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**FM 31-45**

**DEPARTMENT OF THE ARMY FIELD MANUAL**

*S/S FM 9-14*

Reference

# **EXPLOSIVE ORDNANCE DISPOSAL SERVICE**

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**HEADQUARTERS, DEPARTMENT OF THE ARMY  
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FIELD MANUAL

No. 31-45

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D.C., 27 September 1967

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## CHAPTER 1

### GENERAL

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#### Section I. PURPOSE AND SCOPE

##### 1-1. Purpose

This manual describes operational and organizational doctrine and procedures for performing explosive ordnance disposal (EOD) service within CONUS and oversea commands. It provides guidance to commanders, staff officers, EOD units, and EOD reconnaissance agents, to include responsibilities, staff relationships, planning and performance of EOD service in support of rear area protection ammunition service, technical intelligence, and civil authorities.

##### 1-2. Scope

a. The scope of the manual includes employment of units performing EOD service in support of combat operations, logistic movements, training, civil defense, and public ceremonies. It also outlines operational relationships of EOD units with other military and civil organizations in the event of an accident or incident involving explosive ordnance or CBR agents. Types and technical data on Chemical-Biological Munitions and Explosives may be found in the TM 9-1300-series, TM 9-1385-series, TM 9-1900-series, TM 39-series, TM 3-215 and TM 3-216; FM 3-10-series, FM 5-25, FM 20-32, and FM 21-40; and TB ORDS. An abstract of NATO Standardization Agreement 2002, marking of contaminated or dangerous land areas, is included in appendix B.

b. The material contained in this manual is applicable to nuclear, and nonnuclear warfare, to include—chemical and biological operations; internal defense and development operations; and field operations in the continental United States (CONUS) and in oversea commands.

##### 1-3. Definitions

For definitions of standard terms used in this manual see AR 320-5. Other terms peculiar to EOD are defined throughout the manual as required.

##### 1-4. Comments

Users of this manual are encouraged to submit recommendations to improve its clarity or accuracy. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded to U.S. Army Combat Developments Command Maintenance Agency, Missile and Munitions Division, Redstone Arsenal, Alabama 35809. Originators of proposed changes which would constitute a significant modification of approved Army doctrine may send an information copy through channels to the Commanding General, U.S. Army Combat Developments Command, to facilitate review and followup.

#### Section II. EOD SERVICE

##### 1-5. Mission

a. EOD service is designed to detect, report, render safe, recover, evaluate, and dispose of

unexploded United States and foreign explosive ordnance, including chemical, biological, and nuclear weapons, which have been fired,

dropped, or placed in such a manner as to constitute a hazard to installations, personnel, materiel, or operations. EOD service also includes the disposal of explosive items determined by local authorities and supporting EOD units to be beyond the capabilities of personnel normally assigned the responsibility for routine destruction. This does not change the responsibilities of all military units to perform normal operations identified with minefield clearance. All combat, combat support, and combat service support units are responsible for clearing landmines and boobytraps to the extent necessary for their continued movement and operation as well as within their own bivouac and work areas.

b. The need for EOD service during and after war has been proven by past experience, which shows about 5 to 10 percent of explosives fired, placed, launched, or dropped did not function (either by design or accident). The presence of these unexploded items and the possibility of accidental detonations posed a threat to combat operations, logistical support capabilities, civilian defense, and troop morale. Unexploded items, by virtue of fuze conditions, are classified into three types—

- (1) Those which contain active "time or long-delay" action fuzes; the purpose being to demoralize the population, disrupt services, interdict vital routes, and combinations thereof. The problem presented by these items is often compounded by antidisturbance devices which have been incorporated into the fuzing system.
  - (2) Those which have failed to function as intended. This type fuze action is known as "dud-fired" since all the necessary initiating actions have taken place to cause the fuze to function but mechanical, electrical, or chemical failure prevents detonation.
  - (3) Those items which have become hazardous or unserviceable by damage or deterioration and the disposal of such items is beyond the capability of personnel normally assigned the responsibility for routine disposition.
- c. The advent of chemical, biological, and

nuclear weapons has greatly increased the need for EOD service. The lethal, incapacitating or explosive energy potential represented by a single weapon generates a requirement for effective EOD support. Unless such weapons are rendered safe or neutralized as required, it is possible that—

- (1) Contamination by CBR agents will restrict the use of terrain or key facilities.
- (2) Lethal CBR agents may cause high casualty rates among civilians or friendly troops.
- (3) Incapacitating agents that are capable of producing physiological or mental effects or both may prevent exposed personnel from performing their assigned duties.
- (4) Nuclear weapons detonation, either with or without a nuclear field, may cause widespread death and destruction.

#### **1-6. Factors Governing the Conduct of EOD Service**

a. *General.* Five major factors govern the conduct of EOD service in the existing climate of political and military affairs. They are as outlined in (1) through (5) below.

- (1) The continuing threat of an enemy attack for which defenses must be constantly marshalled.
- (2) The continual involvement of United States military forces in limited wars, internal defense and development actions, and civil disturbances.
- (3) The continuous development of new weapons and technological advances in the art of war.
- (4) The increase in movement and stockpiling of ammunition and weapons of mass destruction or mass casualty in peacetime.
- (5) The limitation on manpower, money, and materials available for defense.

b. *Threat of Enemy Attack.* The continuous threat of an enemy attack means that the EOD service may be called upon at any time

to support combat operations and civilian defense activities. The attack may be a major conflict, or it may be limited in nature. It could include the interdiction of main supply routes and other critical points in the theater of operations or CONUS by delay devices or large quantities of antidisturbance munitions. Such attacks would produce a number of incidents, including—

- (1) Unexploded bombs, shells, mines, torpedoes and other devices.
- (2) Downed friendly and enemy aircraft containing unexploded ordnance.
- (3) Malfunctioned and unexploded missiles, both friendly and enemy.
- (4) Sabotage devices introduced by clandestine means by enemy agents.
- (5) Stocks of explosive material in fires and explosions.
- (6) Numerous false reports of all the above.

*c. Support of Limited Actions.* The value of EOD service in support of limited war has been clearly demonstrated. EOD units dispose of unexploded bombs, artillery shells, and other explosives from territory occupied by U.S. forces as required. They provide service by destroying large quantities of unserviceable ammunition and captured enemy ammunition. EOD units also support internal defense and development operations. This presents a problem because—

- (1) Many of the weapons may be the product of the ingenuity of the personnel in the field. Even more ingenuity may be required of EOD units to defeat these weapons.
- (2) Guerrilla warfare tactics will be employed, including extensive use of mines and boobytraps. EOD units do not bear the responsibility for disposal of mines and boobytraps, but may be called upon to assist in eliminating these items.
- (3) Extensive EOD service will be required, upon cessation of hostilities.

*d. Support of Civil Defense.* EOD units are located in civil defense regions to strengthen

the nation's civilian defense organization. Dispersing EOD units throughout the United States has been justified by the countless incidents to which they have responded and by the continuing threat of attack by our enemies.

*e. Technological Advances.* Rapid advances in technology have created a generation of highly lethal and destructive weapon systems. To meet this threat, EOD service must continue to provide support to preclude the detonation or release of agents from these weapons systems.

*f. Increase in Movement and Stockpiling.* Prevention of accidents or incidents during movement of high explosive, nuclear, chemical, and biological weapons is necessary. Accidents involving nuclear, chemical, or biological weapons might cause great loss of life, considerable property damage, and adverse national or worldwide publicity. EOD units must be prepared to neutralize damaged weapons in the event of an accident/incident.

*g. Economical Aspects.*

- (1) The need for EOD units, although emphasized during hostilities, is also crucial in peacetime. EOD units assist military installations range clearance operations and destruction of unserviceable ammunition. Civil authorities call upon EOD specialists for assistance when qualified civilian technicians are not available. EOD personnel are also required to render safe and remove explosive components from ammunition items used for displays and training aids. Inserting items for displays or training aids will be accomplished only when directed by competent authority.
- (2) To control, eliminate, or even minimize explosive or toxic munition accidents and incidents may appear costly, particularly during peacetime. However, EOD units that are charged with this responsibility in peacetime will be the backbone of EOD in time of war.

*h. Providing Effective EOD Service.* In summary, circumstances requiring increased EOD services are—

- (1) Increased capability to prevent any detonation which could lead to accidental initiation of open warfare.
- (2) Increased capability to meet accidents and incidents arising from expanded training or mobilization actions (CONUS).
- (3) Maximum effort to keep abreast of expanded technological advances of both friendly and enemy nations in the event of the outbreak of warfare.
- (4) Maintaining flexibility in meeting the threat of introduction of sabotage devices and clandestine weapons into the sphere of EOD operations.
- (5) Establishing and maintaining a responsive and uniform explosive ordnance incident reporting and control system.
- (6) Providing the required numbers of trained EOD personnel and units to meet the threat of limited and general war.
- (7) Increased coordination of the EOD effort between EOD units and supported and supporting units and personnel.

### **Section III. ORGANIZING FOR EOD SERVICE**

#### **1-7. Purpose and Scope**

This section provides commanders, staff officers, EOD personnel, and other Army personnel with general guidance for organizing to perform EOD service. It describes the fundamental principles of EOD organization, the general EOD organizational structure, the types of Army EOD units and their capabilities, and the relationship between Army EOD units and supporting organizations. The organizational structures for providing EOD service in CONUS and in oversea areas are described in detail in chapters 2 and 3. The organization, mission, and capabilities of TOE EOD units are described in chapter 4.

#### **1-8. Introduction**

EOD service must be performed in CONUS and overseas in peacetime and wartime. To fulfill this responsibility, the Army organization for performing EOD service is necessarily simple and flexible. It is sometimes necessary to sacrifice a desirable organizational capability for a necessary one. In such cases, what is lacking is compensated for by a highly responsive system which readily can provide the necessary skills and equipment required. EOD service typifies this situation because of the high degree of skill required, the relative scarcity of the skills, and the large landmasses which must be covered. Because of these limitations, the Army organizational structure must provide for—

- a. Trained personnel to investigate and properly report incidents.
- b. Support from other units.
- c. Specialized EOD personnel to control and perform EOD operations.

#### **1-9. Organizational Elements**

The Army organization for providing EOD service is composed of EOD staff, control units, disposal units, and explosive ordnance reconnaissance agents (para 1-11 through 1-14). Support of EOD service is provided by military police, engineer units, decontamination teams, CBR teams, medical units, and technical intelligence teams as required (para 1-15). Staff supervision is exercised by EOD staff officers. Operational and technical control is retained within the EOD organizational structure. Support of EOD operations by other units is obtained through the coordination efforts of EOD staff officers with other staff officers or local commanders.

#### **1-10. Type of Organization**

Two basic types of EOD organizations are currently prescribed. These are organic EOD elements and cellular EOD detachments.

a. *Organic Units.* EOD personnel may be assigned to and form an essential part of a military organization. EOD organic parts of a unit are those listed in its table of organization and equipment (TOE) for the Army. An



organic unit may be composed solely of cellular type EOD detachments to form an EOD functional organization with command control of the EOD detachments maintained within the EOD organization. This control does not necessarily imply that EOD detachments cannot be attached to other TOE units for dispersal and logistical support purposes. An EOD element also may be assigned as an organic element of an organization in which the disposal function is only one of many related functions to be performed in its overall mission. EOD staff sections usually are organized as organic elements of the headquarters to which their missions are assigned.

*b. Cellular Units.* Based upon their mission, EOD control units and disposal units are ideally suited for organization as cellular type detachments.

- (1) The purpose of cellular organizations (teams of the TOE 500-series) is to develop and provide elements, teams, or organizations for performance and/or operation of specific missions, functions, activities, or equipment. By design, the concept permits flexibility in organization for requirements of varying conditions.
- (2) Cellular TOE organizations provide services required Army-wide regardless of branch or service and normally are designed for attachment to standard TOE units for administrative or logistical support. Where such attachment is inappropriate, cellular-type headquarters organizations may be developed as required to control and administer such units.
- (3) Cellular organizations are generally intended for use in the following manner:
  - (a) Attachment or assignment to standard Army organizations where increments of less than company size are required.
  - (b) Organization into units (singly or in combination of teams) to perform service requirements under such conditions as providing station services for Army posts, depots,

fixed installations, or other standard organizations which are not self-sufficient.

- (4) Cellular detachments may be attached for the purpose of establishing provisional units. A provisional unit is an assemblage of personnel and equipment temporarily organized for a limited period of time for the accomplishment of a specific mission, such as disposing of large quantities of ammunition encountered in a captured enemy depot. Such a unit may consist of explosive ordnance disposal detachments; technical intelligence teams; ammunition supply detachments; and administrative, mess, and logistical support detachments. This would result in a tailored unit which could provide all the necessary skills, equipment, and administrative support necessary to perform the specific mission required. As particular phases of the operation are completed or new phases begun, detachments may be released or added as required. Upon completion of the mission, the provisional unit is disbanded and the detachments returned to the parent organization or home station.

#### 1-11. EOD Staffs

The staffs of armies, task forces, defense commands, oversea commands, theaters of operations, and of other commands responsible for disposal operations should include an EOD staff officer and assistants. The EOD staff officer must be technically qualified and experienced in EOD service. He must be trained in operations, supply, and intelligence, and must be familiar with the organization, methods, techniques, and problems of explosive ordnance reconnaissance and EOD personnel and operations. The assignment of EOD staffs to major commands will vary in proportion to the training requirements of the command and known and estimated demands of present and future operations. The EOD staff normally will be assigned to the staff element responsible for rear area protection. It will include additional EOD and clerical personnel as required. Duties of the EOD staff include the following:

*a. Supervision.* This staff member is responsible to the commander for staff supervision of EOD activities. This will include recommendations for the distribution of units among subordinate commands and redistribution as necessary to meet changing situations, location of control centers, location and attachment of units assigned to the command, and organization of teams into larger units as necessary.

*b. Planning.* Planning for EOD service must commence with the preparation of initial troop lists and must be continuous throughout operations. It will include initial provision of units based on estimates of air activity, phasing of units into the theater of operations, and their subsequent movements as operations progress. It includes the preparation of pertinent paragraphs for inclusion in administrative orders and other directives for the transmission of essential data to troops such as procedures for reporting of incidents and the location of control centers and disposal units.

*c. Training.* In cooperation with the appropriate staff officer of the command, the EOD staff officer is responsible for the establishment, direction, and staff supervision of centers for the training of explosive ordnance reconnaissance personnel and for maintaining the state of training of disposal personnel.

*d. Operations.* The EOD staff officer will coordinate operations, prepare standing operating procedures and procedure instructions, and will verify by inspections, as necessary, the operation of the incident reporting system, initiating corrective action where needed. During emergencies, in the absence of explosive ordnance personnel, he may perform actual field operations.

*e. Intelligence.* EOD and reconnaissance operations are important sources of technical intelligence. The staff officer must insure that such reports are screened for important information, that prompt and reliable evaluation is made, and that intelligence is transmitted to appropriate agencies of the command for dissemination.

*f. Support.* The function of support is to

provide instruction and assistance to ammunition storage units in the preparation and conduct of emergency destruction plans.

*g. Controls.* Normal controls exercised include—

- (1) Establishment of policies governing EOD service in the COMMZ, in the field army, or in CONUS army areas.
- (2) Distribution of EOD units to balance workloads.
- (3) Distribution of special EOD equipment.
- (4) Monitorship and coordination of EOD services.
- (5) Establishment and maintenance of the EOD incident reporting system.

## **1-12. EOD Control Units**

EOD control units provide operational control, planning, and administrative service related to mission operation of disposal units for assigned geographical areas of responsibility. The EOD control unit operates a control center for the receipt of explosive ordnance incident reports and the dispatch of disposal units to unexploded ordnance locations within the assigned control area. The functions performed by the EOD control units include—

*a.* Operating an EOD control center and assigning specific disposal missions.

*b.* In the absence of a rear area operations center (RAOC), provides operational and technical direction and coordinating support of disposal activity (air transportation, military police, technical intelligence, engineer equipment, and decontamination equipment).

*c.* Evaluating activities of the disposal units and recommending distribution of personnel and equipment to balance workloads.

*d.* Authorizing the movement of disposal personnel and equipment to meet high priority operations.

*e.* Conducting liaison with rear area operations centers.

*f.* Conducting liaison with local law enforcement agencies through the civil affairs organizations.

g. Alerting EOD units for standby during the movement of nuclear, chemical, or biological weapons through their area of responsibility.

### **1-13. Explosive Ordnance Disposal Units**

Explosive ordnance disposal units perform final reconnaissance, identification, render safe, recovery, field evaluation, and disposal operations. They normally are authorized on the basis of five per corps slice of a field army or independent corps, two per independent division, eight per communications zone, or one per 30,000 troops, whichever is greater. Additional EOD units are assigned as required. Other functions performed by the EOD units include—

a. Supporting ammunition service activities on a standby basis (e.g., shipment of nuclear, chemical, or biological weapons).

b. Instructing and assisting ammunition service units in the disposal of unserviceable ammunition.

c. Training explosive ordnance reconnaissance agents, as required.

d. Developing emergency render safe procedures and special tools for dealing with first-seen foreign explosive ordnance.

e. Assisting technical intelligence units in developing data on foreign explosive ordnance and performing final disposition as required. New items are more frequently first encountered by EOD rather than technical intelligence personnel. EOD personnel must be trained to recognize and collect intelligence and, within their field, act as agents of the intelligence units.

### **1-14. Explosive Ordnance Reconnaissance Agents**

To operate efficiently the EOD organization must be informed rapidly of the presence of unexploded ordnance or toxic munitions. This requires that military personnel, police, and civil defense personnel be selected and thoroughly trained to recognize and report the presence of unexploded ordnance to EOD units. Such trained personnel of organizations most likely to encounter explosive ordnance in the

field are designated as explosive ordnance reconnaissance agents (EORA).

### **1-15. Support of EOD Service**

a. *Military Police Units.* In many areas, the first information relative to explosive ordnance incidents is acquired by operating military police units through liaison and coordination with local law enforcement agencies and with supported military units. Maximum use should be made of the communications network of operating military police units. Therefore, military police in particular should be thoroughly familiar with explosive ordnance reconnaissance and incident reporting procedures. Activities performed by military police in support of EOD operations include—

- (1) Reporting the presence of explosive ordnance encountered to the appropriate RAOC.
- (2) Sealing off and marking the affected area.
- (3) Controlling traffic and the evacuation of individuals.
- (4) Securing critical installations, activities, facilities, and property.
- (5) Performing CBR monitoring of personnel, vehicles, and areas, and submitting contamination reports as required.

b. *Engineer Units.* Engineer units are responsible for providing heavy equipment support for rear area protection and public emergencies. Activities performed by engineer units in support of EOD operations include—

- (1) Constructing protective barriers to reduce the effects of a detonation.
- (2) Preparing excavation and disposal sites (for example, bulldozing and removing soil).
- (3) Excavating for deeply buried explosive ordnance, when beyond the capabilities of the EOD units. Location of the explosive ordnance, enforcement of safety measures, render safe procedures, and removal of the explosive ordnance are the responsibility of the EOD unit commander.

c. *Decontamination Teams.* After a nuclear,

chemical, or biological attack, decontamination teams may be the first units to encounter the related unexploded ordnance or toxic munition. They may also be called upon to support EOD operations when the possibility of gross contamination of equipment or facilities may require the use of power-driven decontamination equipment.

*d. CBR Teams.* CBR teams should conduct or assist in conducting a reconnaissance for chemical, biological, or radiation contamination.

*e. Medical Support.*

- (1) Medical units will be alerted and provide necessary support to EOD operations. Emergency medical teams must be organized, trained, equipped, and maintained for employment at the accident/incident site. Evacuation should be to prealerted treatment points.

- (2) Use and employment of radiological emergency medical teams will be in accordance with AR 40-13.

*f. Technical Intelligence Teams.* Technical intelligence teams normally will be supported by EOD units in the gathering of information and materiel of technical intelligence value on first-seen enemy explosive ordnance. However, technical intelligence must flow both ways because the EOD unit must have all available information on such items in order to effectively dispose of them. For detailed information on the operation of technical intelligence teams, see FM 30-16.

*g. Legal Aspects of EOD Assistance to Civil Authorities or the Public.* EOD personnel may be confronted with situations having legal implications. Appendix C contains general information on the nature of the legal problems.

## Section IV. CLASSIFICATION OF INCIDENTS

### 1-16. Explosive Ordnance Incidents

An explosive ordnance incident is defined as the suspected or detected presence of explosive ordnance which constitutes a hazard to operations, an installation, personnel, or materiel. Not included in this definition are the accidental arming or other conditions that develop during the manufacture of high explosive or contaminating materiel, maintenance or assembly operations, or the laying of mines and nonnuclear demolition charges. Such situations will be neutralized by qualified personnel of the organization performing the related operation. Such organizations may request EOD assistance.

### 1-17. Classification

Due to the probability of more unexploded ordnance or toxic munition incidents occurring than can be handled at one time by available EOD personnel, it is necessary to classify them according to their potential threat. Such classification is made by local and regional evaluation of the potential damage should functioning occur. Consideration is given to location, size, possible minimization of damage by use of pro-

tective measures, and relative threat to the safety of EOD personnel. Classification is accomplished by placing the incidents in categories A, B, and C.

### 1-18. Category A

*Category A—Assigned to incidents that constitute a grave and immediate threat to military or civilian operations that are essential to the war or defense effort.* The threat may be to vital targets such as key industrial plants, essential transportation facilities, communications centers, strategic storage facilities, or tactical avenues of approach. Category A normally will be assigned to any incident involving unexploded ordnance or toxic munitions that are capable of causing mass destruction or mass casualties; i.e., disastrous damage, widespread contamination, and/or death or injury to large numbers of people. The item may be a chemical, biological, or radiological weapon. Category A also may be assigned to incidents involving conventional weapons when they are capable of initiating a mass destruction effect; e.g., a vehicular accident involving a tractor trailer transport-

ing highly sensitive explosives through a congested area might properly be assigned category A. Category A incidents will be given priority over all other incidents. Disposal operations by EOD units will be started immediately, regardless of personnel risk. Incidents of this nature fully warrant obtaining the best possible assistance, both as to personnel and equipment, in every case where time and resources permit. Incidents in category A will be satisfied prior to satisfying lesser category B or C.

#### **1-19. Category B**

*Category B—Assigned to incidents where the detonation of the item would have an indirect effect on military or civilian operations essential to the war or defense effort.* Priorities in category B are assigned after the relative threat to local facilities, personnel, or operations has been determined. Such incidents usually will require evacuation of endangered local personnel, construction of protective works, application of EOD render safe procedures, and recovery and evacuation of the item. Incidents involving recovery of items of technical intelligence value, where nondestructive EOD render safe procedures should be applied, may be assigned to this category. Usually items involved in category B will be destroyed in place only as a last resort. Prior to beginning EOD operations, a safe waiting period normally will be observed to reduce the hazard to EOD personnel performing the render safe procedures.

#### **1-20. Category C**

*Category C—Assigned to incidents occurring in an area where a high order detonation would have little or no effect upon military or civilian personnel and would not affect operations essential to the war or defense effort.* Category C incidents will be dealt with by EOD personnel after A and B incidents have been satisfied and as the emergency situation permits. Normally, items in this category will be destroyed in place or can be evacuated to a disposal area with minimum hazard to personnel.

#### **1-21. Category Suffixes**

Suffixes are assigned in addition to the basic category designation to designate incidents of technical intelligence value or some other special operations required.

a. Technical (T)—assigned to incidents involving items which require unusual security or disposal procedures under the personal supervision of the commanding officer or operations officer of the EOD control unit. An example of such a categorization would be "Category AT."

b. Special (S)—assigned to incidents involving items which require unusual security or disposal procedures under the personal supervision of the commanding officer or operations officer of the EOD control unit. An example of such a categorization would be "Category AS."

## CHAPTER 2

### CONUS ORGANIZATION AND RESPONSIBILITIES FOR EOD OPERATIONS

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#### Section I. PURPOSE, SCOPE, AND AUTHORITY

##### 2-1. Purpose

This chapter describes the authority and the responsibility of the public and civil and military authorities for EOD service, the CONUS organization, and the conduct of EOD operations in CONUS. The EOD organization and conduct of operations in oversea areas are provided in chapter 3.

##### 2-2. Scope

The state and local governments and various agencies of the Federal Government have an important role to play in the conduct of EOD service during domestic emergencies or in response to accidents or incidents involving unexploded ordnance or toxic munitions. The military services have been assigned specific responsibilities for conducting military operations and providing military support to civil authorities. Among these is the primary responsibility for EOD service.

##### 2-3. Authority

The primary authority for the performance of EOD service is vested in the following:

*a. The Federal Civil Defense Guide*—Describes the Civil Defense program and policies of the Federal Government and sets forth recommended state and local action in programming for and accomplishing civil defense preparedness.

*b. AR 75-14, Responsibilities for Explosive Ordnance Disposal*—Delineates the responsibilities of the Department of the Army, the Navy (including the Marine Corps), and the Air Force for the operational, technical, materiel, and administrative aspects of EOD.

*c. AF 75-15, Responsibilities and Procedures for Explosive Ordnance Disposal*—Prescribes Department of the Army responsibilities and procedures for EOD activities within the Army.

*d. AR 500-70, Emergency Employment of Army Resources*—Prescribes policies, responsibilities, and guidance for the Department of the Army relative to planning and operations in support of civil defense.

#### Section II. FEDERAL GOVERNMENT

##### 2-4. General

EOD activities are directly influenced by decisions of the National Security Council, the President, his staff, and the Congress. Through their direction, various agencies of the Federal Government perform services in connection with EOD service. Within the jurisdiction of the United States, Federal law governs the movement of explosive ordnance and hazardous

material. The Armed Forces and Atomic Energy Commission exercise complete authority and responsibility for the use, handling, or movement of explosive ordnance and hazardous materials, including nuclear devices or materials within their custody or control. The Department of Defense and the Atomic Energy Commission have CBR Alpha Teams and Radiological Control (RADCON) Teams who are

prepared to implement nuclear accident and incident control plans. Other Federal agencies are concerned with regulatory provisions and enforcement measures controlling safety and security regarding explosive ordnance. This section describes the responsibilities of the Federal Government with respect to EOD.

## **2-5. Department of Defense**

The Department of Defense, through its component Military Departments, conducts explosive ordnance disposal and provides training and operational assistance to civilian agencies in the performance of its military support responsibilities. The primary DOD departments and agencies concerned with explosive ordnance disposal activities are the Department of the Army, Department of the Air Force, Department of the Navy, the Defense Atomic Support Agency, and the Director of Civil Defense. The latter is under the direction of the Secretary of the Army. Since many weapons are shared or handled by all military services, provisions are made for joint service assistance. The interests and responsibilities of the different services and defense agencies differ widely, however. Paragraphs 2-6 through 2-10 delineate these differences. The military service concerned is responsible for disarming foreign nuclear sabotage devices except that the Department of the Army is the principal contact within the Department of Defense with Government agencies.

## **2-6. Department of the Navy**

The Department of the Navy is responsible for—

- a. The disposal of explosive ordnance on Navy installations or in the physical possession of the Navy at the time of the incident.
- b. The disposal of explosive ordnance discovered in any inclosed bodies of water, rivers, or canals.
- c. The disposal of explosive ordnance discovered within the oceans and contiguous waters, up to the high watermark of sea coasts, inlets, bays, and harbors.
- d. The disposal of explosive ordnance on Marine Corps installations or in the physical possession of the Marine Corps at the time of the incident.

## **2-7. Department of the Air Force**

The Department of the Air Force is responsible for disposal of explosive ordnance on Air Force installations or in the physical possession of the Air Force at the time of the incident, except for explosive ordnance which may be discovered in any inclosed bodies of water, rivers, or canals or in the oceans and contiguous waters, up to the high watermark of sea coasts, inlets, bays, and harbors.

## **2-8. Department of the Army**

a. The Department of the Army is responsible for—

- (1) Disposal of all unexploded ordnance except items in the physical possession of the Navy, Marine Corps, and Air Force at the time of the incident and items discovered in any inclosed bodies of water, rivers, or canals, or within oceans and adjacent waters, up to the high watermark of sea coasts, inlets, bays, and harbors.
- (2) Disposal of all explosive ordnance introduced on the CONUS landmass by enemy action or defense against enemy action, except on Air Force, Navy, and Marine Corps installations.
- (3) Establishment and operation of an explosive ordnance reconnaissance and incident reporting system in conjunction with military and civil defense agencies.
- (4) Providing explosive ordnance reconnaissance training and planning assistance to civil authorities in the development and operation of the program.
- (5) Serving as the principal Department of Defense contact with civilian governmental agencies for the disarming of nuclear weapons introduced into CONUS by stealth or clandestine means.
- (6) Explosive ordnance disposal in all areas under the control of local government and civil authorities except those areas controlled by the Air Force, Navy, and Marine Corps. The Department of the Army is not re-

sponsible for the disposal of nonmilitary commercial type explosives or dangerous articles in the possession of, or controlled by, civil agencies. Assistance for disposal may be provided upon receipt of request by Federal agencies or civil authorities and determination by the commander concerned that such assistance is required in the interest of public safety or public relations.

- (7) Serving as the primary point of contact for the U.S. Secret Service for all EOD support for Presidential protection.

*b. Director of Civil Defense.* The Director of Civil Defense is responsible for establishing, directing, and coordinating the civilian aspects of the explosive ordnance reconnaissance program and incident reporting system. This includes Civil Defense planning, training, and testing activities and coordination of military support and Federal interdepartmental support of state and local governments through the established Civil Defense Directors.

## **2-9. Defense Atomic Support Agency (DASA)**

This joint agency of the Department of De-

fense is an organization which receives, handles, and prepares nuclear weapons for use in the field and conducts initial training of all personnel engaged in such activities. DASA is responsible for conducting explosive ordnance disposal operations at all DASA installations. Each DASA Base Commander, except Sandia Base, must maintain a Nuclear Emergency Team (NET). The DASA Deputy Chief of Staff for Operations is required to organize a NET to serve Sandia Base and supplement other DASA base capabilities. This team has the capability to assist any Department of Defense or Atomic Energy Commission (AEC) installation in event of a nuclear weapons accident.

## **2-10. Atomic Energy Commission (AEC)**

The Atomic Energy Commission is responsible for—

*a.* The final disposition of any foreign nuclear weapons or nuclear sabotage devices after having been rendered safe by explosive ordnance disposal personnel, within the lines of responsibilities outlined above.

*b.* Taking custody and disposing of fissionable materials from any type of unexploded ordnance.

# **Section III. STATE AND LOCAL GOVERNMENTS**

## **2-11. General**

State and local governments are responsible for the detection and reporting of unexploded ordnance to the proper authorities, for the initial evacuation of personnel from endangered areas, and for the disposal of *commercial type nonnuclear explosive devices* in areas under civil jurisdiction. Local actions under these responsibilities should conform to state plans. State plans should conform to the Federal Civil Defense Guide.

## **2-12. State and Local Authorities**

State and local authorities are responsible for—

*a.* Taking all actions necessary for the public safety to prevent loss of life and personal property from explosive ordnance and clandestinely introduced nuclear weapons.

*b.* Maintaining an explosive ordnance reconnaissance capability and establishing procedures to assist whatever Federal agency is charged with responsibility for rendering safe, disarming and disposal of unexploded weapons or devices.

*c.* Assigning full-time regular police officers for training and designation as EORA.

*d.* Initiating and forwarding reports of accidents or incidents involving explosive ordnance or military vehicles suspected of carrying explosive ordnance immediately to the nearest military installation or AEC (in the case of nuclear weapons), and to the state civil defense office.

*e.* Assigning and training regular full-time police in the disposal of nonmilitary commercial-type explosives or dangerous articles de-



signed for criminal purposes, including non-nuclear sabotage and subversive devices discovered in areas of civilian responsibility.

### **2-13. Police Departments**

State and local police are responsible for—

*a.* Reconnoitering of unexploded ordnance which has been dropped, fired, or placed in areas of civilian responsibility, and reporting such incidents to the appropriate EOD unit for disposal action.

*b.* Reconnoitering of clandestinely introduced nuclear weapons and reporting the discovery of such sabotage and subversive devices to the nearest Federal Bureau of Investigation Office, which calls for EOD assistance and takes all further required actions.

*c.* Reconnoitering, disarming, and disposing of "home-fabricated" bombs and devices of a criminal nature; abandoned, lost, or damaged commercial explosives in transit; and similar dangerous nonmilitary explosives or articles.

### **2-14. Fire Departments**

State and local fire departments are responsible for—

*a.* Performing the reconnoitering responsibilities of the police, provided that the firemen performing this function have been so designated and trained as EORA and appropriately trained police EORA are not readily available.

*b.* Clearing endangered areas in the absence of the police.

*c.* Fighting fires to prevent the detonation of explosives or the release of harmful toxic substances which may be encountered in an explosive ordnance incident or accident.

*d.* Evacuating injured personnel in localities where ambulance services are provided by the local fire department.

### **2-15. Highway Departments**

State and local highway, bridge, and toll departments are responsible, in coordination with the police and military officials, for rerouting of traffic around the safety limits of the incident site and for permitting the uninterrupted movement of explosive ordnance disposal units to the incident site over toll roads and bridges, and through tunnels, as required.

## **Section IV. DEPARTMENT OF THE ARMY**

### **2-16. General**

Department of the Army EOD responsibilities, listed in paragraph 2-8 are divided among major commanders and several agencies, which participate as described in AR 75-15. This section describes the primary responsibilities of Department of the Army staff organizations, research and development activities, supply and procurement activities, training activities, and special units which provide support to, or are supported by, the Army EOD effort (fig. 2-1).

### **2-17. Headquarters, Department of the Army**

The Deputy Chief of Staff for Logistics provides Headquarters, Department of the Army general staff supervision of the Department of the Army EOD program.

### **2-18. U.S. Continental Army Command**

*a.* *Headquarters, CONARC.* The U.S. Con-

tinental Army Command (CONARC) is the Army organization responsible for EOD service in CONUS, including EOD support of civil defense. An EOD staff officer is assigned to Headquarters, CONARC, to report to CONARC staff on EOD training and technical matters. The continental United States is geographically divided into several army areas, under the command of CONARC. All EOD units in these army areas are under the technical supervision of the CONARC EOD Staff Officer, who, in turn, reports to CONARC Staff. In this capacity, he is responsible for performing staff supervision of the EOD activities in CONUS Armies as follows:

- (1) Establishment and operation of an EOD system that will provide EOD units and/or individuals in the type and quantity required within the command.
- (2) Establishment and operation of a

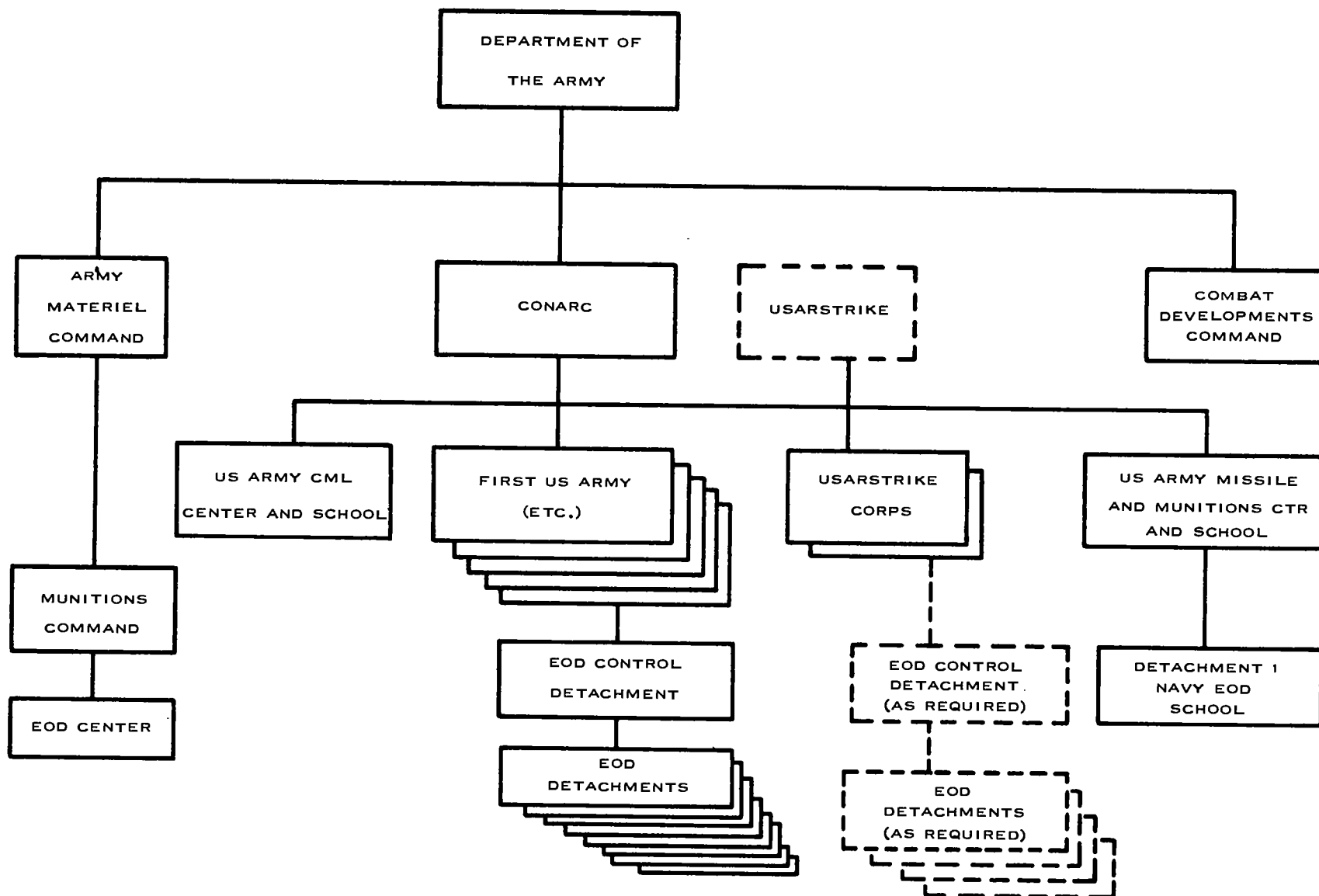


Figure 2-1. Army EOD organization (CONUS).

uniform unexploded ordnance reporting and control system within the command (i.e., throughout each army area).

- (3) Providing sufficient trained explosive ordnance personnel throughout the command.
- (4) EOD service to render safe nuclear weapons introduced into the command which are the responsibility of the Department of the Army in accordance with AR 75-14.
- (5) EOD assistance, support, and coordination at each command echelon with other departments, agencies, and civil authorities having explosive ordnance disposal or reconnaissance responsibilities.
- (6) Providing for technical staff supervision and inspection of EOD units in CONUS.
- (7) EOD primary and alternate emergency communication facilities to expedite the flow of explosive ordnance reconnaissance and disposal information.
- (8) The establishment, operation, and supervision of technical intelligence functions pertaining to EOD within the continental United States.

*b. USARSTRIKE.* The Commanding General, CONARC, is also Commanding General, U.S. Army Forces Strike Command (USARSTRIKE). USARSTRIKE is that part of the Army, normally located in the continental United States, which is trained, equipped, and maintained for employment to meet national emergency operational contingencies. It consists of an appropriate number of corps and supporting units to provide tailored task forces in accordance with current contingency operational plans (OPLAN). The CONARC EOD Staff Officer plans for and provides technical supervision over all EOD units assigned in support of the contingency plan task forces.

*c. CONUS Armies.* The commander of each CONUS Army is responsible for—

- (1) Establishing and operating an EOD system that will provide explosive dis-

posal units of the type and in the quantity required within the command.

- (2) Establishing and operating a uniform incident reporting and control system within the command and in conjunction with collocated regions, Director of Civil Defense, and with the FBI and other law enforcement agencies.
- (3) Providing an adequate number of Explosive Ordnance Reconnaissance (EOR) trained personnel throughout the army area.
- (4) Providing EOD service to disarm nuclear weapons for which the Department of the Army has responsibility, introduced into the command by clandestine means, or as a result of enemy attack.
- (5) Providing EOD service in support of movement, storage, or operational employment of nuclear weapons.
- (6) Providing EOD assistance, support, and coordination at each command echelon with other departments, agencies, and civil authorities having EOD or reconnaissance responsibilities.
- (7) Providing EOD primary and alternate emergency communication facilities to expedite the flow of EOR and EOD information.
- (8) Establishing, operating, and supervising technical intelligence functions pertaining to EOD.
- (9) Establishing EOD responsibilities for local commanders.
- (10) Establishing operational funds to conduct explosive disposal operations outlined herein.
- (11) Insuring that personnel assigned to explosive disposal are technically qualified in MOS and have successfully completed the basic, advanced, refresher, and specialized courses commensurate with grade or position as prescribed in DA Pam 350-10.
- (12) Assuring that personnel assigned to

EOD units possess proper clearance to perform their missions.

- (13) Formulating policies, procedures, and methods pertaining to the disposal of radioactive materials within the army area.
- (14) Providing technical assistance with regard to any special radiological disposal problems.

*d. Army EOD Staff Officers.* An EOD staff officer normally is assigned to each Army headquarters to report to the Army staff on EOD training, technical, and operational matters. The EOD staff officer is responsible for coordinating all EOD activities within the army area which includes—

- (1) Supervising EOD functions within the army area of responsibility.
- (2) Exercising operational control over EOD detachments.
- (3) Providing a central staff office for coordinating EOD activities.
- (4) Advising the Army commander and his staff on all EOD activities.
- (5) Preparing plans and directives pertaining to EOD and EOR activities.
- (6) Implementing approved plans and directives pertaining to EOD and EOR activities.
- (7) Coordinating EOD activities of the command with other agencies of the Defense Department, governmental agencies, and state and local governments, collocated Civil Defense regions, and adjacent CONUS Armies.
- (8) Advising Civil Defense agencies in related EOD activities.
- (9) Reviewing, evaluating, and disseminating EOD technical intelligence to interested agencies.
- (10) Establishing an incident reporting system for the receipt of unexploded ordnance incident reports through military and Civil Defense channels.
- (11) Preparing and supervising an EOD training and testing program for assigned EOD detachments.

- (12) Continuously inspecting and testing EOD activities in the army area to insure—

- (a) That efficient and continuous EOD support can be provided.
- (b) The proficiency of EOD units and individuals within the units.
- (c) The adequacy of EOD equipment to perform assigned missions.
- (d) The effectiveness of the EOR and incident reporting system.

*e. EOD Control Units.* Each army area in CONUS is authorized one or two EOD control units, which supervise about nine explosive ordnance disposal units distributed geographically throughout the army area. The control unit may perform emergency disposal missions within equipment and personnel limitations; however, the primary mission of the unit is to operate an EOD control center for—

- (1) Receiving explosive ordnance incident reports.
- (2) Scheduling disposal operations.
- (3) Dispatching disposal detachments to effect disposal.
- (4) Receiving disposal completion reports.
- (5) Routing information of technical intelligence value.

*f. Disposal Units.* Each army area is authorized a number of cellular type EOD units, which are deployed geographically by CONARC according to potential target locations (from key facility lists) and communications centers. At present, most of the units are located on or near an Army installation and receive rations, quarters and other administrative support from the installation. Some units are placed in relatively isolated locations and must assume all of the administrative burden. The disposal units are the basic Army organization charged with the primary task of EOD service. They may, upon request, assist Civil Defense or civil agencies and military establishments within the army area in setting up incident reporting procedures which include the training of EORA.

*g. Local Military Commanders.* Commanders

of posts, camps, or stations within the army area are responsible for—

- (1) Providing necessary emergency assistance to EOD personnel engaged in EOD operations.
- (2) Assuring that trained EORA are designated for the installation and assigned units.
- (3) Destruction of duds and police of impact areas on their installations in accordance with AR 385-65.
- (4) Providing EOD detachments stationed at their installations the required facilities for storage of classified documents and equipment, and for storage of demolitions and training ammunition.
- (5) Providing an adequate destruction site for the disposal of explosive ordnance collected by EOD detachments stationed at their installation. If such an area cannot be made available due to technical restrictions the installation commanders will provide an adequate explosive ordnance storage area for items awaiting destruction.
- (6) Assisting local civil authorities in obtaining military EOD assistance. Requests should be forwarded as follows:
  - (a) *Accidents/incidents involving common carriers transporting military explosives.* In the event of an accident/incident involving military explosives in the hands of a common carrier, notify the nearest EOD Control Center and provide supervision in the affected area to protect life and property. Request local police to provide assistance until military security can be furnished by the appropriate Provost Marshal.
  - (b) *War trophies collection campaign.* Military commanders will refer requests for assistance in the collection of war trophies to local Public Information Officers (PIO) for coordination with local civilian au-

thorities and the EOD Control Center.

- (7) Providing necessary Public Information Officers assistance at the scene of EOD incidents. In releases concerning explosive ordnance disposal activities and training, the PIO should observe the following rules:
  - (a) They should explain that actual disposal of unexploded military ordnance is a function of technically qualified explosive ordnance disposal personnel of the military forces.
  - (b) They should state that locating, identifying, and reporting unexploded ordnance are functions to be performed by explosive ordnance reconnaissance personnel trained by military EOD personnel.
  - (c) They may tell the devastating effects of the explosive ordnance on transportation systems, utilities, and communications, and on civilian morale and the war effort.
  - (d) They should not release photographs of any phase of actual disposal operations.
  - (e) They should not release stories giving the incorrect impression that explosive ordnance disposal is accomplished by "suicide squads."
  - (f) They should not list the names of military personnel or units engaged in EOD work unless approval to release this information is authorized by the appropriate Army commander.

*h. U.S. Army Missile and Munitions Center and School.*

- (1) The Explosive Ordnance Disposal Testing and Training Center, under the Commandant, U.S. Army Missile and Munitions Center and School, is responsible for the following:
  - (a) Administer the technical portions of an annual Army Training Test to active Army EOD units.
  - (b) Conduct annual unit refresher

training in disposal of conventional and nuclear, chemical, and biological ammunition.

- (c) Conduct EOD instruction for other resident courses as required.
  - (d) Assist in the development of schedules.
  - (e) Prepare and maintain programs of instruction as directed.
  - (f) Prepare and review training and applicatory literature.
- (2) The Army EOD Training Detachment located at the Navy EOD School, Indian Head, Maryland is responsible to the Commandant, U.S. Army Missile and Munitions Center and School. The Detachment provides command, logistical and administrative support for Army personnel assigned or attached to the school as a member of the staff or as a student.

*i. U.S. Army Chemical Center and School.* The Chemical-Biological EOD Branch of the chemical school is responsible for the following:

- (1) Control and conduct of the chemical and biological instruction presented to students of all military services. The course is conducted for 2 weeks and qualifies personnel in the detection, identification, decontamination, protection, handling, and disposal of chemical and biological agents that may be found in explosive ordnance. This is the first phase of the individual training program which is completed at the Navy EOD School.
- (2) Conduct of individual refresher training in the handling and disposal of CB agents for personnel of all military services.
- (3) Preparation and maintenance of the programs of instruction related to (1) and (2) above.
- (4) Conduct of EOD instruction for other resident courses at the Chemical Center and School as required.
- (5) Development of doctrine, technical

material, training literature and other training media relating to CB EOD subjects.

- (6) Review and evaluation of training literature or media and doctrinal publications on CB EOD subjects developed by other agencies.
- (7) Providing support for EOD testing of CB munitions and CB EOD material or equipment as directed.
- (8) Developing test items for the Enlisted Evaluation System.

## **2-19. U.S. Army Materiel Command**

*a. General.* The U.S. Army Materiel Command is responsible for the Army materiel and technical aspects of explosive ordnance disposal. This includes development, production, and supply of EOD tools and equipment; development of render safe procedures; rendering technical assistance; and performing liaison with other Department of Defense agencies, Federal agencies, and foreign governments pertaining to EOD responsibilities. USAMC also has a joint service responsibility for the development of EOD procedures and equipment for all foreign explosive ordnance normally encountered on land.

*b. Explosive Ordnance Disposal Division, Directorate of Installations and Services, U.S. Army Materiel Command.* This division provides staff direction for all EOD activities in the U.S. Army Materiel Command. It plans and provides for the overall coordination and staff supervision within Headquarters, AMC, of all functions pertaining to the AMC Radiological Control (RADCON) Team and the U.S. Army Technical Escort Unit. These latter functions concern operational responsibilities in the nuclear, chemical, and biological accident and incident control plans. The chief of this division serves as permanent chairman of the Army Explosive Ordnance Disposal Coordination Group, described in paragraph 2-21.

*c. Project Managers, U.S. Army Materiel Command.* Project managers are responsible for timely development and supply of required EOD equipment and technical information. They must, in coordination with the U.S. Army Munitions Command (U.S. Army EOD Cen-

ter), insure that this equipment and information coincide with the development of weapon systems.

*d. U.S. Army Munitions Command.*

- (1) Coordinates with the Department of the Navy and Air Force, other Government agencies and elements of the Department of the Army in technical matters pertaining to explosive ordnance reconnaissance and explosive ordnance disposal.
- (2) Has primary responsibility for research and development of EOD supplies, equipment, methods and procedures in coordination with Departments of the Navy and the Air Force, other Government agencies and Department of the Army.

*e. U.S. Army Explosive Ordnance Disposal Center.* This agency provides the staff implementation of EOD functions assigned to the Munitions Command, specifically as follows:

- (1) Review and develop EOD research and development programs.
- (2) Coordinate with the Air Force, Navy, and other Government agencies.
- (3) Determine research and development requirements and propose military characteristics for new equipment.
- (4) Schedule render safe procedures for Army use.
- (5) Provide technical information publications.
- (6) Develop EOD procedures for all Army developed munitions.
- (7) Update and revise existing EOD publications and procedures as required.
- (8) Insure test and validations of all new EOD procedures for Army developed munitions.

*f. U.S. Army Ammunition Procurement and Supply Agency.* This U.S. Army Munitions Command agency performs the functions of a National Inventory Control Point for ammunition, ammunition components, ammunition service, and EOD service including—

- (1) Procurement and supply of EOD

tools and equipment and related CBR materiel.

- (2) Alerting EOD units in advance of special ammunition shipments, including nuclear, biological, and chemical filled munitions, to provide effective EOD support in the event of accidents or incidents while the shipments are en route.
- (3) Alerting the U.S. Army technical escort unit in advance of shipments of hazardous biological and chemical filled ammunition in order that escort teams may be provided to accompany the movement. Responsibilities for technical escort are found in AR 740-32.

*g. Edgewood Arsenal.* This U.S. Army Munitions Command arsenal is responsible for exercising staff supervision over all matters pertaining to the disposal of radioactive material within the Department of the Army and operational control of the U.S. Army technical escort unit.

*h. U.S. Army Technical Escort Unit.* This unit is an activity of the U.S. Army Munitions Command and is located at Edgewood Arsenal, Maryland. The primary mission of the unit is to perform, through the use of qualified personnel, escort, demolition, destruction, demilitarization, decontamination, and safety duties in connection with the handling and movement of hazardous types of chemical, biological, radiological and other hazardous material within CONUS and to oversea theater depots. In the event of an accident/incident, EOD teams may be called upon to provide assistance in rendering safe, evacuation, and disposal of these munitions while the technical escort team continues its mission of delivering the undamaged materiel to its destination.

*i. U.S. Army Nuclear Defense Laboratory.* This AMC activity, located at Edgewood Arsenal, Maryland, maintains a Radiological Control (RADCON) Team to provide technical assistance and advice to the Army Area Representative in radiological emergencies. This team provides assistance to EOD units in the reclamation of radioactive materials.

*j. Foreign Science and Technology Center.* The Foreign Science and Technology Center makes available foreign explosive ordnance items, reports and evaluations required for study and use in the development of EOD tools and render safe procedures.

## **2-20. U.S. Army Combat Developments Command**

The U.S. Army Combat Developments Command is responsible for the following functions:

*a.* Recommends to Headquarters, Department of the Army, revisions to the Combat Development Objectives Guide.

*b.* Recommends, if appropriate, changes to Headquarters, Department of the Army, planning documents (e.g., the Army Long-Range Capabilities Plan) on matters which affect, or are affected by, EOD operations.

*c.* Recommends to Headquarters, Department of the Army, establishment of, or revisions to, qualitative materiel requirements and small development requirements concerning specialized EOD supplies and equipment.

*d.* Develops doctrine, prepares tables of organization and equipment (TOE), and doctrinal publications to reflect the most effective Army EOD organization for current and future combat operations.

*e.* Incorporates EOD considerations into combat development studies, experiments, and troop tests to evaluate operational and organizational concepts, doctrine, techniques, and procedures, and to gain further information on EOD equipment.

## **2-21. EOD Coordination Group**

The EOD Coordination Group consists of representatives from U.S. Army Materiel Command, U.S. Continental Army Command, and U.S. Army Combat Developments Command, whose mission is to improve Army EOD capabilities. Periodic meetings are held by the group to discuss EOD problems and to informally coordinate related matters. The Chief, Explosive Ordnance Disposal Division, U. S. Army Materiel Command, serves as permanent chairman of the group.

# **Section V. DEPARTMENT OF THE NAVY**

## **2-22. General**

Department of the Navy EOD responsibilities are listed in paragraph 2-6. Navy and Marine Corps EOD units are described in this section.

## **2-23. Navy EOD Unit**

There are two Navy EOD units; one located at Pearl Harbor that has the responsibility for Navy EOD west of the Mississippi River to halfway around the world; the other at Charleston, South Carolina which has responsibility for Navy EOD east of the Mississippi and the other half of the world. Each EOD unit can deploy seven fully equipped EOD teams. In addition, each major Naval activity is assigned an EOD team to perform underwater disposal in the geographical area and dispose of items in its own territory. An EOD team normally is composed of an officer and two men. In addition, an EOD team is as-

signed to each aircraft carrier, ammunition ship, submarine tender, destroyer tender, and seaplane tender.

## **2-24. Marine Corps EOD Units**

*a.* EOD support for Marine Corps ground forces is provided from the Force Service Regiment on the basis of one EOD platoon per Marine Division. This platoon is capable of providing three teams of one officer and six enlisted with their associated tools and equipment.

*b.* Support for Marine Corps air forces is provided by EOD teams of one officer and three enlisted assigned to each fixed wing Marine Aircraft Group. An additional team is assigned to each Marine Air Wing.

*c.* EOD teams of varying sizes are assigned to each major Marine Corps Base and Air Station.



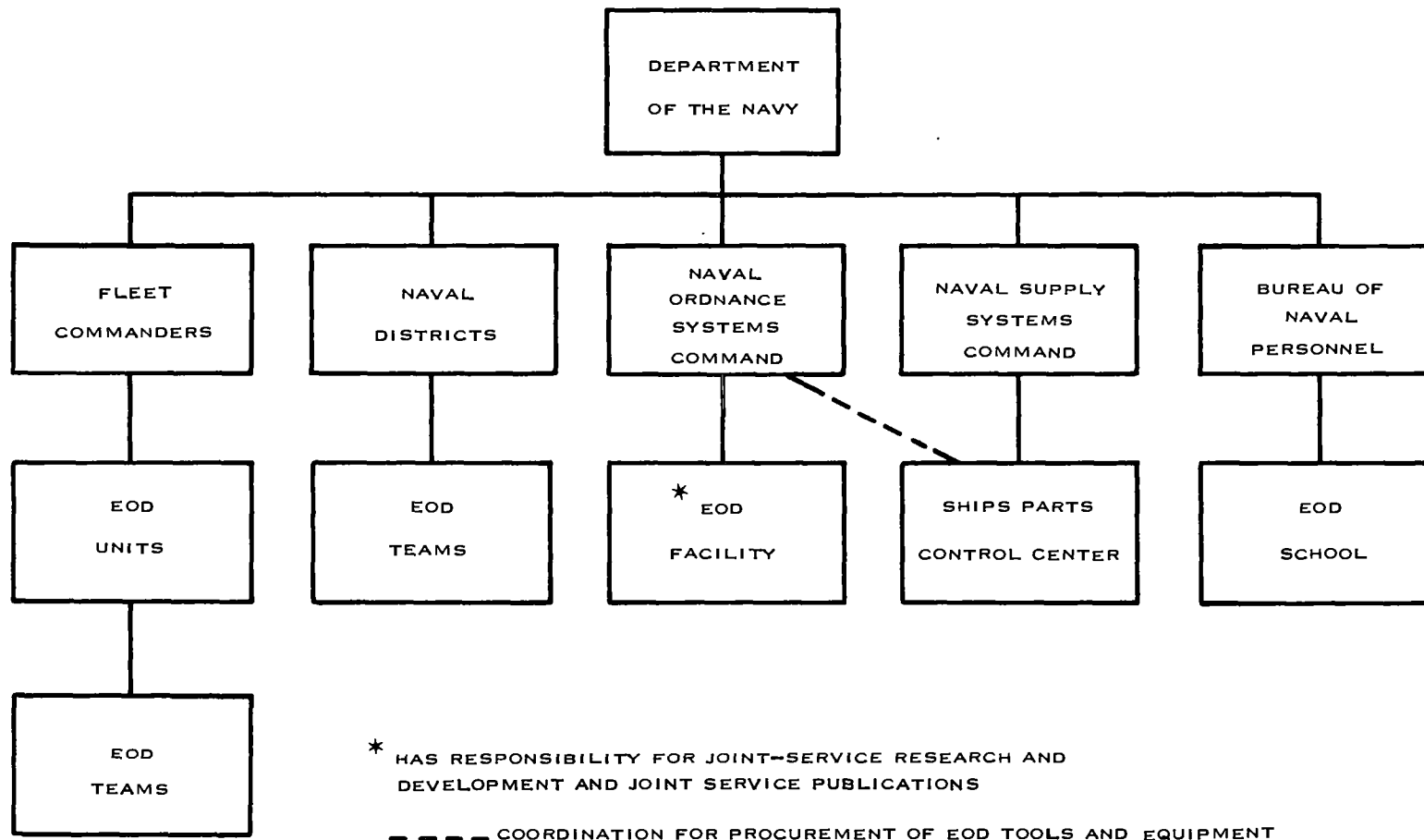


Figure 2-2. Navy EOD organization.

## Section VI. DEPARTMENT OF THE AIR FORCE

### 2-25. General

Overall management responsibilities are retained at Headquarters, United States Air Force. The Staff EOD Office (AFSSSG) is located within the Munitions Division of the Directorate of Supply and Services, under the Deputy Chief of Staff for Systems and Logistics. Management of technical and logistic aspects of the Air Force EOD program is assigned to the Air Force Logistics Command (AFLC), which has delegated these responsibilities to the Ogden Air Materiel Area (OOAMA). Within OOAMA, the Airmunitions Wing administers this aspect of the program through a staff agency, the EOD Management Division. Figure 2-3 depicts the Air Force EOD Staff and Operational Organizations.

### 2-26. Staff Organization

a. Headquarters, United States Air Force has overall staff management responsibility for the Air Force EOD Program. This responsibility is exercised through coordination with elements of the Air Staff, as well as with Staff EOD offices of each of the major commands. Technical and logistic management responsibilities are exercised through AFLC and OOAMA. In addition to providing logistic support for the entire AF EOD program, OOAMA monitors the preparation of all AF EOD publications; receives and analyzes all AF EOD reports and provides liaison to the Navy EOD Facility at Indian Head, Maryland.

b. Staff EOD functions exist at the headquarters of each major Air Force command, the strategic air command or the tactical air command. These offices are located within the materiel staffs of each of these headquarters, and are charged with performing staffs of each of these headquarters, and are charged with performing staff functions relating to the management of EOD resources within each command. Additionally, EOD staff offices are often located within the headquarters of numbered Air Forces of major commands. EOD officers are also found on the staff of the Air Force Inspector General of several of the major com-

mands. Some assignment of EOD personnel to Explosive/Nuclear Safety Offices exists within the Air Force.

### 2-27. Air Force EOD Units

a. Each Air Force base with an assigned munitions tactical or storage mission, or with special activities warranting an EOD capability, possesses an EOD unit. These units usually consist of three to six men and are termed EOD Elements; EOD Elements are typically a part of the local Munitions Maintenance Squadron or Supply Squadron of the base. When base functions include clearance of locally-assigned bombing and gunnery, or test ranges, the EOD Element may be larger and may include from 10 to 50 personnel depending upon the local requirements for EOD services. The larger elements are usually broken out into EOD Teams of from four to six men each for operational reasons.

b. Within the United States Air Forces in Europe (USAFE) is the EOD Squadron, which provides all EOD services for the entire geographic area of USAFE responsibility. This squadron has five *EOD Detachments*, which provide geographic area control and backup support for smaller EOD Elements assigned to each. Each such detachment has one officer and seven EOD NCO's. The smaller EOD Elements have four to five EOD personnel, depending upon mission and location.

c. Within AFLC, an EOD Squadron provides on-base coverage where each of its ten EOD Detachments are located, as well as providing backup EOD support for all Air Force EOD units on the North American continent, including Puerto Rico, Canal Zone and Bermuda. It is this unit which provides Air Force EOD backup support to CONUS Army and Navy units upon request.

d. All Air Force EOD units primarily are concerned with the safe disposal of explosive ordnance and the elimination of explosive hazards at Air Force installations or in the physical possession of the Air Force.

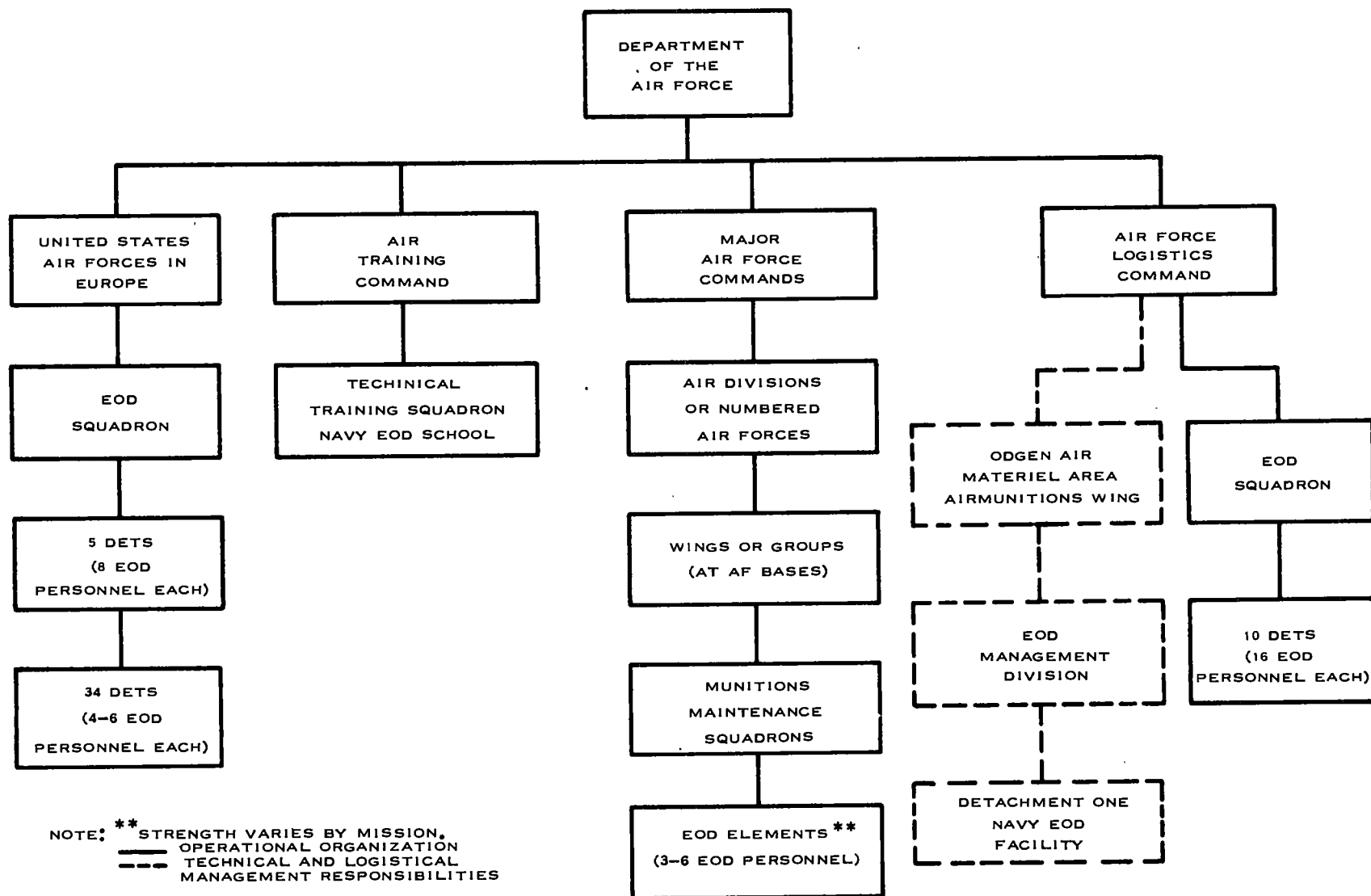


Figure 2-3. Air Force EOD organization.

## Section VII. JOINT AGENCY OPERATIONS

### 2-28. Introduction

The implementation of EOD individual training is a tri-service effort under Navy control at Indian Head, Maryland. Under current philosophy, EOD personnel in all services must be capable of handling all allied and foreign ordnance encountered. Centralized training facilities therefore are necessary, despite some separate service requirements (such as underwater disposal for the Navy). This section reviews joint agency EOD efforts as reflected in Army EOD operations.

### 2-29. Joint Nuclear Accident Coordination Center (JNACC)

*a. General.* In the midfifties, a study made of the trend in weapons development noted that weapons were becoming more powerful and complex, requiring intricate systems and procedures for detonation. On the basis of this study, the Joint Services and AEC issued at Joint Agreement on 27 February 1958, describing the "responsibility and procedures applicable to the prompt, effective and coordinated response to accidents involving nuclear weapons." This document established a Joint Nuclear Accident Coordinating Center. It is located at Field Command, Defense Atomic Support Agency, Sandia Base, Albuquerque, New Mexico.

*b. Mission.* The specific functions of JNACC as stated in the Joint Agreement of 27 February 1958 are—

- (1) Maintain current information as to the location of specialized DOD and AEC teams or activities capable of responding to accidents involving nuclear weapons.
- (2) Receive requests for assistance.
- (3) Request necessary assistance from appropriate DOD or AEC teams or activities.
- (4) Provide all available information to appropriate commands and agencies.
- (5) Where pertinent, obtain complete information regarding the type of weapon and system from operators or

custodians, when such individuals are known, for relay to the accident scene.

- (6) Refer public queries to the responsible agency.

*c. Organization.* The JNACC commander reports to the Assistant Secretary of Defense. If any accident threatens to become disastrous, direct lines of communication to the Secretary of Defense and President exist. Certain responsibilities are assigned DASA commanders in event of a nuclear weapons accident. The establishment of capability at DASA bases is authorized to assist during nuclear emergencies.

*d. The Need for JNACC.* The existence of JNACC enhances the Army capability for handling all types of EOD situations and strengthens overall service EOD capabilities. Limited and global conventional and nuclear war would rapidly increase the workload of JNACC due to the greater frequency of movement of nuclear weapons. It should be realized that the function of the JNACC is primarily advisory and use of the NET depends on the judgment and prudence of the commander in whose area the accident occurs.

*e. Employment.* The services, DASA, AEC, and other Federal agencies may request assistance from JNACC at any time in the event of an accident. The Center is manned continuously and can be reached by telephoning JNACC, Sandia Base, Albuquerque, New Mexico. JNACC, upon receiving a request for assistance, will notify a facility having the required capability. That facility is then required to respond to the request from JNACC for assistance, subject to command and operational limitations. For example, should an accident occur near a military base, then the base NET would have immediate command responsibility and would respond to the accident. If the NET officer in charge (OIC) feels additional assistance is required, he should inform his base commander who would request assistance from JNACC. JNACC would then request that the nearest team with the necessary capability respond to the accident and as-

sist the NET team (fig. 2-4). A base commander may also request assistance from any Army, Navy, Air Force, DASA, or AEC installation or activity near the accident scene

known to possess the response capability. If DASA base commanders request or receive direct local assistance, details of the request will be reported to JNACC.

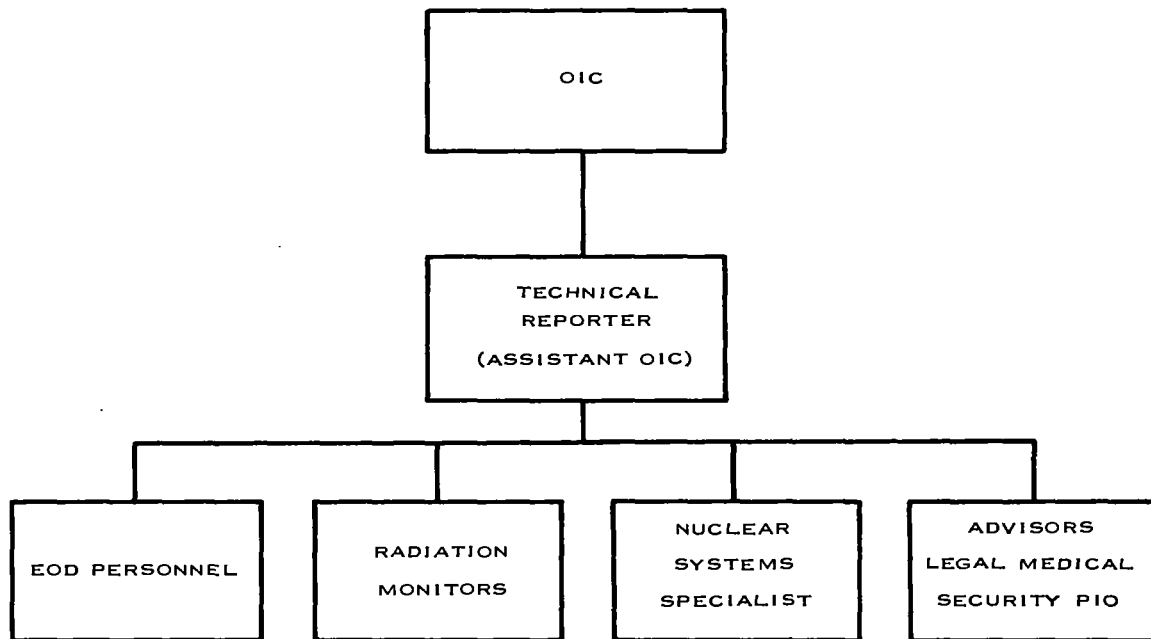


Figure 2-4. Typical nuclear emergency team organization.

f. *Technical Assistance.* JNACC has no inherent capability for giving technical assistance to a NET. However, it can and will relay such requests to the appropriate agency for an authoritative answer. For liaison of this type, Chief, JNACC, is authorized direct communication with any agency within DASA, AEC, or the Los Alamos Scientific Laboratory. This gives Chief, JNACC, a capability for quick and authoritative answers to technical queries. JNACC also has a current list of military personnel within DASA who are qualified in specific areas of the nuclear weapons program including—

- (1) All weapons and weapons components.
- (2) Explosives.
- (3) Nuclear and radiation effects.
- (4) Radars and fuzing and firing circuits.
- (5) Weapon vulnerability.
- (6) Aircraft types and accident procedures for these aircraft.

(7) Weapons systems safety.

## 2-30. Joint Service Responsibilities

a. *General.* All services participate in the DASA NET operation, Navy EOD School, and Navy EOD Facility located at Indian Head, Maryland. By means of agreements, the Joint Services are pledged to render assistance when called upon by a sister service.

b. *Geographical Responsibilities.* Although EOD personnel of all services share similar philosophies, training, and tools, the marked difference in scope of missions alone cause some differences in overall capability and mode of operations. The Army is responsible for a large landmass. The Navy is responsible for its own airbases. All share nuclear offensive and defensive responsibilities, which are extremely grave regardless of size of geographical area.

c. *EOD Missions.* In addition to different geographical situations, actual missions vary.

- (1) Navy shipboard EOD personnel, for

example, become specialists in their own armament primarily. The Navy also does underwater recovery and demolition. All Navy EOD personnel, are trained in self contained underwater breathing apparatus (SCUBA) diving. When explosive ordnance is encountered by Army or Air Force EOD units in streams, rivers, lakes, or reservoirs at depths requiring SCUBA drivers, they normally will obtain assistance from the Navy. In conventional war, the Navy's EOD tasks are mostly limited to mine disposal. During general war, ships and units deploy and stand by to assist.

- (2) Air Force EOD is equipped and manned for accidents which occur to USAF bases, but transportation or disposal assistance can be extended to

Army or Navy EOD units when required.

- (3) Army EOD is especially equipped and manned to respond to major explosive ordnance and toxic munition accidents and incidents on land areas. Consequently, Army EOD units may be called upon to render EOD assistance to Air Force and Navy bases when the accident/incident is beyond the capabilities of the smaller base EOD squads or teams.
- (4) Generally, the most effective inter-service EOD support can be realized by obtaining assistance from the service most familiar with the particular type of unexploded ordnance or toxic munition encountered and by exchange of information of technical value.

## CHAPTER 3

### OVERSEA ORGANIZATION AND RESPONSIBILITIES FOR EOD OPERATIONS

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#### Section I. GENERAL

##### 3-1. Purpose and Scope

This chapter describes the organizational structure and general responsibilities for conduct of EOD services by the Army in oversea commands. It provides guidance to Army EOD personnel assigned to staffs of unified and specified commands, of joint task forces, and of subordinate Army commands and task forces. It covers the functions of Army EOD staff officers and unit commanders and their relationships with the EOD organizations of the Air Force, Navy, and allied nations.

##### 3-2. Operational Responsibilities

*a. General.* The concept of our military establishment as an efficient team of land, naval, and air forces is based on the principle that effective use of the military power of the Nation requires that the efforts of the separate military services be closely integrated. Commanders of unified commands and specified commands exercise operational command over assigned forces including the composition of subordinate forces, the assignment of tasks, the designation of objectives and authoritative direction necessary to accomplish the mission. Because of the limited EOD resources usually available in an oversea command, the need for integration of the EOD effort of the various services is particularly important. The oversea commander of a unified or specified command designates the EOD operational responsibilities of the Army, Navy, Air Force, Marine Corps, and Allied Forces in the command as appropriate. Generally these responsibilities follow those established in AR 75-14 and are spelled out in command directives.

*b. EOD Staffs.* To coordinate the EOD effort of the command, an EOD staff section is provided from the major services represented. In a unified command, for example, the EOD staff officer will be assigned to the Operations Directorate (J-3). He may be an EOD qualified officer from any one of the services represented. The EOD staff may have representation of EOD qualified officer and enlisted personnel from any of the other services of the command. The positions may be rotated between the services from time to time. The EOD staff officer of the command is responsible for—

- (1) Staff supervision of all U.S. incountry EOD organizations and EOD activities.
- (2) Establishment of command EOD policies.
- (3) Maintaining liaison with subordinate commands having an EOD capability.
- (4) Coordination of emergency requests for EOD assistance that are beyond the capability of the requesting command or service and directing subordinate commands to furnish required assistance within their capability.
- (5) Coordination of EOD actions between U.S. and allied forces EOD personnel.
- (6) Coordination and liaison with technical intelligence agencies and the compiling and dissemination of EOD technical intelligence information for the command.

*c. Explosive Ordnance Reconnaissance*

*Agents.* Each command having EOD responsibilities establishes provisions for continuous EOR training for selected personnel within the command. This is to insure that there are adequate, trained EORA to report incidents and take initial precautions to protect life and property throughout each command.

*d. EOD Unit or Team Commanders.*

- (1) The EOD commander (officer in charge or noncommissioned officer in charge) is responsible for the performance of all EOD activities assigned to the unit or team. This does not preclude technical specialists of other fields from rendering technical advice as required.
- (2) The EOD commander, when assigned responsibility for an incident, retains sole and personal responsibility to determine the EOD procedures to be used.

*e. Coordination.* The following are general guidelines for coordinating the EOD effort in an oversea command:

- (1) When assigned EOD capabilities of a subordinate command are insufficient to meet requirements, emergency EOD assistance is obtained from another subordinate or neighboring

command. Emergency EOD requirements are those incidents of a nature that require immediate action to prevent the loss of equipment, personnel, or property vital to the war effort.

- (2) It is the responsibility of a command which becomes aware of an incident involving their own equipment or that of another command or service, regardless of assigned operational responsibility, to take emergency measures within its capability to neutralize, prevent, or limit possible damage or injury pending assumption of control by the responsible command.
- (3) When EOD personnel are airlifted to the scene of an incident, the commander requesting the EOD support will be required to provide transportation for the EOD team and other support that may be required at the incident site.
- (4) Commands having responsibilities for EOD service will provide EOD assistance within their capability to allied forces when requested.
- (5) Exchange of information and equipment among EOD units and teams is recommended within national disclosure policies.

## **Section II. ARMY EOD ORGANIZATION AND RESPONSIBILITIES IN A THEATER OF OPERATIONS**

### **3-3. Theater Army Headquarters**

In the theater of operations, the theater army commander is responsible for providing EOD service support to U.S. Army forces and, in accordance with agreements and as directed, to other U. S. and allied forces and civilians. Accordingly, the theater army headquarters provides mission orders to the theater army support command (TASCOM), field army and field army support command (FASCOM), and other theater army units for the conduct of theater army EOD activities, together with necessary policies, priorities, allocations, directives, and guidance to permit the subordi-

nate commands to execute assigned EOD missions. The theater army headquarters establishes procedures and guidance for the establishment of appropriate channels of communication between the CONUS and TASCOM, between TASCOM and other services, allied forces and governments, and between TASCOM and field army and FASCOM. The theater army headquarters delegates to TASCOM the responsibility for preparation of detailed plans, directives, and guidance affecting Army EOD service in the theater as a whole. Upon approval by theater army, such plans, directives, and guidance are issued in the name



of the theater army commander. In the event that a theater headquarters is not established in a theater of operations, direction of this support must be provided by the U.S. Army element of a joint, unified, or combined staff of the oversea command. It should be noted that in a small theater where the theater army headquarters does not have operational control over the combat forces, the theater army headquarters is so designed as to assume TASCOM headquarters functions.

### **3-4. TASCOM**

TASCOM is organized as shown in figure 3-1. It is responsible to the theater army commander for conducting the following EOD operations delegated to the Army in AR 75-14:

a. Develop a complete EOD program within the theater army area and coordinate this program with Air Force and Navy EOD organizations.

b. Develop a standard procedure and uniform agreement on EOD matters of joint interest to facilitate use of all available EOD units, personnel, and incident reporting facilities.

c. Establish and operate a standard incident reporting system in conjunction with allied forces.

d. Provide EOD service, technical training, and planning assistance to civil authorities in the development and operation of their programs in accordance with allied agreements.

e. Establish a continuing EOD training program for military personnel stationed in the theater army area.

f. Assign personnel to EOD duties who are technically qualified in MOS as required by AR 75-15 and AR 600-200, by successful completion of basic EOD and nuclear weapons disposal courses, periodic refresher courses, and special courses (commensurate with the grade or position in the unit).

### **3-5. Area Support Command, COMMZ**

The area support command is the major subordinate command of TASCOM responsible for EOD service. It acts in a dual capacity of planning and directing theater wide army EOD services and COMMZ EOD operations. The

principal staff element of headquarters area support command responsible for EOD operations is the Assistant Chief of Staff for Security, Plans, and Operations. Major units assigned to the area support command are shown in figure 3-2. The Army EOD organization in the COMMZ, discussed in paragraphs 3-6 through 3-8, is shown in figure 3-3.

### **3-6. EOD Branch, ACofS, Security, Plans and Operations, Area Support Command, COMMZ**

a. *Staff Composition.* This branch is a major subordinate element within the organization of the ACofS, Security, Plans and Operations, area support command, and is composed of the area support command EOD staff officer and several EOD specialists, each trained in all aspects of EOD service. In addition, a clerk is provided to perform typing, consolidation of data, maintenance of records and status boards, and other administration related to branch operations.

b. *Mission.* The mission of the branch is to exercise staff supervision over EOD service in the COMMZ, advise and assist in determining apportionment of EOD support, coordinate and recommend priorities for conducting EOD service within the COMMZ, and establish and maintain the COMMZ EOD incident reporting system.

c. *Functions.*

- (1) Provides advice and assistance to the ACofS, Security, Plans and Operations, on all matters pertaining to EOD service and assignment of priorities to incidents.
- (2) Coordinates with the supply and maintenance command on requirements for disposal of hazardous munitions; availability of policies regarding EOD support of nuclear, chemical, and biological logistical operations.
- (3) Coordinates with the ACofS, Personnel, to assure that assignment of personnel to EOD units is compatible with operational needs.
- (4) Interprets directives and regulations

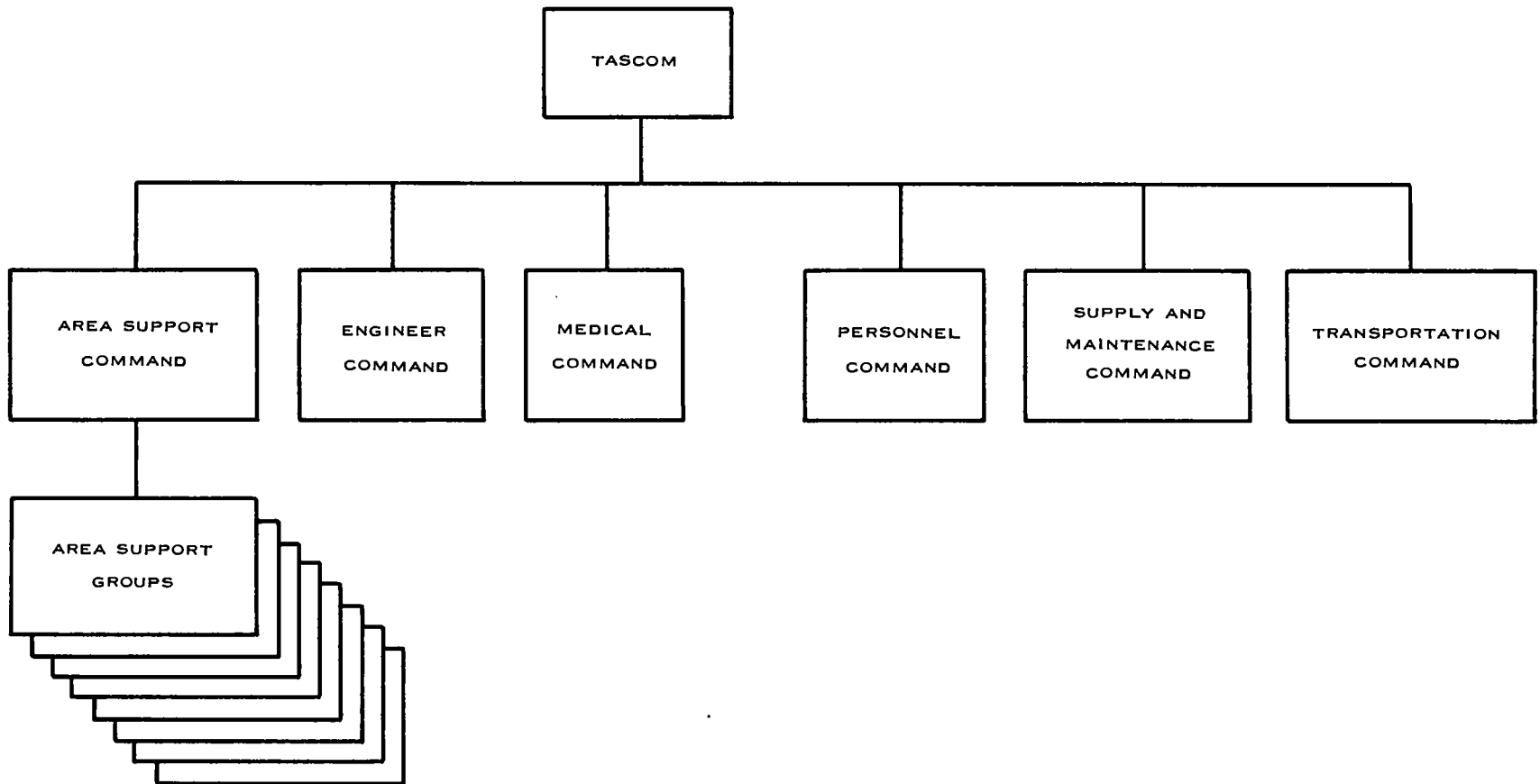


Figure 3-1. TASCOT and the area support command.

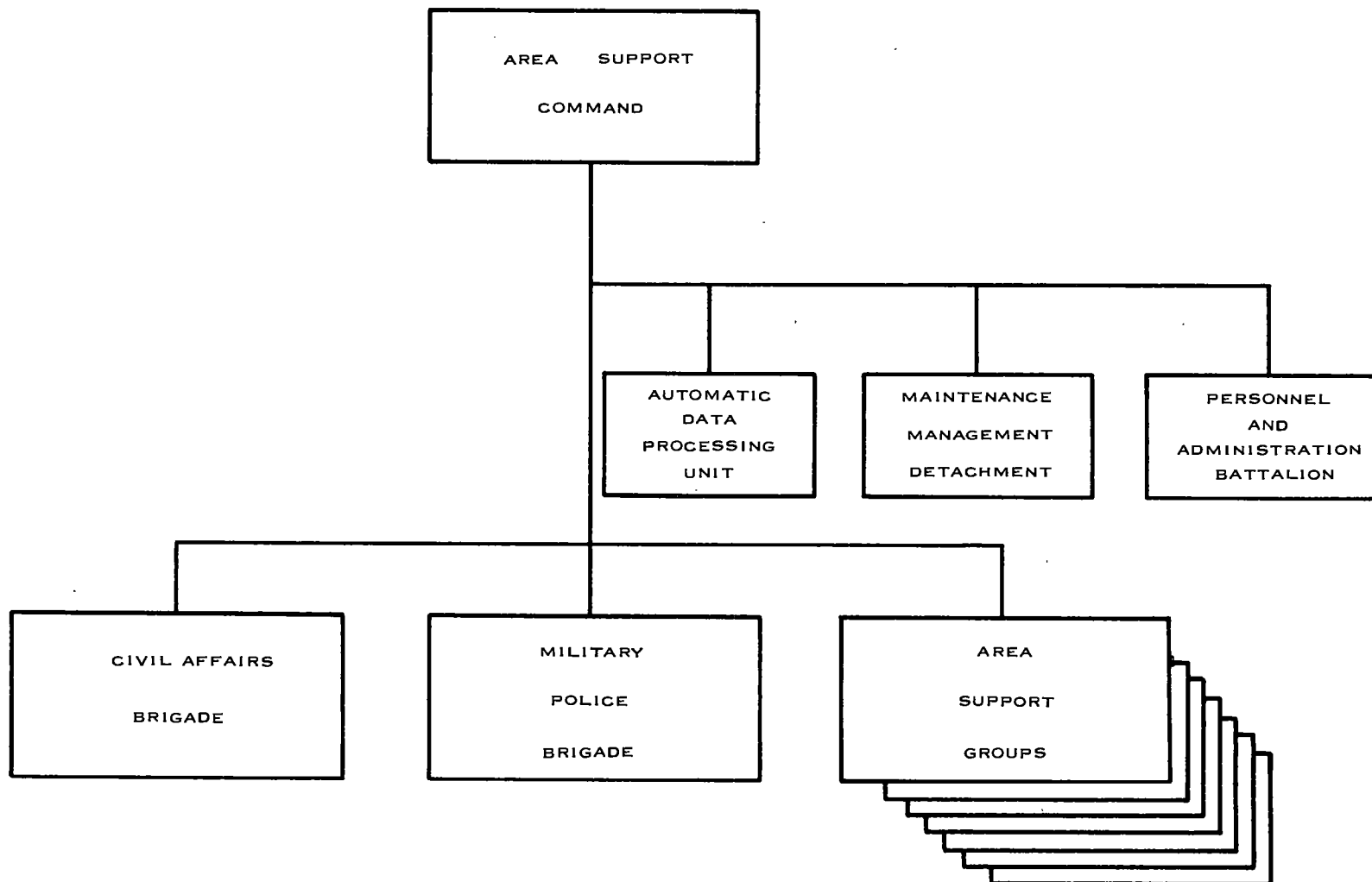


Figure 3-2. Major units assigned to the area support command in communications zone.

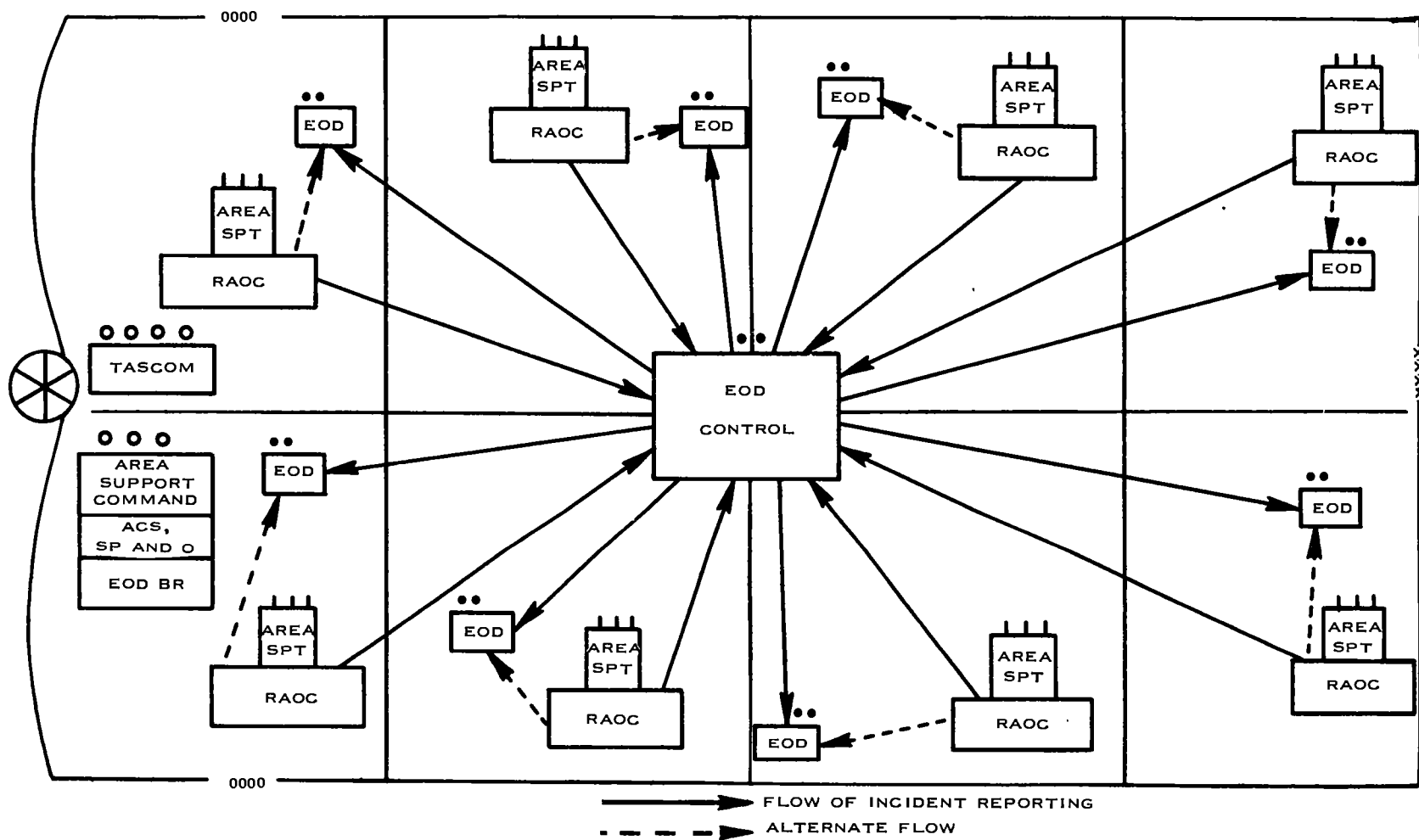


Figure 3-3. Typical COMMZ EOD structure.

from higher headquarters and prepares implementing plans, policies, procedural guidance, and directives governing EOD service and the explosive ordnance reconnaissance program within the COMMZ.

- (5) Evaluates EOD activities and initiates actions to improve service. Recommends distribution of EOD units within the COMMZ.
- (6) Maintains liaison with other staff EOD elements within the theater.
- (7) Coordinates policies and procedures with the appropriate TASCOT staff elements to obtain chemical decontamination, communications, military police, engineer, and medical support for EOD incidents and disposal operations.
- (8) Insures EOD support of technical intelligence functions.
- (9) Insures technical intelligence information which may be of technical value to EOD service is rapidly disseminated to the subordinate EOD units and to other EOD units in the theater.

*d. Method of Operation.*

- (1) Technical intelligence reports on foreign explosive ordnance received from intelligence channels are disseminated to control and disposal detachments. Reports received from EOD units are processed into COMMZ intelligence channels, to other COMMZ EOD units, and directly to the FASCOM ACofS, Security, Plans and Operations. Rapid transmission of these reports to disposal detachments is a matter of urgency in the interest of disposal operations safety. The EOD branch also coordinates the technical intelligence support of EOD field evaluation activities and insures adequate EOD support of technical intelligence with respect to field evaluation, rendering safe, evacuation, and disposal of first-seen foreign unexploded ordnance.

- (2) The low density of EOD special tools and equipment requires emphasis on monitoring the status of these items in EOD detachments. The EOD branch coordinates requirements with the ACofS, Supply. The development of render safe procedures for first-seen foreign ordnance may entail the need to fabricate special tools. These requirements are coordinated with staff EOD elements theaterwide to insure inclusion of sufficient quantities for distribution is mandatory between area support command and other staff EOD elements.
- (3) In coordination with the supply and maintenance command, the EOD branch develops policies to insure adequate EOD support of nuclear, chemical, and biological munitions logistical operations. This also includes disposal of hazardous munitions which are determined to be beyond the capability of personnel normally responsible for their destruction.
- (4) Certain special equipment such as earth excavating machines and power-driven decontaminating apparatus maintained by other units may be required for use by, or for support of, EOD detachments. The development of policies and coordination for this support are the responsibility of the EOD branch.
- (5) The branch coordinates COMMZ operations through EOD control detachments which are assigned defined geographical areas of responsibility for EOD coverage within the COMMZ. An EOD control detachment is assigned to the area support command to operate an EOD control center. The commander of the EOD control detachment is responsible for conducting liaison on EOD support with the area support group RAOC centers in his assigned geographical area of responsibility. A disposal detachment is attached to each area support group. Additional disposal detach-

ments will be provided on an as-required basis (usually one per 30,000 troops or major portion thereof).

- (6) Requirements for EOD service are reported to area support group RAOC. These centers report the information to the control detachment designated to provide EOD service in that geographical area of the COMMZ. Within the limits of established policy, disposal detachments may accept incident reports directly from these centers. The factors determining acceptability of this procedure are the number of priority incidents in other area support groups and the overall EOD workload in the COMMZ. Caution is required to insure that established priorities are observed. Requirements beyond the capability of disposal detachments in the geographical area supported by the EOD control detachment are forwarded to the EOD branch.
- (7) The branch recommends changes in priorities for EOD support as required. Priorities are assigned by the area support group RACO within the guidance provided by the area support command. The EOD control detachment advises the centers on changing priorities. The EOD branch also recommends reapportionment of EOD capability to meet changing requirements. If the workload exceeds unit capabilities on a continuing basis, the EOD branch recommends authorization of additional disposal detachments.
- (8) The common user communications system established for the area support command headquarters is used by the branch. For high priority EOD incidents, the EOD branch may use the area support command warning net for emergency communications.

### **3-7. EOD Control Detachment, Area Support Command, COMMZ**

*a. Unit Composition.* The EOD control de-

tachment is composed of a balanced number of supervisory and operating personnel together with required equipment to provide operational control over subordinate EOD detachments.

*b. Mission.* The mission of the control detachment is to operate a center for the receipt of incident reports and the dispatch of detachments to dispose of unexploded ordnance or toxic munitions located within an assigned area. (Details of control center operations are contained in ch 6.) Normally EOD control detachments are authorized on the basis of one per area support command. The commander of the EOD control detachment is responsible for conducting liaison with the area support group RAOC in his assigned area of responsibility.

#### *c. Functions.*

- (1) Assigns specific missions to subordinate EOD units. Recommends distribution of personnel and equipment to balance workloads. Has authority to temporarily move personnel and equipment to meet high priority incidents.
- (2) Provides operational and technical direction to subordinate EOD units and evaluates their activities.
- (3) Operates an EOD control center in its assigned geographical area.
- (4) Operates an EOR and incident reporting system within prescribed policies.
- (5) Receives incident reports from EORA or other military or civil authorities.
- (6) Evaluates reported incidents and determines and assigns the appropriate categories.
- (7) Schedules EOD operations in accordance with established priorities.
- (8) Dispatches units to dispose of reported unexploded ordnance or toxic agents.
- (9) Arranges for heavy or specialized equipment with necessary operators and for assistance from other organizations as required.
- (10) Receives and analyzes completed in-

cident reports; routes technical intelligence information and new render safe procedures on foreign explosive ordnance.

- (11) Dispatches EOD personnel in support of technical intelligence units for recovery, evacuation, and evaluation of foreign explosive ordnance.
- (12) Alerts disposal units during movements of chemical, biological, or nuclear weapons, and dispatches EOD units to accident or incident sites as required.
- (13) Conducts liaison with area support groups RAOC.
- (14) Provides EOD assistance to military police and area damage control activities as required.
- (15) Dispatches EOD personnel to dispose of hazardous unserviceable or damaged ammunition when it is determined by the appropriate commanders to be beyond the disposal capabilities of personnel normally assigned the responsibility for routine destruction.
- (16) Dispatches EOD personnel in support of command inspection teams for inspection of ammunition in the hands of troops to determine hazardous conditions.
- (17) Maintains liaison and coordinates EOD support with civil authorities in accordance with civil affairs policies.
- (18) Provides technical advice and assistance for the emergency destruction of ammunition to prevent its capture by the enemy.

*d. Method of Operation.*

- (1) The EOD control detachment exercises operational control and technical direction of from eight to ten disposal detachments which are dispersed throughout the area of responsibility. Supervisory visits to the disposal detachments are conducted by the EOD control personnel on a frequent basis. Coordination with

Area Support Groups RAOC should be performed during these visits.

- (2) Requirements for EOD service normally are reported only to area support group RAOC. The RAOC reports the information to the EOD control center. The control center dispatches the nearest available EOD detachment and additional support as required. In emergencies, the EOD detachment may be contacted directly in which case the detachment personnel will notify the EOD center of action taken or assistance required.
- (3) Priorities of incidents are assigned by the area support group RAOC center within the guidance provided by the area support command. The EOD control detachment advises the RAOC center on changing priorities, when required.
- (4) Control detachments record and maintain data on the status of EOD incidents. The EOD branch maintains the status of incidents beyond disposal detachment capability in the area support groups and of all high priority incidents in the COMMZ. Reports flow to the EOD branch from control detachments. Upon completion of EOD missions, the incident reports are forwarded to the originating RAOC and to the EOD branch as appropriate.
- (5) Disposal detachments perform field evaluation of unexploded foreign ordnance, including determination of render safe procedures for first-seen items. Information of technical intelligence value is reported to the control detachments. The control detachment expedites processing of the reports to all disposal units under its control and to the ACofS, Security, Plans and Operations, area support command. Activities of disposal detachments and technical intelligence units are mutually supporting and must be closely coordinated. The control detachment coordinates EOD support of

technical intelligence operations within its assigned control area. Assistance from CONUS based EOD and munitions specialists is obtained through the EOD branch, as required.

- (6) The control detachment provides equipment support to the disposal detachments within organizational capabilities, and coordinates for support to be provided by other units. Special purpose EOD equipment is positioned at control detachments for use by disposal units on an on-call basis. Other heavy equipment requiring special operator and/or maintenance skills such as earth excavating machines and power-driven decontaminating apparatus normally will be operated and maintained by other units. The EOD control detachment will maintain a locator card file on this special equipment and skills which are available within their area of responsibility.

- (7) When priorities and location of EOD incidents dictate that the disposal detachments travel by air, the EOD control detachment or RAOC coordinates the air transportation support.

- (8) During peacetime, EOD strength may be reduced. Although RAOC usually are not activated in peacetime, EOD incident reports should be routed to the control detachment through the headquarters having responsibility for rear area protection (RAP). This method should contribute to an effective transition into wartime operations.

*e. Communications.* The requirement for effective communications equipment within the EOD organization is dictated primarily by the need for rapid response to incidents. Changing priorities demand that communications between control and disposal detachments be effective and continuous. The EOD control detachment must be able to communicate directly to disposal detachments at incident sites. The control detachments locate to assure communication with appropriate RAOC and the EOD branch (ch 10).

*f. Administrative Support.* The control detachment is dependent upon other units for administrative support. The headquarters to which control detachments are attached must provide messing, organizational maintenance, personnel administration, and other overhead services. Technical intelligence, special equipment, and other operational support is provided within theater policy.

### **3-8. EOD Detachment, Area Support Command, COMMZ**

*a. Unit Composition.* The EOD detachment is composed of a balanced number of specialists and supervisors together with special tools and equipment required to engage in EOD service.

*b. Mission.* The mission of the EOD detachment is to perform final reconnaissance, identification, rendering safe, recovery, field evaluation, and disposal of U.S. and foreign explosive ordnance and toxic munitions. In the COMMZ, the area support command is authorized explosive ordnance disposal detachments on the basis of one per area support group. Additional disposal detachments are assigned as required.

#### *c. Functions.*

- (1) Responds to incidents or accidents involving explosive ordnance or toxic munitions which constitute a hazard to operations, installations, personnel, or materiel.
- (2) Conducts a final reconnaissance, identifying the explosive ordnance or toxic agent and determining the hazards involved.
- (3) Takes necessary measures to reduce the probability of damage and minimize the effects of detonation or contamination.
- (4) Safely disposes of U.S. and foreign unexploded ordnance or toxic munitions by the use of EOD qualified personnel and application of special EOD render safe procedures, tools, techniques, and methods.
- (5) Prepares field evaluation reports, technical reports, technical intelligence reports, and explosive ordnance incident reports.
- (6) Develops tentative render safe pro-



cedures and special tools for dealing with first-seen foreign explosive ordnance.

- (7) Assists technical intelligence units in developing data on foreign explosive ordnance.
- (8) On a standby basis, supports munitions logistics activities; e.g., shipment of nuclear, chemical, and biological weapons.
- (9) Conducts EOR training in assigned areas for military personnel as required.
- (10) Provides instructions and assistance to ammunition storage units in the disposal of unserviceable ammunition when the workload is beyond the capability of the ammunition units and does not interfere with the basic EOD mission.
- (11) Provides instruction and assistance to ammunition storage units in the preparation and conduct of emergency destruction plans.

*d. Method of Operation.*

- (1) Requirements for EOD services are received from control detachments or in case of emergency direct from RAOC of the area support groups, which assign specific incident missions to the disposal units. The disposal units continuously inform the control detachments of unit capability (personnel and equipment availability). Upon completion of an assigned mission, the disposal unit forwards incident reports to the EOD control detachment.
- (2) Disposal detachments perform field evaluation of unexploded ordnance, including determination of render safe procedures for first-seen items. In support of this activity, the disposal units may require assistance from technical intelligence units, special equipment from a control detachment, or fabrication of special tools. Support requirements are forwarded to control detachments, as are the field evaluation reports. Assistance from CONUS

based EOD and munitions specialists may be required.

- (3) Large items of equipment, such as earth excavating machines and power-driven decontamination apparatus, may be required for support of EOD operations. Requirements normally are forwarded to the control detachment, but in an emergency may be obtained by unit coordination with local sources.
- (4) Disposal detachments are located geographically to reduce the distance to potential incident sites. Within priorities, air transportation is used to reduce travel time, permitting the units to handle a greater number of incidents.
- (5) Whenever possible, disposal units are collocated with ammunition service units for ready access to demolition materials and to permit joint use of demolition areas.
- (6) The commander of the EOD detachment attached to the area support group serves in the capacity of the group staff EOD officer for coordination of EOD activities in the geographical area to which attached.

*e. Communications.* Disposal detachments require effective communications between unit operating elements, the unit base of operations, and the supervising control detachments. Changing priorities dictate that communications be effective and continuous (ch 10).

*f. Administrative Support.* The disposal detachments are not self-sufficient. They depend upon administrative support from the organization to which attached. Such support includes messing, organizational maintenance, personnel administration, and other overhead services. Technical intelligence, special equipment, and other operational support are provided through the control detachment.

### **3-9. FASCOM**

FASCOM is the major subordinate command of the field army responsible for EOD service in the combat zone. The principal staff element of headquarters FASCOM responsible for EOD operations is the ACofS, Security,

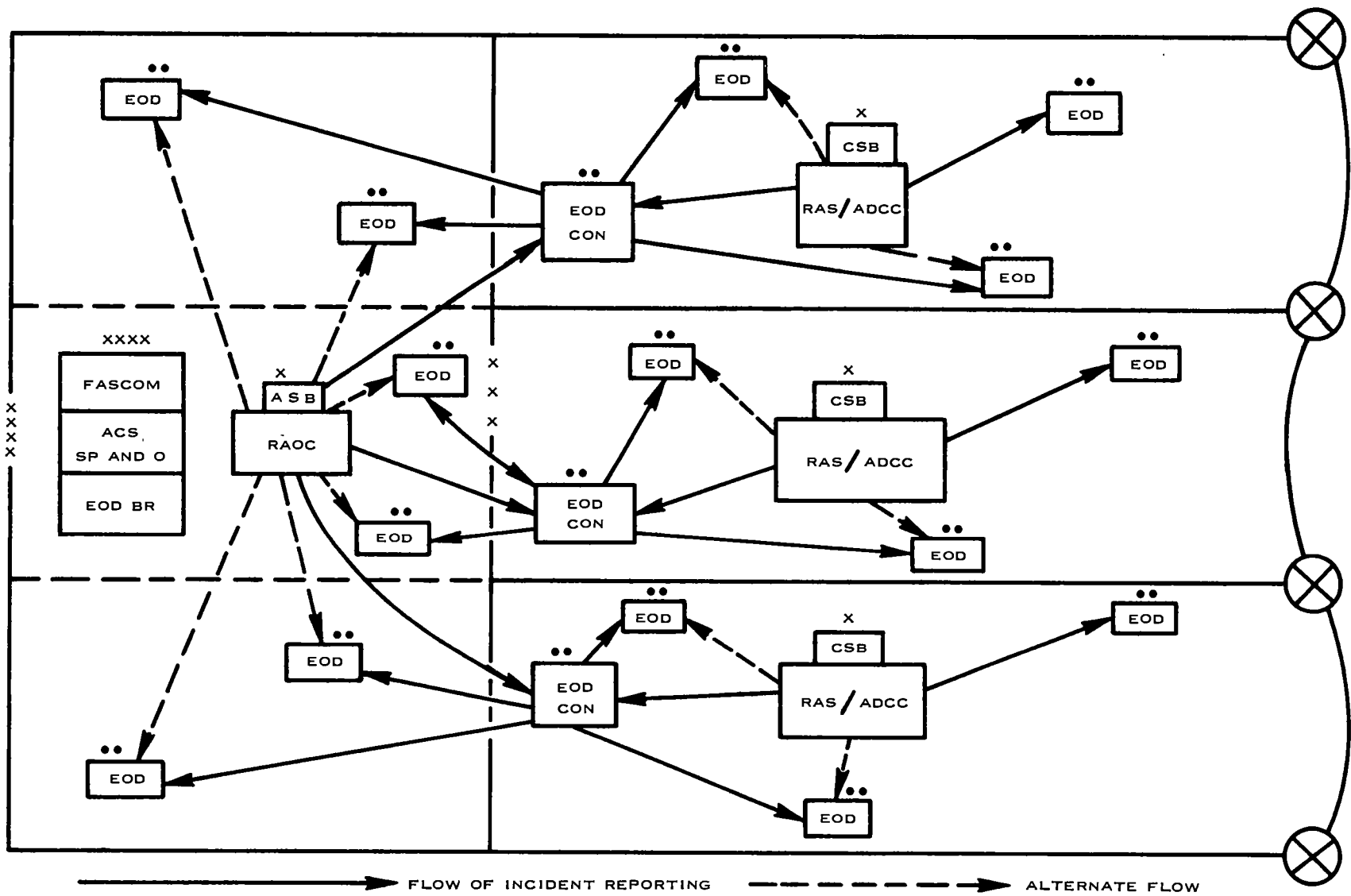


Figure 3-4. Typical field army EOD structure.

Plans and Operations. The Army EOD organization in a type field army in a combat zone is discussed in paragraphs 3-10 through 3-12 and is shown in figure 3-4.

### **3-10. EOD Branch, ACofS, Security, Plans and Operations, FASCOM**

*a. Staff Composition.* The EOD branch is the major subordinate element within the organization of the ACofS, Security, Plans and Operations, FASCOM, and is composed of the FASCOM EOD staff officer and several EOD specialists, each trained in all aspects of EOD service. In addition, a clerk is provided to perform typing, consolidation of data, maintenance of records and status boards, and other administration related to branch operations.

*b. Mission.* The mission of the branch is to exercise staff supervision over EOD service in the field army, advise and assist supervision over EOD service in the field army, advise and assist in determining the apportionment of EOD support, coordinate and recommend priorities for conducting EOD service within the field army, and establish and maintain the FASCOM EOD incident reporting system.

*c. Functions and Method of Operation.* This branch performs the same functions and in the same manner for the field army as the EOD branch, area support command, does for the COMMZ (para 3-6).

*d. Organization.* The branch is composed of an EOD Staff element, operating under the FASCOM EOD staff officer as branch chief. It is capable of exercising supervision over two to four EOD control detachments. Responsibilities are administrative in nature and are as follows:

- (1) Establishment of policies governing EOD service within the field army.
- (2) Monitorship and coordination of EOD service.
- (3) Recommends distribution of EOD units and special EOD equipment to balance workloads within the field army.

### **3-11. EOD Control Detachments, FASCOM**

*a. General.* The unit composition, mission, and functions of the EOD control detachments in FASCOM are the same as described in

paragraph 3-7 for the EOD control detachment in the area support command.

*b. Method of Operation.* Except as noted in (1) through (6) below, the method of operation for EOD control detachments in FASCOM is the same as described in paragraph 3-7.

- (1) Staff supervision of the EOD control detachments is exercised by the EOD branch, ACofS, Security, Plans and Operations, FASCOM. The EOD branch coordinates FASCOM EOD operations through the EOD control detachments which normally are assigned to the FASCOM on the basis of three per field army for attachment to each of the corps support brigades. The commander of the EOD control detachments serves as EOD staff officer for the ACofS, Security, Plans and Operations of the corps support brigade, in addition to commanding the EOD control center and supervising the activities of the operating EOD units attached to the corps support brigade. The commander of the EOD control detachment also is responsible for conducting liaison with the appropriate corps support brigade RAS/ADC center and the army support brigade RAOC assigned to each support group.
- (2) The EOD control detachment exercises operational control and technical direction of disposal detachments that are dispersed through a corps slice of the field army. Additional disposal units are obtained through the EOD branch, as required. Supervisory visits to the disposal detachments are conducted by the EOD control personnel on a frequent basis. Coordination with the RAS/ADC centers and RAOC should be performed during these visits.
- (3) Requirements for EOD service are reported to each RAS/ADC center or RAOC. The RAS/ADC center or RAOC reports the information to the control detachment designated to provide EOD service in that particular corps slice of the field army. Require-

ments beyond the capability of disposal detachments in a corps slice are forwarded to the FASCOM EOD branch.

- (4) Priorities for incidents occurring in the Corp service area are assigned by the Corp RAS/ADC center. Priorities for incidents occurring in the army service area are assigned by Army Support Group, RAOC. The FASCOM ACofS, Security, Plans and Operations recommend changes to priorities when the EOD control detachments report excessive workloads in the corps and army service areas.
- (5) Control detachments record and maintain data on the status of EOD incidents. Reports on high priority incidents flow to the EOD branch from control detachments. After-action reports are forwarded to the FASCOM EOD branch for determination of workload distribution and requirements for additional units.
- (6) When a control detachment is attached to an independent corps or task force, the detachment commander performs as the corps or task force staff EOD officer.

### **3-12. EOD Detachment, FASCOM**

*a. General.* The unit composition, mission, and functions of the EOD detachment in FASCOM are the same as described in paragraph 3-8 for the EOD detachment in the area support command.

*b. Method of Operation.* Except as noted in (1) and (2) below, the method of operation for EOD detachments in FASCOM is the same as described in paragraph 3-8.

- (1) Five EOD detachments are attached to each corps support brigade to

service the area represented by a corps slice from the FEBA to the army rear area boundary. These disposal detachments are usually under the operational control and technical direction of the EOD control detachment assigned to the corps support brigade.

- (2) The EOD detachments may be further attached to divisions when operating independently as a division task force or to smaller task forces when the situation requires. Under such circumstances, the commander of the EOD detachment performs as division or task force staff EOD officer.

### **3-13. Local Military Commanders**

*a.* The first commander, regardless of location, who becomes aware of an actual or potential incident initiates immediate action to—

- (1) Secure the area.
- (2) Evaluate the degree of danger to military and civilian personnel, materiel, or installations through the use of trained EORA.
- (3) Report the incident to the nearest EOD unit through established incident reporting channels; i.e., RAOC, EOD control detachment, or EOD detachment, as appropriate.
- (4) Institute necessary protective and evacuation measures.
- (5) Request assistance of local civil authorities as appropriate.
- (6) Provide military support to EOD units and civil authorities as appropriate.

*b.* Upon arrival at the site of the incident, the commanding officer of the EOD unit takes over responsibility for all EOD procedures.

## **Section III. EOD ORGANIZATION AND RESPONSIBILITIES OF OTHER SERVICES AND ALLIED FORCES IN A THEATER OF OPERATIONS**

### **3-14. Air Force**

In an overseas theater of operations, each Air Force base will have an EOD element. These

elements have from four to ten EOD personnel assigned depending upon the mission. EOD backup support is provided by EOD mobile

teams of from 10 to 20 EOD personnel, serving the geographical areas concerned. An EOD squadron may be formed to provide the Air Force EOD capability in the theater. A typical Air Force oversea theater EOD organizational structure is shown in figure 3-5.

### **3-15. Navy**

In an oversea theater of operations each major Navy base will usually have an EOD unit assigned to perform underwater disposal in the geographical area and dispose of items in its own territory. The EOD unit normally is made up of several small EOD teams which are composed of several specialists qualified in EOD and SCUBA diving. The EOD unit controls the activities of the EOD teams in the geographical area. In addition, an EOD team is assigned to each aircraft carrier, ammunition ship, seaplane tender, fleet ballistic missile destroyer, and submarine tender. Members of these EOD teams usually perform other related ammunition service duties while aboard ship.

### **3-16. Marine Corps**

Marine Corps organization for EOD service is described in chapter 2. For disposal of explosive ordnance found underwater in Marine Corps held territory or when the incident rate is so high as to be beyond the capabilities of the Marine Corps EOD platoons, Navy EOD teams may be called in to assist.

### **3-17. Allied Forces**

The organization, responsibilities, and capabilities for performing EOD service vary from country to country. Usually the structure will be similar to that of comparative U.S. forces, when the allied nation has adequate resources. Some, however, may use civil service employees or assign the sole responsibility to a single armed service. Army EOD units in the theater of operations should become thoroughly familiar with the EOD organizational structure, capabilities, and procedures of the host nation and other allied forces participating in the EOD effort.

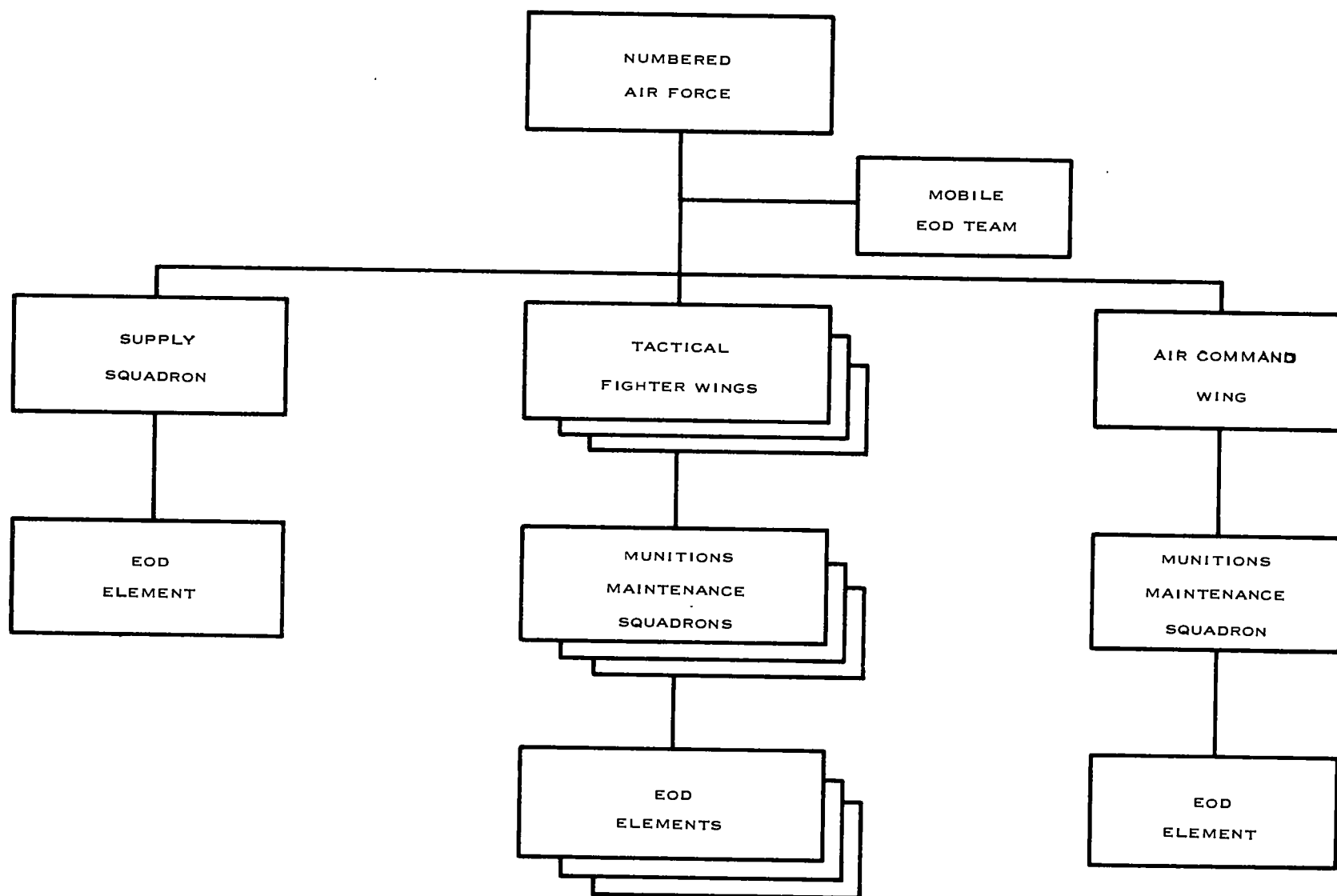


Figure 3-5. Typical Air Force EOD organization in a theater of operations.

## CHAPTER 4

### PLANNING

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#### Section I. GENERAL

##### 4-1. Purpose and Scope

The requirements for planning for EOD service in wartime and peacetime situations are provided in this chapter. It provides guidance to troop planners for developing an effective EOD capability, establishes the need for precategorization of vital target areas, discusses intelligence planning for EOD operations, and covers the effects of weather and terrain on EOD service.

##### 4-2. Planning Processes

Planning concepts and procedures are predicated on an orderly preoperational planning process. Prior planning must include contingency plans that will provide guidance in emergencies. Contingency plans must be formulated to satisfy foreseeable requirements arising from emergency operations. EOD staff officers must plan EOD support, applying the basic principles cited herein and modifying procedures as required through use of task forces and conferences.

#### Section II. WARTIME PLANNING

##### 4-3. General

*a. Coordination.* Planning for EOD support in a war will, of necessity, involve coordination between the armed forces, civil defense agencies, and local civil authorities of the allied nations. To minimize the effects of explosive ordnance incidents upon the war effort, each nation and the attendant armed services should not only be capable of performing EOD operations within their own areas of responsibility but also be capable of providing emergency EOD support to other allied forces and services. This requires the establishment and maintenance of—

- (1) An organization for EOR.
- (2) An EOD incident reporting system.
- (3) Forces trained and equipped to perform EOD operations.
- (4) Policies and procedures for furnishing decontamination, communications, military police, engineer, and medical support for EOD operations.

- (5) Policies and procedures for EOD support of rear area protection functions, including international coordination and interservice coordination as required.
- (6) Policies and procedures for the wartime dissemination of information on foreign explosive ordnance and EOD procedures used thereon, including dissemination to allied EOD organizations.
- (7) Basic operational and technical capabilities required for all phases of EOD.

*b. Rear Area Protection.* Avoidance and control of damage is automatically included as a normal part of tactical planning and operations; for example, tactical warning and information nets and boundaries are used to delineate and control dispersion areas. Rear area protection activities are oriented on installations and lines of communication, as is

EOD service. Thus, EOD service normally must be planned and performed in conjunction with and in support of rear area protection activities.

*c. Combat Support.* Although EOD service is associated mainly with area damage control functions, EOD units will be frequently called upon to support combat troops in their operations. For example, combat operations may be delayed or threatened by the presence of unexploded ordnance on avenues of approach and key facilities such as road nets, bridges, communications networks, command posts, observation posts, ammunition supply points, or gun emplacements in forward areas. Planning for tactical operations should take into consideration the possibility of such incidents and the need for a quick response from EOD units to neutralize these obstacles. This requires close coordination with the tactical commanders to assure effective support.

*d. Civil Affairs.* Planning for civil-military relations must be coordinated with the headquarters having civil affairs responsibility. Planning should provide the capability and competency for the immediate detection, recognition, identification, evaluation, and reporting of explosive ordnance incidents involving nonmilitary commercial type explosives and explosive devices in areas under civil jurisdiction. This requires the establishment of standard operating procedures, working relationships, and communications procedures between civil and military authorities to facilitate the implementation of the EOR function. Plans must be developed for evacuation and related measures to protect the public, reconnaissance personnel and equipment, and other property from the effects of possible explosions and to avoid actions that may cause or contribute to causing explosions. These measures include determination of safety distances for specific types of identifiable unexploded ordnance and erection of protective works, such as sandbags, blasting mats, and embankments to deflect or block blast waves in event a detonation takes place. The Department of the Army is not responsible for the disposal of nonmilitary commercial type explosives or dangerous articles in the possession of, or controlled by, civil agencies. Assistance

for disposal may be provided upon receipt of request by Federal agencies or civil authorities and determination by the commander concerned that such assistance is required in the interest of public safety of public relations.

*e. Use of Nuclear, Biological, or Chemical Weapons.* The use of such weapons causes serious environmental problems through contamination of the terrain, equipment, and facilities. Planning must consider the implications of contamination on EOD operations. Special protective equipment and clothing, detection equipment, and decontamination equipment and supplies will be required. The wearing of protective clothing to include the protective mask may substantially reduce EOD personnel efficiency. Individuals working in these conditions must pace themselves to prevent exhaustion as a result of heat buildup in the bulky protective clothing. EOD personnel must be rotated frequently at the site and must be decontaminated. Planning must consider the workload and numbers of personnel required to perform the EOD mission under such conditions.

*f. Nuclear, and Biological, Chemical Accident/Incident Control Plans.* To assure proper handling of accidents/incidents while weapons are in storage or in transit, the army commander may direct the establishment of accident/incident control plans. Plans must provide maximum effectiveness in preventing or reducing casualties and damage. They should provide for couriers and technical and security escorts to accompany the shipments. Plans should also provide for emergency teams to respond to such accidents/incidents and for procedures for alerting such forces during movements of the weapons through the COMMZ and army areas. Intransit events may occur, and, in such instances, responsibility for the shipment must be clearly defined and understood. Reporting channels and procedures must be clearly established to expedite reports of accidents or incidents and marshal the emergency forces needed at the site.

#### 4-4. Precategorization of Vital Targets

Certain areas or installations can be determined to fall into certain categories prior to any existing threat from unexploded ordnance



or toxic munitions. Such action will expedite the ultimate disposal. It is conceivable that reconnaissance personnel will not be available in sufficient quantities to investigate all reports at once. Prior categorization will indicate which incidents should be investigated first. In cases where reports place an excessively high category on an incident it could be discounted if precategorization has indicated it to be in an area not warranting the high category. Precategorization will necessitate thorough studies by informed persons and will be determined on a factual basis.

#### **4-5. Distribution of EOD Units**

*a. Wartime Needs.* In wartime, the need for EOD units is based primarily on the amount of explosive ordnance delivered by the enemy. Planners must give careful consideration to enemy capabilities for air or missile warfare to insure that EOD units are included in troop lists in sufficient numbers. It is emphasized that these units cannot be activated on the spot from bulk allotments after the expected need is a reality. It is better to overestimate requirements for disposal units than to risk having too few. Surplus units can be employed elsewhere or even disbanded, but additional units cannot be created at will because of the long leadtime required for training EOD personnel and units.

*b. Flexibility.* In order to provide continuous and effective support, the EOD organization and system must be flexible. This flexibility depends upon adequate communications and transportation and upon adequate numbers of properly located and dispersed teams. Plans must include provisions for the use of alternate channels for EOD support. Emphasis must be placed upon centralized control. EOD teams,

however, should be maintained near points of anticipated high numbers and categories of incidents to permit continued operations when lines of communication are disrupted.

*c. Assignment.* Experience shows that assigning between eight to ten EOD units to a control unit provides for adequate supervision and liaison during deployment. They may be assigned to districts, areas, bases, or area damage control centers. In civil defense areas, they may be assigned on a similar basis as part of a large civilian defense control center. Key facilities and size of the area to be protected must be considered when planning the number and distribution of the basic EOD units. To provide adequate EOD support for special task forces, the following guidelines are recommended:

- (1) Five disposal units and one control unit per corps slice or independent corps.
- (2) Two disposal units per division operating independently.
- (3) One disposal unit per brigade operating independently.
- (4) One disposal unit per task force smaller than a brigade when the probability of explosive ordnance incidents poses a threat to the accomplishment of the task force mission.

*d. Phasing.* EOD units must be phased in among the earliest combat support troops to prevent delay of tactical operations by explosive ordnance incidents. These first EOD units usually are located in a beachhead or airhead during the initial phases of the operations. As the combat zone is expanded and a COMMZ established, more disposal and control units will be required.

### **Section III. PEACETIME PLANNING**

#### **4-6. EOD Tasks**

In peacetime, EOD units perform many related services which must be taken into consideration in planning for the numbers and distribution of the units. Although not the primary mission of the EOD service, EOD units frequently are called upon to perform hazardous demolitions duty in support of military

training, public ceremonies, accidents or incidents involving military explosives, range clearance, war souvenir collection campaigns, postwar disposal operations, removal of explosive contaminated scrap, disposal of home-fabricated bombs, and disposal of hazardous ammunition in the hands of troops. Planning, to include procedures, coordination, scheduling

of EOD operations, funding, and attachment or assignment of EOD units, must be thorough to assure the proper allocation of limited resources.

#### 4-7. Distribution of EOD Units

Planning for distribution of EOD units to perform peacetime missions must not only take into consideration the above cited tasks but also the need for adequate EOD coverage in the event of an attack. Thus, a balance must be achieved between the peacetime workload and the anticipated threat so as to assure an adequate EOD capability. Close coordination with civil defense authorities is essential in

determination of the numbers and location of EOD units. Key facilities lists, policies, and priorities must be established from which planners can logically determine unit missions.

#### 4-8. Nuclear and Chemical-Biological Accident/Incident Control Plans

It is incumbent upon all operational commands to plan for preventing disasters by reducing the effect of accidents or incidents. These plans delineate responsibilities and provide for marshalling the necessary resources to cope with accidents or incidents and are equally applicable to wartime situations.

### Section IV. INTELLIGENCE

#### 4-9. The Enemy

In planning for operations, it is essential to know the intentions and capabilities of actual or potential enemies, particularly with respect to weapons, delivery systems, and doctrine for employment. For example, if it is known that the enemy possesses and intends to use certain types of explosive ordnance in certain situations or areas, then the EOD organization can better plan to meet the particular threat posed by these items. Of particular concern to the EOD planner are the foreign technical developments which have a practical war application and the physical characteristics, performance, capabilities and limitations of explosive ordnance used by foreign military forces. Plans must be coordinated for the collection and rapid dissemination of this type of information.

#### 4-10. Technical Intelligence Value

Foreign explosive ordnance encountered in the field may be of considerable intelligence value. This is not limited to those matters affecting identification and disposal. There are many intelligence, research, and development agencies in the Army and in other departments of the Government that may benefit from prompt information concerning new items of enemy explosive ordnance or modification of old ones.

*a. Strategic Value.* Information on enemy explosive ordnance is an aid to determining

order of battle intelligence; evaluating enemy intentions, capabilities, and vulnerabilities; and developing countermeasures. The markings on a bomb, missile, or shell; the materials used or substituted; or the mere fact of existence of the item may be of great strategic value. Identification of the filler may establish requirements for special protective or retaliatory measures against a nuclear, biological or chemical attack.

*b. Tactical Value.* Knowledge of employment, effectiveness, and countermeasures that can be used are of immediate concern tactically. The type and caliber of enemy supporting weapons can be determined from captured enemy ammunition, duds, components, fragments, and other evidence. Intentions of the enemy can be determined by the type of sabotage devices being introduced by clandestine means.

*c. Technical Value.* Manufacturing methods and details of design may be of value to research and development agencies of the Army. The development of effective EOD render safe procedures and tools for first-seen enemy explosive ordnance is of particular importance to the safety of EOD personnel and to the accomplishment of their mission.

#### 4-11. Technical Intelligence Information Desired

Technical information desired on explosive ordnance includes—

*a. New items of enemy explosive ordnance,*

together with complete technical data on construction, markings, and functioning.

b. Design or changes in design of known explosive ordnance.

c. Changes in manufacturing techniques.

d. Quality and type of materiel and/or explosive content.

e. Information concerning packing, storing, and maintenance techniques.

f. Data concerning place and date of manufacture.

#### 4-12. Anticipated Dud Rates

a. *General.* Of particular interest to the EOD planner is the anticipated dud rate of foreign (as well as our own) explosive ordnance. Munitions which fail to function as designed after attempted employment are considered "duds." Dud rates for weapon systems depend upon the combination and interaction

of four basic variables—

- (1) Reliability (ability of components to function as designed).
- (2) Vulnerability (susceptibility of weapon to damage which impairs reliability).
- (3) Human or mechanical error in employment techniques.
- (4) Environment and terrain features such as soft earth or snow.

b. *Predictions.* From the total number of duds predicted for each system on the basis of these variables, an estimate of those that are inherently harmless (pre-explosion, unarmed, or self-destruct) and those that are never found, should be deducted. This prediction may then be used by EOD staff officers for planning their operations and distribution of units.

### Section V. THE OPERATIONAL ENVIRONMENT

#### 4-13. General

The EOD planner must analyze the enemy situation and area of operations to determine the key elements that affect EOD operations. Key elements may be extremes of weather and terrain, the enemy use of a particular form of explosive ordnance, or the implementation of a capability previously held in restraint. The use of resources and characteristics of an area to accomplish the EOD mission should be considered as a key element.

#### 4-14. Terrain and Weather

Terrain and weather in various geographical areas present serious operational problems which the EOD planner must consider. However, it should be noted that in isolated areas where extremes of terrain and weather have the greatest impact on EOD operations there probably will be fewer incidents which require EOD service.

a. *Arctic and Cold Weather Regions.* These regions influence EOD operations because—

- (1) Land transportation is hampered by winter ice, drifting snow, and summer thaws. Items usually are located away from road nets. Air travel is pre-

ferred because of the vast territory usually involved, but is not always possible due to severe windstorms. Sleds are needed to transport equipment over snow.

- (2) Bulky winter handwear slows manual tasks such as handling tools and equipment. The bulk and weight of Arctic equipment and protective clothing reduces personnel efficiency and mobility, making the inherently difficult EOD task even more difficult.
- (3) Detection, rendering safe, and recovery of explosive ordnance are extremely difficult in deep snow, glacial ice, frozen muskeg, and semi-solid muskeg. The dud ratio in snow and bogs is increased substantially. Fired rounds also tend to skid on ice and fail to function.
- (4) Considerable attention must be devoted by the individual soldier to the prevention of frostbite and related cold weather injuries.
- (5) Radio communications are difficult to maintain in these regions. A clear line of sight between transmitter and

receiver is needed. Even small obstacles such as trees, rocks, and snow-piles limit the transmitting range.

*b. Tropical Regions.* Tropical regions present a problem to EOD operations because—

- (1) Land transportation is hampered by dense jungle vegetation, swamps, and lack of roads. Existing road nets are frequently mined or are ideally suited for ambushes by guerrilla forces. Helicopters must be used extensively in such areas.
- (2) The hot, humid weather affects the reliability of the EOD equipment and tools and radio equipment.
- (3) Detection, location, and recovery of explosive ordnance in mud, swamps, and jungle growth are extremely difficult. The dud ratio is also increased by these conditions.
- (4) Radio communications are difficult to maintain in these regions because of the thick tropical vegetation.
- (5) Heavy tropical rains and floods reduce efficiency particularly during the monsoons.
- (6) Considerable attention must be devoted by the individual soldier to sanitation and prevention of tropical diseases. Many insects and reptiles found in the areas reduce the efficiency of the individual soldier.

*c. Desert Regions.* These regions influence EOD operations because—

- (1) Land transportation is hampered by sandy and rocky terrain and the vast distances which must be covered.
- (2) Extremely hot temperatures, lack of water, and sandstorms in these areas reduce the effectiveness of EOD personnel in the performance of their duties.
- (3) Detection and location of explosive ordnance in shifting sands are extremely difficult. However, the need to gain access to the items in isolated areas is limited.
- (4) Considerable attention must be devoted to protection of the soldier from the effects of the sun.

*d. Mountainous Regions.* These regions influence EOD operations because—

- (1) Land transportation and landing of aircraft is hampered by rugged terrain.
- (2) Weather extremes in these areas are frequently encountered.
- (3) In many incidents, equipment must be manhandled over mountain barriers.
- (4) Location and gaining access to the explosive ordnance are extremely difficult in mountainous areas.

## CHAPTER 5

### RECONNAISSANCE

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#### Section I. GENERAL

##### 5-1. Purpose and Scope

This chapter describes the requirements for conducting EOR and is equally applicable to EOR agents and to EOD personnel.

##### 5-2. Introduction

Anyone may report the presence or suspected presence of unexploded ordnance in the field. However, whenever possible, trained EORA should be notified and used to investigate and report the incident. Inexperienced or untrained persons may report strange but nonexplosive objects or misinterpret some evidence of an explosion. Compounding this problem are the occasional false reports made intentionally by "cranks" or other unreliable personnel. A thorough investigation by the trained EORA will substantially increase the reliability of information reported.

##### 5-3. Duties of EORA

Although every incident will be different, each time an EORA is on the job there is a definite sequence of preparations to be made, of things to consider, and of actions to be taken. Not all of these considerations will apply but they must be thought of in any case. Basically, EORA responsibilities can be summarized as shown in *a* through *g* below. (Details are contained in subsequent sections.)

*a. Investigating.* Investigating items re-

ported from any source in order to eliminate false reports and verify actual incidents.

*b. Diagnosing.* From evidence obtained at the site of the incident, determining the approximate size and type of explosive item.

*c. Locating.* If the item is not visible on the surface of the earth, determining the approximate location in buildings or estimating its location underground. It also includes assuring that EOD personnel will find the explosive item without undue loss of time by clearly marking its location as prescribed in STANAG 2002, appendix B.

*d. Identifying.* If the item is visible, identifying to the extent possible the exact type from descriptions, markings, drawings, or photographs.

*e. Reporting.* Knowing the correct channels and procedures for reporting incidents.

*f. Protecting.* Initiating and supervising any protective measures which are essential for the protection of life and property, including evacuation of personnel, blocking off danger areas, and construction of protective works.

*g. Assisting.* Providing nontechnical support to EOD personnel, to include work parties, decontamination supplies and equipment, additional power equipment, lumber, maps of underground utilities, or other information regarding facilities peculiar to a particular area.

#### Section II. INVESTIGATION

##### 5-4. Preparation

Investigation requires that the EORA make certain preparations before he leaves for the scene of an incident.

*a.* He should obtain the name, organization, telephone number, and location of the person or persons reporting the incident so that he will know whom to contact when he arrives

at the incident site. This information will assist also in assessing the reliability of the reporting source.

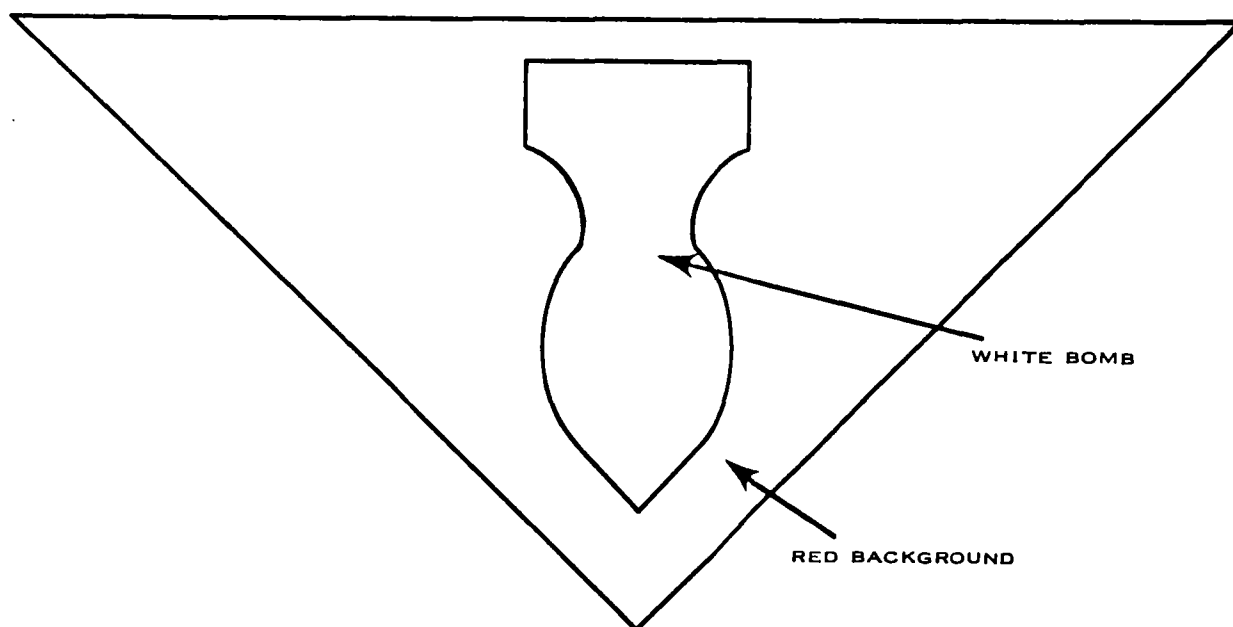
b. He should know exactly how to get to the incident site before leaving. In times of emergency and under stress, people are not dependable in giving directions.

c. He must be certain that he has the necessary equipment to conduct the reconnaissance, including the following—

- (1) Paper, pencil, and blank report forms to record and report the information.
- (2) A large scale map of the area or city. Coordinates, addresses, streets, or other identifying features of the incident site should be marked on the map. Planned routes to be taken to

the incident site should be clearly marked on the map.

- (3) A tape measure to measure holes of entry or the item of explosive ordnance.
- (4) A flashlight to better enable him to work in cellars or other dark places or to look down a hole of entry for clues such as tail fins and other component parts of bombs and missiles.
- (5) Markers to warn personnel in the area of the presence of the unexploded item and to assist the responding EOD unit in locating the item upon arrival at the incident site. The standard NATO marker for unexploded ordnance is shown in figure 5-1.



NOTE: INDICATE DATE AND TIME OF DETECTION AND TYPE OF ITEM, IF KNOWN, ON REVERSE SIDE OF MARKER.

Figure 5-1. U.S. and NATO unexploded ordnance marker.

- (6) Protective clothing, protective mask, personal decontamination supplies, chemical agent detector kits, radiac equipment, dosimeters, and contamination markers when nuclear, biological, or chemical incidents are suspected. Under such circumstances, a CBR team, trained in EOR, should be employed if available. The standard

U.S. and NATO CBR markers are shown in FM 21-40.

### 5-5. Investigation at the Incident Site

Immediately upon arrival at the incident site, the EORA should take the following actions, depending, of course, upon the circumstances.

a. Contact the persons or organization reporting the incident, if available or applicable.

b. Obtain a brief, on-the-spot summary of the incident, such as when and where the item was found or believed to have been fired, projected, dropped, or placed.

c. Ask for a brief description of the item, if seen.

d. Inquire about underground utilities or installations in the area.

e. If it is suspected that the area may be contaminated, don protective mask and clothing and preparation for a reconnaissance for chemical, biological and radiological agents.

f. Look for evidence of a camouflet. (A

camouflet is an underground cavity caused by an underground explosion with little or no disturbance of the earth above it. Camouflets will be filled with the end product of the explosion, including deadly carbon monoxide gas.

**Caution:** The standard field protective mask will not afford protection against carbon monoxide gas.

g. Look for clues as to whether the item did or did not explode. These signs will include the marks made by explosives, hole of entry, blast damage, debris damage, and component parts of bombs and missiles.

h. Be completely satisfied that it is an unexploded item before continuing.

### Section III. DIAGNOSIS

#### 5-6. General

Ammunition which fails to explode often causes damage or leaves signs which resemble those resulting from an explosion. Failure to distinguish an unexploded item from an exploded one may result in a needless call for disposal personnel or a false sense of security. Many unexploded items penetrate the earth far enough to become invisible. Exterior phenomena must be relied upon to determine whether an explosion has occurred, and if not, the nature of the buried item.

#### 5-7. Effects and Indications of Explosions

After an item has exploded there remains distinct evidence, such as blast, earth shock, incendiary, fragmentation, and debris. Passive effects of explosives include cratering and camouflets.

#### 5-8. Hole of Entry

a. The size of the hole made when an item enters the ground usually gives a good indication of its size. The hole is roughly circular in shape and normally 5 cm or more larger than the item itself. Holes under 10 cm in

diameter are not usually made by general purpose bombs if they are regular in shape. It can be assumed that they have been made by shells or small fragmentation bombs.

b. It should be remembered that a hole of entry may only exist for a short time. It may cave in, become covered with debris, or washed in and sealed by heavy rain or flooded with water.

#### 5-9. Craters

Large unexploded bombs or missiles may form a large crater when they enter the ground. This is not due to explosion, but to the shock of impact. Similar, but smaller, craters may be formed when items of smaller diameter wobble in flight or are deflected by hitting a building. In such cases, the true size of the item can often be ascertained by scraping away the earth at the bottom of the crater to disclose the true hole of entry. Unless a shaft is examined within 24 hours of the item's fall, it frequently will be found that it has crumbled or broken away at the surface and has partially filled up.

### Section IV. LOCATION

#### 5-10. General

It often is necessary for an EORA to determine the location of an explosive item in buildings or estimate its location underground.

By knowing the forces which act on an item in flight, by studying the hole of entry and the shaft of entry, and by considering certain evidence of impact with the ground, a good

EORA can make a very close estimate as to approximate depth and actual resting point. Based on this estimate, certain measures can be taken to minimize the effects of a later explosion. Upon determination of location, the EORA must then use the necessary markers so that EOD personnel readily can find and neutralize the unexploded item.

## 5-11. Flight

*a. Characteristics.* In studying the characteristics of an item in flight, the following terms often are used:

- (1) Altitude—height above the ground surface (in meters).
- (2) Trajectory—the path of flight.
- (3) Angle of entry—that angle, from the horizontal, at which the item enters the ground.
- (4) Hole of entry—the hole made in the surface at the point of impact.
- (5) Shaft of entry—the underground path made by a penetrating bomb or missile before it comes to rest.
- (6) Penetration—the vertical distance from the ground surface to the deepest part of the item.
- (7) Offset—the horizontal distances from the center of the hole of entry to the most forward part of the item.
- (8) Terminal velocity—the maximum falling speed an object can achieve after it is dropped. Up to a point, the higher it is dropped the faster it falls. Then, even though it is dropped from a still higher altitude, the speed of falling does not increase.

*b. Forces Affecting Flight.* Some of the forces affecting flight include speed, wind resistance (both forward and downward movement), the effects of gravity, the general shape and stabilization of the item, and the height from which dropped.

## 5-12. Entry

*a. Hole of Entry.* Normally, holes of entry are larger in diameter than the actual diameter of the item itself. If the item is not absolutely stable in flight, the tail section will tend to wobble on impact and cause a yawing of the

hole of entry, thus, the true shaft of entry should be measured about 30 cm to 45 cm below the surface. Factors affecting the hole of entry are size and shape of the item and type of soil or target material.

*b. Shaft of Entry.* For a bomb, the shaft of entry is generally a straight line, a continuation of the aerial flight path of the object for about two-thirds of the total travel after entering the earth. During the remaining one-third of its travel it tends to curve (the tail fins often break off), and the bomb generally comes to rest in a horizontal position with the nose often pointed slightly up toward the ground surface.

## 5-13. Penetration and Offset

A falling object seldom enters the earth in a straight line and tends to have a horizontal movement after impact. The vertical movement is measured straight down from the surface of the earth to the deepest part of the object and is called *penetration*. The horizontal movement is measured from the center of the hole of entry to the most distant part of the object and is called *offset*.

*a. Penetration.*

(1) *Determining factors.* The depth of penetration depends upon the following:

- (a) The height from which the item is dropped (up to about 3,000 meters, after which there is very slight added penetration).
  - (b) Weight of the item.
  - (c) Striking velocity.
  - (d) What the item hits before reaching the ground (i.e., ricochet from buildings, hills, or trees).
  - (e) The type of soil and the nature of the ground surface (i.e., concrete or soft ground).
  - (f) Stability of the item during flight.
  - (g) Shape and construction of the item.
  - (h) Position of the center of gravity of the item.
  - (i) Angle of impact.
- (2) *Low altitude or low trajectory.* In the case of low altitude, skip-bombing attacks, or missiles having a low trajectory, the items may not penetrate



the ground at all, but may be found lying on the surface. When they do penetrate the surface, they travel more or less horizontally, and either come to rest near the surface some distance away from the hole of entry or may breach and come to the surface again.

- (3) *High altitude or high trajectory.* Bombs which are dropped from medium and high altitude (above 3,000 meters) or large missiles with a high trajectory will penetrate to varying depths depending upon factors in (1) above.

*b. Offset.*

- (1) *Determining factors.* Factors affecting offset are the height and speed of the aircraft or missile. Objects dropped from a great height have more penetration and less offset than those dropped from a low height. The type of soil affects offset just as it does penetration. Minor considerations are the size and weight of the object.
- (2) *Path.* The path of a buried item gen-

erally starts slanting slightly away from the vertical and may continue straight for some 2 to 4 meters. It then may swerve forward or sideways up to 5 meters or more from a vertical line through the hole of entry, though the average is about 2 meters.

## 5-14. Marking

*a. Location Markers.* Upon locating an unexploded item, the EORA should mark the hole of entry with a plainly visible marker, especially among piles of rubble or in high grass where an unmarked hole of entry can be lost easily. A white rag tied on the end of a stick is a good field expedient for this purpose.

*b. Hazard Markers.* The surrounding area should be roped off for at least 28 meters. The standard unexploded ordnance marker should be posted on the ropes. If CBR contamination is suspected or detected or the item is determined to be a nuclear, biological, or chemical weapon, the appropriate contamination marker should be placed next to the marker. Roadblocks and the perimeter of the hazardous area should also be marked to preclude entry into the area by unauthorized persons.

## Section V. IDENTIFICATION

### 5-15. General

One of the basic requirements of a good EORA is an extensive background of information of various types of explosive items. Such knowledge allows the agent to appraise realistically the danger involved, enables him to take effective and economical protective measures, and permits him to gather more complete intelligence. All of these points will benefit the community or military operations, and will help provide speedier, more efficient EOD service. Although the foregoing sections reflect various steps to be taken in a reconnaissance, actual identification of the explosive item may take place at any time during the conduct of the reconnaissance. The trained EORA will determine first if the item is, in fact, an explosive item; and, if it is, he will attempt to determine what kind.

*a. Nonexplosive Items.* Correct identification of nonexplosive items, which are often re-

ported as explosive items, is important to avoid unnecessary employment of skilled EOD technicians on false incidents. Nonexplosive objects most likely to be reported include incendiary or antipersonnel bomb containers, flare cases, spent missile boosters, airplane parts, oxygen cylinders, and similar items. Eliminating such false reports is a responsibility of the EORA.

*b. Explosive Items.* Recognition and identification of explosive items are vitally important in order to avoid loss of life and destruction or damage to military, industrial, and public services. Prompt and accurate reporting of incidents to EOD detachments will greatly increase the percentage of unexploded items, fuzed for time and long-delay action, which can be successfully rendered safe. Most explosive items can be readily identified by their military characteristics; however, this is not true of many home-fabricated explosive devices and boobytraps. Extreme care must be taken in approaching the item, regardless of its type.

## 5-16. Reconnaissance in Radiation Contaminated Areas

EORA capable of operating radiac instruments can take standard precautions in radiation contaminated areas. Those not familiar with radiation-monitor procedures should request assistance from the CBR alpha team. For details on nuclear accident contamination control, see FM 3-15.

## 5-17. Chemical Agents and Munitions

*a. General.* The following antipersonnel agents may be employed in chemical munitions encountered by the EORA: nerve, blister, blood, choking, vomiting, incapacitating, and tear. These classifications are based on the physiological effect on humans. Other chemical agents are chemical antiplant and antimateriel agents, screening smokes, and incendiaries. Although these are not classified as antipersonnel chemical agents, white phosphorus and other incendiaries may produce casualties.

*b. Toxic Chemical Agents.* Of primary concern to the EORA are the toxic chemical agents; i.e., nerve, blister, blood, and choking. Identification of agents encountered in an attack may be only from the physiological effect. Agents may possibly be identified by the type of munition or the markings if they have not been obliterated by effects of firing, weathering, and other factors. Almost all countries use color marking codes on their chemical munitions. Knowledge of these codes by the EORA may save lives. Standard U.S. and NATO color code markings for chemical munitions are shown in figure 2, FM 3-8.

## 5-18. Characteristics of Chemical Agents

Detailed information on the characteristics and effects of chemical agents is provided in FM 3-10, FM 21-40, FM 21-41, TM 3-250, and TM 3-215. Chemical agents may be dispersed in the form of liquids, aerosols, gasses, or solids. The main point to remember is that when they are released from a munition they may be extremely difficult to detect by human senses.

## 5-19. Detection and Identification of Chemical Agents

*a. General.* The physical properties and the physiological action of the various chemical

agents are described in TM 3-215. Since these agents may be employed at any time, the EORA must have the capability for their detection and identification. The warning to mask is given by any person recognizing or suspecting the presence of a CBR Hazard. Steps then are taken to detect and identify the chemical agent and institute all necessary defensive measures.

*b. Use of the Physical Senses.* Although there may be times when there is a warning of a chemical attack by a strange odor or impacting munitions, physical senses cannot and should not be relied upon to give adequate warning of the presence of a chemical agent.

- (1) Since almost all casualty agents are invisible in vapor or aerosol form, it would be impossible to detect them by sight alone.
- (2) The sense of smell is unsatisfactory in chemical agent detection and identification for the following reasons:
  - (a) Many of the chemical agents are odorless in damaging concentrations.
  - (b) Characteristic chemical odors may be masked by other battlefield odors.
  - (c) Some chemical agents can cause severe damage or even death when inhaled in moderate amounts. One breath could be enough to incapacitate or kill an individual.
- (3) The sense of touch and taste obviously are not practical. The chance of becoming a casualty is increased greatly if the suspected agent is taken into the system or allowed to come into contact with the body. Therefore, it is essential to have some means, other than physical senses, for detection and identification of chemical agents. These means are the chemical agent detector kits issued to all Army units down to platoon level.

*c. Use of Chemical Agents Detector Kits.* These kits provide the EORA with the capability to detect liquid chemical agents and chemical agent vapors. To a limited extent they can assist in identifying the chemical agent. Since these kits are the primary means of de-

tecting chemical agents, the EORA should be familiar with their components, capabilities, limitations, and operations. These are discussed in detail in TM 3-215.

*d. Alarms for Detection of Chemical Agents.* These alarms are not currently available for issue.

## **5-20. Biological Agents and Munitions**

*a. General.* Biological agents are living-organisms that produce disease in man, animals, or plants or cause deterioration of materiel. These agents may be classified by their effects as anti-personnel, antianimal, anticrop, and antimateriel. Because biological agents may be used by the enemy and may be encountered by an EORA while reconnoitering at an accident or incident site, the EORA should be trained to

look for the types of evidence that indicate that a biological agent attack or incident has occurred.

*b. Physiological Effects and Types of Biological Agents.* Because of the considerable number of living-organisms that might be found as filler agents for biological munitions, it is not practical to list all the possible types of biological agents and their physiological effects. For possible biological agents and a description of their physiological effects, see FM 3-8 and TM 3-216.

*c. Protection.* The principal means of protection against biological agents are the protective mask; immunizations; personal hygiene—to include the frequent changing and washing of clothing; and the consuming of approved food and drink.

## **Section VI. REPORTING**

### **5-21. Reporting Procedures**

Anyone may report unexploded items in the field. However, whenever possible, trained EORA should be notified and allowed to investigate and report the incident. When the EORA has completed his investigation, and identification of the item and the hazards involved, he immediately will submit an incident report through appropriate channels as shown in figure 5-2 for CONUS operations and as shown in figure 5-3 for oversea operations. The incident normally will be reported by telephone or radio to the Rear Area Operations Center or Civil Defense Control Center. Information to be reported should include a description of the item, its location, facilities or operations threatened, and any other information which will assist in determining the urgency of the mission. The rear area operations center and civil defense control center will relay the information to the EOD control center for the geographical area in which the incident occurred.

### **5-22. Reports**

Experience has shown that the most reliable method of obtaining accurate information concerning a particular incident is by means of a written report prepared at the site of the incident. The report will contain an accurate esti-

mate of the situation made by the EORA and will be communicated by the most expeditious means available. The information transmitted should include, but not be limited to—

*a.* Date and time of fall, impact, or discovery of the item.

*b.* Exact location, giving street location or map reference points.

*c.* Name and phone number of person reporting the incident.

*d.* Description of any visible part of the explosive ordnance, to include the length, diameter, color, and/or markings if the exact identity of the item cannot be determined.

*e.* Radiological monitoring or chemical agent detection information, if applicable.

*f.* Size of hole of entry.

*g.* Type of ground surface.

*h.* Utilities or buildings likely to be damaged in the event of detonation.

*i.* Safety and evacuation measures taken.

*j.* Protective works which may have been started or completed.

### **5-23. Considerations by the Reporting EORA**

In reporting, there are two major things to bear in mind—write down everything and make certain the report is accurate and com-

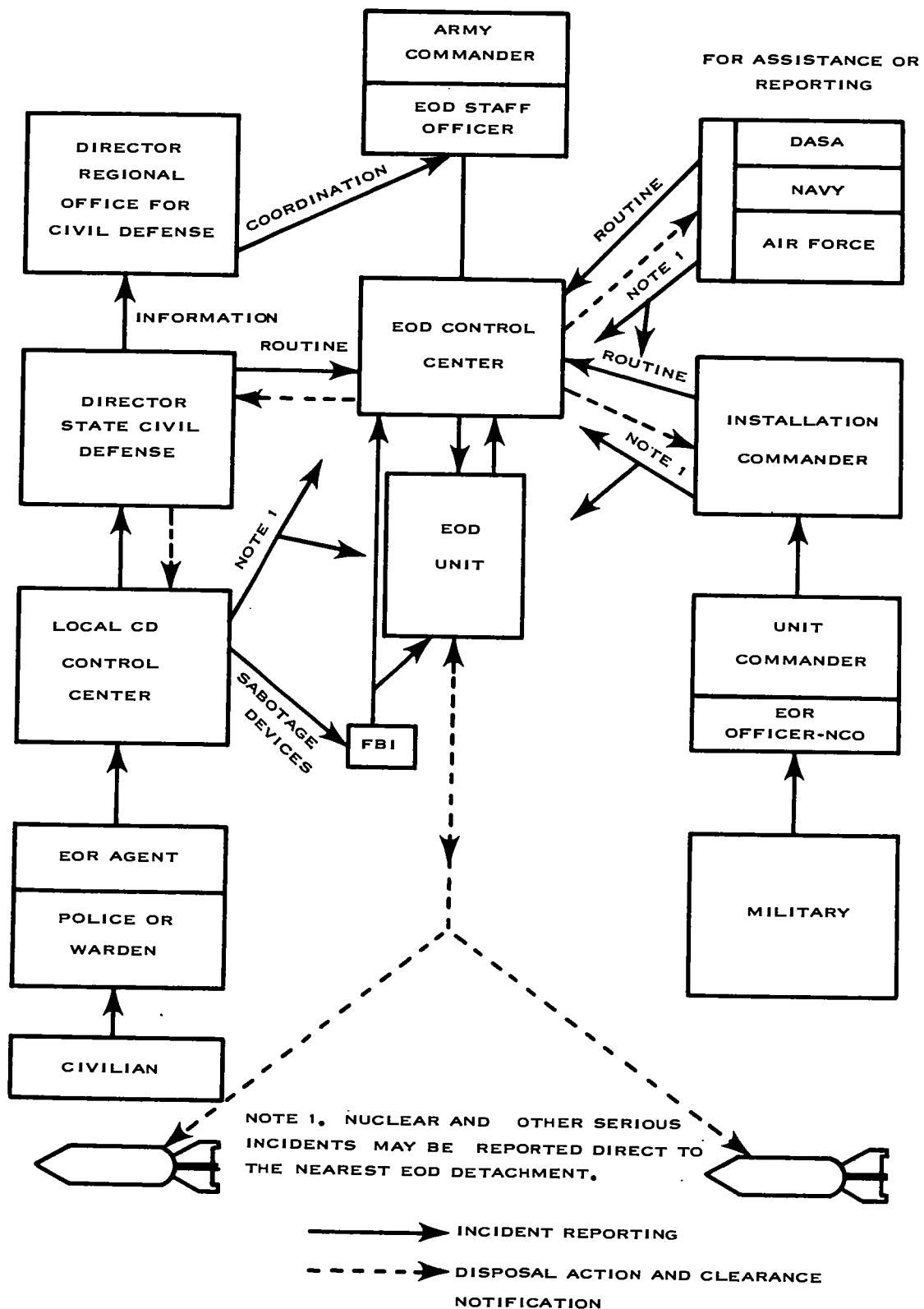


Figure 5-2. CONUS incident reporting system.



## Section VII. PROTECTION

### 5-24. General

Protection involves construction of protective works, necessary evacuation, placement of guards, roadblocks, rerouting of traffic, warning people to keep doors and windows open, and other things that will help protect lives and property in the event of an explosion. Upon discovery of an unexploded item, personnel and essential equipment should be removed immediately to a safe distance, and the danger area closed to entry by the use of guards, roadblocks, or other means. EORA will advise as to the adequacy of the measures taken. EOD personnel may make still further recommendations for action to be taken, especially during the time they are engaged in disposal operations. Such advice is in the interest of protecting personnel and property, and commanders should comply to the extent practicable.

### 5-25. Evacuation

a. Evacuation measures are intended to protect personnel, equipment, and property from the effects of a possible explosion, and to remove or cease activities which may cause an explosion. Cessation of operations at important telephone switchboards, generating and pump-

ing plants, artillery positions, radar posts, and similar installations may seriously interfere with military operations. In determining whether to continue them in operation, careful consideration should be given their importance as compared with the danger to the operating personnel.

b. Normally, guidelines for evacuation of the civilian population of an area are provided by the headquarters having civil affairs responsibility. However, it is the responsibility of EORA to establish evacuation distances and to coordinate with the headquarters having civil affairs responsibility to effect removal of residents from an area to be evacuated.

c. Evacuation costs a great deal in lowered morale, disrupted families, and the actual cost of moving, sheltering, and feeding the families concerned. It is, therefore, a great responsibility and one which should not be taken lightly or entered into without proper planning.

### 5-26. Evacuation Distances

Evacuation distances for conventional bombs can be found in TM 9-1985-9. Nuclear incidents require evacuation from a 3- to 24-km radius, depending on the missile involved.

## Section VIII. ASSISTING

### 5-27. General

In addition to the EORA responsibilities covered in preceding sections, he must be prepared to provide assistance pending and upon arrival of EOD and other specialized teams.

### 5-28. Duties

Assistance by the EORA at the incident site includes—

a. *Rescuing.* Attempt to rescue and assist injured persons at the site and obtain medical assistance as required.

b. *Firefighting.* Extinguish small fires and obtain assistance from fire departments as required.

c. *Securing.* Maintain exclusion of the area

from unauthorized persons and obtain assistance from police departments and military police units as required. Prevent touching, removing, or examining any items in the vicinity of the explosive item.

d. *Establishing Communications.* Establish required telephone, radio, or messenger service.

e. *Briefing.* Brief authorities, site commanders, special teams, and the EOD team commander upon their arrival at the incident site. In the interest of security and to avoid panic, the public, press, or other unauthorized persons should not be briefed except to the extent required for public safety.

f. *Guiding.* Guide EOD and special teams to the explosive item.

## CHAPTER 6

### EOD CONTROL CENTER OPERATIONS

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#### Section I. GENERAL

##### 6-1. Area of Responsibilities

An EOD control center is charged with the disposition of all unexploded items in a designated area. It accomplishes this through the acceptance of incident reports from designated EORA or a RAOC and the dispatching of EOD units for disposal. Each control center must be assigned a definite area of responsibility in administrative orders establishing the center. The total of the areas assigned to all the control centers of a command must encompass the entire territory under the control of that command.

##### 6-2. Organization

Depending on the degree of air activity, a control center may be a large and active establishment prepared to receive a continuous flow of incident reports or it may be merely a designated point to which an occasional incident report should be transmitted. It may be operated by one or more control detachments, or by a detachment acting both as control center and disposal unit. Normally, a center is operated by an EOD control detachment which will have operational control of from eight to ten disposal detachments.

#### Section II. OPERATIONS

##### 6-3. Incident Reports

The center receives and, where necessary, verifies incident reports from EOR personnel. A report once accepted remains the concern of the center until action is completed. The assignment of categories to reported incidents must be realistic and devoid of sentiment. For example, the loss of a munitions plant or power generating center can have far-reaching and dire effects which may not be replaceable during the course of the war; a church damaged can have an adverse effect on morale, but the material damage as far as the war effort is concerned is negligible.

##### 6-4. Assignment of Tasks

Tasks to EOD units will not be assigned until the category of the incident and its priority have been established. Projection of schedules will require constant revision due to the frequent changes that occur in the overall operations of the control center. Communications with an EOD unit may be limited to only one

or two telephone calls daily. Thus, written instructions for units must be kept current so that they can be transmitted verbally at any time by anyone receiving calls at the control center. Telephone reports of progress and operations concluded must be reduced to writing at once so that their effect on the schedule of operations can be evaluated promptly and any necessary changes made.

##### 6-5. Technical Intelligence

EOD personnel will maintain close liaison with technical intelligence personnel and will cooperate fully with intelligence agencies. Information obtained by the control center which may yield intelligence will be referred to the appropriate intelligence agency. Technical intelligence is discussed in more detail in chapter 4 and FM 30-16.

##### 6-6. Standing Operating Procedure

Control centers should operate in accordance with a standing operating procedure, that im-

plements instructions from higher headquarters. This SOP normally should include but not be limited to—

a. *Operating References.*

b. *Mission.*

c. *Responsibilities.*

d. *Organization.*

e. *Operations.* Include areas of operation, specific duty assignments of the control center and assigned EOD units.

f. *Technical Intelligence.* Include handling matters pertaining to enemy explosive items and related information, as directed by higher headquarters.

g. *Administration.* Cover other pertinent procedures as required, such as security, personnel, training, supply, and maintenance.

### 6-7. Scheduling EOD Operations

Upon receipt of an item incident report and assignment of appropriate category, the EOD control center notifies an EOD unit. Disposal operations must be scheduled with regard to the category of each incident report, the locations, and personnel availability. Receipt of re-

ports of incidents falling into higher categories will necessitate changes in the work program already established and will require rescheduling and reassignment of incident tasks to the disposal team. It seldom is possible to gage the time required to complete incident tasks assigned. When an EOD team requires more or less time than estimated by the control section, it will be necessary to readjust the overall workload. Air transportation service for the EOD teams and support from other units are arranged by the EOD control center through the rear area operations center.

### 6-8. Records

Large visible records should be maintained which easily can be posted with important current information and a quick scanning of which will give a picture of the status of operations. A situation map and suitably prepared blackboards or charts will serve the purpose. These do not replace written records and files. They supplement them. They should include—

a. A locator board which shows the location of all disposal units and other pertinent current information (fig. 6-1).

LOCATOR BOARD				
TEAM	CO	LOCATION	PHONE	REMARKS
133	CPT WHITE	HQ 59 BN	LIB 140	TDY WITH 164 ENGR BN
134	LT BROWN	HQ 164 ENG BN	BUT 15 THRU LAX	
152*	CPT SMITH	2ND QAD	LAX 29	
154	LT TULLY	HQ 11 GP	L18 117	
159	LT COHEN	HQ 48 BN	COD 114	LT COHEN IN 69 HOSP LU 3 TO 8 MARCH
160	LT TOLIVER	BASE VEH PARK	LIB 88	
165	LT MCGILLICUDDY	15 CMP CO	COD 33	TEMP PHONE LAX 33
168	CPT KIRTZ	HQ 49 BN	LAX 187	
*	AUGMENTED			

Figure 6-1. Locator board.



b. A board listing all incidents reported with essential data concerning them (fig. 6-2).

INCIDENT REPORTS				
UNIT ASSID	CATE- GORY	NO.	NATURE	LOCATION AND REMARKS
152	B	2	3 BOMBS UNIDEN	NEAR QM DEPOT
168	B	3	BOMB AMMO DUMP	2ND QAD
<del>163</del>	<del>A</del>	<del>4</del>	<del>100 LB BOMB</del>	<del>MIDDLE OF <del>XXX</del> CORPS HQ</del>
159	C	6	220 MM. SHELL	BTRY A 15 ADA BN
159	B	7	BOMB UNIDEN	PORT, NEAR PIER 3
	C	8	UNIDENTIFIED	1 REPL DEP# 154 TO CHECK
154	A	9	2KT. BOMB	11 GEN HOSP.
NAVY	C	10	AIR MINE	NAVY WILL REPORT
	?	11	NOTHING CLEAR	JONES INVESTIGATING

Figure 6-2. Incident report board.

c. A schedule of operations showing the distribution of workload by incident and the responsible EOD unit (fig. 6-3).

d. An operations map showing the location of each detachment and the location of each incident reported together with its category

and the responsible EOD unit. Different colored pins to indicate categories and numbered flags to indicate EOD units will prove effective.

e. The officer in charge of the control center may, at his discretion, modify the above, or maintain other boards as he deems necessary.

SCHEDULE OF OPERATIONS										
INCIDENT NO.	CATEGORY	UN-ASSIGNED	TEAM							
			133	134	152	154	159	160	165	168
1	A	X	X	TDY WITH 164 ENG BN	COMPLETED	X	ON LEAVE 3 TO 8 MARCH	X	X	
2	B		X							
3	B									
4	A		X							
5	C		COMPLETED							
6	C									
7	B									
8	C									
9	A		X							
10	C		NAVY WILL HANDLE							
11	?		X							

Figure 6-3. Schedule of operations.

## CHAPTER 7

### DISPOSAL OPERATIONS

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#### Section I. GENERAL

##### 7-1. Purpose and Scope

This chapter describes disposal operations conducted by EOD units, to include all actions taken from the time they receive an incident report until final disposal. It includes requirements for establishing disposal areas and collecting points. It also contains special disposal procedures for nuclear, biological, and chemical weapons.

##### 7-2. Responsibilities

The EOD detachment is the basic Army unit assigned the responsibility for performing the final reconnaissance, identification,

rendering safe, recovery, field evaluation, and disposal of U.S. and foreign explosive. This does not preclude other organizations from providing assistance as required.

##### 7-3. EOD Safety

Disposal is an inherently dangerous task and requires strict adherence to sound safety practices. The safety of the public, the supporting personnel, and the EOD personnel must be considered in each step of disposal operations. Specific safety precautions are cited throughout this chapter. General safety requirements for EOD units are found in TM 9-1300-206, TM 9-1985-10, and FM 5-25.

#### Section II. RESPONSE BY EOD UNITS

##### 7-4. Preparations Prior to Movement

Upon receipt of mission instructions from the EOD control center, the EOD unit commander determines the composition of the team necessary to perform the disposal task. This includes assuring that appropriate render safe procedures, rations, demolitions, special EOD tools and equipment, and EOD qualified personnel are dispatched without delay to the incident site. A log of events will be initiated at this time. This log is a written record of all actions accomplished, from initial notification through submission of final reports. It can be maintained by using an EOD unit checklist such as provided in appendix D.

##### 7-5. Estimate of Situation

Immediately upon arrival at the scene of the incident, the EOD unit commander will take steps to determine and accurately appraise all aspects of the situation. Immediately he

will contact the EORA, site commander, or other authority, if available, for an on-site briefing. Data furnished in the incident report will be most helpful and should be studied while en route to the site.

##### 7-6. Preliminary Precautions

After arriving at the scene and appraising the situation, the EOD unit commander should advise local commanders as to the adequacy of protective measures already taken. If they are insufficient, specific recommendations should be made for their improvement. If excessive caution has been observed, advice as to relaxation thereof should be given. After determining the disposal method and the procedure to be followed, local commanders should be requested to take or assist in safety precautions. These might include the halting of highway and rail traffic, further withdrawal of nearby personnel, and cessation of artillery

fire. If commanders are unable or unwilling to comply with such requests, the incident should be temporarily abandoned and a prompt report made to the control unit of the circumstances.

The control center will take necessary action to obtain required support or direct the incident to be abandoned.

### **Section III. EXPLOSIVE ORDNANCE DISPOSAL PROCEDURES**

#### **7-7. General**

The EOD unit commander or his designated senior NCO is solely responsible for determining the proper procedure to be used to accomplish disposal. Actual disposal operations are carried out by the EOD teams. Specialists of other fields will provide technical advice to the EOD team chief as required.

#### **7-8. Disposal Policies with Reference to Categories**

a. Every attempt will be made to remove or otherwise render safe category A incidents immediately upon arrival at the site. If removal or neutralization is impossible without causing the item to function, the EOD officer in charge will notify his control unit. The control unit will decide the course of action to be taken.

b. EOD personnel will not attempt removal or disposal of category B incidents until they have waited a sufficient length of time for delay-type mechanisms to function. It is to be assumed that all unexploded items are equipped with a delay mechanism, excepting cases where positive identification is possible. The necessary waiting period is dictated by the type fuzing mechanism.

c. All incidents not in category A or B will be placed in category C and will be disposed of when time permits.

#### **7-9. Access**

Frequently, special techniques will be required to locate and gain access to an item in order that an EOD procedure can be accomplished. The item may be buried in the ground; lodged in rubble, buildings, or equipment; immersed in water; or located in a contaminated area. The plan of action chosen by the EOD team will depend upon the category of the incident and an estimate as to its likelihood of exploding before access can be gained and

deactivation effected. In some cases, the EOD team commander may determine that the danger of explosion is less than was anticipated by the control unit; in which case, it can be treated as an incident of lower category. If this results in leaving the item for later action, he should report immediately to the control unit the downgrading of the category.

a. *Locating the Explosive Ordnance.* Unless an explosive ordnance item is too deep in the ground, it usually can be located by probing or by use of magnetometer or other available locating devices. Careful probing will enable the operator to closely estimate the depth and offset of the item from the hole of entry, and excavation can be commenced at a point directly above it. Deeply buried items may require the use of bore-holing equipment or similar drilling methods. Explosives located in harbors, canals, rivers, streams, lakes, or reservoirs may require the use of special diving equipment and the assistance of Navy EOD teams.

#### *b. Excavation.*

- (1) Explosive ordnance found within a few feet of the surface may be dug up without special precautions against cave-in. If the item is buried at any great depth, it will be necessary to support the walls of the shaft with timbers or other materiel. The necessity for timbering or shoring an excavation depends on a number of factors such as the nature of the soil, moisture, pressure exerted by adjacent structures, or vibration such as that from nearby artillery fire or highway or rail traffic. Normally, an excavation should not exceed two meters without proper support. If there is any doubt as to the safety of the excavation, support should be provided no matter what the depth

may be. Erection of shoring by improvised means can be employed safely in excavations not exceeding five to six meters.

- (2) Excavations of more than five to six meters cannot be made safely without protecting the walls of the pit by properly placed sheet piling, either metal or wood, properly braced. EOD units have neither the tools nor the equipment necessary for such construction or excavation. Where deep excavations are necessary, a report should be made to the staff EOD officer through the control center with a request for instructions as to whether the explosive item should be abandoned or whether engineer units and equipment will be provided. Decision in this case will rest with the appropriate headquarters. In civilian defense areas, the decision will rest with the appropriate civil authorities. The EOD unit commander will supervise safety aspects during the excavation.
- (3) A difficulty sometimes encountered in excavation, whether or not shored, is an accumulation of water in the shaft which may result from rain, or seepage from the earth. The problem usually can be solved by bailing out the water. However, when water accumulates in any appreciable amount, it will be necessary to employ pumps, either hand operated or motor driven.
- (4) Because of the probable sensitivity of buried explosives, the use of power equipment, with its attendant vibration, should be avoided unless removal of the buried item is of paramount importance. Usually engineer units will provide the special heavy area damage control teams and equipment to perform the excavation and removal of debris.

#### **7-10. Civil Defense Areas**

Civil authorities are responsible for most activities required in civilian defense area. Military EOD assistance is limited to furnishing trained technicians for actual disposal op-

erations when requested by civil authorities. Related operations can be accomplished by civilian labor under the supervision and direction of trained military personnel. Civil authorities should be requested to establish, at strategic points, stocks of sheet piling, tools, and other essential equipment for deep shafting. Arrangements should be made so that EOD units can use such stocks when necessary.

#### **7-11. Identification**

All explosive ordnance must first be identified, if possible, to determine the disposal procedure to be used. The EOD officer is better trained in recognition than the reconnaissance officer and more often will be able to identify the item. In the case of a bomb, it may be possible to extract the tail fins from the hole of entry for identification purposes. Identification of other bombs which have exploded in the vicinity may indicate that a buried unexploded bomb is of the same type. Familiarity with the type explosive ordnance may give a clue to whether the buried bomb is likely to be equipped with a delay action fuze or whether the fuze has merely failed. A written memorandum will be prepared on-the-spot to include a concise description of the item, sketches, and details of location. The memorandum will be placed in a safe location before attempting render safe procedures. A technical intelligence checklist, appendix E, provides important steps or essential elements of information to be covered in disposal operations involving first-seen foreign explosive ordnance.

#### **7-12. Determination of Disposal Procedure**

Selection of the best method of disposal depends on a number of factors including location, amount and nature of explosive ordnance involved, proximity to structures and facilities, accessibility, condition, and safety of operating personnel. All of these must be considered before the plan of action is determined.

#### **7-13. Destruction in Place**

Destruction in place is accomplished either by allowing a delay-action fuze to function or by using a demolition charge. Using a demolition charge is the simplest and quickest method and the least hazardous to EOD personnel. First-seen enemy explosive ordnance

normally will not be destroyed in place; however, if it cannot be rendered safe or removed safely, demolitions should be used in such a manner as to minimize damage to the item. A nuclear weapon or device will not be destroyed in place. If possible, samples of chemical or biological agent fillers will be extracted from leaking ammunition and preserved for laboratory analysis. Warning to downwind units should be provided when chemical-biological munitions are destroyed. Destruction in place may be accomplished when—

a. Recovery for technical intelligence purposes is not desired.

b. There is no threat of damage to nearby structures and facilities or harm to personnel.

c. Damage can be prevented or minimized by the construction of limited protective works.

d. The hazard involved in any other method is so great as to outweigh the protective measures required for and the damage expected from a planned explosion.

#### 7-14. Explosive Ordnance Disposal Procedures

Explosive ordnance disposal procedures are defined as all particular courses or mode of action taken by qualified EOD personnel to render safe, disassemble, neutralize or dispose of munitions, explosives, or any hazardous materiel associated with an explosive ordnance incident.

a. *Render Safe Procedures (RSP)*. That portion of the EOD methods and tools to provide for the interruption of functions or separation of essential components of explosive ordnance items to preclude a detonation or munition function.

b. *Disposal Procedures*. That portion of EOD procedures pertaining to final disposition of explosive ordnance by EOD personnel. Disposition may be affected by demolition, burning, dumping at sea, demilitarization transfer of disarmed items or residue in proper channels for further evaluation. EOD procedures require the application of special EOD tools, equipment, and methods and are generally applied when destruction in place is not possible. Only technically qualified EOD personnel are authorized to perform EOD procedures on unexploded ordnance.

#### 7-15. Recovery

Unrecognized items and those for which search has been directed by higher authority should be recovered whenever possible, even at considerable risk. Recovery even of components and fragments of such items may be equally important. Such recovery is of value to intelligence agencies in evaluation of technical data and to research and development agencies in the development of disposal methods. Any part or fragment of a nuclear weapon must be recovered whenever possible. Collection of enemy ordnance intelligence is the primary responsibility of technical intelligence units. In the case of explosive items, however, new items are more frequently first encountered by EOD rather than intelligence personnel. Thus, EOD personnel must be trained to recognize and collect intelligence and, within their field, act as agents of the intelligence units. All intelligence information gathered by EOD personnel will be reported through the EOD control center to the staff EOD officer of the appropriate headquarters, in accordance with FM 30-16. Recovered explosive items will be processed as follows:

a. New or unknown conventional types of foreign explosives will be turned over to technical intelligence personnel for disposition.

b. Nuclear weapons belonging to other services or allied nations will remain under their accountability. The accountable nation or service normally will dispatch the necessary EOD team to the accident or incident site at request of the host nation or holding service. Nuclear weapons or components involved in accidents and subsequently recovered by EOD personnel will be disposed of as follows:

- (1) Recovered weapons or components will be returned to the custody of the official courier accompanying the shipment.
- (2) In the event the official courier is incapacitated or for some other reason is unable to furnish disposition instructions, the accountable agency (Army, Navy, Air Force, or other agency of the custodian nation) will furnish disposition instructions through command channels to EOD

personnel responsible for the recovery of the item.

- (3) In all cases where nuclear weapons or components are returned by EOD personnel to the custody of the official courier or to such other representatives as may be designated by the accountable agency, a statement of the incident will be signed by the courier attesting to the circumstances and for the receipt of the recovered components. Receipts will include serial or part numbers where possible or complete descriptions of individual components for positive identification and accountability.

c. Foreign nuclear weapons or components, including sabotage or subversive devices, will be disposed of through technical intelligence channels.

d. Security escorts will be provided for safeguarding classified ammunition.

e. Technical escorts are required to provide safety control for shipments of nuclear, chemical, biological, and other hazardous items of ammunition. Technical intelligence officers determine the need and arrange for technical escorts through the ammunition service organization.

f. Collection of technical intelligence data will, in many instances, entail dismantling the ammunition and stripping fuzes and other dangerous components for analysis and evaluation. These operations should be conducted

only by experienced EOD personnel. In many cases, complete dismantling and stripping may be beyond the capability of small units in the field. Unless the urgency requires the acceptance of a high degree of risk, the item is evacuated. Dismantling and stripping are conducted only in response to a valid requirement placed through technical intelligence or EOD staffs.

g. Final disposal of explosive components associated with recovered ammunition is the responsibility of EOD personnel.

## **7-16. Removal or Abandoning**

In some cases it may be safer to remove an item to a disposal area for destruction or to a collection point rather than to attempt to render it inert in place. For example, some time-fuzed bombs may be dangerous to inert, but may be relatively safe to handle pending completion of the time cycle. Items that have been rendered safe should be removed to a collecting point or disposal area for subsequent disposal by demolition, burning, washing out, chemical decomposition, or dumping at sea. An item rendered safe may be left in place if other pressing work requires immediate attention. In such cases it should be marked and reported immediately to the control center for later removal. Live items should be left in place only when damage from their explosion would be less than that of other incidents awaiting action. Such action should be reported promptly to the control center so that it will remain on the schedule of uncompleted incidents.

## **Section IV. ESTABLISHING DISPOSAL AREAS AND COLLECTION POINTS**

### **7-17. Disposal Areas**

A disposal area should be suitable for demolition, burning, or other disposal methods. Sites selected must be located at least 800 meters from inhabited buildings, public railways, highways, and supply points. Disposal areas are generally small and should be located centrally so as to be readily accessible to the units using them. The entrance to the site should be accessible to vehicles. Soft ground is preferred for demolition pits and

burning grounds. Rock strata should be avoided since it may transmit earth shock for several miles. Natural barriers such as surrounding bluffs or heavily wooded areas are desirable to blanket the blast effect. The area must be cleared of combustible material and brush within a radius of 200 meters. A bunker or revetment *for protection* of personnel from fragments or blast effects is desirable. Disposal areas should be marked in accordance with STANAG 2002. It is seldom practicable to

maintain guards at the site except when destruction is underway. All destruction operations should be carried out only under the supervision of competent EOD personnel.

### **7-18. Chemical and Biological Disposal Areas**

*a.* Demilitarization is the main concern of chemical disposal operations and is defined as the disassembly, destruction, or any other action that renders material harmless and ineffectual for military purposes. In peacetime, demilitarization must be performed within an Army installation by chemically trained personnel unless otherwise directed by the Commanding General, U.S. Army Munitions Command. As with decontamination, demilitarization can never be contracted to a civilian industry. Also, policy directs that demilitarization be performed in the most economical manner that can still completely insure the safety of personnel in the area before, during, and after the actual operation. When dealing with chemical disposal operations safety is of paramount importance. Consideration must be given to the direction of prevailing winds so that toxic vapors will not be carried into inhabited areas, or areas occupied by friendly troops. The site should be on high, open ground. The land should be free of cracks or crevices in which the agent might become trapped.

*b.* Once the chemical disposal site has been selected, the following physical improvements are required:

- (1) A contaminated material holding area.
- (2) A contamination free equipment storage area.
- (3) Both visible and audible warning devices (red range flag, Klaxon, siren, and alarms).
- (4) Entire area fenced and posted as a hazard area.
- (5) Barricaded and/or guarded entrances.
- (6) Communications within the area and with an external headquarters.
- (7) A first-aid station, personnel decontamination station, and firefighting equipment.
- (8) A bunker or revetment for protection of personnel from flying fragments or blast effect.

### **7-19. Collecting Points**

During operations, it may be impracticable to move unexploded items directly to disposal areas. Thus, it may be necessary to establish clearly marked collecting points in the area of immediate operation in which explosives can be concentrated without danger to surrounding areas. Removal from collecting points to disposal areas should be undertaken as soon as practicable to avoid large concentrations. Collecting points should be marked in accordance with STANAG 2002. Nuclear, biological, chemical, or classified explosive ordnance never will be left in collecting points without safety and security guards.

## **Section V. SPECIAL DISPOSAL OPERATIONS FOR NUCLEAR, BIOLOGICAL OR CHEMICAL WEAPONS**

### **7-20. General**

<sup>E</sup> This section prescribes special procedures used by EOD units in response to incidents involving nuclear, biological, or chemical weapons. The hazards presented by these weapons require special attention and are as stated in *a* through *c* below.

*a. Nuclear.* In addition to the threat of a high order nuclear explosion, nuclear weapons hazards include alpha contamination, high explosive detonation, scattering of pieces of high explosive, heavy metal poisoning, and partial fission with resulting beta-gamma radiation.

*b. Biological.* Because micro-organisms are extremely difficult to detect, EOD personnel are severely handicapped unless they can recognize the munition from which the biological agent is dispersed. Much of the hazard of biological weapons is presented by windborne clouds of the agent which may be dispersed over large areas.

*c. Chemical.* The hazards presented by chemical weapons are mainly from contamination by the chemical agent filler. Windborne clouds of the agent also present a hazard to units downwind.



### **7-21. Action by the Incident Site Commander**

In the event of an accident or incident involving a nuclear, biological, or chemical weapon, the site commander should take the following actions:

a. Establish an exclusion area around the weapon. To permit immediate implementation, the radius (450 meters minimum) from an ammunition storage or firing site should be determined in advance. An additional downwind hazard area of 2,000 meters should be established initially on incidents involving CB agents. All unprotected personnel must be evacuated from this hazard area. Accident/incident control plans will be instituted as prescribed by the local army commander.

b. Determine the extent of hazard involved, initiate necessary emergency measures, and report the incident to the appropriate EOD control center. The unit CBR team will perform necessary monitoring of the exclusion area.

c. Establish a control point prior to arrival of EOD and other emergency teams.

d. Upon arrival, advise the EOD and other emergency teams of the action already taken and provide information as to action which the teams can take without interfering with the tactical mission. The commander of the EOD team will assume responsibility for safety when the team enters the area to perform operations.

### **7-22. Marking**

Items suspected of containing nuclear, biological, or chemical fillers will be marked by placing the appropriate contamination marker and the unexploded ordnance marker side by side.

### **7-23. Action by EOD Units**

a. Upon receipt of an accident or incident notification or orders from the EOD control unit, the disposal unit will depart by the fastest means of transportation available for the incident site. The unit will maintain an accident or incident checklist to assure all proper actions are taken as shown in appendix F.

b. The EOD officer may be the first military representative to arrive at the scene. If no custodian, technical escort officer, or site commander is present, he will assume command, and perform the steps outlined in (1) through (6) below. He should establish an organization using the typical organization depicted in figure 7-1 as a guide.

- (1) Establish a control point.
- (2) Establish an exclusion area, as required, using available resources.
- (3) Determine condition of items involved. Perform only those actions necessary to prevent an increase or spread of contamination, reduce the possibility of detonation, and establish security.
- (4) Perform further functions of the site commander until properly relieved.
- (5) Effect decontamination, final cleanup, evacuation, disposition of filler agent and weapon components, and within unit capability, contamination monitoring at the discretion of the site commander.
- (6) Assist in evacuating injured persons, clearing the exclusion area, and operating the control point.

c. When an EOD unit is employed in an accident or incident involving a shipment or stores not in the custody of its agency or service, it will proceed in the normal manner and retain responsibility until relieved at the scene by the responsible organization.

### **7-24. Contamination Control Procedures**

Rigidly established operating procedures must be followed to achieve the objective of contamination control. This is accomplished in three steps—

a. Initial monitoring upon arrival to determine the type of contamination spread.

b. Establishing a "hot line" (para 7-26) point to control contamination spread during team operations.

c. Using protective procedures to minimize the spread of contamination.

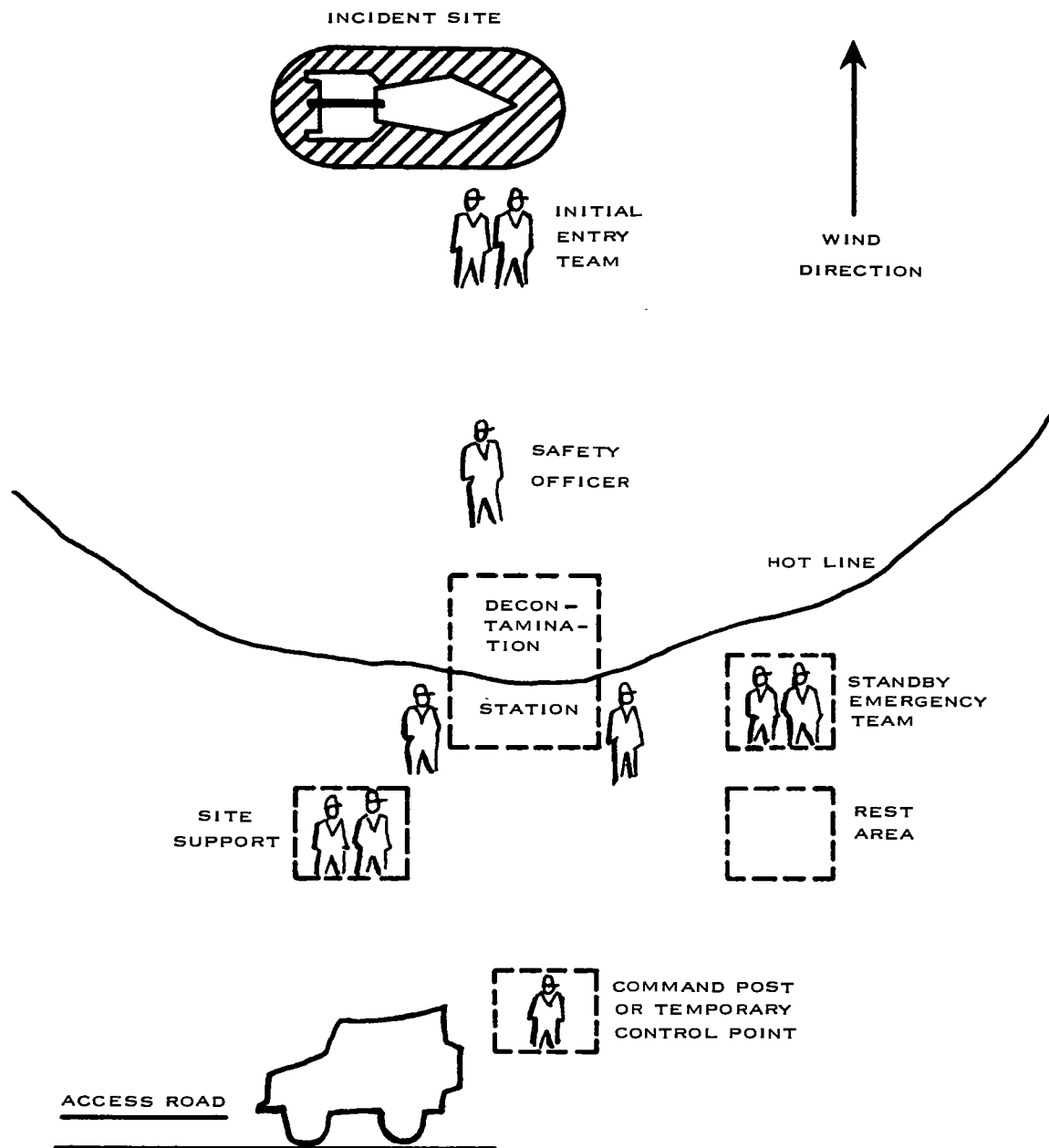


Figure 7-1. Typical organization for operations at a nuclear, biological, or chemical incident site.

## 7-25. Initial Monitoring

Contaminated objects, personnel, and areas must be segregated before operations are initiated, otherwise team members and equipment will become contaminated. After a contamination check, extraneous civilian and military personnel should be removed from the immediate incident scene to a clean area located up-

wind. Areas must be selected for the location of the Command Post, public information control and the "hot line."

## 7-26. Hot Line

The "hot line" is an arbitrarily established control line separating the contaminated area from the contamination free area and is situated upwind from the incident point. All per-

sonnel and equipment entering and leaving the incident scene are channeled through the line.

## 7-27. Protective Procedures

Effective protective procedures are an extremely important aspect of contamination control.

*a. General Equipment.* It is quite difficult to protect equipment against contamination due to size and usage. However, through proper selection and control, this problem can be reduced. First, only a minimum of equipment should be used. The equipment selected must be clean to reduce contamination pickup and to reduce decontamination problems. If possible, equipment should never be placed on the ground. Always place some expendable material (contamination resistant) beneath all items, including equipment in plastic bags.

*b. Contamination Monitoring Equipment.* Certain equipment such as radiac meters and detector kits can be inclosed in plastic bags to reduce contamination spread. However, alpha-survey instrument probes must be left unprotected.

*c. Protective Clothing.* Personnel entering a contaminated area must be adequately protected against the type and extent of contamination. For further information see FM 3-15, FM 21-40, TM 3-220 and paragraph 7-29.

*d. Protective Masks.* A protective mask or breathing apparatus will be worn by all personnel entering a contaminated area. The mask or breathing apparatus will be monitored and decontaminated upon return to the "hot line." It will be removed last.

*e. Personnel Decontamination Station.* As personnel leave the contaminated area, they must pass through a personnel decontamination station (PDS) or an undressing station before crossing the "hot line." A typical PDS is shown in figure 7-2. The actual arrangement of the individual stations will depend on the type and amount of protective clothing being worn and the specific agent involved. Four general principles should be followed when establishing the PDS—

- (1) Move into the wind as undressing progresses.
- (2) Decontaminate and remove the most heavily contaminated items first.

- (3) Undressing sequence should follow, as closely as possible, the procedures outlined in TM 3-220 and TM 10-277 (when printed).

- (4) The respirator or protective mask should be the last item removed prior to showering.

## 7-28. Nuclear EOD Procedures

The primary mission of the EOD operations at a nuclear incident site is to prevent a detonation. Detailed EOD procedures will vary with the peculiarities of each incident. A weapon involved in an accident may be initially intact, it may be broken up due to impact or detonation, or the weapon may have been exposed to fire. The EOD unit will find that following an accident/incident checklist, such as shown in appendix F, will prevent omission of important steps.

### *a. Initial Entry.*

- (1) The purpose of the initial entry is to positively identify the weapon, determine radiation hazards, eliminate lesser hazards (i.e., grass fires or fuel leakage) which might effect the weapon if ignored and to perform any RSP possible in order to minimize the hazard and to collect information for a quick evaluation of the situation.
- (2) The initial entry party should consist of at least two EOD qualified members and one EOD officer or NCO. Until the hazards are defined or controlled, these personnel must be fully dressed in protective clothing with protective mask. If there is an active fire or a serious threat of a fire, a self-contained breathing apparatus is required. The initial entry should be made from an upwind direction. Worktime when using self-contained breathing equipment must be controlled as the air supply is generally limited to one-half hour. Additional respirator protection must be available in the event that the self-contained breathing apparatus air supply becomes exhausted.
- (3) Other than their protective gear, the equipment generally carried by the

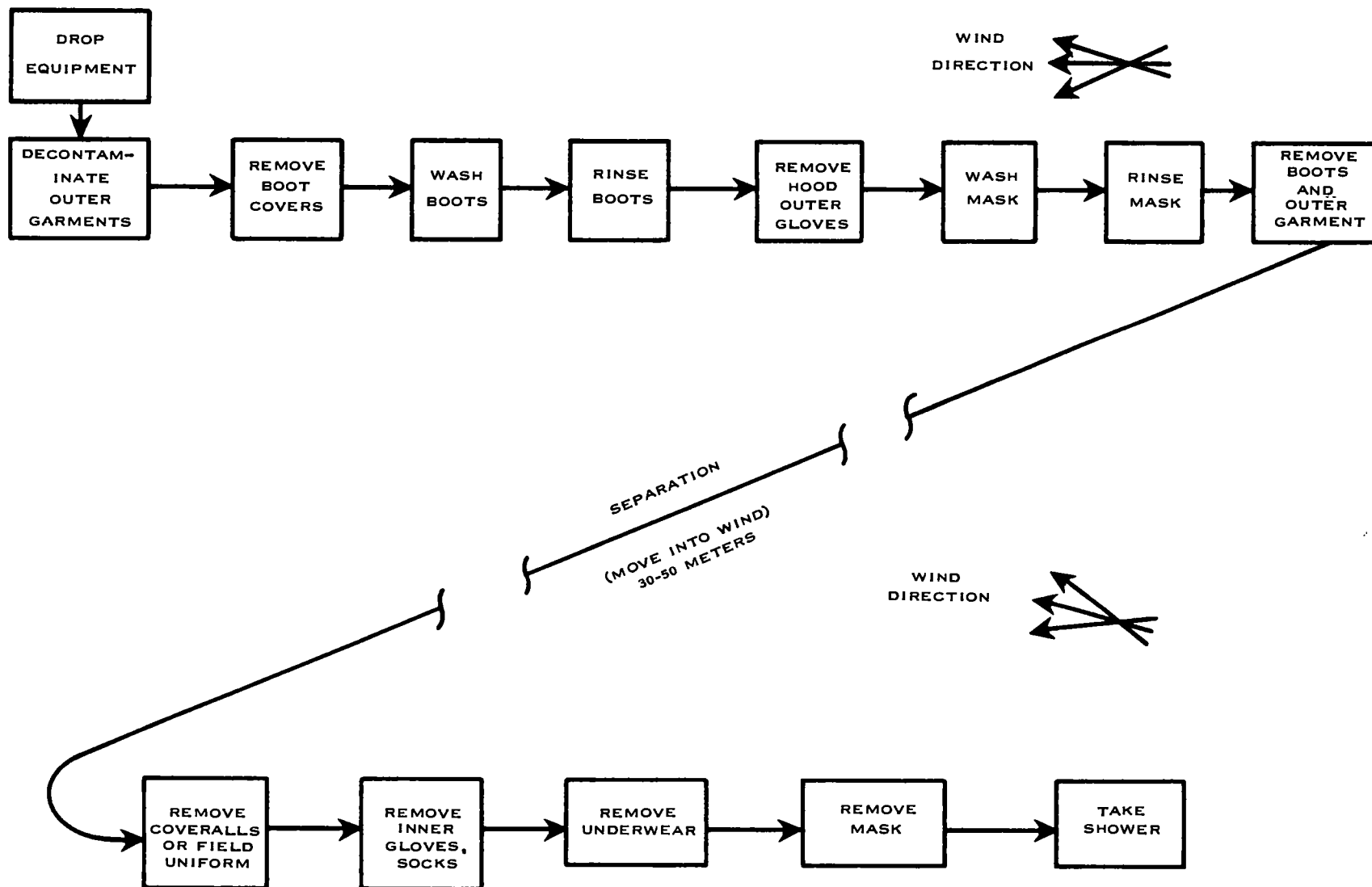


Figure 7-2. Typical personnel decontamination station for EOD.

initial entry party is a high range, beta-gamma survey instrument, low range beta-gamma and an alpha survey meter, dosimeter for each individual, and communications equipment. Equipment such as the following should be readily available:

- (a) Special EOD tools.
- (b) Nonsparking pioneer tools.
- (c) Other radiac instruments.
- (4) Other purposes of an initial entry are concerned with related hazards and collection of information to assist in evaluation of the incident, such as—
  - (a) Identification and plotting of hazards (scattered HE conventional ordnance items or spilled fuel).
  - (b) Identification, plotting, removing, and/or concealing of classified material.
  - (c) Measuring and recording general beta-gamma radiation levels.
  - (d) Measuring and recording general alpha radiation levels.
  - (e) Initiation of air sampling procedures.
  - (f) Evaluation of terrain to formulate recommendations of survey lines for use by radiation monitors.
  - (g) Evaluation of situation to formulate recommendations for handling equipment necessary to remove weapons.

*b. Nuclear RSP.* These procedures are classified and are not included in this manual. In addition to required schooling and within national disclosure policies, EOD personnel must keep abreast of the latest changes to existing weapons and of newly developed weapons. They must have ready access to classified files containing this information in order to keep themselves fully qualified. Application of nuclear RSP will be in accordance with official publications as promulgated by the Armed Services.

*c. Other Duties.* After the completion render safe and disposal duties, EOD personnel will assist other team members as the site commander may direct.

*d. Disposal.* The disposal of damaged nuclear components and fissionable products normally

is accomplished in accordance with national policies. When so directed, EOD units will police up the incident site and package the components for shipment or release to the appropriate custodian.

## **7-29. Chemical and Biological EOD Procedures**

The primary mission of the EOD unit at the CB incident site is to prevent or minimize the release of CB agents. Detailed procedures will vary with the circumstances of each incident. As in nuclear incidents, the munition involved may be damaged but not leaking, it may be leaking rapidly or slowly, or it may have been exposed to fire. Dud fired CB munitions often present an active vapor or contamination hazard in addition to the high-explosive potential ordnance. Speed in assessing the situation will often permit rapid actions that can significantly reduce all of the hazards.

*a. General.* The amount and reliability of the information available to the EOD unit commander will dictate the procedures that should be followed throughout the disposal of the incident. In some situations, the type of munition and agent filling involved in the incident will be known prior to any reconnaissance of the situation. For example, in a situation involving munitions filled with a dry powder agent (CS, BZ, Dry Bio), the most effective protective clothing would be similar to that worn on a nuclear incident (alpha anti-contamination clothing). In situations involving liquid agents toxic to the skin, some type of impermeable clothing must be worn. In nearly all CB incidents respiratory protection must be provided. If the agent is known, the proper decontaminant may also be selected prior to the reconnaissance. In most situations a reconnaissance is necessary to provide essential information for determining personnel and equipment requirements. Even though the munition and agent fill are known, the type of fuzing, fuze condition, and the extent of agent leakage must be rapidly determined. The reconnaissance by initial entry party ordinarily will provide this information. After complete evaluation of the incident, the EOD unit commander will organize a working party to ac-

comply the final task of eliminating the hazards. If the CB decontamination requirement is beyond the capability of the EOD unit, the unit will be responsible only for the decontamination of the area immediately surrounding the munition. Additional equipment and personnel must be provided by the local area commander. At the discretion of the EOD officer, the initial entry party will be able to reduce or eliminate some of the hazards during the reconnaissance phase.

*b. Initial Entry Party.*

- (1) *Personnel.* The initial entry party should consist of the EOD unit commander, at least one assistant, and a safety observer. The safety observer should follow behind the other two individuals and should remain out of the immediate hazard area.
- (2) *Equipment.* The initial entry party will carry, as a minimum, detection equipment, appropriate first aid material, and a means for communication. EOD tools and auxiliary equipment will be carried as needed. A small amount of decontaminant should be carried by the party.
- (3) *Protective clothing.* The EOD officer must determine the protective clothing required by the initial entry party, based on available information. Situations will arise where the entry party must approach an unidentified item. In such situations the guiding principle should be to provide adequate protection against the unknown hazards which may exist without unnecessarily restricting operating efficiency. Adequate protection normally will be afforded by the field uniform, protective mask with hood, and impermeable accessory items (boot, covers, apron, and gloves). This ensemble will provide adequate protection from vapors, aerosols, and a limited amount of liquid agent during the reconnaissance and will enable the initial entry party to rapidly and efficiently assess the situation. In all situations care must be taken to avoid gross liquid contamination.

(4) *Tasks.* The initial entry party will make a complete reconnaissance of the incident site to determine—

- (a) Location and condition of munitions.
- (b) The type of CB agent fill.
- (c) Type fuzing and fuze condition.
- (d) Presence of CB agent contamination.
- (e) Procedure priority. The EOD officer will evaluate the comparative hazards of the CB agent and the explosive elements in order to determine the procedure priority. If the required render safe procedure for the munition can be performed without encountering gross agent contamination, or in the event of a category A situation, the EOD officer may initiate the RSP. In some incidents the RSP may be delayed until some decontamination has been accomplished by the working party.

*c. Working Party.* After completing his reconnaissance, the EOD unit commander may withdraw from the immediate hazard area to await the working party. He will determine the personnel, equipment, decontaminant, and procedure required to eliminate the hazards of the incident. Information on appropriate decontaminants for EOD is found in figures 7-3 and 7-4. For further information see TM 3-220.

- (1) *Personnel.* No less than two persons will work at the incident site. A safety observer will be used. (After performance of any required RSP of the fuze, the EOD officer may choose to act as the safety observer. As such, he would be in an excellent position to control and observe the working party.)
- (2) *Equipment.* The size and number of munitions involved in the situation will determine the equipment requirements of the working party. If decontaminants appropriate for the agent are not part of the prescribed basic load, they will have to be obtained from local sources. Brooms, shovels,

AGENT	DECONTAMINANT	AGENT	DECONTAMINANT
<u>BLISTER</u> H=HN-HD- HT-HL-L	1. HTH=HTB (CALCIUM HYPOCHLORITE)	<u>BLOOD</u> AC-CK	1. DS-2 (DECONTAMINATING SOLUTION NO. 2)
	2. DS-2 (DECONTAMINATING SOLUTION)		2. CAUSTIC SODA (SODIUM HYDROXIDE)
	3. STB (SUPERTROPICAL BLEACH)	<u>CHOKING</u> CG	1. CAUSTIC SODA (SODIUM HYDROXIDE)
	4. DANC (DECONTAMINATING AGENT NONCORROSIVE)		2. DS-2 (DECONTAMINATING SOLUTION)
	5. COMMERCIAL OR HOUSEHOLD BLEACH (SODIUM HYPOCHLORITE)	<u>RIOT CONTROL</u> CS	1. DS-2 (DECONTAMINATING SOLUTION NO. 2)
<u>CX</u>	DS-2 (DECONTAMINATING SOLUTION NO. 2)		2. ALCOHOLIC CAUSTIC (ALCOHOL MIXED W/SODIUM HYDROXIDE SOLUTION)
<u>NERVE</u> GA GB	1. CAUSTIC SODA (SODIUM HYDROXIDE)		3. HOT SOAPY WATER
	2. DS-2 (DECONTAMINATING SOLUTION NO. 2)	<u>CN</u>	1. CAUSTIC SODA (SODIUM HYDROXIDE)
	3. WASHING SODA (SODIUM CARBONATE)		2. WASHING SODA (SODIUM CARBONATE)
	4. STB (SUPERTROPICAL BLEACH)		3. HOT SOAPY WATER
	5. HOT SOAPY WATER	<u>INCAPACI- TATING</u> BZ	1. ALCOHOLIC CAUSTIC (ALCOHOL MIXED W/SODIUM HYDROXIDE SOLUTION)
<u>NERVE</u> VX	1. HTH=HTB (CALCIUM HYPOCHLORITE)		
	2. COMMERCIAL OR HOUSEHOLD BLEACH (SODIUM HYPOCHLORITE)		
	3. DS-2 (DECONTAMINATING SOLUTION NO.2)		
	4. STB (SUPERTROPICAL BLEACH)		
	5. DANC (DECONTAMINATING AGENT NONCORROSIVE)		
	6. CAUSTIC SODA (SODIUM HYDROXIDE)		

Figure 7-3. Decontaminants for chemical EOD incidents.  
(Listed in order of preference)

rakes, and organic decontaminating equipment generally will be adequate for the "immediate area" decontamination. If total agent disposal can not be effected on site, some type of seal-

able container must be obtained for transporting the leaking munition.  
(3) *Protective clothing.* From his evaluation of the situation, the EOD unit commander will determine the pro-

DECONTAMINANTS FOR BIOLOGICAL EOD INCIDENTS  
(LISTED IN ORDER OF PREFERENCE)

AGENT LIQUID FORM	LIQUID DECONTAMINANT
ALL BIOL AGENTS	1. CAUSTIC SODA (STD) (SODIUM HYDROXIDE) 2. HTH-HTB (STD) 3. STB (STD) 4. DS-2 (STD)
AGENT VAPOR FORM	VAPOR DECONTAMINANT
ALL BIOL AGENTS	1. BPL (STD) (BETA PROPIO LACTONE) 2. ETO (ETHYLENE OXIDE) 3. FORMALIN (FORMALDEHYDE)
MISCELLANEOUS	
WATER DECONTAMINATION	BOIL AT LEAST 15 MIN.
PERSONNEL DECONTAMINATION	1. HOT SOAPY WATER, 2. IODINE, MERTHIOLATE, ALCOHOLS (WOOD, GRAIN).
DISINFECTANTS	1. PINE OIL 2. LYSOL
OTHER	PHENOL SOLUTION

Figure 7-4. Decontaminants for biological EOD incidents.

protective clothing requirements for the working party. This determination will be based on the type and extent of the CB agent hazard existing at the incident site. The types of protective clothing that may be required are shown in figure 7-5.

(4) *Tasks.*

- (a) *RSP/decontamination.* Whenever possible, the working party will complete the render safe procedure of the explosive components before proceeding with agent decontamination. This is to preclude undesirable detonation through inadvertent movement of the munition. The explosive components should be removed from the munition if possible, leaving the munition case as only an agent container. Situations will occur in which some decontamination can be accomplished safely prior to completing the render safe procedure. Some situations may dictate simultaneous destruction of agent and explosive components, thus eliminating any RSP. The con-

struction of some CB munitions is such that the explosive components can not be removed without releasing the agent. In other instances the application of decontaminants may result in a possible detonation or initiation of the munition, if applied prior to RSP. The working party will follow the procedures prescribed by the EOD officer for the particular situation.

- (b) *Leak sealing.* Whenever possible, an attempt should be made to stop the leakage of agent. This may be accomplished by plugging, freezing, taping, or other expedient methods. One excellent method is to place the leaking munition in a sealable container.
- (c) *Final decontamination and checking the immediate area.* These tasks must be accomplished after sealing or containing agent leakage.
- (d) *Removal of munitions.* After completing the emergency disposal procedures, the munitions or containers must be removed from the



CLOTHING	AGENT								
	NERVE	BLISTER	LIQUID BIO	BLOOD, CHOKING	DRY BIO, INCAP, RIOT	LIQUID SMOKE	NUCLEAR	ROCKET FUELS AND OXIDIZERS	FOREIGN, UNKNOWN
IMPREGNATED UNDERGARMENTS (DRAWERS, SHIRT, SOCKS, GLOVES)		X							X
COVERALLS, TAP (COOLING SUIT AS RQR)	X	X	X						X
COVERALLS, RFH (COOLING SUIT AS RQR)								X	
COVERALLS, EXPLOSIVE HANDLERS	(1)		(1)	(1)	(1)	(1)	(1)	(1)	
BOOTS, TAP (2)	X	X	X					X	X
BOOT COVERS, TAP	X	X	X	X	X	X	X		X
BOOTS, COMBAT				X	X	X	X		
FLD CLOTHING, ENVIRONMENTAL	(1)		(1)	(1)	(1)	(1)	(1)	(1)	
HOOD, TAP	X	X	X						X
HOOD, M6A2				X	X(3)	X	X(3)		
HOOD, RFA								X	
PROTECTIVE MASK, M17				X	X	X	(4)		
PROTECTIVE MASK, M9A1	X	X	X				(4)		X
SELF CONTAINED BREATHING APPARATUS (5)							(4)	X	
GLOVES, COTTON				X	X		X		
GLOVES, SURGEONS	X		X			X	X		
GLOVES, TAP	X	X	X	X	X	X			X
GLOVES, RFH, GRAY								X	
GLOVES, RFH, RED								OXIDIZERS	
GLOVES, RFH, GREEN								FUELS	
APRON, TAP				X(6)	X(6)	X			

(1) EITHER ITEM MAY BE WORN

(2) BOOTS, RUBBER, MAY BE SUBSTITUTED, IF BOOT COVER TAP IS WORN.

(3) HOOD OR SURGEONS CAP

(4) DEPENDENT ON ALPHA EXPOSURE LEVEL

(5) SELF CONTAINED BREATHING APPARATUS SHOULD BE USED IN PLACE OF PROTECTIVE MASK ~~WHICH IS~~ IN OXYGEN DEFICIENT ATMOSPHERE OR IN CLOSED AREAS WHERE HIGH AGENT CONCENTRATIONS MAY EXIST,

(6) APRON, TAP USED HERE FOR PROTECTION AGAINST LIQUID DECONTAMINANTS.

Figure 7-5. Protective clothing for working party.

incident site and taken to a safe disposal area.

*d. Personnel Decontamination.* All personnel of the initial entry party and the working party must decontaminate and undress at a personnel decontamination station established at the "hot line." The undressing assistant at the PDS should wear the same protective clothing as the initial entry party.

#### 7-30. Preparations for Disposal of Chemical and Biological Munitions

The EOD unit commander must select the disposal site, prepare for the operation, and determine the method of disposal to be used.

*a. Selection of a Disposal Site.* Among the factors governing the selection of a disposal site are—

- (1) It should be located at a maximum distance from all magazines, inhabited buildings, training areas, highways, railroads, and airports.
- (2) The disposal site must be downwind from inhabited areas.
- (3) The area should be free of vegetation within a specific distance of the disposal site.

*b. Weather Conditions.* Weather conditions are very important factors in determining the appropriate disposal procedure, and are of paramount importance in burning or venting operations. Local weather reports and forecasts are instrumental in the planning and conduct of CB disposal operations. The weather conditions favorable for disposal are generally opposite to those desired for the employment of CB agents that are discussed in FM 3-10. It must be recognized that weather factors are interdependent. For example, while high wind speeds reduce the downwind hazard distance, they also destroy the strong lapse temperature gradient conditions. The combined effect may result in an extension of the downwind hazard. In order to evaluate the weather conditions for a specific disposal operation, the weather factors must be considered collectively. The M2 Downwind Vapor Hazard Calculator provides a rapid, convenient means for determining the maximum extent of the hazard when disposing of chemical agents. This calcu-

lator combines the parameters of weather factors, agent quantity and the cloud concentration to predict the downwind hazard distance. A nomogram in TM 9-1985-1 contains the same computation in a different form. The optimum range of each weather factor affecting agent disposal operations is discussed below, in the relative order of importance. Some mutual effects are explained.

- (1) *Temperature gradient.* A temperature gradient indicating a strong lapse condition is always preferred for CB agent disposal. Weak lapse and neutral gradient conditions may be acceptable for some disposal operations. Inversion conditions are undesirable due to the extensive downwind hazard distances produced.

(a) *Measurement of temperature gradient.* The temperature gradient is defined as the change in temperature with altitude, and is determined by subtracting the air temperature at 0.3 meter level (above ground surface) from the air temperature at the 2 meter level. For accurate prediction of the downwind hazard from a disposal operation, (using the M2 calculator or the nomogram) the average temperature gradient existing throughout the area must be used. The measured gradient at specific points will vary widely depending on instrument accuracy, ground surface condition and the sunlight effect at the measurement point. Since this is true, several points over a large area must be measured or an estimation must be made.

(b) *Estimation of temperature gradient.* Estimation of the general temperature gradient in a disposal area is often a more reliable determination than specific measurements, and is much easier to perform.

1. Strong lapse conditions (temperature gradient  $-2^{\circ}$  to  $-3^{\circ}\text{F}$ ) will occur near midday when the sky is clear of clouds, the sun is bright and the wind speed is low.

2. Weak lapse conditions (temperature gradient  $0^{\circ}$  to  $1^{\circ}$  F) will occur during midmorning and mid-afternoon providing that the sky is clear, sun is bright and the wind speed is low. They will also occur on partly cloudy days and when wind speed is moderate.
  3. Neutral conditions (temperature gradient  $0^{\circ}$  F) generally occur at sunrise and sunset on clear days and will exist throughout the day whenever the sky is overcast or whenever there are strong winds.
  4. Inversion conditions (temperature gradient  $0^{\circ}$  F to  $+3^{\circ}$  F) generally will occur throughout the night when the sky is clear and the wind speed is low.
- (2) *Wind speed.* Wind speeds of 3 to 15 knots are preferred for disposal operations. Wind speeds less than three knots tend to be erratic and highly variable. This prevents accurate definition of the downwind hazard area. Higher wind speeds 10 to 15 knots provide increased air mixing which will tend to dissipate the agent cloud more rapidly. Strong winds (over 15 knots) will produce neutral temperature gradient conditions and consequently will increase downwind hazard distance.
  - (3) *Wind direction.* Wind direction is important only in respect to the location of the disposal site relative to surrounding inhabited areas.
  - (4) *Cloud cover and time of day.* These factors are important only as they influence the temperature gradient. This is explained in (1) (b) above.
  - (5) *Precipitation.* Precipitation will have a minor influence on the downwind hazard distance. However, weather conditions which produce precipitation are generally unfavorable for disposal.
  - (6) *Temperature.* Ambient temperatures have little influence on disposal operations. In general, high tempera-

tures will assist in vaporizing agents that may be spilled or splashed at the disposal site, ultimately reducing decontamination problems. Low temperatures may cause freezing of some agents, thereby precluding the use of some disposal methods.

*c. Safety Considerations.* Prior to beginning any disposal operation involving chemical or biological agents, the following safety precautions must be observed:

- (1) The proper protective clothing and appropriate decontamination and first-aid supplies and equipment must be available.
- (2) The number of people engaged in any disposal operation should be maintained at the minimum consistent with safety, but in no case less than two.
- (3) Explosive elements should be removed from munitions, if possible and practical, prior to disposal. This will eliminate one hazard to participating personnel.

*d. Selection of Method of Disposal.* The methods of disposal are based on the facilities (disposal areas) available, quantities involved, type of agents, urgency, and national policies. The principal methods for disposal are burning, venting, neutralization, and detonation. Other disposal methods include dumping at sea, land burial, and spreading on the ground (weathering). Neutralization by the use of decontaminants always should be considered when dealing with small quantities of chemical or biological agents.

## 7-31. Disposal Methods for Chemical and Biological Agents

*a. Burning.* Burning can be employed to dispose of blister, nerve, riot control, incendiary, and smoke agents.

- (1) The pit should be deep enough to allow a minimum depth of six meters of combustible material, such as wood, to be placed under the item to be destroyed, and a minimum distance of 0.3 meters from the item to the top edge of the pit. Deeper pits

should be used for larger quantities of agent, thus permitting additional burning material to be used and consequently longer or hotter burning. Deeper pits will also present less fragmentation hazard from heavy cased ordnance.

- (2) The pit must be wide enough to permit the use of a minimum of one meter of combustible material on each side of the item being destroyed. In order to aid in rapid ignition and assist the combustion, used motor oil, thickened flame fuel, or diesel fuel should be spread over the combustible material.

*Note.* Gasoline is not recommended for this purpose due to the low flashpoint and the susceptibility to premature ignition from a small spark.

- (3) In order to permit the agent to come in contact with the flame and to prevent mechanical explosion of the container during initial stages of burning, heavy case ordnance must be opened simultaneously with the ignition of the combustible material. This is generally accomplished explosively. Pit ignition must be accomplished by a remote method. The use of gasoline in small closed containers exploded in the pit provides an excellent means of assuring rapid and complete ignition, and easily is integrated with the explosive train used to open the munition. Other remote methods may be adapted to the situation. The two major considerations are to open the munition with a small puncturing charge so as to prevent throwing the round out of the burning pit, and to release the smallest amount of agent possible until pit ignition is complete and high temperatures are developed.
- (4) After the pit has burned out and allowed to cool for a minimum of 12 hours, the pit, its contents, and the surrounding area will be checked for residual contamination. Decontamination operations will be carried out then as required.

- (5) The disposal of nerve or blister agents by burning will create a significant downwind hazard to unprotected personnel. The extent of this hazard may be computed with the M2 calculator. The maximum downwind hazard distance is determined by assuming a total release of all of the agent. If the disposal operation is successful, i.e., the munition is properly opened and the pit burns vigorously, a high percentage of the agent will be destroyed and the actual downwind hazard distance will be much less than calculated. In this case, the designated hazard area will become a buffer zone. In the eventuality that the operation is not completely successful, the computation will provide adequate downwind hazard distance.

- (6) Burning nerve agents is done in the same manner as for the blister agents. In peacetime, guidance should be obtained from CG, U.S. Army Materiel Command before disposing of large quantities in excess of 25cc.
- (7) Riot control, incendiary, and smoke agents may be disposed of in a manner similar to that for blister agents. The quantity that can be disposed of at a single time is limited only by the agent produced and downwind travel of the agent cloud. Burning large stacks of incendiaries should be avoided as explosions and skyrocketing may result.
- (8) Advantages of burning operations are complete salvage of containers, the hazard is small, and large or small quantities can be disposed of economically.

*b. Venting.* Venting is used to dispose of agents normally in a gaseous state; for example, CG, CK, and CL.

- (1) Venting or release to the atmosphere normally will be limited to small quantities of agents under controlled conditions. Where large uninhabited areas exist, greater quantities may be released, provided the safe downwind limits are met.

- (2) Venting may be accomplished by penetration of the munition with explosives, by drilling, or by opening filler plugs or valves.
- (3) Only five gallons of agent per hour may be disposed of in this manner. The advantages are that venting permits maximum salvage of containers and is economical. Disadvantages are that only small quantities may be disposed of at a time, it creates a large area hazard, and ideal weather conditions must exist.

*c. Chemical Neutralization.* Consideration should always be given to the neutralization of chemical or biological agents. This method is particularly feasible in the disposal of CB munitions containing less than 25 pounds of agent and is the only practical method for the safe disposal of certain agents. At least one gallon of 10 percent neutralizing solution should be used for each pound of agent. Caustic soda solutions are effective on GB, CK, and all biological agents. Calcium hypochlorite solutions are most effective on nerve agent VX and blister agents such as HD. Alcoholic caustic solutions should be used for neutralizing BZ, CN and CS.

*d. Detonation.* Some smoke and incendiary filled munitions may be destroyed by detonation in a manner similar to that used for high explosive items. This method of disposal is particularly practical for disposing of white phosphorous filled munitions. In some remote locations, CB agent filled munitions may be detonated where they are found, but the downwind hazard restrictions of *a* and *b* above will apply.

*e. Burial at Sea.* Chemical agents will be dumped at sea only if no other means of disposal is practicable or feasible. Dumping in the sea is employed only upon order from the CG,

U.S. Army Munitions Command. The method requires large quantities to be feasible but creates a minimum hazard. Handling costs are high and salvage of containers is not possible. All agents and munitions can be disposed of in this manner except WP and PWP, which, if washed ashore, could cause a serious fire hazard.

*f. Land Burial.* This method of disposal *will not* be used if disposal is possible by other means. (Underground water sources may become contaminated or the land area may become the site of future construction.) Permission and exact instructions for land burial of any agent or munition must be obtained from the CG, U.S. Army Munitions Command.

*g. Weathering.* Spreading on the ground is limited mainly to decontaminating agents, such as bleach. Lethal or toxic agents should not be disposed of by this means. Material spread on the ground is limited to not more than 500 pounds per acre.

## **7-32. Decontamination**

Decontamination materials and equipment must be available for any disposal operations involving CBR agents. Decontamination will be a final phase to most disposal operations. In many situations, preliminary decontamination will be necessary before RSP can be started. A complete discussion of decontamination, decontaminants, and decontaminating apparatus and equipment is contained in TM 3-220. General information on decontaminants is provided in FM 3-8. It is the responsibility of those conducting the disposal operation to insure that a sufficient area is evacuated and that the immediate disposal area is clean after the disposal operation. Should it be impractical to completely decontaminate the disposal site the area must be effectively posted by contamination markers.

## **Section VI. EOD LIAISON OFFICERS**

### **7-33. Introduction**

Often it may be necessary to immediately dispatch an EOD liaison officer by air to the scene of the incident in advance of the EOD team to assess the situation, to organize the site, and to coordinate the team's arrival and

subsequent action. This officer may be required at the scene of the incident because of his unique EOD technical aptitude, experience, or knowledge. He could be required to provide technical assistance to another service or allied nation. This section describes the general

responsibilities of an EOD liaison officer and general procedures to be followed.

#### **7-34. Qualifications**

The EOD liaison officer must be prepared to cope with any condition or situation that may be encountered. He must have thorough, up-to-date knowledge of EOD procedures. As a representative of a major command, he must have the ability to converse with and advise officers of high rank and position. He must possess an ability to make decisions based on sound judgment. In dealing with others, he should impart an air of competency and efficiency. He must be able to think and act effectively under considerable external pressure.

#### **7-35. Method of Selection**

All EOD qualified officers are subject to be selected to act as liaison officer at any time. EOD staff officers will maintain a list of officers who are qualified within the command and will insure the list is kept current at all times. Special or unusual technical qualifications of the EOD officers should be indicated.

#### **7-36. Notification**

Detachments will be notified to furnish

liaison officers direct by the EOD control center or EOD staff officer of the major command. The following information should be recorded at the time of notification—

- a. Date and time.
- b. Name, grade, and organization of person making the request and the name of the person receiving the notification.
- c. Location of incident and closest military installation.
- d. Date and time incident occurred.
- e. Type and most probable condition of the explosive item or agent involved.
- f. The EOD detachment which is assigned primary responsibility and an alternate.

#### **7-37. Notification Response**

Units directed to appoint and dispatch a liaison officer to an incident site will give immediate response. All agencies which will be directly involved must be alerted and advised of intended action by the liaison officer. A checklist of liaison officer's duties is shown in appendix G.

## CHAPTER 8

### REPORTS AND RECORDS

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#### Section I. GENERAL

##### 8-1. Purpose and Scope

This chapter describes the various types of reports and records required in the conduct of EOD services. It includes a description of EOD incident reports received and prepared by EOD units, technical intelligence reports, and records maintained by EORA, EOD units, and EOD staff officers.

##### 8-2. Introduction

Rapid dissemination of information on explosive ordnance incidents is especially essential for effective EOD service. EOD reports not only provide a means of disseminating this information but often serve as checklists to assure all proper actions are taken and as a record for later reference and actions. They can be used as a basis for evaluating unit workloads, analyzing incidents, determining effectiveness of units and pinpointing problems and solutions. Recording technical intelligence and render safe procedures at the proper time could save many lives. Recording time spent in travel to and

from incident sites and reporting actual working time on an incident can provide troop planners with a basis for developing a more effective EOD support structure.

##### 8-3. Objectives

EOD commanders and EOD staff officers should periodically review their reports and records to accomplish the following objectives:

- a. Eliminate reports and records no longer essential.
- b. Assure that new or revised reports useful and less burdensome at all echelons.
- c. Improve reporting techniques, procedures, forms, and directives to meet changing requirements.
- d. Assure that all reporting echelons understand what information is needed and what the proper reporting channels are.
- e. Analyze the information in reports and records to assure that necessary actions are taken.

#### Section II. REPORTS

##### 8-4. Explosive Ordnance Incident Report

a. *Purpose.* The Explosive Ordnance Incident Report (DA Form 3265-R) is illustrated in figure 8-1. Instructions for the form are illustrated in figure 8-2. The form serves as an incident report, a report of investigation, an assignment of category, an order of disposal, and a report of completion of disposal operations. The form will be reproduced locally on 8- by 10½-inch paper. The form is designed primarily for recording in handwriting, information usually transmitted by telephone or

radio communications. It may be prepared as a formal handwritten report confirming investigations and actions taken.

b. *Use.* The report is to be used by—

- (1) EORA for reporting incidents to EOD control centers.
- (2) EOD control centers for recording incident reports, assigning categories and control numbers to the incidents, ordering disposal action, and recording final disposition taken.

EXPLOSIVE ORDNANCE INCIDENT REPORT (FM 31-45)				1. INCIDENT NO.	
2. TO:			3. FROM:		
4. EXACT LOCATION OF ITEM(S)					
5. AREA AFFECTED				6. DTG REPORTED	
7. ITEM DESCRIPTION AND SAFETY MEASURES					
a. Shape		b. Color		c. Length	
				d. Diameter	
e. Markings					
f. Evacuation Measures			g. Protective Measures		
8. CONTROL CENTER ACTIONS					
a. Category Assigned				b. Category Verified By	
9. EOD UNIT ACTIONS					
a. Control Center Notified		b. Departure DTG		d.	
<input type="checkbox"/> Yes <input type="checkbox"/> No		c. Return DTG		<input type="checkbox"/> On Post	
				<input type="checkbox"/> Off Post	
e. Mileage (To & from) f. Man Hours					
g. Item Identification					
h. Brief Summary of Disposition of items					
i. Give Brief Description of Render Safe Procedures					
10. REMARKS					
11. AUTHENTICATION					
a. Typed Name, Grade of Unit Commander				b. Telephone No.	

DA FORM 3265-R, 1 Jul 67

Figure 8-1. Explosive ordnance incident report (DA Form 3265-R).



EXPLOSIVE ORDNANCE INCIDENT REPORT  
INSTRUCTIONS FOR COMPLETION

- BLOCK 1. INCIDENT NO: INCIDENT NUMBERS SHOULD CONTAIN THE UNIT DESIGNATION, NUMERICALLY SEQUENCED INCIDENT IDENTIFIER, AND YEAR OF THE INCIDENT. EXAMPLE: THE 31ST INCIDENT OF 1967 FOR 633RD EOD DETACHMENT WOULD BE AS FOLLOWS: 633-31-67; 633 IS TAKEN FROM THE UNIT DESIGNATION, 31 IS THE NUMBER OF THE INCIDENT, AND 67 IS THE YEAR.
- BLOCK 2. TO: INSERT THE EOD DETACHMENT, WHICH RECEIVED THE REPORT, SHOW THE LOCATION OR (ADDRESS OF THE UNIT.)
- BLOCK 3. FROM: INSERT NAME, UNIT, ADDRESS, CITY, STATE, OR COORDINATES, AND PHONE NUMBER OF PERSON REPORTING THE INCIDENT. SHOW THE EORA NUMBER, IF APPLICABLE.
- BLOCK 4. EXACT LOCATION OF ITEM(S): ENTER STREET, CITY, STATE, COORDINATES, OR LANDMARKS, AS APPROPRIATE.
- BLOCK 5. AREA AFFECTED: DESCRIBE THE PROPERTY, FACILITIES, OR OPERATIONS AFFECTED SUCH AS A MILITARY INSTALLATION, UTILITIES, FACTORIES, RAILWAYS, HIGHWAYS, BRIDGES, FUEL SUPPLY, AMMUNITION SUPPLY, SEWERS, GAS MAINS, COMMUNICATIONS, AND DOCKS.
- BLOCK 6. DTG REPORTED: INSERT DATE-TIME GROUP (DTG) THAT INCIDENT WAS REPORTED TO EOD UNIT. EXAMPLE: 011800 FEB 67.
- BLOCK 7. ITEM DESCRIPTION AND SAFETY MEASURES: DESCRIBE IN APPLICABLE SUBSECTIONS THE SHAPE, COLOR, LENGTH, DIAMETER, AND MARKINGS ON THE ITEM; AND THE EVACUATION AND PROTECTIVE MEASURES TAKEN. NOTE: IF THE IDENTITY OF THE ITEM IS KNOWN, PROVIDE NOMENCLATURE. EXAMPLE: 155 HE SHELL.
- BLOCK 8. CONTROL CENTER ACTIONS: INDICATE CATEGORY ASSIGNED TO THE INCIDENT AND ASSIGNING UNIT OR CONTROL CENTER IN THE APPROPRIATE SUBSECTION.
- BLOCK 9. EOD UNIT ACTIONS: ENTER REQUIRED INFORMATION. FOR MAN HOURS, ENTER THE TOTAL FOR ALL UNIT PERSONNEL INVOLVED. FOR SUMMARY OF DISPOSITION AND DESCRIPTION OF RSP CITE THE RSP REFERENCES, BUT DO NOT PROVIDE CLASSIFIED PROCEDURES (EXAMPLE: DESTROYED IN ACCORDANCE WITH PARAGRAPH 4, TB ORD 10110, OR BLOWN IN PLACE.)
- BLOCK 10. REMARKS: DESCRIBE ANY UNUSUAL CIRCUMSTANCES, AND INDICATE IF PHOTOS, MAPS, OR DRAWINGS ARE ATTACHED.
- BLOCK 11. AUTHENTICATION: ENTER TYPED OR PRINTED NAME AND GRADE OF UNIT COMMANDER, AND AUTHENTICATE BY SIGNATURE. ENTER UNIT TELEPHONE NUMBER FOR REFERRING QUESTIONS.

Figure 8-2. Instructions for explosive ordnance incident report.

- (3) EOD units for recording requests for service from EOD control centers (or direct from EORA, when applicable) and for recording and reporting final disposition.

*c. Completion.* Formal reports of action completed on category A and B incidents will be submitted to the control center. When an incident is productive of technical intelligence, such information will accompany the completed report. Sketches showing the exact location of the unexploded ordnance may be attached to the report as required.

## **8-5. Preparation of Explosive Ordnance Incident Reports**

*a. Numbering of Reports.* Incident numbers assigned by disposal units will contain the unit designation, numerically sequenced incident identifier, and the year of the incidents.

*Example:* The 31st incident of 1967 for the 633d EOD Detachment would be as follows: "633-31-67."

It is essential that no two reports reach a control center bearing the same number and that the EOD staff officer and the control center be able instantly to identify by the incident number, alone, the origin of the report.

*b. Action by Reconnaissance Personnel.* EORA are responsible for observing and receiving information of incidents, verification of such incidents through investigation at the site, prompt preparation and submission of incident reports, and the forwarding of reports to the control center through channels prescribed by the EOD staff officer.

- (1) *Preparation of reports.* Reports are prepared in quadruplicate by the EOR officer. Three copies are transmitted to the control center. Intermediate agents through which they pass neither will withdraw a copy nor require the submission of extra copies.
- (2) *Reinvestigation.* If a report is incomplete, conflicting, exaggerated, or erroneous, any reconnaissance officer, or the control center receiving it, may reinvestigate and take appropriate action based on the findings.
- (3) *Invalidated Reports.* When a recon-

naissance officer or the control center commander is satisfied through investigation that a report is unfounded and that disposal action is not necessary, he may return it over his signature with the notation, "Invalidated after investigation."

*c. Action by Control Center.* When an incident report is received at the control center, a record will be made of it, and it will be entered on the EOD incident reports board. When the officer in charge is satisfied that disposal action is required, he determines the category and priority, designates the unit to take action, and forwards the original and one copy to that unit. A duplicate is retained permanently in the files of the control center. If, after accepting a report, it is found that responsibility for disposal rests with some other agency such as the Navy or another control center, two copies will be forwarded for action and one copy retained for followup.

*d. Initial Action by EOD Unit.* Upon receipt of an incident report, essential data such as date received, incident number, category, priority, nature, and location are copied by the EOD unit onto the work schedule and placed in the awaiting action file.

*e. Routing Completion Reports.* Upon completion of the mission, the EOD unit will submit a report of final disposal actions taken to the EOD control unit. The control unit will notify the responsible rear area operations center of the completion of the mission. Information of technical intelligence value will be routed through the EOD staff officer to technical intelligence organizations. Information on new EOD techniques required and employed will be routed by the control unit to the EOD staff officer and to subordinate EOD units in the area. Extremely important is the need for the strictest secrecy in dissemination of RSP concerning disarming of enemy ammunition.

## **8-6. Telephone Reports**

*a. General.* It is most probable that reports will be received and instructions will be given by telephone. It presents certain problems, however, that must be dealt with. Any report received by telephone should be copied onto an

incident report. Action will be taken on the telephone transcript. The caller, nevertheless, should transmit a signed form prepared as prescribed above with a notation that it has already been telephoned in and to whom. Upon receipt, the signed form will replace the transcript, which, after comparison, will be destroyed. Incident reports may be telephoned from echelon to echelon; disposal instructions may be telephoned to detachments; and completion reports may be telephoned to the control center.

*b. False Reports.* Many false reports will be received by telephone. Overly excited persons, especially in civil defense areas, make exaggerated or erroneous reports of harmless items. Saboteurs can disrupt operations if their false telephone alarms are accepted. If calls are apparently in order, but identification cannot be absolutely established, further investigation should be made. When necessary, an investigator may be sent to verify the report. Careful screening of calls from unknowns will prevent the dispatching of EOD units to dispose of nonexistent incidents. This orderly procedure, may delay action in a few cases but will insure the effectiveness of overall operations.

### **8-7. Other reports**

The EOD staff officer will indicate other reports required. These may include—

*a. Daily Summary of Operations.* This would be rendered by the control center and would include—

- (1) A statement, by category, at the close of the preceding 24 hours incidents reported during that period, incidents disposed of, and those still uncompleted.
- (2) A list of units under operational control, with pertinent information as to their status, such as detached service, leave, casualties, or other matters bearing on their effectiveness.
- (3) Reports of any unusual or exceptional activities.

*b. Monthly Report.* This is a narrative report from EOD units to the control center summarizing their work, discussing their activities, stating their problems and making recommen-

dations when appropriate. These are reviewed by the control center commander and forwarded to the appropriate staff section. Matters requiring corrective action or assistance will be taken at the lowest echelon able to do so and notation of such action made before forwarding the report.

### **8-8. Technical Intelligence Reports**

Technical intelligence on ammunition may be disseminated from any level. Information in reports being transmitted to higher echelons, or received from other sources, which may be of value to disposal or reconnaissance personnel of a command, should be extracted and published at once. Two types of technical intelligence reports are required in the field—preliminary technical reports and complementary technical reports. For more information see FM 30-16.

*a. Preliminary Technical Reports.* These reports are prepared from written memorandum as prescribed in annex D, STANAG No. 2084, and submitted immediately upon recognition of the ammunition as an item of technical intelligence value. The reports are used to alert technical intelligence teams so they may be dispatched to the site. Preliminary technical reports will be submitted in the following format by accelerated intelligence reporting procedures immediately following the acquisition of "significant enemy equipment."

- (1) Date found, location (map reference).
- (2) Type of equipment and quantity.
- (3) Origin.
- (4) Brief description with distinguishing marks.
- (5) Technical characteristics with an immediate value.
- (6) Signature of the commander of capturing unit.

In addition to the above information, a recommended tentative render safe procedure should be indicated by the EOD unit commander.

*b. Complementary Technical Reports.* These reports are prepared by technical intelligence teams as prescribed in annex D, STANAG No. 2084. In the absence of technical intelligence personnel, the report will be prepared by the

EOD unit. This report will contain complete and detailed information not found in the preliminary report. Complementary technical reports will be submitted in the following format by the fastest available means.

- (1) Nationality, designation, and mark number.
- (2) Description.
- (3) Overall length of missile, including fuze, tail, vanes, and fittings.
- (4) Maximum diameter of missiles.
- (5) Shape and design of missiles (streamlining shells).
- (6) Length and width of tail.
- (7) Span of vanes.
- (8) Thickness of casing at nose.
- (9) Thickness of casing at sides.
- (10) Thickness of casing at base.

- (11) Material of body.
- (12) Material of tail or vanes.
- (13) Color and marking of nose.
- (14) Color and marking of body.
- (15) Color and marking of tail or vanes.
- (16) Weight and nature of main filling.
- (17) Total weight of missile.
- (18) Method of suspension.
- (19) Detonation system.
- (20) Fuzing systems and markings.
- (21) Antihandling or boobytrap devices.
- (22) Method of propulsion.
- (23) Date and location of missile.
- (24) Other information.
- (25) Name of officer in command of the Technical Intelligence Team making examination.
- (26) Time and origin of message.

### Section III. RECORDS

#### 8-9. Reconnaissance Records

Reconnaissance officers will maintain such records as may be directed by higher authority including—

*a. Explosive Ordnance Incident Report File.* The fourth copy of all explosive ordnance incident reports initiated will be retained until receipt of the signed completion report. Reports of incidents otherwise known to have been disposed of may be placed in a suspense file pending return of the original.

*b. Log.* A log will be maintained of all reports. The log should indicate the date received, the date transmitted, the date received back. If reinvestigation has been made, that fact will be noted, together with the reasons therefore.

#### 8-10. Control Center Records

In addition to an operations map and control boards as described in chapter 6, the control center will maintain such records as are necessary to operations or which may be directed by higher authority. Upon receipt at the control center of an incident report, a copy is placed in a live file, according to category, where it remains until the completion report is received.

Upon receipt of the completed original, the necessary completion data is copied to the duplicate which is then put in a permanent file. Old files may be disposed of from time to time. Transcripts of telephone reports should be replaced by signed confirming copies when received.

#### 8-11. Disposal Unit Records

All EOD units will each maintain such records as are necessary or directed, to include—

*a. Action File.* A file of incident reports which are active or required action.

*b. Log.* A chronological record of work completed, to include date performed, number of incident, nature, and action taken. Miscellaneous activities also will be entered. These would include time spent moving inerted items into collecting points, destruction or other disposal of material, inspection of captured enemy ammunition dumps, and range clearance.

*c. Monthly Reports.* Copies of the monthly reports, which are derived largely from the log, will be retained for future reference.

## CHAPTER 9

### MISSION RELATED FUNCTIONS

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#### Section I. GENERAL

##### 9-1. Introduction

Frequently, because of their skill in demolitions work and technical knowledge of ammunition, EOD personnel are called upon to perform functions closely related to EOD work. (Some of these functions are listed in paragraph 9-2. Details are contained in para 9-6—9-20.) In peacetime, postwar periods, or lulls in EOD activity, EOD units can be gainfully employed in such additional duties. However, it must be remembered that incidents which constitute a hazard to installations, personnel, materiel, or operations should take precedence over these additional duties within established priorities. No attempt is made to discuss all of the procedures involved in mission related functions, since many are self-explanatory or so closely related to procedures described in previous chapters that further discussion would be redundant.

##### 9-2. Mission Related Functions

EOD units may be called upon to assist in

many mission related activities. Some of these are—

- a. Range clearance.
- b. Destruction of ammunition to prevent capture by the enemy.
- c. Clearance of explosives and ammunition resulting from accidents and fires, including assistance to common carriers in disposal of ammunition, explosives, or other hazardous items.
- d. Destruction of captured enemy ammunition and postwar disposal operations in contaminated areas.
- e. Response to bomb scares.
- f. Demonstrations and displays.
- g. Inspection of ammunition in hands of troops.
- h. Disposal of hazardous items turned in during war-souvenir collection campaigns.
- i. Inspection of salvaged scrap metals to remove those components contaminated with explosives.

#### Section II. RANGE CLEARANCE

##### 9-3. General

Maintenance and clearing operations within firing range areas, particularly on recovery and impact positions, present an inherent hazard due to possible presence of dud ammunition or ammunition components. These conditions must be recognized and acknowledged and every precaution must be taken to protect personnel and equipment.

a. *Range Clearance.* The installation maintaining the range is responsible for assuring that competent, trained personnel are used to

perform the necessary tasks associated with range clearance. When maintenance or clearing of range areas is to be expedited, demolition personnel will be on hand at the working area to accomplish immediate destruction or removal of ammunition items detected. When the operation does not require urgent completion, demolition personnel will be available on-call as required. Since many installations do not have skilled demolition personnel assigned, they must turn to EOD units for assistance.

b. *Coordination.* A disposal unit will not

participate in range clearance without written direction of the control unit. Upon receipt of this authority, the disposal unit will coordinate directly with the agency requesting the clearance. Some of the subjects to be discussed at this time should include billeting and messing facilities, vehicular requirements, number of searchers that can be made available based on estimates of the EOD unit commander, funding, communications available, material and equipment requirements, security provisions, storage of classified material, office space, and chain of command. It should be pointed out that the supervision of clearance operation will be the responsibility of the disposal unit.

*c. Rules.* There are no set rules for range clearance as each range and location presents different problems that require varied types of equipment and methods of search. SOP for the particular range must be reviewed and enforced.

*d. Weather Conditions.* The fall and winter months are the most practical for clearing ranges, due to necessity for burning before searching. When there is snow on the ground, range clearance usually is impractical. Whenever an electrical storm approaches, the operation will be suspended.

#### **9-4. Planning**

Planning by the EOD unit is essential to the conduct of safe and efficient range clearance.

##### *a. Preparation for Reconnaissance.*

- (1) Select appropriate maps and prepare an overlay of the areas to be cleared.
- (2) Determine what type of ammunition has been fired on the areas to be cleared.
- (3) Make a search of records to determine if the areas have been previously cleared. If so, study the reports to determine the method employed and the number and type of duds located and destroyed.
- (4) Check with range control and other personnel having knowledge of the range area.

##### *b. Aerial Reconnaissance.*

- (1) Select the most suitable aircraft available.
- (2) Make aerial photographs of areas to be cleared.

Photographs taken should be numbered and recorded on a topographical map.

##### *c. Ground Reconnaissance.*

- (1) Make a complete survey of road networks and impact areas.
- (2) Indicate vegetation to be burned.
- (3) Dispose of duds in roadways before vehicles and personnel move into the area.
- (4) Survey the condition of the terrain to determine what equipment will be necessary.
- (5) Photograph existing hazardous conditions. These photographs may be used in briefing higher authorities and search personnel.

*d. Clearance from Range Control.* Prior to entering a range area, the EOD supervisor will obtain from the range control operator clearance to enter and perform the required operations. This clearance will be canceled immediately upon vacating the area. Entrance to and exit from a work area will not be made by any road or route other than that specified by the range control operator, nor will personnel leave their assigned work area without proper authority.

*e. Unit Reconnaissance.* The EOD unit commander or supervisor should arrange for unit reconnaissance of the range with the range control officer. This reconnaissance should be performed by all members of the unit to orient and familiarize them with the area. It also will enable the EOD unit commander to form an idea of the number of searchers and working days needed to complete the clearance.

*f. Safety.* The immediate EOD supervisor of each operational segment is responsible for the application and enforcement of safety procedures. He is further responsible that only qualified personnel are permitted to engage in the operation and that all personnel are thoroughly briefed as to their duties and responsibilities,

the hazards, and the precautions to be taken. Personnel in charge will constantly be on the alert to detect and correct unsafe acts and practices of operating personnel.

### 9-5. Destruction Procedures

Information on destruction and the policing of areas is contained in TM 9-1300-206, AR 385-62, and AR 385-63.

## Section III. EMERGENCY DESTRUCTION OF AMMUNITION TO PREVENT CAPTURE BY THE ENEMY

### 9-6. General

EOD units have the capability for carrying out or assisting in the emergency destruction of ammunition to prevent capture by the enemy. It should be remembered that policies regarding destruction should be established in advance for the guidance of ammunition supply point (ASP) commanders and EOD unit commanders concerned. EOD units will be employed when the following conditions have been met.

a. The tactical situation dictates emergency measures to prevent capture of ammunition by the enemy.

b. Stored ammunition cannot be expended against the enemy.

c. Stored ammunition including classified items cannot be evacuated.

d. A command decision has been made assigning an EOD unit to destroy the ammunition.

### 9-7. Planning

a. *ASP.* ASP commanders should maintain a current SOP for the emergency destruction of all ammunition and material on hand. When formulating this SOP, particular attention should be given to —

- (1) Establishment of priorities for de-

struction as follows:

- (a) Priority 1—all classified material.
  - (b) Priority 2—all ammunition capable of being used in enemy weapons, and other specifically designated items.
  - (c) Priority 3—all other ammunition.
- (2) Security of the area during destruction preparations to prevent capture by enemy forces or unauthorized entry and subsequent injury to friendly forces.
  - (3) Sufficient demolition materials to effect destruction.
  - (4) Coordination with EOD and troop units in the general area.

b. *EOD Units.* EOD units should be familiar with the location of ASP in their area, ASP SOP, road nets, and the types and quantities of ammunition and material in storage. They should bear in mind that the conditions under which destruction may be accomplished will vary with each case. Because of the limited number of personnel organic to EOD units, ASP personnel may be called upon to assist in the destruction.

### 9-8. Destruction Procedures

Procedures for emergency destruction of ammunition are provided in TM 9-1300-206.

## Section IV. EOD ASSISTANCE TO COMMON CARRIERS

### 9-9. General

a. This section establishes uniform procedures for dealing with common carriers involved in accidents while transporting explosives and other hazardous items.

b. The opinion of JAGL, 1954/5247, 3 June 1954, stated in substance, that the Department of the Army is not responsible for the location

or removal of unexploded ammunition as a result of an accident while ammunition is in the possession of a common carrier; however, EOD personnel will be used in commercial carrier accidents involving military explosives without carrier reimbursement, if necessary to protect life or property, alleviate disaster, or avert a calamity.

c. Technical assistance in connection with detecting, removing, salvage, demolition, neutralization, or other disposition of Government-owned shipments being transported, will be furnished by EOD units in accordance with assigned priorities. If the incident involves only the carrier, his property, and that for which he is liable, cost of this assistance will be borne by the carrier. Response will be immediate and determination as to liability will be made by proper authority after the EOD unit commander has made a technical appraisal of the incident.

#### **9-10. EOD Procedures**

All procedures employed in giving assistance to commercial carriers are the responsibility of the senior EOD officer present and will be selected with safety as the foremost criterion.

#### **9-11. Equipment**

All equipment listed in the TOE may be used. Additional equipment required will be requested from the carrier or from the nearest military installation; the cost of transporting this equipment will be borne by the carrier.

#### **9-12. Disposition of Recovered Items**

a. All recovered items must be considered

the property of the carrier. Recommendations should be made as to the destruction or salvage of recovered items including the place of destruction, if applicable.

b. Recovered items will be destroyed only when authorized in writing by the carrier.

#### **9-13. Records**

a. Records will be maintained by the senior EOD officer present, to include—

- (1) The name, grade, and service number of the military person involved.
- (2) The date and time departed from home station.
- (3) The date and time reported back to home station.
- (4) Total TDY paid.
- (5) Total salary, less allowances.
- (6) The mode and amount of transportation used.
- (7) The amount and cost of POL.
- (8) The amount, cost, and type of explosives used.
- (9) The amount, cost, and type of other (specify) military supplies expended.

b. The above will be totaled and submitted as inclosure 1 to the final report of the incident.

### **Section V. MISCELLANEOUS ACTIVITIES**

#### **9-14. Destruction of Captured Enemy Ammunition and Postwar Disposal Operations**

EOD units may be called upon to dispose of large quantities of captured enemy ammunition or clear large land areas contaminated with explosive ordnance. Such operations may require full use of EOD resources of the unit for a considerable time and may require organization of composite units to perform the mission. Procedures used for destruction of captured enemy ammunition and postwar disposal operations generally will be as described in chapter 7. Whenever possible, all items should be screened for technical intelligence value and technical intelligence reports rendered as required.

#### **9-15. Response to Bomb Scares**

a. *General.* Bomb scare incidents are those

which involve home fabricated bombs and sabotage devices constructed of explosives or other hazardous materials. Normally, an EOD unit will not respond to bomb scares unless requested by a duly constituted authority and the incident constitutes a threat to national security or public safety. Consideration must always be given to the legal implications of the Posse Comitatus Act as described in appendix C.

b. *Reports of Incidents.* Reports of bomb scare incidents normally are received from state and local police departments or the Federal Bureau of Investigation. They may be received from civil affairs units, embassies, or consuls in overseas areas. The individual receiving the call will insure that all information is recorded in the unit log and that the unit commander, EOD standby personnel, and the EOD control center are contacted immediately.



*c. Response.* The location of the incident will be plotted on a map and a tentative route recorded. A vehicle will be loaded immediately. Depending on the time factor, an escort may be necessary. The escort may be requested from the reporting agency, local or state police, military police, or a combination of any of these. On normal bomb scare incidents, equipment required to render safe is carried in a briefcase by the EOD team leader. In addition to this, the following equipment may be required:

- (1) Pioneer tools.
- (2) Oxygen breathing apparatus.
- (3) Fire extinguisher.
- (4) Sandbags.
- (5) Camera.
- (6) Explosive signs.
- (7) First-aid kit.

### **9-16. Demonstrations and Displays**

Occasionally, EOD units provide qualified personnel to support ammunition and demolition demonstrations and displays for training activities and public ceremonies.

### **9-17. Inspection of Ammunition**

Frequently, Army units or installations lack sufficient technical capability to inspect ammunition in the hands of troops. Also they often lack adequate facilities or personnel for disposal of ammunition found to be unserviceable. Consequently, EOD units may assist in this type of support. Unit commanders are responsible for inspecting all ammunition items and components in their museums or displays to insure items are inert and properly marked in accordance with the provisions of AR 385-65. Items filled with explosives will not be inerted, but will be disposed of in accordance with TM 9-1300-206.

### **9-18. War Souvenir Collection Campaigns**

Periodic campaigns should be conducted to collect potentially hazardous war souvenirs in the hands of troops or the civilian populace. Warnings should be posted that such souvenirs may result in death or serious injury. Disposal of such items should be conducted only by qualified EOD personnel.

### **9-19. Contaminated Explosive Scrap Material**

*a. General.* Installation salvage officers may

require support from EOD units in the inspection of scrap metals and removal of components contaminated with explosives. The Department of the Army has authorized the use of technical advice, or decontamination of explosive contaminated commercial scrap material, as per SR 75-15-10.

*b. Commercial Firms.* Military assistance to commercial firms is furnished on a cost-incurred basis. Owners of the scrap material must enter into an agreement with the Army and present a certified check in the amount of estimated cost for the services to be rendered.

*c. Requests for Support.* Request received or initiated by military commanders will be forwarded to the appropriate Army headquarters with the following information:

- (1) Location of scrap material.
- (2) Amount of scrap material.
- (3) Name of owners or installations.
- (4) Reasons for suspecting that scrap material contains explosives.

### **9-20. Improvised Mines and Boobytraps**

Although EOD service does not ordinarily encompass clearing minefields and boobytraps, extensive support is available for analyzing the various methods and materials used by the enemy in improvising mines and boobytraps. Technical intelligence teams, in coordination with EOD personnel, can provide the following essential information when such weapons and tactics are used:

- a.* Fragmentation radius.
- b.* Modifications made to boobytraps and mines.
- c.* Construction of locally manufactured mines.
- d.* Principal fuzing systems (pressure, pull, chemical).
- e.* Type of explosives used. (Bomb, grenade, artillery, mortar.)
- f.* Fuze ingredients and structure.
- g.* Modifications to mortar and artillery fuzes.
- h.* The use of commercial devices or materiel.
- i.* Foreign manufactured items used in mines and boobytraps.
- j.* Use of controller triggering devices (battery or blasting machines).
- k.* Use of chemical devices.
- l.* Use of large bombs.

## CHAPTER 10

### COMMUNICATIONS IN EOD UNITS

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#### 10-1. General

It is imperative, under current operational concepts, that EOD units in CONUS and in theaters of operations be mobile, flexible, and capable of operating at dispersed locations. Effective control of these EOD units by EOD control centers depends in a large measure, on the proper installation, operation, and maintenance of communications channels. Effective communication facilities are essential for control centers to coordinate the operation of EOD units under their control and to expedite the transmission of reports, information, and requests. To assure immediate response to accidents or incidents, the EOD Control center must have reliable communications with EOD units, and with adjacent RAOC or RAS/DACC.

#### 10-2. Means of Communication

EOD control and disposal units are provided with equipment to establish radio, telephone and messenger communications with supported units, RAOC and/or RAS/DACC.

*a. Radio.* Radios normally are utilized in maintaining communications between control centers and EOD units, control centers and RAOC and/or RAS/DACC and adjacent units as required.

*b. Wire.*

- (1) *Internal.* Organic telephones provide the EOD unit a means of establishing an internal wire communications system. Individual units are responsible for laying the wire to establish this network.
- (2) *External.* EOD Control centers and EOD units establish wire communications with external agencies through the area communications system. Signal support units have the respon-

sibility for laying wire from control centers and units to the nearest switching point in the area communications system.

*c. Messenger Service.* Although other means of communications are provided, EOD activities must be prepared to establish messenger service internally with adjacent RAOC and/or RAS/DACC, with supported units and higher headquarters in the event of communications equipment failure. Regular messenger service will be established to pickup and dispatch classified documents and other routine correspondence and reports not adaptable to electrical transmission.

#### 10-3. Installation and Operation of Facilities

The installation and operation of communication facilities will be in accordance with the signal operating instructions (SOI) and standing signal instructions (SSI) of higher headquarters. These instructions may be supplemented by communications operating instructions established by EOD activities.

#### 10-4. Communications in a Theater of Operations

The theater army communications system consists of a high capacity, multiaxis integrated network. It extends forward from the theater rear boundary to the rear of the field army where it interconnects with the field army system. The field army system consists essentially of interconnected area oriented signal centers that extend from the field army rear boundary to the rear boundary of the divisions. The systems will be supplemented by available commercial communications. Commercial communications when available will be a bonus and not a substitute for tactical equip-

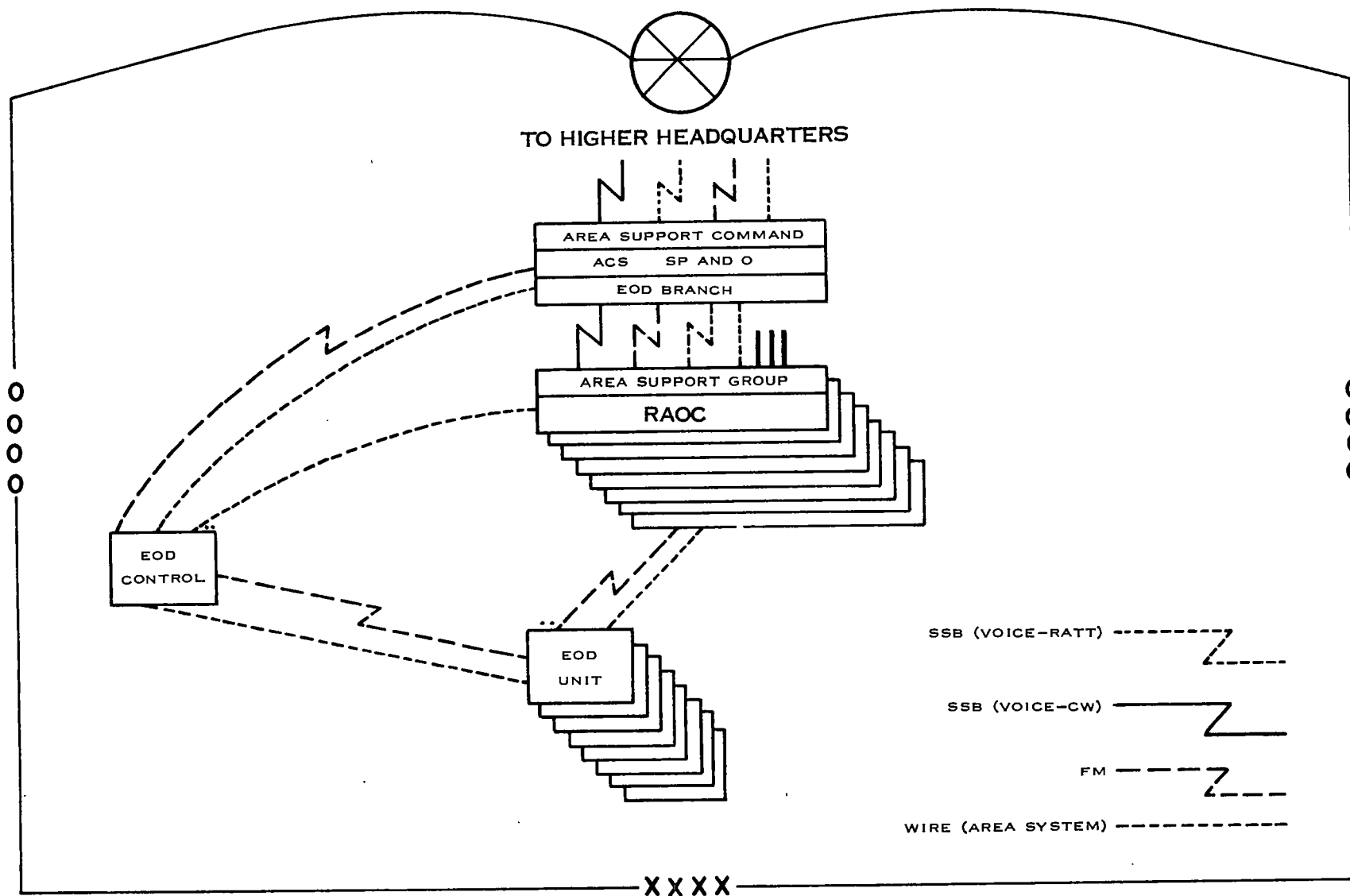


Figure 10-1. Typical radio and wire diagram for EOD units in COMMZ.

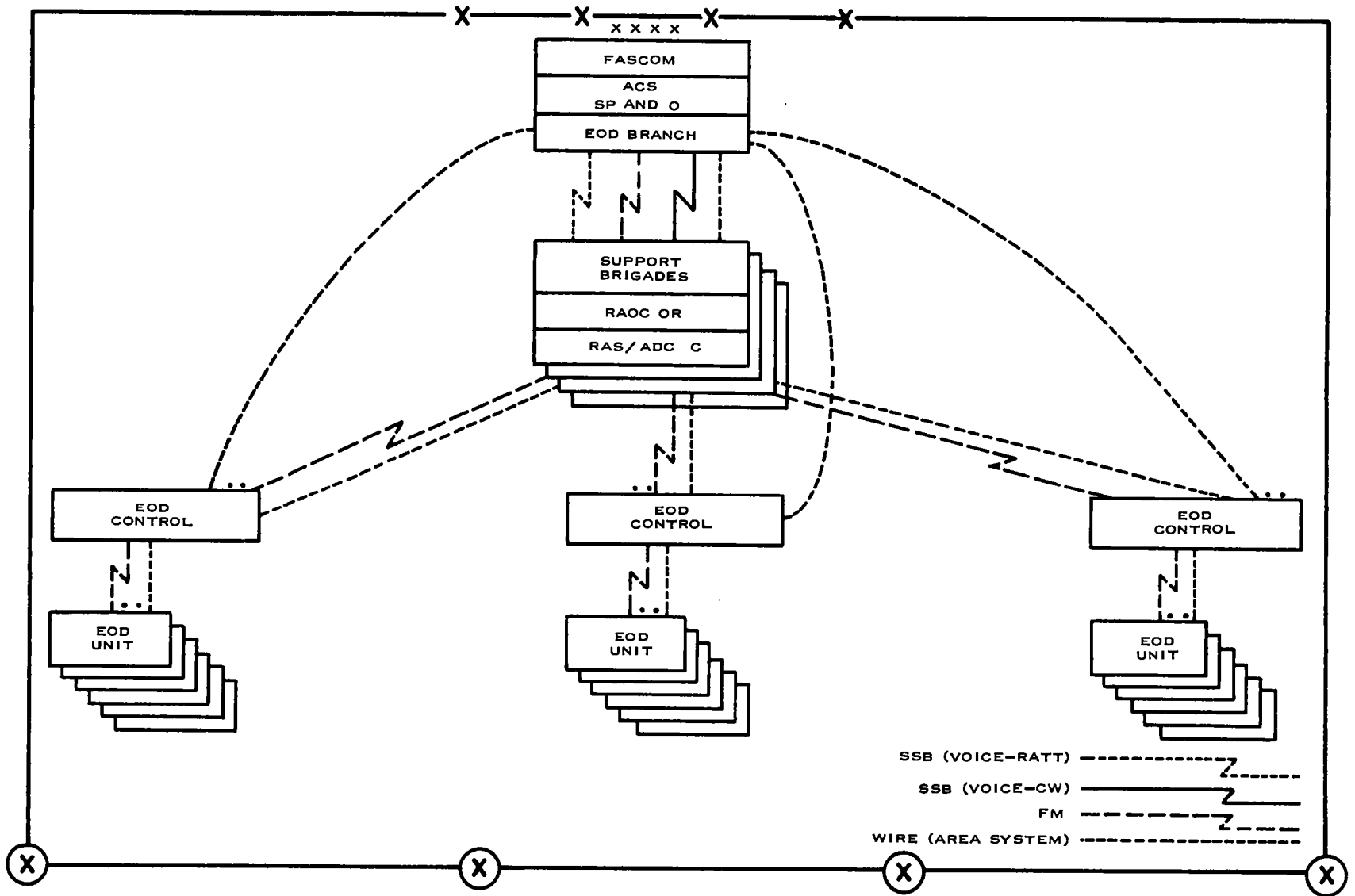


Figure 10-2. Typical radio and wire diagram for EOD units in a field army.

ment. Signal centers are located to facilitate alternate routing and easy access to users. Sole user circuits are provided on the basis of need and availability. Figures 10-1 and 10-2 illustrate typical radio and wire diagrams for EOD units in a theater of operations.

#### 10-5. Communications in CONUS

a. Within CONUS, commercial telephones provide the primary means by which EOD control units and EOD units communicate with each other, with higher headquarters and with supported units/activities. EOD units telephone reports and receive instructions by utilizing any convenient telephone encountered in their travels. Two-way radios of limited range are included in the equipment of EOD control and disposal units. In active situations where instant communication with one or more units is essential to cope with emergencies that may arise, it may be desirable to equip the control center and selected disposal units with radio equipment of greater range. In heavily damaged civilian defense areas this might provide the only means of communications, and high priority should be given to supply of these greater range radios.

b. In the event AUTOVON or other military telephone facilities are not available, the following are alternate means that may be used to communicate as necessary:

(1) *TWX*. This is the primary alternate

means of communicating in the event of a military phone failure. It must be kept in mind, however, that *twx* facilities and transmission lines are common with telephone lines at many points in the transmission route. Failure of one could mean failure of the other.

- (2) *Army AM radio net*. This net normally operates on a 24-hour basis, however, possible delays can be expected, as other installations may not be on continuous operation.
- (3) *Commercial telephone*. Any off-post phone may be used to expedite the transmission of messages between units.
- (4) *State police radio nets*. These nets are capable of contacting adjacent states and may be used to relay messages to the state patrol unit operating closest to the installation desired. When this means is used, information to be transmitted should be concise and simple as possible, to eliminate time consuming retransmission or questions.
- (5) *Others*. MARS Nets and State Civil Defense Nets operate during disasters and may be requested to relay information.

## CHAPTER 11

### ADMINISTRATION

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#### 11-1. Introduction

EOD personnel must be familiar with the necessary administrative details required to run a unit as well as being technically proficient in their specialized areas. They must be able to function independently when isolated from larger organizations and when engaged in EOD operations.

#### 11-2. Supply and Maintenance

The EOD unit commander must be thoroughly familiar with small unit procedures. Additionally, he must designate responsibilities and publish SOP for supply and maintenance. Procedures should be established for direct transactions between the EOD unit and the supply or maintenance activity of the unit to which it is attached. The unit commander is directly responsible to insure that all transactions are in accordance with published directives and that supply and maintenance discipline and economy are enforced.

#### 11-3. Unit Supply Personnel and Procedures

*a. Property Book Officer.* The unit commander will serve as property book officer and will be appointed as such on orders. He will maintain informal accountability as specified in AR 735-35.

*b. Unit Supply Noncommissioned Officer.* The unit commander appoints, through published orders, one individual to function as unit supply NCO in addition to his regular duties. This individual is responsible for the maintenance of all supply records and files. He will remain abreast of all logistical requirements within the unit and function as advisor to the property book officer on matters pertaining to unit supply.

#### 11-4. Unit Maintenance Personnel and Procedures

*a. Maintenance Officer.* The unit commander also serves as the unit maintenance officer. As such he assures that—

- (1) Unit personnel perform operator and organizational maintenance on all equipment as required.
- (2) Equipment requiring higher category maintenance is evacuated to the appropriate supporting activity.

*b. Motor Sergeant.* The unit commander will assign the additional duty of motor sergeant to an enlisted member of his unit. The motor sergeant will have the responsibility of dispatching all unit vehicles and maintaining all records pertaining thereto, including all vehicle and equipment operational records and the equipment logbook, with its component forms (TM 38-750). Information necessary for submission of recurring reports is obtained from these records.

#### 11-5. Tools and Equipment

*a. General.* Tools and equipment required by EOD units are listed in TOE 9-500. Special tools include items for defuzing explosive ordnance, inactivating delay action fuzes, and other detailed work.

*b. Responsibilities for EOD Tools.* Special tools used exclusively by one service are a responsibility of that service. Responsibilities for special tools standardization in the Department of Defense are—

- (1) *Development and test.* The Army, Navy, and Air Force are individually responsible for the development and test of special EOD tools. The U.S. Army Munitions Command discharges the Army's responsibilities.

(2) *Drawings.* The developing service prepares required drawings with specifications and effects coordination with other services.

(3) *Procurement, storage, and issue.* Navy procures special tools and equipment which have been adopted by at least two of the services. Each service may effect its own procurement when Navy cannot meet the requirements (priority-quantity) cited.

*c. Backup Support.* Because of the relatively low density of special EOD tools, emergency backup support for critical items can be provided to EOD detachments from the EOD control unit, with replacement from the theater depot or CONUS supply system. These replacement requirements are filled by submitting requisitions to the appropriate national inventory control point in accordance with AR 725-50 and established priorities.

*Note.* The U.S. Army Ammunition Procurement and Supply Agency is the commodity manager for special EOD tools and equipment.

Arrangements may have to be made to airlift special EOD tools and equipment when they are in short supply.

*d. Maintenance and Calibration.* Due to the EOD unit's mission and the technical equipment it uses in performing this mission it is of extreme importance that all equipment be properly maintained and in operating condition. Radiac instruments and other equipment requiring calibration will be calibrated in accordance with TB 11-6665-227-15/1 and TM 38-750.

## 11-6. Expendable Supplies

*a. Stockage.* Each EOD unit should maintain on hand an adequate supply of mission essential expendables. The unit commander should screen the list of items to assure that non-essential items and quantities are eliminated. With the exception of certain technical items, expendable supplies needed by an EOD unit are obtained through the installation or organization responsible for supply support. Items not stocked by the supporting installation or organization must be requisitioned through normal channels.

*b. Repair Parts and Batteries.* Due to the

constant emergency requirements of the EOD unit, the unit supply NCO will insure that a full allowance (per applicable authorization documents) of organizational maintenance repair parts for all unit equipment is on hand at all times. Normally, a minimum of three complete sets of batteries will be maintained on hand and tested periodically. Failure of batteries could mean failure of the mission.

*c. Imprest Funds.* Obtaining an imprest fund for an EOD unit enables the unit to purchase needed commercial supplies on the local economy, which in turn makes it possible to complete EOD missions with little delay. Such purchases could include lumber and supplies for excavation, rigging, and construction of protective works.

## 11-7. Security

Positive security measures must be taken by EOD units to deny information concerning classified items of explosive ordnance, EOD tools and equipment, and EOD render safe procedures. The measures include rigid and accurate accounting and control procedures for all classified information and materiel.

## 11-8. Inspections

EOD unit commanders are responsible for assuring that their units are capable of performing their assigned mission. One of the means of attaining unit readiness is through the use of inspections.

*a.* The EOD unit may be subjected to any or all of the following types of inspections:

- (1) Command inspections.
- (2) Command maintenance management inspections.
- (3) Semi-annual logistical inspections.
- (4) Inspector General inspections.

*b.* The unit commanding officer should also conduct inspections on recurring basis in the following areas:

- (1) Personnel (inspection in ranks).
- (2) TA 50 equipment and personal clothing inspections.
- (3) Administration and unit supply.
- (4) Vehicular and equipment maintenance.

## CHAPTER 12

### TRAINING

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#### 12-1. General

This chapter outlines training requirements and provides procedural guidance to EOD unit commanders responsible for the conduct of technical training. Training is a continuing program and the requirements presented are considered the minimum necessary to maintain peak operating efficiency in consonance with Department of the Army criteria.

#### 12-2. Training Concepts

EOD technical training begins with MOS qualification at the Navy Explosive Ordnance Disposal School Indian Head, Maryland. After completion of the MOS qualification course, an individual enters into an extensive individual and unit training program in which basic EOD subjects and techniques are constantly reemphasized until thorough qualification has been achieved by the individual. The third phase is advanced technical training and specific weapons, especially in the field of new developments or in special related subjects such as radiological monitoring. This advance training is conducted in conjunction with the refresher training conducted at the Navy EOD school.

#### 12-3. Training Programs

Training must be carried out in accordance with Department of the Army policies and techniques. Army Training Programs (ATP) are provided for training of specific units. They describe general training responsibilities and outline in detail the master training program, scope of instruction, and subject sequence. Army Training Tests (ATT) will be conducted to determine the efficiency of each unit. The objectives of ATT are to determine—

a. The status, adequacy, and uniformity of individual and unit training.

b. Whether the technical and tactical proficiency of EOD detachments are progressively improving in accordance with the intent of programs established by the command.

c. Whether unit personnel are employed in accordance with their qualifications and position in the unit.

#### 12-4. Training Requirements

a. EOD staff officers will—

- (1) By constant review of new developments, publications, material and training aids, determine the technical subjects necessary for the training of EOD personnel.
- (2) Supervise the preparation and dissemination of courses of instruction in subjects as determined above.
- (3) Supervise advanced technical training and refresher type training in basic EOD fields through a constant and vigorous inspection program. Inspections should be made to each unit at least quarterly.
- (4) Insure that written or verbal examinations are conducted during scheduled liaison visits and inspections.

b. To permit maximum flexibility of training and unit support missions, advance technical training subjects should be programmed on a quarterly basis. Scheduling and completion of required training within each quarter is the responsibility of the disposal unit commander. If deemed necessary, the commander will schedule additional training to keep the unit's technical proficiency consistent with the standards set forth by his immediate headquarters.

c. Mandatory training is conducted in accordance with local installation policies.



## **12-5. EOR Training**

EORA are trained in special schools conducted by EOD or qualified EOR personnel. Qualified EOR personnel will assist in EOD operations by—

*a.* Training unit troop officers and noncommissioned officers in EOR.

*b.* Assisting in EOR training of his unit.

*c.* During tactical situations, assisting in EOR administration.

*d.* Supervising or assisting in the training of special EOR personnel if necessary.

*e.* When required, assisting during regular inspections to determine whether personnel are properly trained in EOR.

## APPENDIX A

### REFERENCES

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#### A-1. Army Regulations (AR)

40-13	Radiological Emergency Medical Teams.
55-203	Movement of Nuclear Weapons Components and Nuclear Weapons Materiel.
55-228	Transportation by Water of Explosives and Hazardous Cargo.
75-14	Responsibilities for Explosive Ordnance Disposal.
75-15	Responsibilities and Procedures for Explosive Ordnance Disposal.
220-58	Organization and Training for Chemical, Biological, and Radiological Operations.
320-5	Dictionary of United States Army Terms.
320-50	Authorized Abbreviations and Brevity Codes.
380-5	Safeguarding Defense Information.
385-32	Protective Clothing and Equipment.
385-65	Identification of Inert Ammunition and Ammunition Components.
600-200	Enlisted Personnel Management System.
700-52	Licensing and Control of Sources of Ionizing Radiation.
700-62	Chemical Protective Clothing Policy and Utilization of Certain Chemical Corps Units and Equipment in Combat Areas.
700-1300-8	Malfunctions Involving Ammunition and Explosives.
740-32	Responsibilities for Technical Escorts of Chemical, Biological and Etiological Agents.
755-15	Disposal of Unwanted Radioactive Material.

#### A-2. Special Regulations (SR)

75-15-10	Explosive Ordnance Disposal, Commercial Shipments of Explosive Contaminated Scrap Metal.
220-210-2	Use of Explosives and Pyrotechnics in the Public Demonstrations, Exhibitions, and Celebrations.

#### A-3. Field Manuals (FM)

3-8	Chemical Corp Reference Handbook.
3-10	Employment of Chemical and Biological Agents.
3-12	Operational Aspects of Radiological Defense.
3-15	Nuclear Accident Contamination Control.
5-25	Explosives and Demolitions.
5-31	Boobytraps.
9-6	Ammunition Service in the Theater of Operations.
20-10	Civil Defense.
21-40	Chemical, Biological and Nuclear Defense.
21-41	Soldier's Handbook for Defense Against Chemical and Biological Operations and Nuclear Warfare.

30-5	Combat Intelligence.
30-16	Technical Intelligence.
100-10	Field Service Regulations, Administration.
101-5	Staff Officers' Field Manual, Staff Organization and Procedures.

#### **A-4. Technical Manuals (TM)**

3-215	Military Chemistry and Chemical Agents.
3-216	Military Biology and Biological Warfare Agents.
3-220	Chemical, Biological, and Radiological (CBR) Decontamination.
3-250	Storage, Shipment, and Handling of Chemical Agents and Hazardous Chemicals.
3-400	Chemical Bombs and Clusters.
9-1300-203	Artillery Ammunition.
9-1300-204	Ammunition for Recoilless Rifles.
9-1300-205	Ammunition for Mortars.
9-1300-206	Care, Handling, Preservation and Destruction of Ammunition.
9-1370-200	Military Pyrotechnics.
9-1375-200	Demolitions Materials.
9-1385-1	Surface Explosive Ordnance Disposal.
9-1385-9	Explosive Ordnance Reconnaissance.
(S) 9-1385-10	EOD Procedures for Chemical and Biological Munitions (U).
9-1910	Military Explosives.
(C) 9-1985-7	USSR Bombs and Fuzes (U).
(S) 39-50-8	Emergency Destruction of Nuclear Weapons (U).

#### **A-5. Other References**

ASubjSed 9-22	Unit Training of Explosive Ordnance Disposal Personnel.
ATT 9-510-2	Ordnance Specialized Service Detachments, Explosive Disposal.
ATP 9-510AA	Ordnance Specialized Service Detachments, Explosive Disposal.

#### **A-6. Applicable STANAGS**

2002	Marking of Contaminated or Dangerous Land Areas.
2004	Toxic Alarm System.
2047	Emergency Warnings of Hazards or Attacks.
2079	Rear Area Security and Rear Area Damage Control.
2083	Radiological Hazards.
2084	Handling and Reporting of Captured Enemy Documents and Equipment.
2094	Signposting of Radiologically Contaminated Areas.
2103	Reporting Nuclear Detonations, Radioactive Fallout and Biological and Chemical Attacks.
2113	Destruction of Military Technical Equipment.

## APPENDIX B

### MARKING OF CONTAMINATED OR DANGEROUS LAND AREAS

(STANAG 2002, EDITION No. 4, ABSTRACT)

#### B-1. General

This section discusses such dangers as radioactive contamination, biological contamination, chemical contamination, chemical minefields, minefields other than chemical, boobytrapped areas and unexploded bombs. These dangers always will be marked by triangular signs (right-angled isosceles triangle) unless the area is to be abandoned to the enemy. The front surface of each sign will face away from the contaminated or dangerous area.

#### B-2. Color of Signs

The nature of the contamination or danger of the considered area is to be indicated by the colors of the signs. These include—

a. The primary color, used for the background of the front surface and for the entire back surface of the sign.

b. A secondary color, used for additional markings and/or inscriptions on the front surface.

c. The primary and secondary colors as indicated in figure B-1.

#### B-3. Chemical Minefields, Boobytraps and Unexploded Bombs

In case of danger due to chemical minefields, boobytraps and unexploded bombs, the front surface of the sign which faces away from the dangerous area and will be painted in accordance with paragraph B-2.

DANGER	PRIMARY COLOR	SECONDARY COLORS	
		MARKINGS	INSCRIPTIONS
RADIOACTIVE CONTAM.	WHITE	NONE	BLACK
BIOLOGICAL CONTAM.	BLUE	NONE	RED
CHEMICAL CONTAM.	YELLOW	NONE	RED
CHEMICAL MINEFIELDS (OR BARRIERS)	RED	YELLOW (STRIPE)	YELLOW
MINEFIELDS (OR BARRIER) OTHER THAN CHEMICAL	RED	NONE	WHITE
BOOBY-TRAPPED AREAS	RED	WHITE (STRIPE)	WHITE
UNEXPLODED BOMBS	RED	WHITE (BOMB)	NONE

*Figure B-1. Color coding.*

#### **B-4. Minefields and Biological, Radioactive, and Chemical Contaminations**

In the case of danger due to minefields (other than chemical) and biological, chemical, and radioactive contamination, the primary color and the pattern of the signs by themselves will be the principal means of recognizing the type of contamination. As a safeguard, the words MINES, GAS, BIO (for biological contamination), or ATOM, (for radioactive contamination), will be painted or written with the secondary color on the front surface. The language to be used for these inscriptions will be selected by the forces erecting the sign. These inscriptions will be written parallel to the longer side of the sign.

#### **B-5. Inscription on Signs**

In addition, when practical, details of biological, chemical, and radioactive contamination will be written on the back surface of each sign. For biological contamination and for persistent or moderately persistent chemical agents, the name of the agent used, when known, and the date and time of detection are required. In cases of radioactive contamination, the following information will be inscribed on each sign:

- a. The dose rate.
- b. The date and time of reading.
- c. The date and time of the detonation that produced the contamination (if known).

#### **B-6. Multiple Contaminations**

Areas which contain more than one type of contamination will be marked with the relevant signs placed near each other.

#### **B-7. Special Case of Mined and Boobytrapped Areas**

All areas requiring marking that contain

mines, boobytraps or both, will be fenced on the friendly side by a fence which must reliably warn friendly troops—preferably barbed wire, the lower strand at ankle height and the upper strand at waist height. Fencing on the flank and enemy side may be added when required for protection of friendly troops, and is required in all rear areas.

#### **B-8. Marking of Simulated Contaminated Areas**

The system of marking simulated contaminated areas will be exactly the same as for those which are real.

#### **B-9. Size, Shape, and Composition of Signs**

a. Existing stocks of colored triangular signs of slightly divergent shapes and sizes will be retained and used until stocks are exhausted.

b. The triangle will be a right-angled isosceles triangle.

c. The base of the triangle will be approximately  $11\frac{1}{2}$  inches (28 cm) and the opposite sides will be approximately 8 inches (20 cm). These dimensions may be varied to suit local material.

#### **B-10. Placing of Signs**

Signs will be placed above the ground, right angled apex downward, on wire boundary fences, trees, rocks, poles, or by putting the apex into the ground. This latter method should not be used if the other methods can be adopted since the signs might well be hard to spot because of being obscured by grass and other undergrowth. Further, they can be readily knocked down.

#### **B-11. Night Signing**

No standardization for lighting of signs is specified. Each army will provide lighting or reflecting devices where deemed necessary.

## APPENDIX C

### LEGAL ASPECTS OF EOD ASSISTANCE TO CIVIL AUTHORITIES OR THE PUBLIC

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**C-1.** In his dealing with civil authorities or the public, the EOD staff officer or EOD unit commander may be confronted with situations having legal implications. This Annex is concerned with the legal implications of the so-called "Posse Comitatus Act." This act provides—

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 Forces as a posse comitatus or otherwise to execute the laws should be fined not more than \$10,000 or imprisoned not more than two years, or both. 18 USC 1385 (1964).

The Act has been interpreted as prohibiting Army personnel from not only directly "executing the laws," but also from indirectly doing so by aiding or assisting Federal, State, or local authorities. The Act does not apply in foreign countries. The term "execute the laws" includes conducting or assisting in criminal investigations or the apprehension of accused persons. By its own terms the Posse Comitatus Act does not apply where such action is expressly authorized a military justice system for the Armed Forces, and hence actions of law enforcement pursuant to the Code do not violate the Posse Comitatus Act. It may be stated as a general principle, therefore, that Army personnel do not violate the Act in the performance of properly authorized duties even though such action may indirectly or incidentally aid Federal, State or local authorities. For any specific factual situation, however, it is essential that the advice and assistance of a staff judge advocate or legal officer be obtained.

**C-2.** The following cases illustrate some of the type situations that may confront an EOD staff officer or EOD unit commander. These

examples are designed to alert EOD personnel to the nature of the problem and not to give definitive legal advice.

a. Case: Local police authorities request the use of Army personnel to conduct a search for an explosive device in their investigation of certain civilian suspects.

Comment: Since under the stated facts the investigation aids in a civilian criminal investigation, the use of Army personnel would violate the Act.

b. Case: Local police find a military explosive device in the civilian community and request disposal service by Army personnel.

Comment: Providing explosive disposal service does not in itself violate the Act. There is no evidence of aiding or assisting in a civilian criminal investigation.

c. Case: Local civilian authorities request the assistance of Army personnel to search a public school building for an explosive device as the result of a "bomb scare."

Comment: If authorized by the appropriate commander, Army personnel could assist in locating and disarming the

device since the facts do not assume assisting in a criminal investigation.

C-3. The stated and assumed facts in the above cases permit a relatively clear solution.

In actual cases, however, the facts usually are more complicated and a clear solution more difficult. In all cases, the advice and assistance of a staff judge advocate or legal officer should be sought.

**APPENDIX D**  
**SUGGESTED EOD UNIT CHECKLIST**

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**D-1. Action required when alerted and in preparation for movement.**

**a. Personnel.**

- (1) Unit internal SOP for alerting personnel? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_
- (2) Compliance with SOP? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_
- (3) Reasonable assembly time? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_
- (4) Notification of post authorities of alert? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_

**b. Vehicles.**

- (1) Immediate dispatch status at time of alert? YES\_\_\_\_  
NO\_\_\_\_ REMARKS \_\_\_\_\_
- (2) Substitute vehicles available? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_
- (3) Preventive maintenance check prior to loading? YES\_\_\_\_  
NO\_\_\_\_ REMARKS \_\_\_\_\_
- (4) Fuel tanks checked and filled? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_
- (5) Extra fuel for vehicles procured? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_
- (6) On equipment materiel in proper place? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_
- (7) Compliance with unit loading plan? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_

**c. Tools and equipment.**

- (1) Tools and equipment check after alert for serviceability and  
immediate use? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_



(a) Camera loaded? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(b) Dosimeters charged? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(c) Batteries in radiac equipment, radios, mine detectors, flashlights, and stethoscope? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(d) Protective mask and clothing are checked for serviceability and immediate use? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(e) Detector kits are checked to insure bottles are filled and mixed? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(f) Decontamination equipment is checked and containers inspected for serviceability? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(g) Are contamination marking signs on hand? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(2) Tools and equipment packed in containers suitable for immediate use and transportation? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

d. Supplies.

(1) Water cans? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(2) First aid equipment including:

(a) Acetic acid (vinegar)? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(b) Bicarbonate of soda? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(c) Burn ointment? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(d) Atropine? YES\_\_\_\_ NO\_\_\_\_ Copper Sulphate?

YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(3) Signs as applicable to EOD incident? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(4) Extra batteries? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(5) Extra film for camera? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(6) Ammunition for weapons? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

D-2. Action immediately prior to departure. When location of incident is received.

a. Necessary maps on hand? YES\_\_\_\_ NO\_\_\_\_ REMARKS\_\_\_\_\_

b. Route determined? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

c. Confirmation of identity of site commander? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

d. Post commander notified of time of departure and approximate time of arrival at the incident? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

e. If necessary, MP escort request? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

D-3. Preliminary action upon arrival at the scene of the incident.

a. Command post.

(1) Location.

(a) Located upwind from potential chemical-radiological hazards? YES\_\_\_\_ NO\_\_\_\_ REMARKS\_\_\_\_\_

(b) Communication to base headquarters adequate?  
YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(2) Arrival at scene reported to headquarters? YES\_\_\_\_  
NO\_\_\_\_ REMARKS \_\_\_\_\_

b. Reconnaissance of the incident area.

(1) Necessary equipment at site.

(a) Handtools available? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_

(b) Detector kits and radiac equipment? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_

(c) Material for recording findings? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_

(d) Protective mask and protective clothing available at site for immediate use if necessary? YES\_\_\_\_ NO\_\_\_\_  
REMARKS \_\_\_\_\_

(e) Equipment for extinguishing small fires available?

YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(2) Preliminary search of area organized?

(a) Instructions regarding search given all personnel?

YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(b) Is radiological or chemical-biological hazard suspected?

YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(c) CBR monitoring be employed in the vicinity and on all components or material found? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(d) Protective mask and protective clothing available at site for immediate use if necessary? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(e) Not to molest material found? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(f) Communicate findings immediately to CO or designated superior by most direct means? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(g) Preliminary search be suspended when sufficient material and/or components are found to positively identify type of incident? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(h) Pocket dosimeters be read and recorded at end of preliminary search? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(i) Determination of evacuation and protective measures necessary? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

(j) Proper diagnosis of incident in relation to components or material found? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

D-4. Action required as a result of the determinations during reconnaissance.

a. Protective action initiated?

(1) Evacuation distance recommended? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(2) Evacuation initiated? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(3) Is area properly marked and additional guards requested and/or posted around area? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(4) "Off-limits" area established? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

(5) Identity check of personnel authorized in area? YES\_\_\_\_

NO\_\_\_\_ REMARKS \_\_\_\_\_

b. Unauthorized spectators present in area? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

c. Additional support necessary? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

d. Detailed search of area to locate all components and material in  
area? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

e. Photos of area previous to start of search? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

f. All components and/or material checked for radioactivity?

YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

g. Photos of components and material? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

h. Record of markings and dimensions of components? YES\_\_\_\_

NO\_\_\_\_ REMARKS \_\_\_\_\_

i. Overlay of entire area? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

j. Damage estimate? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

k. Explosive and nonexplosive items segregated? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

l. Radioactive components and/or material isolated? YES\_\_\_\_

NO\_\_\_\_ REMARKS \_\_\_\_\_

m. Protection arranged for recovered components? YES\_\_\_\_

NO\_\_\_\_ REMARKS \_\_\_\_\_

n. Itemization of recovered components? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

o. Explosive items recovered? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

p. Explosive rendered safe? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

q. If applicable, contaminated area properly marked? YES\_\_\_\_

NO\_\_\_\_ REMARKS \_\_\_\_\_

r. Readings of pocket dosimeters properly recorded? YES\_\_\_\_

NO\_\_\_\_ REMARKS \_\_\_\_\_

- s. If requested by competent authority, declassification and demilitarization of components achieved? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

- t. All necessary material obtained for final reporting? YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

D-5. Reporting.

- a. Report to higher headquarters upon completion of mission?

YES\_\_\_\_ NO\_\_\_\_ REMARKS \_\_\_\_\_

- b. Report contains.

- (1) Photos and/or sketches and measurements? YES\_\_\_\_

NO\_\_\_\_ REMARKS \_\_\_\_\_

- (2) Detailed identification of all personnel involved at the scene and their actions? YES\_\_\_\_ NO\_\_\_\_ REMARKS\_\_\_\_\_

- (3) Chronological narrative? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

- (4) Equipment used? YES\_\_\_\_ NO\_\_\_\_ REMARKS\_\_\_\_\_

- (5) Problems and recommendations? YES\_\_\_\_ NO\_\_\_\_

REMARKS \_\_\_\_\_

## APPENDIX E

### SUGGESTED TECHNICAL INTELLIGENCE CHECKLIST

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#### E-1. Preliminary procedures.

a. Are vehicles and personnel parked a safe distance from the object or under adequate cover?

YES\_\_\_\_\_ NO\_\_\_\_\_

b. Is it necessary to evacuate other personnel or equipment to a safe distance?

YES\_\_\_\_\_ NO\_\_\_\_\_

c. Are materials on hand for sketching and writing identification features?

YES\_\_\_\_\_ NO\_\_\_\_\_

d. Is the camera loaded with proper film and are photographic accessories on hand and in working order?

YES\_\_\_\_\_ NO\_\_\_\_\_

e. Have civilians and/or other military personnel been questioned regarding any circumstances incident to the location of the object in this particular area?

YES\_\_\_\_\_ NO\_\_\_\_\_

f. Has an attempt been made to identify the object from a distance; i.e., with binoculars?

YES\_\_\_\_\_ NO\_\_\_\_\_

g. Has a sketch of the general area been made showing landmarks such as buildings, rivers, trees, etc.?

YES\_\_\_\_\_ NO\_\_\_\_\_

h. Has liaison been established between the unit CP at the incident location and a higher echelon?

YES\_\_\_\_\_ NO\_\_\_\_\_

i. Have unit personnel been briefed on procedures to be followed until final disposal of the incident?

YES\_\_\_\_\_ NO\_\_\_\_\_

#### E-2. Approach procedures.

a. Has a line of communication been established between the approaching party and the unit CP?

YES\_\_\_\_\_ NO\_\_\_\_\_

b. Have approaching personnel removed from their bodies all objects that might influence detonation of the object?

YES\_\_\_\_\_ NO\_\_\_\_\_

c. Are precautions being taken against mines and boobytraps on the approach to the object?

YES\_\_\_\_\_ NO\_\_\_\_\_

d. Are precautions being taken against acoustic and photoelectric influences?

YES\_\_\_\_\_ NO\_\_\_\_\_

e. Are all details being noted on paper during the approach that might have value of an intelligence nature?

YES\_\_\_\_\_ NO\_\_\_\_\_

f. Are all informational data being relayed back to the unit CP?

YES\_\_\_\_\_ NO\_\_\_\_\_

g. Has a check been made for possible CBR contamination surrounding the unknown object?

YES\_\_\_\_\_ NO\_\_\_\_\_

h. Has the object been located and positively identified as that reported in the incident report?

YES\_\_\_\_\_ NO\_\_\_\_\_

**E-3. Procedures prior to rendering safe attempt.**

a. If necessary, have guards been posted to prevent inadvertent entry of people on the scene?

YES\_\_\_\_\_ NO\_\_\_\_\_

b. Have samples been taken on suspected chemical-biological contamination?

YES\_\_\_\_\_ NO\_\_\_\_\_

c. Have all personnel of the approach party not needed at the scene been sent back to the unit CP?

YES\_\_\_\_\_ NO\_\_\_\_\_

d. Has the following information been written down pertaining to the unknown object?

- (1) Dimensions.
- (2) Approximate weight.
- (3) Color markings.
- (4) Other markings.
- (5) External components.
- (6) Position.
- (7) Condition.
- (8) Related information.

YES\_\_\_\_\_ NO\_\_\_\_\_

e. Has a check been made to determine whether there is a mechanical timer operating?

YES\_\_\_\_\_ NO\_\_\_\_\_

f. Has the above information been relayed back to the unit CP?

YES\_\_\_\_\_ NO\_\_\_\_\_

g. Have the following photographs been made?

- (1) General Area.
- (2) Position of the Object.
- (3) Condition of the Object.

YES\_\_\_\_\_ NO\_\_\_\_\_

h. Has each picture been recorded for identification?

YES\_\_\_\_\_ NO\_\_\_\_\_

i. At this point are all personnel removing themselves to the unit CP?

YES\_\_\_\_\_ NO\_\_\_\_\_

j. Are available publications being checked for possible identification of the object and/or fuzing?

YES\_\_\_\_\_ NO\_\_\_\_\_

#### **E-4. Rendering safe procedures.**

(Note: Attempts at rendering safe unknown items of ordnance must be dictated by commonsense and all available experience. There can be no acceptable standard procedure to fit all situations. Unless specifically directed by higher headquarters, risk of life during the attempt should be minimized to the greatest possible extent.)

a. Have positive checks been made to identify the probable type of functioning of the fuzing system; i.e., electrical, chemical, mechanical, etc.?

YES\_\_\_\_\_ NO\_\_\_\_\_

b. Has it been determined whether the fuze is removable?

YES\_\_\_\_\_ NO\_\_\_\_\_

c. Have all possibilities for working on the fuze remotely been exploited?

YES\_\_\_\_\_ NO\_\_\_\_\_

d. Has a communications system been set up from the item to the CP for recording each step of the RSP?

YES\_\_\_\_\_ NO\_\_\_\_\_

e. Has a complete and detailed report been written to include the RSP or attempted RSP and recommended change to the attempted RSP?

YES\_\_\_\_\_ NO\_\_\_\_\_

f. If the item was rendered safe, has it been turned over to technical intelligence channels for evaluation?

YES\_\_\_\_\_ NO\_\_\_\_\_



**APPENDIX F**  
**SUGGESTED ACCIDENT/INCIDENT CHECKLIST**

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**F-1. NOTIFICATION:**

a. Called by \_\_\_\_\_ (name, rank, office symbol) of \_\_\_\_\_,  
\_\_\_\_\_, at \_\_\_\_\_ hrs on \_\_\_\_\_ (date)

b. EOD Control Center notified immediately: \_\_\_\_ YES \_\_\_\_ NO.

c. Type and number of weapons known or suspected to be involved:

\_\_\_\_\_  
d. Notified Det Comdr at \_\_\_\_\_ hrs and NCOIC at \_\_\_\_\_ hrs.

e. Notified command post at \_\_\_\_\_ hrs.

f. Team member notification:

NAME	TIME NOTIFIED	TIME ARRIVED
_____	_____	_____
_____	_____	_____
_____	_____	_____

Etc.

**F-2. PREPARATION FOR DEPARTURE:**

a. \_\_\_\_\_ (Name) requested airlift at \_\_\_\_\_ hrs. Confirmed  
at \_\_\_\_\_ hrs. Informed dispatcher that \_\_\_\_\_ personnel, \_\_\_\_\_ lbs. \_\_\_\_\_  
(cubic meters) of equipment and size of largest single item would com-  
prise airlift requirements.

NOTE: Notify EOD Control Center if there is difficulty in obtaining  
airlift.

(1) Aircraft type and tail number: \_\_\_\_\_

(2) Meet pilot/crew chief at (time & location): \_\_\_\_\_

\_\_\_\_\_  
(3) Name of pilot/crew chief: \_\_\_\_\_

(4) ETD \_\_\_\_\_ hrs: ETA \_\_\_\_\_ hrs.

(5) Cholinesterase count for team members.

NAME	COUNT
_____	_____
_____	_____
_____	_____

b. If travel is to be by surface, \_\_\_\_\_ (Name) requested transportation at \_\_\_\_\_ hrs. \_\_\_\_\_ (Name) will pick up truck.

c. Identification tags and cards, dosimeters, radiac instruments, detector kits, protective masks, and protective immunization records, area badges, government drivers licenses, personal clothing, and film badges are in possession of, or available for, all team members.

d. Equipment loading supervised by \_\_\_\_\_  
Checked by \_\_\_\_\_. Started at \_\_\_\_\_ hrs;  
completed at \_\_\_\_\_ hrs.

e. Briefcase, publications (\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_)  
weapons and ammunition (if required) obtained by \_\_\_\_\_.

f. Message to destination prepared by \_\_\_\_\_ at \_\_\_\_\_  
hrs. Delivered to communications at \_\_\_\_\_ hrs.

NOTE: The Team Chief will take advantage of waiting periods, travel, and other periods of inactivity to review publications and brief the team. He also may tentatively assign forthcoming tasks to team members.

### F-3. ARRIVAL AT DESTINATION:

a. Arrived at \_\_\_\_\_ hrs.

b. Notified Control Center of arrival at \_\_\_\_\_ hrs.

c. Obtained following information:

(1) Exact location of accident: \_\_\_\_ YES \_\_\_\_ NO.

(2) Confirmation of type and number of weapons involved:  
\_\_\_\_ YES \_\_\_\_ NO. If "no", additional information: \_\_\_\_\_  
\_\_\_\_\_.

d. Accident/incident occurred at \_\_\_\_\_ hrs \_\_\_\_\_ date.

e. Weather conditions at time of accident:

(1) Precipitation: \_\_\_\_ centimeters of \_\_\_\_\_ (rain, snow, sleet, etc.).

(2) Wind \_\_\_\_ knots from \_\_\_\_ (direction): \_\_\_\_ (steady, gusty, etc.).

f. Resume of weather conditions from time of accident to present:  
\_\_\_\_\_  
\_\_\_\_\_.

g. Type and number of aircraft involved: \_\_\_\_\_  
\_\_\_\_\_.

h. Prior EOD action: \_\_\_\_\_

i. Transportation to site available? ☐ YES ☐ NO.

j. Who is on-scene commander: \_\_\_\_\_

k. Results of any monitoring: \_\_\_\_\_

l. Type of terrain at site: \_\_\_\_\_

m. Are the following available:

(1) Water and supplies for decontamination at accident/incident site: ☐ YES ☐ NO

(2) Medical services: ☐ YES ☐ NO

(3) Communications between site and base: ☐ YES ☐ NO

(4) Necessary heavy equipment: ☐ YES ☐ NO

(5) Photographic services: ☐ YES ☐ NO

n. Arrangements made for quartering and feeding them: ☐ YES ☐ NO

#### F-4. TRAVEL TO ACCIDENT OR INCIDENT SITE:

a. Departed support base at \_\_\_\_\_ hrs.

NOTE: When nearing a nuclear accident or incident site, monitor for gamma when possible and as necessary, unless it has been definitely determined that no gamma radiation exists. Have alpha monitoring instruments readily available. If the incident involves chemical munitions, have chemical detector kits readily available.

b. Arrived at accident or incident site at \_\_\_\_\_ hrs.

#### F-5. INITIAL RECONNAISSANCE:

a. IET inspected for cuts and abrasions: ☐ YES ☐ NO

b. IET personal items entrusted to Temporary Control Point personnel: ☐ YES ☐ NO

c. Protective clothing put on and taped properly: ☐ YES ☐ NO

d. IET equipped with RADIACS or detector kits, radios, markers, RSP toolkit, watch, protective masks: ☐ YES ☐ NO

e. Approach toward accident or incident site started at \_\_\_\_\_ hrs.

f. Alpha contamination procedures:

(1) "Hot line" plotted on map and area marked: ☐ YES ☐ NO

(2) 100 ug/m<sup>2</sup> line plotted and area marked: ☐ YES ☐ NO

(3) Maximum reading at site \_\_\_\_\_ CPM.

(4) Plotted on map: \_\_\_\_YES \_\_\_\_NO

g. Gamma radiation procedures:

(1) Initial reading of \_\_\_\_\_ at \_\_\_\_\_ feet from Temporary Control Point. (The Temporary Control Point is the area from which the EOD Team chief controls his team's operations until all major hazards at the incident site have been reduced or eliminated.)

(2) The subsequent reading of \_\_\_\_\_ at \_\_\_\_\_ feet from Temporary Control Point.

(3) Stay time of \_\_\_\_\_ hrs computed for Initial Entry Team.

h. Tritium procedures:

(1) Detected: \_\_\_\_YES \_\_\_\_NO

(2) Locations plotted on map: \_\_\_\_YES \_\_\_\_NO

i. Chemical procedures:

(1) CP checked for contamination: \_\_\_\_YES \_\_\_\_NO

(2) Extent of contamination determined: \_\_\_\_YES \_\_\_\_NO

j. Actual conditions at accident or incident site:

(1) Number of weapons involved: \_\_\_\_\_

(2) Type of weapons involved: \_\_\_\_\_

(3) Did detonation occur: \_\_\_\_YES \_\_\_\_NO

(4) Type of detonation: \_\_\_\_\_ (one point, high, low order).

(5) High explosive residue present: \_\_\_\_YES \_\_\_\_NO

(6) Nuclear components or fragments scattered about accident area: \_\_\_\_YES \_\_\_\_NO

(7) Classified components to be secured: \_\_\_\_YES \_\_\_\_NO

(8) Aircraft explosive hazards present: \_\_\_\_YES \_\_\_\_NO

(9) Possible chemical-biological contamination detected:  
\_\_\_\_YES \_\_\_\_NO

(a) Identified: \_\_\_\_YES \_\_\_\_NO AGENT \_\_\_\_\_

(b) Sample taken: \_\_\_\_YES \_\_\_\_NO

k. RSP started at \_\_\_\_\_ hrs. Finished at \_\_\_\_\_ hrs.

l. Decontamination station established at "hot line" at \_\_\_\_\_ hrs.

m. Hazards at site marked: \_\_\_\_YES \_\_\_\_NO

n. Temporary Control Point and supply point moved to "hot line" at  
\_\_\_\_\_ hrs.

**F-6. ASSOCIATED TASKS.**

a. Eight points of 1000 us/m<sup>2</sup> line established: \_\_\_\_YES \_\_\_\_NO

b. Accident site policed for following materials:

(1) High explosive residue.

- (2) Nuclear materials.
- (3) Classified components.
- (4) Aircraft explosive hazards.
- (5) Miscellaneous items.

c. Above items disposed of per instructions or authority: \_\_\_\_YES  
\_\_\_\_NO

d. EOD personnel and equipment decontaminated: \_\_\_\_YES \_\_\_\_NO

e. Method used: \_\_\_\_\_

**F-7. FINAL TASKS:**

a. Individual radiation health checks of EOD personnel: \_\_\_\_YES  
\_\_\_\_NO

b. Film badges read and recorded: \_\_\_\_YES \_\_\_\_NO

c. Dosimeters read and recorded: \_\_\_\_YES \_\_\_\_NO

d. Urine samples taken: \_\_\_\_YES \_\_\_\_NO

e. EOD report completed: \_\_\_\_YES \_\_\_\_NO

f. If chemical nerve agents, cholinesterase count taken: \_\_\_\_YES  
\_\_\_\_NO

**F-8. RECOMMENDATIONS AND COMMENTS:**

**APPENDIX G**

**SUGGESTED EOD LIAISON OFFICER CHECKLIST**

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**G-1. UPON RECEIPT OF NOTIFICATION:**

- a. Obtain type of transportation in accordance with type of incident.
- b. Pack a three-day supply of personal clothing.

**G-2. EN ROUTE TO DESTINATION:**

Mentally plan course of action upon arrival.

**G-3. ARRIVAL AT DESTINATION:**

- a. Notify the dispatching EOD staff officer or control center of your arrival and contact point. (Confirm phone calls by message.)
- b. Contact the on-site commander or his representative for a briefing on the situation.
- c. Explain services and advice which you and the EOD team can provide.
- d. Advise on-site commander or his representative of EOD requirements.

**G-4. PRIOR TO ARRIVAL OF EOD TEAM:**

- a. Arrange for transportation for the EOD team.
- b. Obtain all possible information about the incident which the EOD team may need, including a survey of the incident site and Ground Zero, if possible.
- c. Obtain information on support services available, including meteorology.
- d. Meet, or arrange for someone to meet, the EOD team upon arrival.

**G-5. UPON ARRIVAL OF EOD TEAM:**

- a. Furnish the EOD team chief any available information you may have obtained concerning the incident.
- b. Inform the EOD team chief of support services which are available.
- c. Escort the EOD team to incident site.
- d. Provide EOD team chief all possible assistance.

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By Order of the Secretary of the Army:

HAROLD K. JOHNSON,  
*General, United States Army,  
Chief of Staff.*

Official:

KENNETH G. WICKHAM,  
*Major General, United States Army,  
The Adjutant General.*

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*Active Army:*

DCSPER (2)

ACSI (2)

DCSLOG (2)

DCSOPS (2)

CORC (2)

ACSFOR (2)

CAR (2)

CRD (1)

COA (1)

CINFO (1)

TIG (1)

TJAG (1)

TPMG (1)

TSG (1)

CNGB (1)

CofEngrs (3)

CofCh (1)

OPO (1)

DASA (50)

USACDCMA (10)

USACDCEA (10)

USACDCARMA (4)

USACDCSWA (1)

USACDCSA (2)

USACDCCAA (1)

USACDCIA (2)

USACDCCBRA (2)

USACDCTA (5)

USAMB (2)

USCONARC (10)

USAMC (15)

USACDC (10)

USAWECOM (25)

USAECOM (1)

USAMICOM (10)

USAMUCOM (25)

ARADCOM (10)

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Armies (25)

Corps (5)

Div (5)

Div Arty (5)

Bde (5)

Regt/Gp/BG (5)

CC (5)

Bn (5)

Co/Btry (5)

DISCOM (1)

USACDCCAG (5)

USACDCCSSG (5)

USACDCEC (10)

USACDCCSG (5)

USMA (10)

USAWC (2)

AFSC (1)

USACAS (2)

USAADS (10)

USAARMS (20)

USACMLCS (20)

USAES (25)

USAIS (65)

USATSCH (8)

USASCS (5)

USAQMS (4)

USASWS (2)

USALMC (3)

USAAPSA (2)

PMS Sr Div Units (3)

PMS Jr Div Units (3)

Army Dep (5)

USA Tml Comd (2)

Frankford Arsenal (1)

Picatinny Arsenal (1)

Units org under fol TOE:

9-500 (2)

9-510 (2)

NG: State AG (3); Div (1); TOE 9-500 (1); 9-510 (1).

USAR: Units—Same as active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.



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