingency
MSR main supply route
NAIRA nuclear accident/incident response and assistance
NATO North Atlantic Treaty Organization
NBC nuclear, biological, chemical
NCO noncommissioned officer
NCOIC noncommissioned officer in charge
NEW net explosive weight
NG National Guard
no number
NW nuclear weapon
OCONUS outside CONUS
OF operators and food
OIC officer in charge (of)
OMMCS Ordnance Missile and Munitions Center and School
OOTW operations other than war
OPLAN operation plan
OPSEC operations security
ord ordnance
OSHA Occupational Safety and Health Agency
oz ounce
PACOM Pacific Command
pam pamphlet
PAO public affairs officer
PM provost marshall
POL petroleum, oil, and lubricants
PRETECHREP preliminary technical report
PRP Personnel Reliability Program
PULHES physical profile serial code (numerical)
QASAS quality assurance specialist (ammunition surveillance)
RADCON radiological control
RAOC rear area operations center
RCP remote/rear command post
RCRA Resource Conservation and Recovery Act
RDTE research, development, test, and evaluation
RP rally point
RRDA Resource, Recovery, and Disposition Account
RSP render safe procedure
RTO radio telephone operator
RTOC rear tactical operations center
RWP Radiation Work Permit
S1 Adjutant (U.S. Army)
S2 Intelligence Officer (U.S. Army)
S3 Operations & Training Officer (U.S. Army)
S4 Supply Officer (U.S. Army)
SC surveillance and communications
sec section
sgt sergeant

SOFA status of forces agreement
SOI Signal Operation Instructions
SOP standing operating procedure
SSG staff sergeant
SSI Signal Supplemental Instructions
SSN social security number
ST skilled technical
STANAG standardization agreement
STB supertropical bleach (decontaminant)
submunition any ordnance delivered from a larger carrier, a projectile, rocket warhead, or a dispenser dropped from aircraft can be area-denial ordnance.
TA Theater Army
TAACOM Theater Army Area Command
TABE Test of Adult Basic Education
TACOM Theater Army Command
TAP toxicological agent protective
TEA Triethyl Aluminum
TEU Technical Escort Unit
TM technical manual
TO theater of operations
TOC tactical operations center
TOE table of organization and equipment
TRADOC US Army Training and Doctrine Command
TSD Technical Services Division
TSDF treatment, storage, disposal facility
UCMJ Uniform Code of Military Justice
US United States
USARCENT US Army Central Command
USAREUR US Army Europe
USARPAC US Army Pacific Command
USC United States Code
USCINCCENT United States Commander in Chief, Central Command
USCINCEUR United States Commander in Chief, Europe
USCINCPAC United States Commander in Chief, Pacific Command
USSS United States Secret Service
UXO unexploded ordnance
VA Virginia
VIP very important person
VX a nerve agent
WP work party
wt weight
XO executive officer

Symbols

< less than
~ approximately equal to

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EXPLOSIVE ORDNANCE INCIDENT REPORT For use of this form, see FM 9-15; the proponent agency is US Army Training and Doctrine Command.	1. UNIT NUMBER	2. CONTROL NUMBER	3. UNUSUAL ☐ 4. ROUTINE ☐

SECTION A: INITIAL INFORMATION

5. DATE/TIME REPORTED	9. INCIDENT LOCATION	11. ITEM(S) REPORTED
6. REPORTED BY		
7. PHONE NUMBER	10. POINT OF CONTACT	
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SECTION B: ACTION BY EOD

12. PERSONNEL DISPATCHED	13. DATE/TIME A. DPRT B. ARR C. COMPL	14. TRAVEL DATA A. AIR: FLYING TIME B. VEH: MILEAGE	15. WORK HOURS A. TRAVEL B. INCIDENT

16. CONFIRMED IDENTIFICATION	17. DISPOSITION

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19. NAME AND GRADE AND SIGNATURE OF UNIT COMMANDER	20. TELEPHONE NO.	21. DATE