NONRESIDENT TRAINING COURSE

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SEABEE COMBAT HANDBOOK, VOLUME 2

NAVEDTRA 14235A

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PREFACE

By obtaining this rate training manual, you have demonstrated a desire to improve yourself and the Navy. Remember, however, this manual is only one part of the total Navy training program. Practical experience, schools, selected reading, and your desire to succeed are also necessary to successfully round out a fully meaningful training program.

THE MANUAL: This manual is organized into subject matter areas, each containing learning objectives to help you determine what you should learn, along with text and illustrations to help you understand the information. The subject matter reflects day-to-day requirements and experiences of personnel in the rating or skill area. It also reflects guidance provided by Enlisted Community Managers (ECMs) and other senior personnel, technical references, and instructions, etc., and either the occupational or naval standards that are listed in the *Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards*, NAVPERS 18068 (series).

THE QUESTIONS: The questions that appear in this manual are designed to help you understand the material in the text.

THE INTERACTIVITY: This manual contains interactive animations and graphics. They are available throughout the course and provide additional insight to the operation of equipment and processes.

VALUE: In completing this manual, you will improve your military and professional knowledge. Importantly, it can also help you study for the Navy-wide advancement in rate examination. If you are studying and discover a reference in the text to another publication for further information, look it up.

Center of Excellence

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Sailor’s Creed

"I am a United States Sailor.

I will support and defend the Constitution of the United States of America and I will obey the orders of those appointed over me.

I represent the fighting spirit of the Navy and those who have gone before me to defend freedom and democracy around the world.

I proudly serve my country’s Navy combat team with honor, courage and commitment.

I am committed to excellence and the fair treatment of all."

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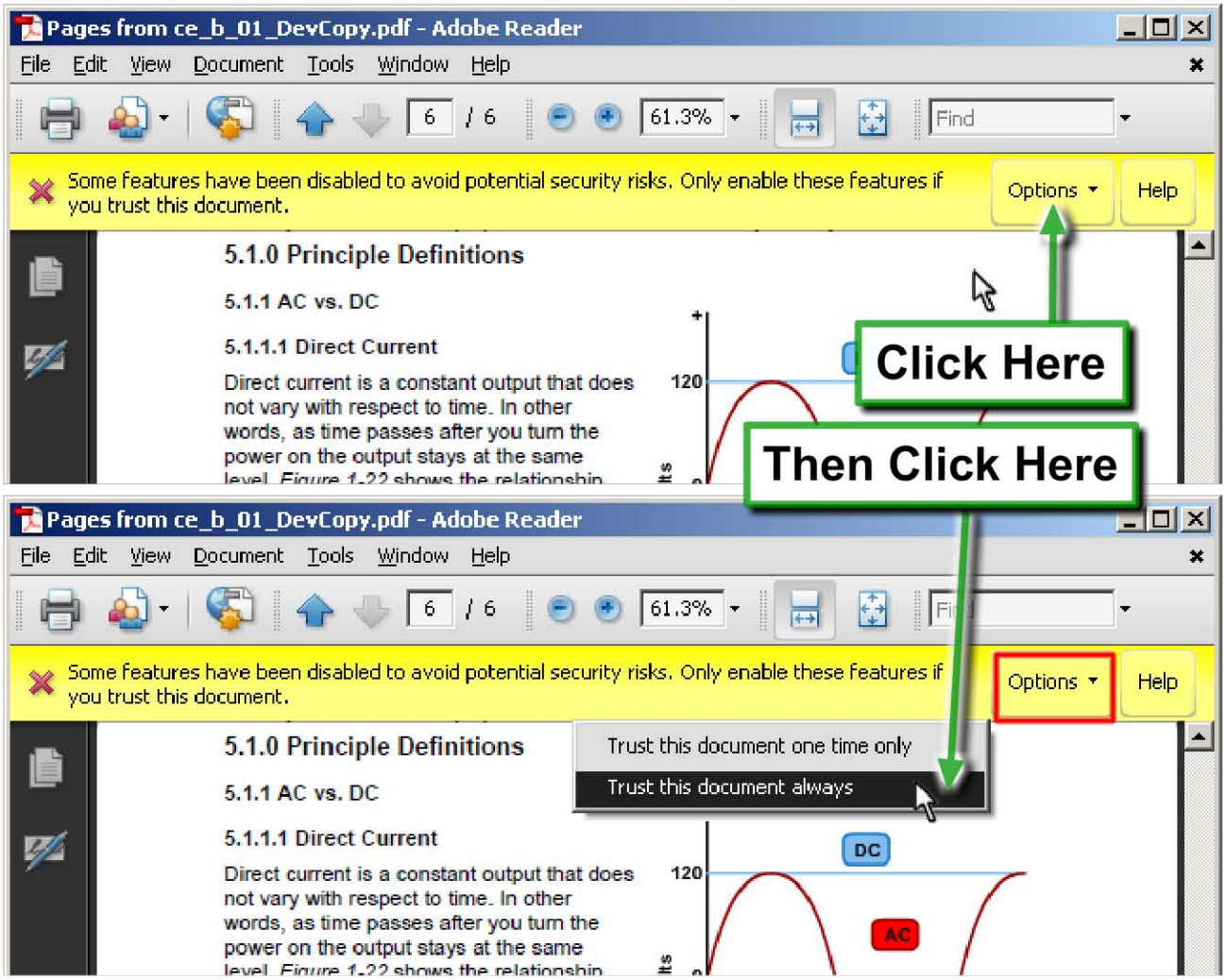
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Chapter 1

Combat Operations Center and Company Command Post Operations

Topics

1.0.0 Organization of the Marine Air-Ground Task Force (MAGTF)

2.0.0 Rear Area Security (RAS)

3.0.0 Combat Operations Center (COC)

4.0.0 Organization of the COC

5.0.0 Operation of the COC

6.0.0 Charts and Maps of the COC

7.0.0 Company Command Post (CP)

8.0.0 Organization of the Company CP

9.0.0 Operation of the Company CP

10.0.0 Communication Plan

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Overview

Efficiently organized and executed command and control operations are essential for any combat operation to be successful. Many battles have been lost because of poor execution of command and control activities. The key to success in combat is the manner in which each unit maintains a vigorous command and control structure.

A comprehensive knowledge about higher and lower echelons in the Area of Operations (AO) assigned to a Seabee battalion is crucial to personnel executing command and control functions. This chapter provides detailed information on the Combat Operations Center (COC) and company Command Post (CP).

A primary mission for the Naval Construction Force (NCF) is to support the Marine Air-Ground Task Force (MAGTF). As Seabees have an integral relationship with the MAGTF, this chapter will also cover MAGTF organization and command structure.

Objectives

When you have completed this chapter, you will be able to do the following:

1. Identify and briefly describe commands that a Seabee unit can be attached to during combat operations.
2. Identify and briefly describe the Rear Area Security (RAS) organization.
3. Identify the importance of the COC and the location of a COC.

4. Describe the organization and mission of the COC and the duties of its personnel.
5. State the purpose of the company Command Post (CP) and what must be considered when establishing a company CP.
6. Describe the organization of the company CP.
7. Describe the contents of a communication plan.
8. Describe the operations of the company CP.

Prerequisites

There are no prerequisites for completing this manual.

Features of this Manual

This manual has several features which make it easy to use online.

- Figure and table numbers are italicized within the handbook text. Figure and table reference numbers are conveniently located next to (or near) the applicable handbook text.
- Audio and video clips are included in the text, with italicized instructions telling you where to click to activate the appropriate link.
- Review questions are included at the end of this chapter as the chapter assignment. To submit assignments log into https://www.courses.netc.navy.mil, go to “Student Services”, in the drop down click on “Active Courses”, go to "View/Submit Answers" next to the course you wish to submit answers for. Assignments may be submitted to the above Web site as they are completed, and instant scoring is available. Your completion letter is available as soon as you pass all assignments.
- A form at the end of each chapter allows your input for improving the manual or correcting errors to be brought to the attention of CSFE’s Technical Review Committee. Your input is important and will help keep this manual up to date and free of technical errors.

1.0.0 ORGANIZATION OF THE MARINE AIR-GROUND TASK FORCE (MAGTF)

The Marine Corps task-organizes for operations consistent with its statutory tasking by forming MAGTFs. The MAGTF is a balanced, air-ground combined arms task organization of Marine Corps forces under a single commander, structured to accomplish a specific mission. It is the Marine Corps’ principal organization for all missions across the range of military operations. It is designed to fight, while having the ability to prevent conflicts and control crises. All MAGTFs are task-organized and vary in size and capability according to the assigned mission, threat, and battlespace environment.

The fact that naval construction forces are attached to a MAGTF during combat makes it critical that you understand the MAGTF organization. No matter its size, a MAGTF consists of a Command Element (CE) and at least three major subordinate elements; four, whenever naval construction forces are assigned.

The major subordinate elements when Seabees are assigned to the MAGTF are as follows (*Figure 1-1*):

- Aviation Combat Element (ACE)
- Ground Combat Element (GCE)
- Logistics Combat Element (LCE)
- Naval Construction Element (NCE)

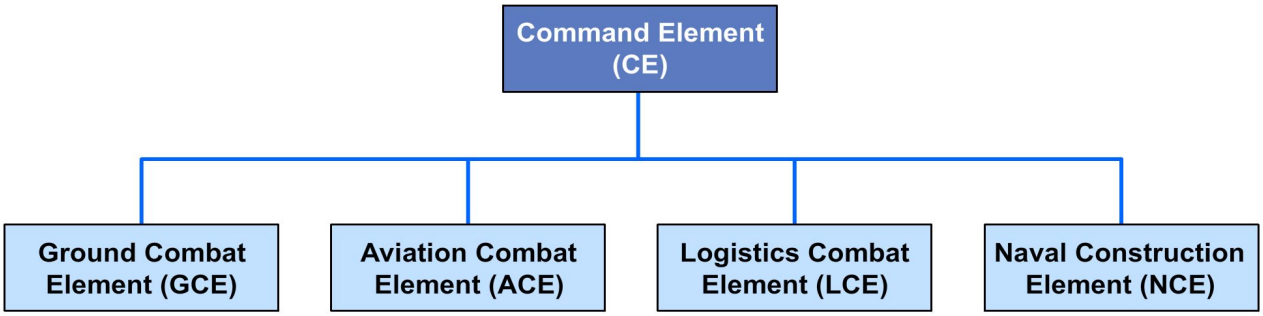


Figure 1-1 — Elements of a MAGTF organization.

1.1.0 Command Element (CE)

The CE is the MAGTF headquarters and is established for effective planning and execution. It extends and complements the capabilities of subordinate MAGTF elements but does not duplicate them under normal circumstances. Direct liaison among the four elements is desirable to achieve the necessary coordination required for the effective conduct of air-ground operations.

A Civil Engineer Corps (CEC) officer is attached to the CE engineer staff. The CEC officer serves as an advisor to the MAGTF engineer officer on matters relating to the capabilities and employment of the NCF.

1.2.0 Ground Combat Element (GCE)

The GCE is task-organized to conduct ground operations, project combat power, and contribute to battlespace dominance in support of the MAGTF's mission. It is formed around an infantry organization reinforced with artillery, reconnaissance, and assault amphibian, tank, and engineer forces. The GCE can vary in size and composition from a rifle platoon to one or more Marine divisions. It is the only element that can seize and occupy terrain.

1.3.0 Aviation Combat Element (ACE)

The ACE provides all or a portion of the six functions of Marine aviation necessary to accomplish the MAGTF mission. These functions are anti-air warfare, offensive air support, assault support, electronic warfare, air reconnaissance, and control of aircraft and missiles. The aviation combat element is usually composed of an aviation unit headquarters and various other aviation units or their detachments. It can vary in size

from a small aviation detachment of specifically required aircraft to one or more Marine aircraft wings.

1.4.0 Logistics Combat Element (LCE)

The LCE varies in size from a small detachment to the one or more Marine logistics groups. It provides supply, maintenance, transportation, general engineering, health services, and a variety of other services to the MAGTF.

1.5.0 Naval Construction Element (NCE)

The NCE is the Navy's principal expeditionary organization for engineering and construction missions across the range of military operations. It is composed of task-organized engineering forces that report to one commander, and are capable of responding rapidly to a contingency worldwide. When deploying in support of a MAGTF, the unit(s) comprising the NCE is under the operational control of the MAGTF commander.

1.6.0 Types of MAGTFs

A MAGTF can take on any size and composition as dictated by the assigned task. The Seabee requirements for each MAGTF are also determined by the mission. *Figure 1-2* illustrates the scalable NCE in relation to the size of the MAGTF. Although the functional organizations can be modified to adapt to a specific mission or operation, the principal levels of support are associated with these MAGTF types:

- Marine Expeditionary Force (MEF)
- Marine Expeditionary Brigade (MEB)
- Marine Expeditionary Unit (MEU)

1.6.1 Marine Expeditionary Force (MEF)

The MEF is the largest MAGTF and the Marine Corps' principal warfighting organization, particularly for larger crises or contingencies. It is task-organized around a permanent command element and normally contains one or more Marine divisions, Marine aircraft wings, and Marine logistics groups. The MEF is capable of missions across the range of military operations, including amphibious assault and sustained operations ashore in any environment.

A Naval Construction Regiment (NCR) is typically the MEF's NCE. The NCR consists of an NCR command element (NCR[CE]) with assigned and/or attached engineering and support units.

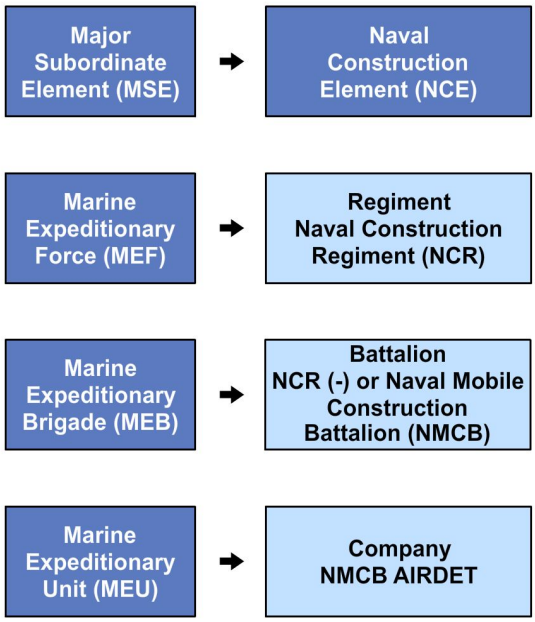


Figure 1-2 — MAGTF/NCE size relationship.

1.6.2 Marine Expeditionary Brigade (MEB)

The MEB is the “middle-weight” MAGTF. It is a crisis response force capable of forcible entry and enabling the introduction of follow-on forces. It can serve as part of a joint or multinational force and can provide the nucleus of a joint task force headquarters. It is unique in that it is the smallest MAGTF with a fully capable aviation element that performs all six functions of Marine aviation and is self-sustaining for 30 days.

1.6.3 Marine Expeditionary Unit (MEU)

The MEU is a MAGTF that is constructed around an infantry battalion reinforced, a helicopter squadron reinforced, and a task-organized logistics combat element. It normally fulfills the Marine Corps’ forward sea-based deployment requirements. The MEU provides an immediate reaction capability for crisis response and is capable of limited combat operations.

Supporting the MEU in its role as NCE is the NMCB AIRDET. The NMCB AIRDET provides quick response limited expeditionary combat engineering support and limited general engineering support.

1.7.0 Joint Task Force (JTF)

For many larger operations, the MAGTF—or possibly the NCE itself—will be assigned to a Joint Task Force (JTF). A JTF is a joint force that is constituted and designated by a JTF-establishing authority (i.e., the Secretary of Defense, a combatant commander, a subordinate unified commander, or an existing JTF commander), to conduct military operations or provide support to a specific situation. For example, Seabees were assigned to JTF Katrina for recovery operations after Hurricane Katrina devastated New Orleans, Louisiana in 2005. A JTF is usually part of a larger national or international effort to prepare for or react to a situation. In most situations, the JTF-establishing authority will be a combatant commander. A Commander, Joint Task Force (CJTF) has full authority to assign missions, redirect efforts, and direct coordination among subordinate commanders.

2.0.0 REAR AREA SECURITY

Throughout the spectrum of conflict, rear support areas have increasingly become major targets. Modern weaponry has made rear areas extremely vulnerable. RAS must counteract the effects of modern weaponry to protect rear support areas. Seabees are primarily assigned to the rear area and therefore must be familiar with the rear area organization.

The main objective of RAS is to minimize the effects of an enemy attack. This is to ensure the functions of those units associated with rear area operations, in support of combat operations, are not interrupted. All units in the rear area must be prepared to defend themselves to accomplish this objective. An NMCB has a formidable array of weapons and a significant capability for defensive operations within the rear area. The MAGTF rear area is the area extended rearward from the rear boundary of the GCE to the MAGTF rear boundary.

2.1.0 MAGTF Commander

The MAGTF commander is responsible for the security of the MAGTF rear area. The keys to credible MAGTF RAS are sound planning, early warning, continuous operations security, tactical deception, proper dispersion, cover and concealment, and rapid

deployment of sufficient forces and resources to counter the threat. RAS for the MAGTF must be assessed by the MAGTF commander to ensure the sustainability of combat forces. The MAGTF commander then sets missions, tasks, and priorities for RAS as in any other type of operation.

2.2.0 Rear Area Security Coordinator (RASC)

The LCE or the ACE commander is usually appointed by the MAGTF commander to coordinate RAS and normally functions as the RASC. The RASC monitors the day-to-day operations of the rear area through the combat service support operations center and the rear area operations center. The NCF commander coordinates with the RASC to ensure that NCF assets and capabilities are incorporated into the RAS effort.

2.3.0 Unit Security

Unit security is an inherent responsibility for any commander. The fact that the MAGTF commander establishes security measures does not relieve a unit commander of this responsibility. Rear area units, such as naval construction forces, must plan for and be able to execute active and passive security measures for local security and the rear area as a whole.

Active security measures include:

- Obtaining weapons and munitions required for local defense
- Patrolling, establishing observation/listening posts, and using other local security techniques
- Providing security to convoys
- Establishing liaison with fire support organizations and training in call-for-fire procedures
- Establishing defensive plans and positions to include local barriers and obstacles

Passive security measures include:

- Using camouflage, dispersion, and natural cover
- Hardening installations
- Establishing deception measures such as dummy installations and positions
- Co-locating with other rear area units to be mutually supporting

2.4.0 Provisional Security Forces

A MEF RASC can organize two types of provisional security forces: the Provisional Mobile Security Platoons (PMSPs) and the Provisional Helicopter-borne Security Company (PHSC). MAGTFs—smaller than a MEF—will have a tailored provisional security force. Based on the mission and threat assessment, these units can be used to support local defense efforts in the support of the RAS. These units should be included in a defense plan.

2.4.1 Provisional Mobile Security Platoons (PMSPs)

The Field Service Support Group (FSSG), located within the rear area, can field two PMSPs to act as a quick reaction force in support of RAS efforts. The PMSPs can be tasked with the following missions:

- Relief/rescue of attacked installations/units
- Route patrolling and convoy protection
- Surveillance/reconnaissance
- Defense of possible enemy drop/landing zones
- Finding, fixing, destroying enemy forces operating in the rear area

2.4.2 Provision Helicopter-borne Security Company

The PHSC provides the RASC with a highly mobile reaction force capable of operating over extended distances, performing the same missions as the PMSPs. This includes the patrolling of areas away from LCE/ACE facilities.

2.5.0 Force Service Support Group Military Police

The FSSG military police provide security for the rear area and can be tasked with the following missions:

- Provide military police to conduct battlefield circulation control for the MAGTF (material supply routes security).
- Provide military police for law enforcement, criminal investigation, U.S. prisoner confinement, and counteract terrorist activities.
- Establish surveillance and conduct route reconnaissance in the MAGTF rear area.
- Provide for the collection, processing, and evacuation of enemy Prisoners of War (POW) and civilian internees in the MAGTF rear area.

3.0.0 COMBAT OPERATIONS CENTER (COC)

The COC itself is the control organization that utilizes personnel, information management, procedures and equipment/facilities to collect, process, display, store, and disseminate information for creating the Common Operational Picture (COP). The information processed and the COP developed by the COC is used by the commander to command his or her forces. The standard configuration of a COC is depicted in *Figure 1-3*, although this configuration may be tailored as necessary.

The primary purpose of the COC is to command and control operations by continually monitoring and recording the tactical and non-tactical operations of the battalion. The specific composition and functions of the COC will vary depending on the tactical environment and the desires of the individual commander. Typical COC functions include the following:

- Ensuring that all resources are at the right place at the right time
- Serving as the unit's Command and Control (C2) hub
- Coordinating information to be used in staff planning
- Receiving and recording operational reports from subordinate elements and companies
- Maintaining current plots of the friendly and enemy situations and displaying this information within the COC
- Preparing and submitting operational reports to higher headquarters

- Providing dedicated communication channels for tactical and operational reporting
- Transmitting orders and tactical decisions of the battalion commander to company's subordinate elements, and higher headquarters as required
- Monitoring the progress of the battalion's tactical operations and expeditiously reporting significant events or incidents to the operations officer or the commander
- Serving as the principal point of contact for liaison personnel from subordinate, supporting, or adjacent tactical elements

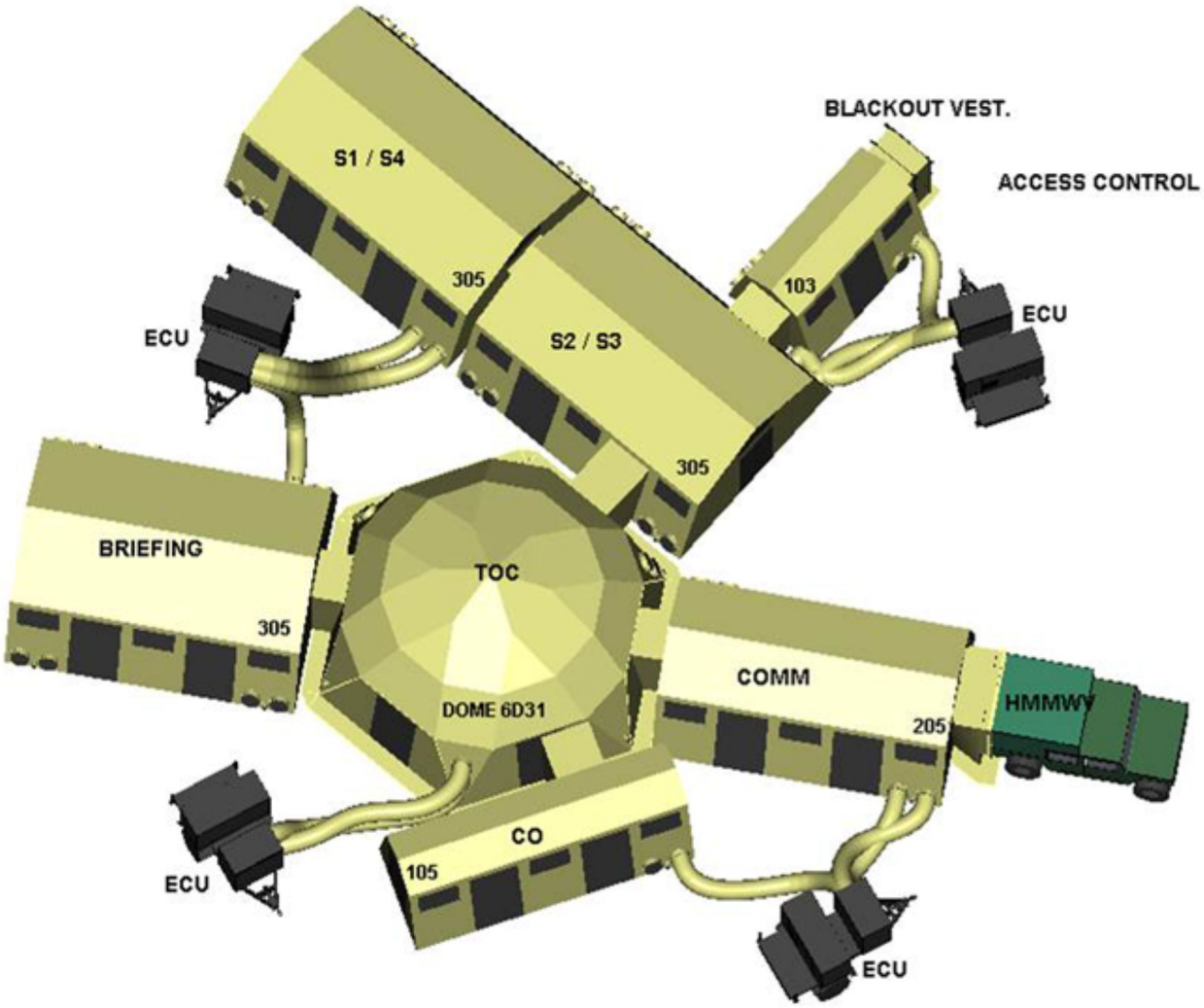


Figure 1-3 — Standard COC configuration.

3.1.0 Location

When establishing a COC, special consideration should be given to the location. The location of the COC must be hard to detect by enemy forces, easy to defend, and be established in a centralized location that is easily accessible to battalion personnel.

3.1.1 Vehicle Traffic

As previously stated, the COC is the principal point of contact for liaison personnel from subordinate, supporting, or adjacent tactical elements. Strict traffic control measures are essential when these supporting elements visit the COC. These include the following:

- At least two dismount and two entry points are used to reduce traffic concentrations.
- Passenger dismount points are concealed from direct observation.
- Vehicles are parked and camouflaged in one or more parking areas within the local security perimeter of the COC.
- Construction of new roads into or by the COC is normally prohibited. To lessen the chance of detection by the enemy, existing roads are used.
- Vehicles entering or departing the area of the COC are required to use exits that are concealed by cover or camouflage.

3.2.0 Communication

The COC controls the battalion’s tactical nets established by higher headquarters. A COC normally has direct sole-user telephone circuits (hot lines) to major subordinate tactical units and to the COC of higher headquarters. Besides voice radio nets and telephones, the battalion’s COC normally maintains direct communication links with major subordinate elements and with the COC of higher headquarters.

3.3.0 Defense and Security

To protect the COC from a direct attack or enemy infiltration, the following vital defense and security measures should be considered:

- Security force: This is a well-trained and organized security force assigned to the COC.
- Terrain that enhances security: This terrain is an area of irregular, well-forested ground, which hampers aerial observation and, if it includes high brush and low trees as well, it makes enemy ground observation more difficult. Full use is made of natural cover, concealment, and supplementary camouflage measures. Individual camouflage discipline is rigidly enforced.
- Location: This is where the COC should be placed—near a unit that can furnish or augment the COC's security.
- Entanglements: These include barbed and tactical wire entanglements.
- Night noise and light discipline: It is important to ensure the generator supplying power to the COC is located a good distance from the COC and is sandbagged to muffle the sound of the generator. Also, the tent used for the COC must maintain light discipline to avoid detection.

3.4.0 Alternate COC

In case the COC is destroyed, an alternate COC is established. All the consideration for a COC is duplicated in the alternate COC. Location of the alternate COC is away from the main COC and security is similar to the main COC. In the event the main COC is destroyed, operations are expediently assumed in the alternate COC.

4.0.0 ORGANIZATION OF THE COMBAT OPERATIONS CENTER

The layout and internal organization of the COC will vary with each battalion commander and operation. Written Standard Operating Procedures (SOPs) are established to formalize the organization and avoid any confusion. A typical COC internal layout is shown in *Figure 1-4*.

4.1.0 Personnel and Their Duties

This section describes the typical responsibilities of the principal staff officers and support personnel found in a typical COC. Although the internal organization may vary somewhat with each battalion commander and tactical environment, personnel assignments and duties are usually standard within any COC organization.

Standardized office codes are used to identify key staff positions in a combat organization. A numeral designates the position, such as, "1" for administration officer, "2" for intelligence officer, and so on. This number is prefaced with a letter to represent the echelon the position is associated with. An "N" code represents the FIRST Naval Construction Division, the letter "R" precedes naval construction regiment positions, and "S" is used at the battalion level. For example, "R-2" would designate a naval construction regiment intelligence officer. For purposes of this manual, battalion-level "S" codes will be used.

4.1.1 Administration and Personnel Officer

The battalion administration and personnel officer is designated as S-1. This person is the principal staff officer for all matters on personnel management, personnel administration, and headquarters management.

4.1.2 Intelligence Officer

S-2 is the designation for the battalion intelligence officer. He or she has staff responsibility for all intelligence operations. The commander relies on the S-2 to provide information on weather, terrain, and enemy capabilities, status, and intentions. Through the intelligence annex B of an operational plan (OPLAN), the main duties of the S-2 are as follows:

- Provide complete supervision of handling and processing of information relating to intelligence.
- Gather and distribute information gained from intelligence (INTEL) sources.
- Prepare written and oral briefings as required.
- Maintain overlays for the enemy situation map (INTEL MAP).
- Promptly inform the operations officer of significant or unusual incidents.

- Supervise the maintenance of the INTEL situation bead, such as enemy and friendly updates.
- Manage the Blue Force Tracker (BFT).

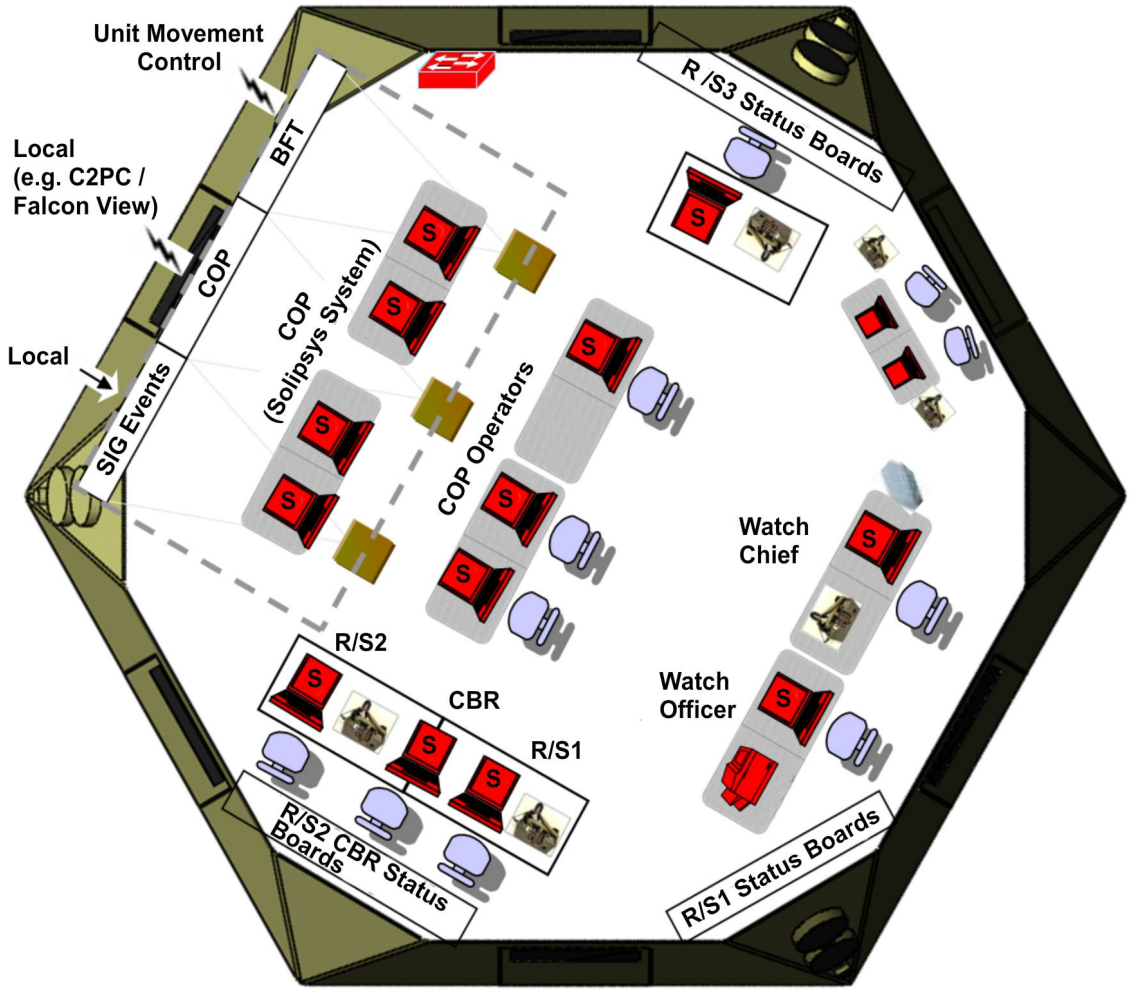


Figure 1-4 — Typical COC internal layout.

4.1.3 Operations Officer

The S-3 is the battalion's operations officer. The S-3 is the principal staff officer responsible for coordinating, organizing, operating, and training COC watchstander personnel. Duties of the S-3 include:

- Participate in all phases of operational planning.
- Coordinate briefings that present the current tactical situation to the commander.

4.1.4 COC Watch Officer

The COC watch officer is authorized to release all outgoing messages. The main duties of the COC watch officer are as follows:

- Before assuming watch, read the message board, obtain a brief on the present situation from the current COC watch officer, and liaison with other staff sections.
- During watch, keep current on the tactical situation, make routine decisions, and notify S-3 of incidents of an unusual nature.
- Read all incoming and outgoing messages. Take action by delivering messages to the cognizant section, and ensure the appropriate action is taken.
- Supervise the actions of the communication personnel, such as radio and telephone operators.
- Ensure incoming and outgoing messages adhere to established routing procedures.

4.1.5 Journal Clerk

The unit journal provides a summary of activities that is used by commanders and oncoming duty personnel to determine the current tactical situation. The main duties of the journal clerk are as follows:

- Prepare the unit journal under the direction of the COC watch officer.
- Enter items in the journal in a brief, accurate form
- Maintain journal entries in chronological order using local time
- Make references only for periodic reports such as situation reports (SITREPs)

4.1.6 Communications Chief

The main duties of the communications chief are as follows:

- Verify correct communication security measures are used by all assigned communicators.
- Determine communication nets for all outgoing message traffic.
- Request technical assistance in case of equipment or net failure.
- Keep the COC watch officer informed on the status of all nets.
- Maintain a log on radio nets, noting opening and closing times, frequency changes, traffic delays, or other pertinent incidents.

4.1.7 Communicators (Radio/Telephone Operators [RTOs])

The main duties of the communicators are as follows:

- Monitor and operate radios and switchboards as assigned.
- Be familiar with authentication and encryption methods.
- Drafts, receives, and transmits messages.

4.1.8 Messengers/Security

Messengers and security personnel perform all duties as assigned and ensure all personnel entering the COC appear on the access list.

4.1.9 Plotters

The main duty requirements for plotters are as follows:

- Ensure the proper maintenance of section journals, situation charts, and maps.
- Assist the section watch officer as required.

4.1.10 Nuclear, Biological, Chemical/Chemical, Biological, Radiological (NBC/CBR) Officer

The NBC/CBR officer plays a critical role in the early warning of a nuclear, biological, or chemical attack. The NBC/CBR officer should hold the proper Naval Enlisted Classification (NEC) code to fill this position proficiently. The main duties of the NBC/CBR officer are as follows:

- Organize, train, and supervise personnel assigned to the battalion's decontamination teams.
- Monitor all incoming messages related to weather information.
- Manage all outgoing and incoming NBC reports.
- Establish NBC fallout zones to provide early warning of an NBC attack.
- Advise the section watch officer on the setting of Mission-Oriented Protective Posture (MOPP) levels.

4.1.11 Unit Movement Control Center (UMCC) Officer

The UMCC officer provides support for the deployment and redeployment of troops. He/She coordinates with the appropriate Movement Control Agency (MCA). The main duties of the UMCC officer are as follows:

- Ensure that units are prepared for embarkation.
- Ensure direct marshaling.
- Identify additional support requirements.
- Coordinate the movement of forces to port of embarkations, as directed by the appropriate MCA.

5.0.0 OPERATION OF THE COMBAT OPERATIONS CENTER

One of the primary elements of C2 is information. There are two basic uses for information. The first is to help create situational awareness as the basis for a decision.

The second is to direct and coordinate actions in the execution of the decision. The operation of the COC revolves around information. This section will cover the types of information and how it is processed.

5.1.0 Information Types

A significant amount of information flows into the COC by way of various reports and messages. The watch officer must be capable of discerning the different types of information and distributing it appropriately. The information coming into the COC is categorized into three basic types: routine, exceptional, and Commander's Critical Information Requirement (CCIR).

5.1.1 Routine Information

Routine information, although important in maintaining situational awareness, does not necessarily require immediate action or a decision. The following are a few examples of routine information. An intelligence summary contains a brief summary of the most current enemy situation. Situation reports from the field inform the commander on the status of ongoing operations. Supplementary reports may come in the form of spreadsheets to advise the status of such things as fuel and fresh water levels, construction equipment availability, amounts and types of ammunition on hand, etc.

5.1.2 Exceptional Information

Exceptional information details some type of significant action or event that occurs and is of immediate concern to the commander. Casualties, enemy or terrorist actions, and cyber-attacks would all fall under the exceptional information category and be routed to the commander as quickly as possible.

5.1.3 Commander's Critical Information Requirements (CCIR)

The abundance of information flowing into the COC can lead to "information overload" and easily overwhelm the decision making process. The identification of the CCIR is a way to focus and direct the collection and processing of information. The CCIR is the information regarding the enemy, friendly activities, and the environment identified by the commander as critical to maintaining situational awareness, planning future activities, and facilitating timely decision making. The CCIR is designated by the unit commander and determines notification requirements. This reduces the volume of information to a manageable level and helps to ensure the accuracy, relevance, and timeliness of that information. The CCIR consists of Priority Intelligence Requirements (PIRs), Friendly Force Information Requirements (FFIRs), and Essential Elements of Friendly Information (EEFI).

5.1.3.1 Priority Intelligent Requirements

The PIRs include information about the enemy and the environment. Information about enemy capabilities and intentions is critical for commanders to anticipate and analyze possible enemy Courses of Action (COAs). Information on the environment includes reports on the weather, terrain, local population, local communications, transportation infrastructures, and a host of other factors that may affect the conduct of military operations. Through identification of PIRs, commanders ensure they direct limited intelligence resources to obtaining intelligence information essential for decision making.

5.1.3.2 Friendly Force Information Requirements

The FFIRs are the pieces of information about friendly forces the commander needs to be able to develop plans and make effective decisions. Depending on the circumstances, any information acquired on unit location, composition, readiness, personnel status, and logistic status could become FFIRs. It is easy to overburden subordinate units and to overload communications networks with requests for nonessential information. The FFIRs help commanders, staffs, and subordinate units understand precisely what information is needed to support the planning, decision, execution, and assessment cycles.

5.1.3.3 Essential Elements of Friendly Information

The EEFI are specific facts about friendly intentions, capabilities, and activities needed by adversaries to plan and execute effective operations against friendly forces. These EEFI may be viewed as representing the opposing commander's PIRs. Identification of the EEFI is vital to planning effective information security, operations security, and other force protection operations.

5.2.0 Message Routing

The internal routing of messages within the COC will vary according to the information needs established by the unit commander. Several factors will influence the commander's decision such as, staff information requirements, COC layout, and the tactical situation. Although there is no established pattern, the following paragraphs represent a typical message routing framework.

In a well-equipped COC on the modern battlefield the internal routing of messages is an automated process performed over a computer network instead of handling paper copies.

5.2.1 Incoming Messages

All incoming radio traffic will be written down on authorized message pads for appropriate routing. An original plus two copies of the incoming message are created. Radio messages will have a precedence level that is declared by the sender. The four precedence levels and how fast they should be handled internally by COC personnel in order of descending priority are:

- FLASH: As fast as humanly possible; objective is less than 10 minutes
- IMMEDIATE: up to 30 minutes
- PRIORITY: up to 3 hours
- ROUTINE**:** up to 6 hours

The message is passed from the communicator to the communications supervisor who checks the message for format, spelling, and legibility. After checking the message, the message and all copies is passed to the COC watch officer. The COC watch officer assigns the action as appropriate and indicates the action section on the message. The watch officer gives the original to the watch chief to update status boards, maps, the unit journal, etc. A copy of the message is given the action section and another copy is placed on the reading board. See *Figure 1-5* for typical COC internal message routing.

Incoming messages received by runner or field telephone are handled in the same manner as incoming radio messages, except they are delivered to the COC watch officer without routing through the communications supervisor.

5.2.2 Outgoing Messages

The originating staff sections prepare an original and two copies of each message prepared. All copies are passed to the COC watch officer. The COC watch officer reviews the message, signs the releasing block, and passes one copy to the journal clerk via the watch chief for logging. The COC watch officer then gives the original plus one copy to the communications supervisor. The communications supervisor passes one copy to the communicator. After transmission, the communicator returns this copy with the time of transmission indicated back to the communications supervisor. The communications supervisor returns a copy to the originator. The COC watch officer gets the original with the time of transmission noted. The original is then placed on the outgoing reading board after the journal clerk logs the time of transmission.

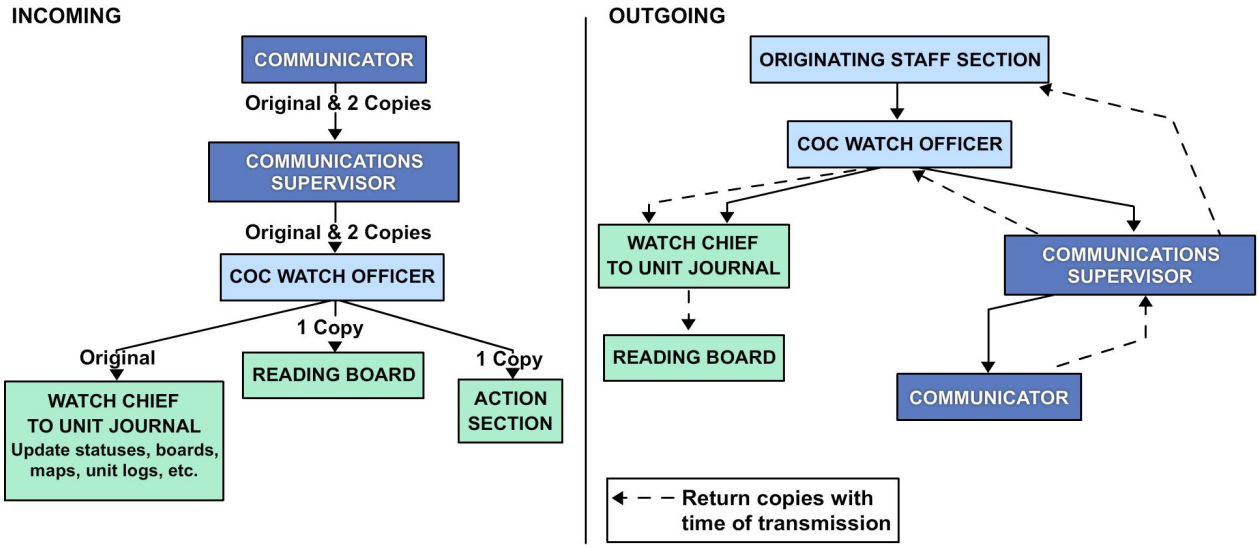


Figure 1-5 — COC internal message routing.

6.0.0 CHARTS AND MAPS OF THE COC

The types of charts and maps required within the COC vary according to the mission and the requirements set by the battalion commander. All charts and maps must be visible to all personnel in the COC. Ensuring proper placement enables all personnel standing watch in the COC to monitor current situations and to respond expediently to any incoming messages. The maps and charts provide detailed operations and intelligence information. Also posted in the COC is a clipboard with a reading file for any incoming/outgoing messages.

The operation map shows the AO and should include the following:

- Friendly troop positions including the battalion’s fire plan
- Current locations of CPs in the AO
- Location and status of patrols
- Landing zone locations
- NBC corridors/fallouts

The operation charts should show the following:

- Personnel strength
- Friendly troop POWs or enemy POWs
- Report status
- Equipment status
- Call signs and frequencies
- Convoy status
- Casualties wounded/killed in action
- Food/water/ammo status

The INTEL map should show the following:

- Enemy troop disposition/strength within the AO
- Enemy equipment/weapons
- Weather and astronomical data
- NBC corridors/fallouts

The INTEL charts should show the following:

- Current INTEL
- Challenge and passwords
- Current MOPP level

Unlike the COC, there are fewer maps and charts maintained in the company CP. The company CP's maps and charts will contain a subset of the information displayed in the COC, generally focused on information pertaining to the company's AOR. Oftentimes there is only one operational map displayed to provide everyone in the company CP with the "big picture" of the ongoing operation.

6.1.0 Common Operational Picture (COP)

In modern COCs and CPs, the area maps and charts are often replaced with digital displays containing the same information. These displays are fed by computer information systems and are updated dynamically, often in real-time. One such system is the Global Command and Control System (GCCS). GCCS allows commanders to manage and monitor units, personnel, and equipment from mobilization through deployment, employment, sustainment, redeployment, and demobilization. GCCS operates over the Secure Internet

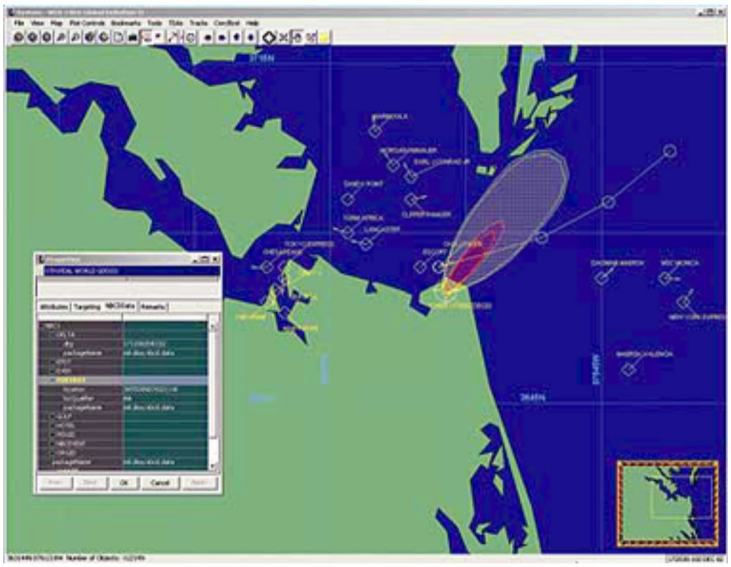


Figure 1-6 — Common operational picture.

Protocol Router Network (SIPRNET), which is a secure network environment accessible to authorized DOD users.

The GCCS and similar systems allow for a COP. The COP is a display that allows commanders at various levels throughout the battlespace to share the same tactical information. The COP consists of a series of selectable image overlays that provide users with a customizable level of detail (*Figure 1-6*). The overlays include, but are not limited to, topographical maps and satellite images, terrain, roads, obstacles, weather conditions, assets, reference points, and locations of friendly, hostile, and neutral units.

6.2.0 Blue Force Tracker

Another digital C2 system is the Blue Force Tracker (BFT). BFT is a global positioning-enabled system that provides military commanders and forces with location information about friendly and, despite its name, also hostile military forces. It provides on-the-move, near real-time situational awareness as well as battle command messaging via satellite communication.

7.0.0 COMPANY COMMAND POST (CP)

The line companies (Alfa, Bravo, and Charlie) man the defensive lines that are the battalion's portion of the defensive perimeter in the rear area or the Forward Edge of the Battle Area (FEBA); therefore, the companies are the "eyes and ears" of the COC.

The CP is the central point from which company operations are directed. The CP is established to provide the company commander centralized C2 facilities for the platoons assigned to the company. The platoon commanders report all activities to the company CP, regardless of their magnitudes, concerning their respective platoons. The company CP reports all information concerning the company to the COC.

The specific composition and functions of the company CP vary with the mission assigned to the company. The normal functions of the company CP are similar to the COC and include the following:

- Receiving and recording operational reports from the COC
- Preparing and submitting operational reports to the COC concerning the company
- Maintaining current maps and overlays of friendly and enemy situations within the company’s Area of Responsibility (AOR); information is displayed within the company command post
- Maintaining current maps and overlays of the company’s patrol routes and other routes that may come in contact with the company’s AOR
- Providing dedicated communication channels for tactical and non-tactical operations to the COC and to the platoon commanders
- Transmitting orders and tactical decisions of the battalion’s COC to the platoons as required
- Monitoring the progress of the battalion’s tactical operations and reporting immediately to the COC any significant event or incident concerning the company’s AOR

7.1.0 Location

The location considerations of the company CP are similar to the location considerations of the COC. The company CP must be hard to detect by enemy forces and must be easy to defend and easily accessible to battalion personnel.

7.1.1 Centralization

The company CP is located rear of the forward platoons manning the defensive perimeter or the FEBA and is centered among those platoons to enhance the execution of C2 operations.

7.1.2 Traffic

All of the traffic entering the company CP is by foot. Personnel approaching and returning to their fighting positions from the company CP should do so by alternate routes. When this rule is not followed, a beaten path leading to the company CP for the enemy to follow will result.

7.2.0 Communication

Communication is vital to the company CP for the effective exercise of C2. The company CP must have constant communication with the platoon commanders, listening posts, and observation posts. The platoon commanders must have constant communication with the troops on the front lines. A break in communication can cause massive confusion and could result in heavy casualties and the loss of lives. The subject of communication is covered in depth later in this chapter.

7.3.0 Defense and Security

Defense and security measures for the company CP are similar to that of the COC. The major exception is that the company CP is not as fortified as the COC. For example, barbed and tactical wire entanglements are not used around the company CP because of the constant flow of traffic entering the CP. The company commander is concerned principally with the defense of the company's AOR.

8.0.0 ORGANIZATION OF THE COMPANY COMMAND POST

The internal organization of the company CP varies with each company or contingency operation. Written SOPs are established to formalize the organization of the CP. Personnel duties, maps, and various boards are usually standard within any company CP.

8.1.0 Watch Stations

The company commander is responsible for coordinating, organizing, operating, and training watch standing personnel for the company CP. The number of personnel assigned to the watch stations, which are manned on a 24-hour basis, is normally maintained at the minimum needed to meet operational requirements. The watch personnel and their duties are described below.

8.1.1 Watch Chief

The watch chief is responsible for information management within the CP as well as the following:

- Read the message board before assuming watch. Be briefed on the current situation by the current watch chief, and then make liaison with the COC.
- During watch, keep current on the tactical situation of the battalion; make routine decisions concerning the company; and notify the company commander of incidents of an unusual nature.
- Read all incoming and outgoing messages. Take the appropriate action on messages received from the COC. Immediately provide the COC with accurate information pertaining to the company's AOR.
- Ensure incoming and outgoing messages follow established routing procedures.
- Exercise releasing authority on all outgoing messages.
- Provide complete supervision of operations in the company CP.

8.1.2 Watch Petty Officer

The watch petty officer performs the following tasks:

- Collect and process information relating to intelligence.
- Gather and distribute information gained from intelligence sources.
- Maintain overlays of the enemy situation map pertaining to the company's AOR.
- Promptly inform the watch chief of significant or unusual incidents.
- Maintain overlays of the company's patrols and convoys.
- Supervise the action of the communication personnel.

8.1.3 Communicator

The communicator ensures unconstrained flow of information throughout the organization. Responsibilities include:

- Monitor radio nets as assigned.
- Use all necessary measures to minimize interception or jamming of radio transmission.

8.1.4 Messengers/Security

Security awareness should be maintained throughout the unit. Messengers and security personnel are responsible to:

- Perform all duties as assigned.
- Ensure only authorized personnel enter the company CP.

9.0.0 OPERATION OF THE COMPANY COMMAND POST

A set of SOPs is developed for the company CP to avoid any confusion on operations within the CP. All key personnel involved with the operations of the company CP should participate in the preparation of the SOPs. Special consideration must be given to message-handling procedures and situation boards.

The following paragraphs contain a typical company CP SOP. The design may be different but should contain the same basic topics.

9.1.0 SOP for Incoming Messages

All incoming radio traffic should be written down on authorized message pads that allow the preparation of an original plus two copies.

The communicator passes an incoming message to the watch petty officer who checks the message for format, spelling, and legibility. After checking the message, the watch petty officer should pass the message with all copies to the watch chief who will decide the appropriate action to take. The original, plus one copy, is then filed and one copy is placed on the reading board.

Incoming messages received by the field telephone are handled in the same manner as incoming radio messages. When the watch petty officer is preoccupied with other events, messages should be routed directly to the watch chief.

9.2.0 SOP for Outgoing Messages

The watch petty officer prepares one original and two copies of all outgoing messages. All copies are passed to the watch chief. The watch chief reviews the message, signs the releasing block, files one copy, and forwards the original and one copy to the communicator. The communicator logs one copy and transmits the message. After transmission, the communicator annotates the time of transmission and returns the original back to the watch petty officer. The watch chief receives the original with the time of transmission noted. The original is placed on the outgoing reading board.

NOTE

When the watch petty officer is unavailable, the watch chief prepares outgoing messages.

9.3.0 Reporting Procedures

Reporting procedures must be established for the company CP to be effective. The use of standardized reports speeds information flow and simplifies support requests. Proper communication procedures, including encryption of sensitive information, must be followed in submitting all reports. Every person in the company must know the proper reporting procedures. Information from the lines must get relayed back to the company CP in an accurate and timely fashion. Formats for reports may vary from unit to unit. The two most common reports are the SALUTE and SPOT reports as described below.

The platoon commander receives information from the defensive lines by landline or radio. The primary means of communication between the platoon commander and squad leaders is by field phone. Messengers, visual signals, personal contact, or whistles may be used when they are more appropriate than phones and radios.

The platoon commander relays the information to the company CP, using the SALUTE report format which the company CP then relays on to the COC. SALUTE is an acronym for Size, Activity, Location, Unit, Time, and Equipment. It is a standardized way to convey the basic elements of who, what, where, when, and how regarding the enemy. The specifics of a SALUTE report are as follows:

- **S** Size/Who: Expressed as a quantity and size, for example, "2 times company strength."
- **A** Activity/What: This line is the focal point of the report and relates to the PIRs set forth in the CCIRs.
- **L** Location/Where: Generally expressed as an 8-digit grid coordinate.

- **U** Unit/Who: This entry identifies who is performing the activity described in the "Activity" entry. This should include the complete designation of a military unit, identification of a civilian or insurgent group, or the full name of an individual, as appropriate.
- **T** Time/When: For future events, this is when the activity will initiate. For past events, this is when the event ended. For ongoing events, they are reported as such. Non-events, such as composition of forces or morale are reported as ongoing as well.
- **E** Equipment/How: This includes information concerning equipment involved, tactics used, and any essential elements of information not reported in the previous paragraphs.

A SALUTE report is used when the observed activities of the enemy do not pose a threat to the company. This gives the platoon commander and the company CP time to evaluate the situation and to send the COC a formal SALUTE report.

An enemy spotted (SPOT) report is a hastily modified SALUTE report containing less detail. An example of the difference between the two reports is when the company is engaged in a firefight on the lines. The platoon commander must concentrate on the firefight and has little time to send a formal SALUTE report to the company CP. Several SPOT reports are used to maintain communication with the company CP. The company CP is also busy concentrating on the firefight and will relay several SPOT reports to the COC. When the firefight is over, the company CP will send the COC a formal SALUTE report based on the SPOT reports.

It is important to remember to keep the COC informed of everything and maintain the top priority of defending the company’s AOR. What may not seem like vital information to one person may be vital information to someone else**.** When in doubt a SPOT or SALUTE report should be sent.

10.0.0 COMMUNICATION PLAN

The primary purpose of tactical communication is to enable and support C2. Communications planning must be detailed enough to provide clarity, but also flexible enough to respond to the chaos inherent in the battlespace and during the conduct of military operations. The relationship between C2 and communication is inseparable. The commander must recognize that C2 is the means to identify what needs to be done and then see to it that appropriate actions are taken. Information is essential to the commander's situational awareness and ability to make a decision and to subordinates as they carry out the decision and provide feedback to the commander.

Despite continued technological advances, uncertainty—the fog of war—remains and will always be the defining problem of C2. Enabling commanders and staffs to better deal with uncertainty is the goal of a C2 system, and communications plays a pivotal role in supporting this goal.

10.1.0 Communications-Electronics Operating Instruction (CEOI)

To produce a communication network, you must know what frequency nets will be required for the mission. Higher authority will issue a Communications-Electronics Operating Instruction (CEOI) to assist you with determining the frequency nets required.

CEOI contains the technical guidance required to establish and maintain communications in support of operations. The CEOI provides the details required to

coordinate and control the various communications means and functions within a unit. This document normally contains call signs, call words, and frequencies to be used by designated operating units. By providing a standardized source of information, the CEOI enhances both operational communications capabilities and communications security. In case of loss or compromise, the standardized format simplifies rapid identification, destruction, and replacement. The following information and instructions are normally included in the CEOI:

- General communications instructions
- Call sign assignments
- Frequency assignments
- Radio net circuit designator
- Wire/cable trunk circuit designations
- Wire/cable tagging codes
- Telephone directory names and numbers
- Teletype and data muting indicators
- Identification and marking panel codes
- Signal panel message instructions
- Pyrotechnic and smoke codes
- Ground-air signals
- Sound warning signals
- General cryptographic instructions
- Cryptographic devices to be used
- Current effective editions of the cryptographic key lists
- Codes and ciphers
- Passwords/challenge
- General authentication instructions
- Effective authentication tables

Each CEOI is classified according to content. General classification of the CEOI is based on the highest classified instruction it contains. Some of the frequency nets that may be listed in the CEOI are as follows:

- The Battalion Command Net establishes communication between the COC and the companies for administrative and logistics issues.
- A Battalion Tactical Net establishes communication between the COC and the companies for tactical purposes and various reports, such as SPOT, SALUTE, AMMUNITION, CASUALTY, and SITREPs
- The Regimental Command Net establishes communication from the battalion’s COC to the regiment when the battalion is under the operational control (OPCON) of the regiment. This net is used for administrative and logistics issues
- The Regimental Tactical Net establishes communication from the battalion’s

COC to the regiment when the battalion is OPCON to the regiment. It is used for tactical purposes and various reports, such as SPOT, SALUTE, AMMUNITION, CASUALTY, and SITREPs

- A Base Facility Command Net establishes communication from the battalion's COC to the base facility commander. This net is used for administrative and logistics issues
- A Base Facility Tactical Net establishes communication from the battalion's COC to the base facility commander. It is used for tactical purposes and various reports, such as SPOT, SALUTE, AMMUNITION, CASUALTY, and SITREPs
- The Conduct of Fire Net establishes communication from the battalion's COC to the battalion's FDC and is used by the companies to call in fire missions and by the fire support coordinator to call in fire support
- The Rear Area Operating Command Net establishes communication—usually by a High Frequency (HF) radio—from the battalion's COC to higher authority located outside the base facility
- A Communication/Information System Command (CISC) Net is used solely for communication problems within the battalion.
- An Alert/Broadcast Net (HF) is used to pass alert warning traffic or general traffic about all (or the majority) of the units within the AO.

10.2.0 Information Networks

On the modern battlefield, information networks provide a good deal of the internal and external communication for the COC. The Defense Information Systems Network (DISN) provides the backbone for long-haul voice and data communications requirements of the NCF, both in garrison and while deployed. DISN provides numerous services to enable effective C2 worldwide, include:

- Defense Switched Network (DSN) allows tactical users to place either secure or non-secure telephone calls to other DSN subscribers.
- Defense Red Switch Network (DRSN) allows users to place secure calls from the field.
- Non-classified Internet Protocol Router Network (NIPRNET) is an information network based on IP routers and smart multiplexers designed for the transfer of sensitive, but unclassified data; NIPRNET is used in garrison, aboard ship, and during operations ashore to transfer administrative data.
- Navy Marine Corps Intranet (NMCI) is a comprehensive, enterprise-wide system that makes the full range of network-based information services available to Sailors and Marines for day-to-day activities and in war. It provides secure, universal access to integrated voice, video, and data communications.
- Secure Internet Protocol Router Network (SIPRNET) is similar to the NIPRNET, but is designed to support the exchange of classified data.
- Joint Worldwide Intelligence Communications System (JWICS) is similar to the NIPRNET and the SIPRNET and shares their architecture but it is designed for the transfer of top secret video and data.

- Defense Message System (DMS) uses a common e-mail system (Microsoft Exchange) to send all organizational message traffic over the DISN IP router networks.

10.3.0 Antenna Farm

The antenna farm or communication site (*Figure 1-7*) is the primary location of various antennas and communication equipment needed to establish communication in the field. Special consideration is given for selecting a location for the antenna farm because all radio communication in the COC depends on it.



Figure 1-7 — Antenna farm.

An important consideration in selecting a communication site is accessibility. Time should not be wasted by establishing accessibility. Whenever possible, a site should be located near good roads. This will minimize any difficulty in supplying the site with water, fuel, oil, food, and ammunition.

Obstructions like steel bridges, underpasses, power lines, or power units that can weaken or distort the signal coming from the communication equipment should be avoided. Better results are obtained when the antennas are high and clear of hills, cliffs, buildings, densely wooded areas, and other obstructions.

Other factors that must be considered are physical security and a location where terrain will not interfere with transmissions. A relatively flat hilltop is usually the most desirable site location.

10.4.0 Company Command Post Communications

Like the COC, a company communication plan is required. Communication is essential for the company commander to pass information between the troops and the COC. An uncomplicated, reliable, flexible, and responsive communication plan will enable the company commander to effectively carry out operational plans received from the COC. The communication officer is responsible for the unit's overall communication plans. Company commanders should work with the communication officer for the development of a company communication plan and field phone and radio assets needed by the companies. The company commander should include in the plan, communication requirements for the company and a communication network.

The company commander should receive a copy of the CEOI that identifies the radio nets the company is required to monitor. The contents of a CEOI are similar to those detailed for the COC but there are only two frequency networks that a company CP is normally required to monitor; they are the battalion command net and battalion tactical net.

10.4.1 CP Communication Equipment

The types of communication equipment used within the CP are not as diverse as those used within the COC. As CP external communication is limited to the COC, platoon

commanders, and other essential company personnel, the CP communication equipment is typically limited to field telephones, switchboards, and radios.

Similar to the COC, the company CP must have detailed wire and radio communication plans. *Figures 1-8 and 1-9* show typical COC wire and radio communication plans.

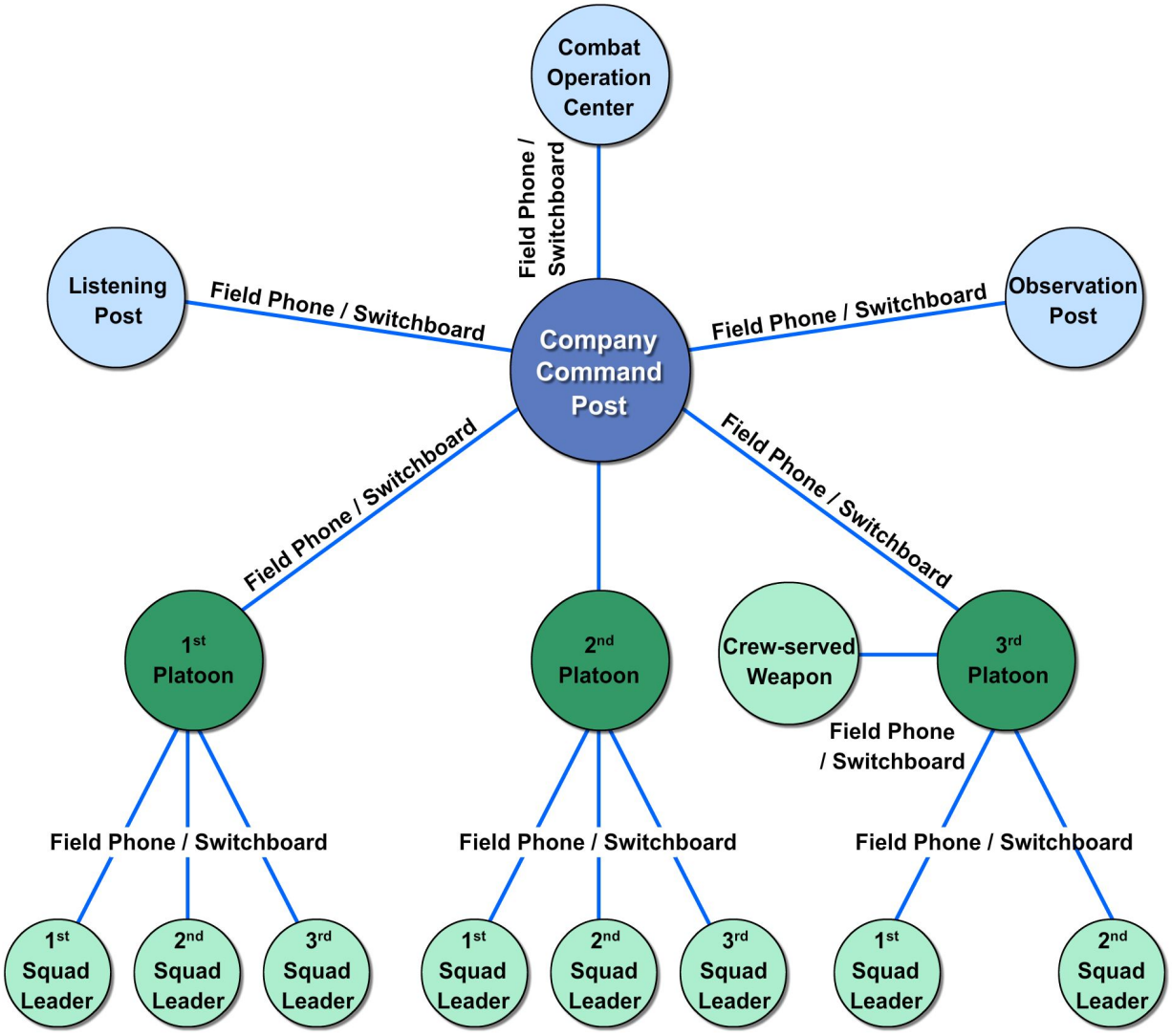


Figure 1-8 — Notional company CP wire plan.

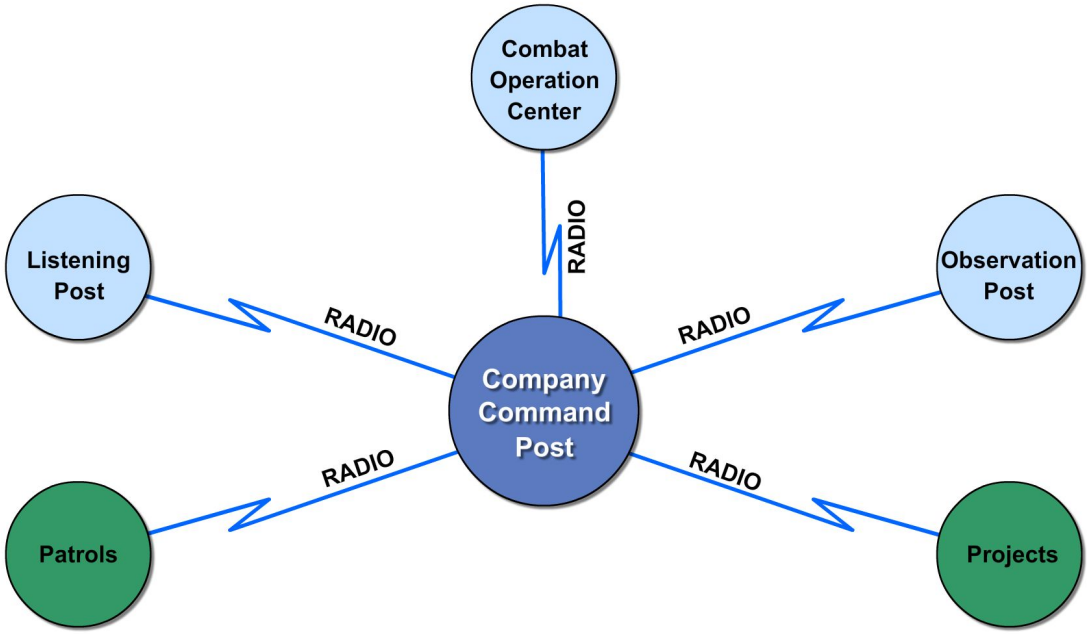


Figure 1-9 — Notional company CP radio plan.

The location of field phones on the defensive lines is dictated by the number of assets available, the terrain, and the size of the AOR assigned to the company. The platoon commander must be able to relay information quickly and accurately, and exercise complete C2 of the squads and crew-served weapons assigned to the platoon.

The ideal situation is for the platoon commander to have a field phone at each squad leader's or crew-served weapon position. The field phones are tied into a switchboard located in the platoon commander's fighting position. The platoon commander's phone is tied into the company CP.

Summary

To be proficient while performing duties related to COC or CP operations, you must understand the relationships between the naval construction forces and the MAGTF or JTF. As Seabees often deploy as part of a MAGTF, it is important to know the organization of a MAGTF. The main elements that make up a MAGTF when Seabees are attached to a MAGTF are: CE, GCE, ACE, LCE, and NCE. There are basically three types of MAGTFs: MEF, MEB, and MEU.

Seabees are an integral part of RAS. The fact that the MAGTF may be primarily responsible for securing the rear area does not relieve rear area units, such as the naval construction forces, from executing their own security measures.

Efficient operation of the COC and company CP are essential to success on the battlefield. You should know how these C2 organizations function, and the duties of the personnel in them, so you can aid in their success.

Communication is vital to successful C2. It is important that you understand your duties regarding communication as well as the duties of those around you. A well-thought-out communication plan and SOPs will ensure that everyone in the unit knows their responsibilities regarding internal and external communication.

Assignment 1

Objectives

1. Identify and briefly describe commands that a Seabee unit can be attached to during combat operations.
2. Identify and briefly describe the rear area security (RAS) organization.
3. Identify the importance of the COC and the location of a COC.
4. Describe the organization and mission of the COC and the duties of its personnel.
5. State the purpose of the company Command Post (CP) and what must be considered when establishing a company CP.
6. Describe the organization of the company CP.
7. Describe the contents of a communication plan.
8. Describe the operations of the company CP.

Questions

1. What is the minimum number of major subordinate elements in a MAGTF when naval construction forces are assigned?

    1. Three
    2. Four
    3. Five
    4. Six

2. Which of the following MAGTF major support elements is formed around an infantry organization?

    1. Ground combat element
    2. Aviation combat element
    3. Logistics combat element
    4. Naval construction element

3. Which of the following MAGTF major support elements provides supply, maintenance, and transportation services?

    1. Ground combat element
    2. Aviation combat element
    3. Logistics combat element
    4. Naval construction element

4. What function does the command element serve within a MAGTF?

    1. As a supply and logistics center
    2. As an intelligence center
    3. As a headquarters
    4. As a communication center

5. Which of the following functions is one of the six functions of Marine aviation necessary to accomplish the MAGTF mission?

    1. Topographical mapping
    2. Aviation command and control
    3. Airborne communications
    4. Electronic warfare

6. The primary duty of the CEC officer attached to the command element is to advise whom on matters relating to the capabilities and employment of the NCF?

    1. MAGTF supply officer
    2. MAGTF commander
    3. MAGTF engineer officer
    4. MAGTF communication officer

7. What organization is the Navy's principal expeditionary organization for engineering and construction missions?

    1. Naval construction division
    2. Naval construction element
    3. Naval mobile construction battalion
    4. Naval construction regiment

8. What is the smallest size MAGTF that has a fully capable aviation element?

    1. Marine expeditionary force
    2. Marine expeditionary brigade
    3. Marine expeditionary element
    4. Marine expeditionary unit

9. Which of the following Seabee units will support a Marine expeditionary unit-sized MAGTF as the naval construction element?

    1. Naval mobile construction battalion AIRDET
    2. Naval mobile construction battalion
    3. Naval construction regiment
    4. Naval construction division

10. What size MAGTF normally fulfills the Marine Corps' forward sea-based deployment requirements?

    1. Marine expeditionary force
    2. Marine expeditionary brigade
    3. Marine expeditionary element
    4. Marine expeditionary unit

11. Which of the following is the largest sized MAGTF?

    1. Marine expeditionary force
    2. Marine expeditionary brigade
    3. Marine expeditionary element
    4. Marine expeditionary unit

12. Which of the following Seabee units will support a Marine expeditionary force-sized MAGTF as the naval construction element?

    1. Naval mobile construction battalion AIRDET
    2. Naval mobile construction battalion
    3. Naval construction regiment
    4. Naval construction division

13. What is the main objective of rear area security?

    1. Assault enemy forces
    2. Divert enemy forces to the front lines
    3. Gather intelligence on enemy forces
    4. Minimize the effects of an enemy attack

14. With whom does the NCF commander coordinate with to ensure NCF assets are incorporated into the rear area security effort?

    1. Logistics command element commander
    2. MAGTF commander
    3. Unit security coordinator
    4. Rear area security coordinator

15. Which of the following is considered a passive security measure?

    1. Hardening installations
    2. Establishing liaison with fire support organizations
    3. Obtaining weapons and munitions
    4. Providing security to convoys

16. What is the primary purpose of the combat operations center?

    1. Provide dedicated communication channels for operational reporting
    2. Monitor and record tactical and non-tactical operations
    3. Provide fire direction control for higher headquarters
    4. Receive and record operational reports from subordinate elements

17. With regard to staff position codes, what letter is used to denote a battalion-level position?

    1. B
    2. N
    3. R
    4. S

18. What document is used to formalize the organization of the combat operations center?

    1. Written guidance from higher authority
    2. MAGTF instructions
    3. FIRST Naval Construction Division instructions
    4. Standard operating procedures

19. Who is the responsible for coordinating, organizing, operating, and training combat operations center watchstander personnel?

    1. Admin officer
    2. Intelligence officer
    3. Operations officer
    4. COC watch officer

20. Who in the combat operations center organization is responsible for coordinating briefings that present the current tactical situation to the commander?

    1. Admin officer
    2. Intelligence officer
    3. Operations officer
    4. COC watch officer

21. Who in the combat operations center organization provides information on weather, terrain, and enemy capabilities?

    1. Admin officer
    2. Intelligence officer
    3. Operations officer
    4. COC watch officer

22. Who in the combat operations center organization ensures incoming and outgoing messages adhere to established routing procedures?

    1. COC watch officer
    2. Messengers
    3. Communications chief
    4. Communicators

23. Who in the combat operations center organization ensures that units are prepared for embarkation?

    1. Administration and personnel officer
    2. COC watch officer
    3. Operations officer
    4. Unit movement control center officer

24. What type of information coming into a combat operations center consists of status reports, such as fuel levels and amount of ammunition on hand?

    1. Exceptional information
    2. Status information
    3. Routine information
    4. Priority information

25. What type of information coming into a combat operations center consists of enemy actions or cyber-attacks?

    1. Exceptional information
    2. Status information
    3. Routine information
    4. Priority information

26. What is used to focus and direct the collection and processing of information to prevent information overload in the combat operations center?

    1. Commander's critical information requirements
    2. Commander's priority information requirements
    3. Commander's exceptional information requirements
    4. Commander's urgent information requirements

27. What type of commander's information requirements includes information about the enemy and the environment?

    1. Crucial intelligent requirements
    2. Critical intelligent requirements
    3. Essential intelligent requirements
    4. Priority intelligent requirements

28. What type of commander's information requirements includes information about friendly forces the commander needs to be able to develop plans and make decisions?

    1. Friendly force information requirements
    2. Exceptional elements of friendly information
    3. Priority intelligent requirements
    4. Essential elements of friendly information

29. What type of commander's information requirements contains specific facts about friendly intentions, capabilities, and activities needed by adversaries to plan and execute effective operations against friendly forces?

    1. Friendly force information requirements
    2. Exceptional elements of friendly information
    3. Priority intelligent requirements
    4. Essential elements of friendly information

30. Within how many hours should PRIORITY precedence-level messages be handled internally by combat operations center personnel?

    1. Two
    2. Three
    3. Five
    4. Six

31. Within how many minutes should IMMEDIATE precedence-level messages be handled internally by combat operations center personnel?

    1. 10
    2. 20
    3. 30
    4. 45

32. After transmitting a message, the communicator returns the message to the combat operations center communications supervisor annotated with what information?

    1. Recipient's unit call sign
    2. Frequency used to transmit the message
    3. Recipient's name
    4. Time of transmission

33. Message handling within the combat operations center requires the creation of an original plus how many copies?

    1. One
    2. Two
    3. Three
    4. Four

34. Company commanders are principally concerned with the defense of what?

    1. The company's area of responsibility
    2. The combat operations center area of operations
    3. The rear area security zone
    4. The company command post

35. Who is responsible for information management within the command post?

    1. Operations officer
    2. Watch chief
    3. Company commander
    4. Intelligence officer

36. Who collects and processes information relating to intelligence for the command post?

    1. Operations officer
    2. Watch petty officer
    3. Watch chief
    4. Intelligence officer

37. Who signs the releasing block for command post outgoing messages?

    1. Watch petty officer
    2. Operations officer
    3. Company commander
    4. Watch chief

38. What is the primary means of communication between the platoon commander and squad leaders?

    1. Field phone
    2. Messenger
    3. Radio
    4. Visual signals

39. Which report is a standardized way to convey the basic elements of who, what, where, when, and how regarding the enemy?

    1. SPOT
    2. REACT
    3. SALUTE
    4. ENEMY

40. Which report would be used to report enemy information to the company while engaged in a firefight?

    1. SPOT
    2. REACT
    3. SALUTE
    4. ENEMY

41. On which map is shown the location of friendly troop positions?

    1. Troop map
    2. Operation map
    3. Resource map
    4. INTEL map

42. On which chart can the current MOPP level be found?

    1. Troop chart
    2. Operation chart
    3. Resource chart
    4. INTEL chart

43. What is the term for the display that allows commanders at various levels throughout the battlespace to share the same tactical information?

    1. Blue force tracker
    2. Common operational picture
    3. Big picture
    4. SIPRNET

44. What is the name of the system that provides on-the-move, near real-time situational awareness as well as battle command messaging?

    1. Common operational picture
    2. SIPRNET
    3. Blue force tracker
    4. NIPRNET

45. Call signs, call words, and the frequencies to be used by designated units are contained in what document?

    1. Standard operating procedures
    2. Friendly forces information requirements
    3. Essential elements of friendly information
    4. Communications-Electronics Operating Instruction

46. Which network provides backbone for long-haul voice and data communications requirements of the NCF?

    1. Defense Switched Network
    2. Secure Internet Protocol Router Network
    3. Non-classified Internet Protocol Router Network
    4. Defense Information Systems Network

47. Which system is designed for the transfer of top secret video and data?

    1. Joint Task Force Communications System
    2. Navy Marine Corps Intranet
    3. Joint Worldwide Intelligence Communications System
    4. Defense Message System

48. The company CP is normally only required to monitor two frequency networks; the battalion command net and what other net?

    1. Combat operations center tactical
    2. Battalion tactical
    3. Combat operations center command
    4. Joint tactical

Assignment 1

Combat Operations Center and Company Command Post Operations

Directions: Select the correct answer from the list of alternates below each question in the end of chapter assignment. Write in the answer next to the corresponding question number below. Use this answer sheet as a reference to completing the online assignment related to this assignment.

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Additional Resources and References

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

Marine Corps Operations, U.S. Marine Corps MCDP 1-0

Seabee Operations in the MAGTF, U.S. Navy NTTP 4-04.1M

Joint Task Force Headquarters, Office of the Joint Chiefs of Staff JP 3-33

MAGTF Rear Area Security, U.S. Marine Corps MCRP 3-41.1A

Strategic Mobility and Unit Movement Operations, U.S. Navy NTTP 4-01.5

Information Management, U.S. Marine Corps MCWP 3-40.2

Command and Control Doctrine for Naval Construction Force Units, FIRST Naval Construction Division NCFP 6-01

Trainee Feedback

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Your email address, if a response is requested: _____

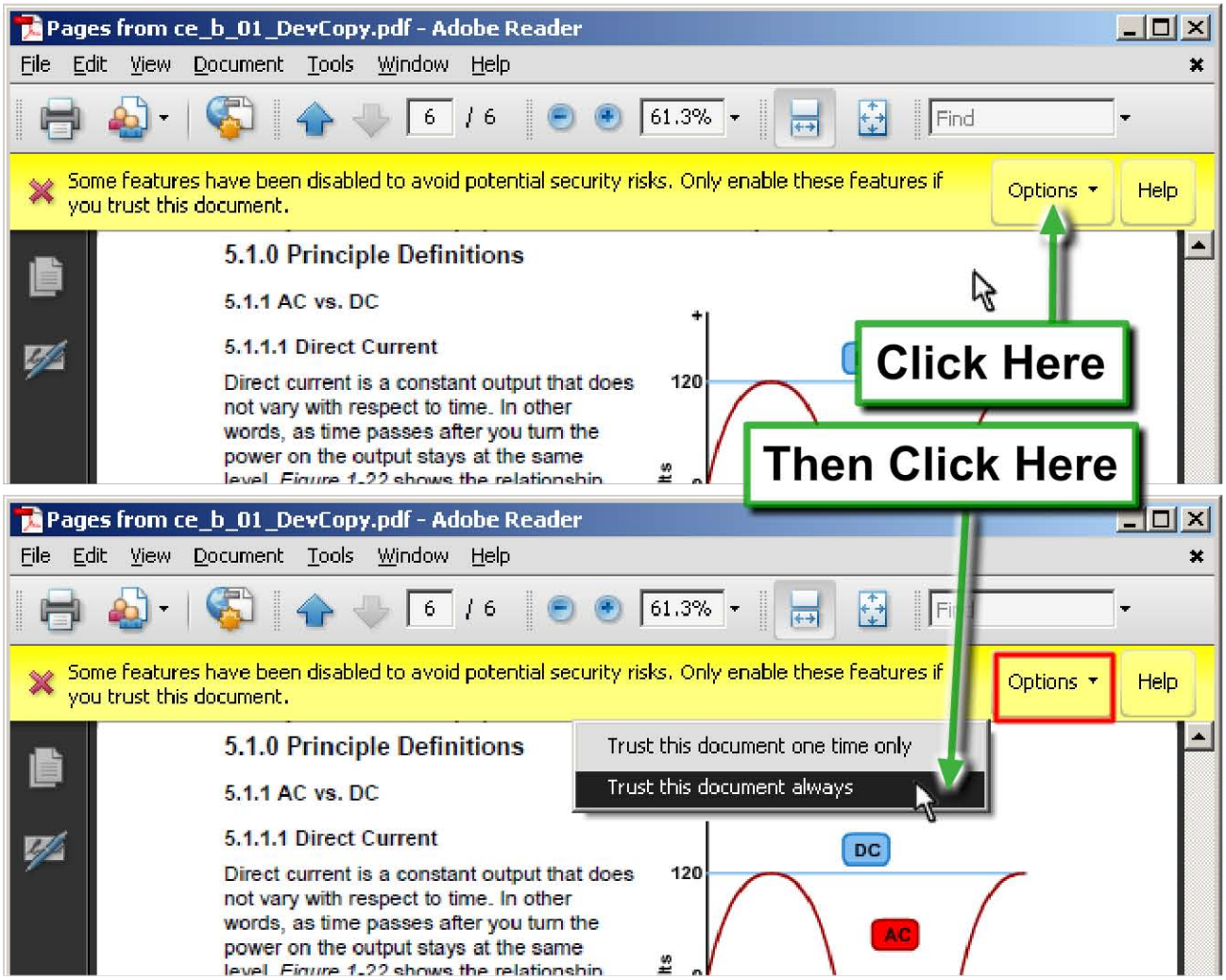
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Chapter 2

Patient Movement Operations

Topics

1.0.0 Landing Zone/Site/Points

2.0.0 Preparing a Landing Zone

3.0.0 Medical Evacuation Request

4.0.0 MEDEVAC Procedures

To hear audio, click on the icon: 

Overview

Medical Evacuation (MEDEVAC) and casualty care are responsibilities shared by everyone involved with command and control activities. All personnel assigned to the unit must be aware of casualty facilities and MEDEVAC procedures. A well-developed MEDEVAC plan will not only save lives but will also ensure the unit is ready for present and future missions. The loss of any Seabee because of a poor MEDEVAC plan is inexcusable and can result in a disastrous lack of firepower. This chapter covers setting up a landing zone, the landing zone brief, the MEDEVAC request, and the MEDEVAC procedures.

Objectives

When you have completed this chapter, you will be able to do the following:

1. Describe in detail the setup, control, preparation, and difference between pre-determined and hasty landing zones, landing sites, and landing points.
2. Describe the contents of a landing zone brief.
3. Describe the contents of a casualty evacuation request and medical evacuation procedures.

Prerequisites

There are no prerequisites for completing this manual.

Features of this Manual

This manual has several features which make it easy to use online.

- Figure and table numbers are italicized within the handbook text. Figure and table reference numbers are conveniently located next to (or near) the applicable handbook text.
- Audio and video clips are included in the text, with italicized instructions telling you where to click to activate the appropriate link.

- Review questions are included at the end of this chapter as the chapter assignment. To submit assignments log into https://www.courses.netc.navy.mil, go to “Student Services”, in the drop down click on “Active Courses”, go to "View/Submit Answers" next to the course you wish to submit answers for. Assignments may be submitted to the above Web site as they are completed, and instant scoring is available. Your completion letter is available as soon as you pass all assignments.
- A form at the end of each chapter allows your input for improving the manual or correcting errors to be brought to the attention of CSFE’s Technical Review Committee. Your input is important and will help keep this manual up to date and free of technical errors.

1.0.0 LANDING ZONE/SITE/POINTS

A helicopter Landing Zone (LZ) is a specified ground area that is suitable for landing helicopters to embark or disembark troops or cargo. An LZ is designated by a code name. It may include one or more landing sites.

Depending upon the terrain and the size of the unit, the LZ can be divided into several landing sites. A landing site is a specific location within an LZ in which a single flight of helicopters may land to embark or disembark troops or cargo, or perform MEDEVACs. Landing sites are designated by color, such as landing site red. A landing site contains one or more landing points (*Figure 2-1*). MEDEVACs often consist of a single helicopter requiring just one landing site/point. The large landing zone depicted in *Figure 2-1* is normally set up for large scale insertion/extraction operations and would only be used in the case of a mass casualty MEDEVAC.

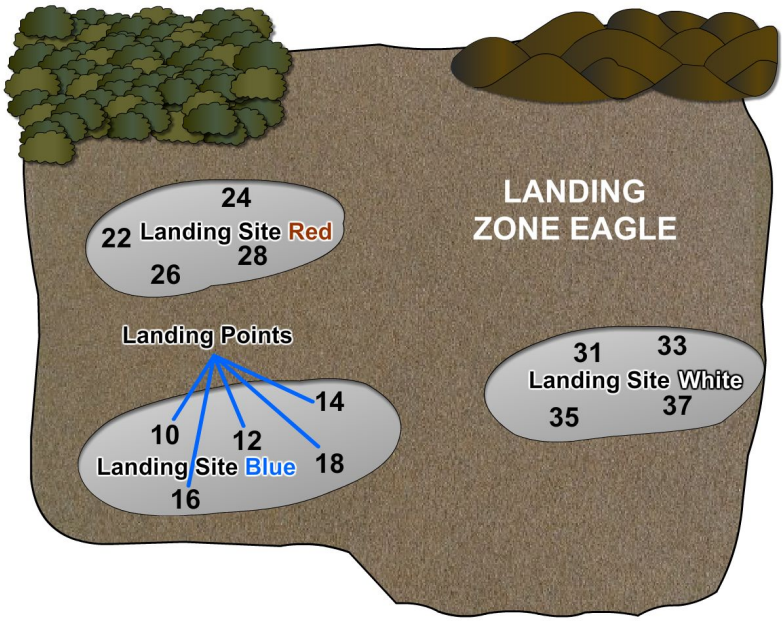


Figure 2-1 — Helicopter landing zone (LZ).

A helicopter landing point is an area within a landing site where an individual helicopter can land. Landing points are designated by two-digit numbers, such as landing point 12. The landing points are identified by the use of smoke or air panels. For night operations, the landing points can be marked with some type of low-intensity light.

NOTE

In most cases, a Seabee unit will be required to construct an LZ with one landing site and one landing point for resupplies, troop movement, or MEDEVACs.

1.1.0 Preparation of the Landing Zone (LZ)

When planning the preparation of an LZ, several factors should be taken into consideration. First, it should be clear what type of helicopters would be using the LZ. The Combat Operations Center (COC) can provide this type of information. Second, the Seabee unit's position in relation to the enemy must be considered. Security troops must establish a 360-degree perimeter around the LZ to defend the area. A third factor is the time it will take to prepare the LZ. The fourth factor considered is the equipment needed to prepare the LZ.

NOTE

Ensure that Pre-Combat Checks (PCCs) and Pre-Combat Inspections (PCIs) are performed on the equipment needed to prepare the LZ.

1.1.1 Approaches and Exits

To the greatest extent possible, the approaches to the LZ and exits from the LZ should be free of major obstacles that might obstruct landing or takeoffs. Ideally, to land or take off, the approach or departure path should be facing into the wind, over the lowest obstacle, and along the long axis of the site. For LZs that are bordered on the approach and departure ends by tall obstacles such as trees, power lines, or steep mountains, a daytime obstacle-to-landing point ratio of 10 to 1 should be considered to provide for a safe LZ clearance. This means that the distance a landing point is located from an obstacle should be ten times the height of the obstacle. For nighttime landings the ratio is increased to 14:1.

Example: A helicopter landing or taking off near a 10-meter tree during daylight needs at least 100 meters of horizontal clearance (*Figure 2-2*).

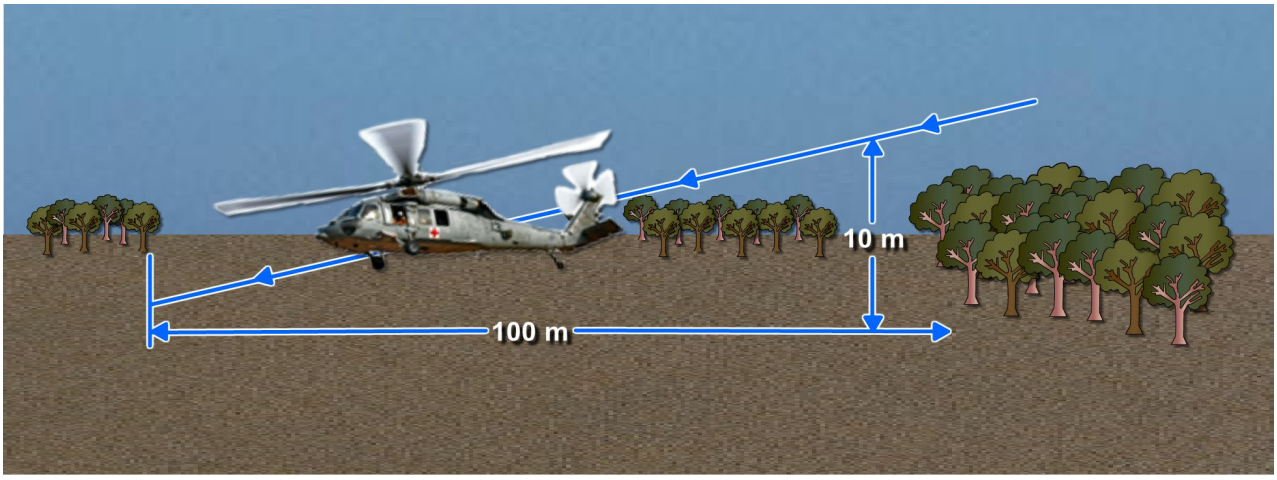


Figure 2-2 — Obstacle clearance.

1.1.2 Ground Obstacles

Seabees must do everything they can to improve landing point surfaces so aircraft can land. In general, an obstacle is a stump, rock, hole, or other object, 0.45 meters (18 inches) or larger, that might damage the aircraft or impede aircraft landing. No obstacles can be in the area where a helicopter is going to land.

1.1.3 Ground Slope

Ground slope has a considerable effect on selecting a landing site or landing point within the LZ. A helicopter cannot land safely in locations where the ground slopes more than 15 degrees. When pilots land on a slope, they will land upslope.

1.1.4 Surface Conditions

Mud, excessive dirt/sand, snow and loose debris are considered undesirable surface conditions for helicopters. Mud causes a helicopter to become bogged down. Excessive dirt/sand (brownout) or snow (whiteout) reduces visibility and compromises the location of the site. Loose debris is dangerous as it may cause injury to nearby personnel or damage to the helicopter when swept up by the helicopter's rotor wash.

1.1.5 Winds

Every attempt should be made to allow the helicopter to land into the wind. Depending on the helicopter's capabilities, the pilot may be able land with a crosswind of 0 to 9 knots or a tailwind up to 5 knots. When the wind at ground level is 10 knots or greater, the helicopter must land into the wind.

1.2.0 Landing Site Dimensions

Landing site dimensions vary, depending on the number of landing points required. For each landing point, a fuselage safe circle is cleared of all obstacles, such as stumps, rocks, or bushes. A rotor-safe circle free of all obstacles that could obstruct the rotor blades should be cleared (*Figure 2-3*). When there is to be more than one landing point within the landing site, the landing points should be separated so there is no overlap of landing point clearance areas. *Table 2-1* shows the landing point diameters for common helicopters.

Table 2-1 — Landing Point Diameters

Type Aircraft	Rotor Diameter	Landing Point Diameter Day/Night
UH-1	15 meters	61/76 meters
H-60	18 meters	64/79 meters
CH-46	26 meters	72/87 meters
CH-53	31 meters	77/92 meters

1.3.0 Marking the Landing Zone

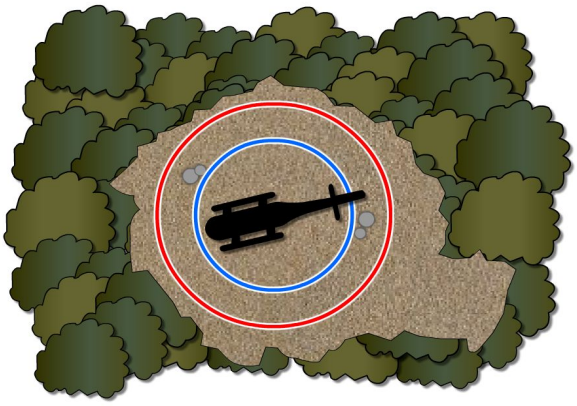
Once you have established the LZ, the landing sites, and the landing points, you need to direct the helicopter to the location of the LZ. The proper marking of the LZ will aid the pilot in locating it. For daylight operations, use only panels or some other minimal identification means to mark LZs. Smoke might also be used to identify an LZ and assist the pilot in determining wind conditions. For night operations, yellow, orange, or infrared chemical lights are used to show direction and mark individual landing points.

WARNING

Smoke is easily identified by the enemy; use only as needed and do not tell the pilot the color of the smoke; you should ask the pilot to acknowledge the color after the smoke grenade is set off.

1.3.1 Landing Zone Brief

When a helicopter has to land for troop pickup/drop, resupply, MEDEVAC, or for any other reason, the pilot must have certain information to ensure a safe landing. This information is provided in a landing zone brief (*Figure 2-4*).



Blue = Fuselage-safe area
Red = Rotor-safe area

Figure 2-3 — Landing clearance areas.

Each line of the landing zone brief is explained below.

Line 1: The mission number will be assigned to the pilot by Direct Air Support Center (DASC) personnel. Under normal circumstance this line is not used by Seabee units.

Line 2: Give at least a six-digit grid to identify the location of the LZ.

Line 3: This is your call sign.

Line 4: This is self-explanatory.

Line 5: List the methods of marking the LZ. For example, smoke, air panels, signal mirrors, lights, and so forth.

Line 6: State the direction from which the wind is coming and the wind speed, if known.

Line 7: State the elevation of the LZ (air is thinner at higher altitudes) and the size of the LZ.

Line 8: An obstacle is anything higher or deeper than 0.45 meters (18 inches) on the LZ or anything near the LZ that may create a hazard to the aircraft. Explain where the obstacles are in relation to the LZ.

Line 9: State where friendly troops are in relation to the LZ.

Line 10: State the location of the enemy in relation to the LZ.

Line 11: This is self-explanatory.

Line 12: This is self-explanatory.

Line 13: State the direction and distance the helicopter can fire without endangering friendly troops.

Line 14: If possible, the approach heading should be into the wind. The retirement or departure should be clear of enemy positions.

Line 15: The different helicopters used for MEDEVAC operations vary in the number of personnel and equipment they can transport. Increased elevation and temperature decrease the weight capacity of a helicopter. A helicopter pilot must know the exact number of personnel and what type of equipment is to be transported.

Line 16: Show anything not previously mentioned that could help the pilot in any way.

SAMPLE LANDING ZONE BRIEF	
TRANSMISSION ITEM	**YOU SAY**
1. Mission Number	***(Provided by Higher Authority)***
2. Location: COOR/RAD/DME	***Grid 456129***
3. Unit Call Sign	***A4F***
4. Frequency	***Primary FM 30.50, Secondary FM 45.10***
***5. Landing Zone Marking**	***Signal Mirror, Air Panels***
****6. Wind Direction/Velocity**	***Wind from East at 15 knots***
7. Elevation/Size	***Elevation 2,500 Feet Size 180 Feet in Diameter***
8. Obstacles	***40 Foot Tree 90 Meter South of Landing Zone***
9. Friendly Positions: Direction/Distance	***Friendlies Southeast 100 Meters***
10. Enemy Positions: Direction/Distance	***Enemy Southeast 500 Meters***
11. Last Fire Received	***1800, Small Arms***
12. Direction of Fire/Distance	***Enemy Fire from Southeast 500 Meters***
13. Clearance to Fire; Direction/Distance	***South and Southeast 150 Meters from Landing Zone***
14. Approach/Retirement (Recommended)	***Approach Heading 90º Return Heading 350º***
15. Personnel/Equipment	***Personnel with Packs & Rifles***
16. Other	***5º Slope***

* **CAUTION:** As a Security Caution, if you use smoke to mark landing zone, **DO NOT** tell pilot what color smoke will be. Ask pilot to acknowledge color after grenade is set off.

** **Determine and report wind condition and direction:**

For angle of smoke method, observe smoke blowing if the wind is blowing.

SMOKE STRAIGHT UP	**NO WIND**
SMOKE 30º	**WIND at 3-5 Knots**
SMOKE 60º	**WIND at 5-7 Knots**
SMOKE ALONG GROUND	**WIND in Excess of 8 Knots**

Figure 2-4 — Sample landing zone brief.

2.0.0 PREPARING A LANDING ZONE

The Mission Commander (MC), whether it be for convoy operations or patrols, is responsible for knowing the best utilization of aviation assets to support convoy operations. Aviation can be a force multiplier for the MC where the physical presence of aircraft can dissuade an attack or cause the enemy to break contact. Aviation support is not limited to Close Air Support (CAS), pre-planned or immediate operations, and MEDEVAC/Casualty Evacuation (CASEVAC); aircraft can also be an effective tool for

Intelligence, Surveillance, and Reconnaissance (ISR), Electronic Warfare (EW), or show of force operations. When direct support aviation response time is critical, coordinate request procedures early in the planning process.

Aviation units supporting the convoy will need to know the following information:

- Mission route overview/objective
- Enemy situation – Identify the locations of probable contact and the enemy's most probable Course of Action (COA) and most dangerous COA.
- Friendly situation – Identify known friendlies in the Area of Operation (AO). Identify the mission frequency and call sign, as well as day and night markings. During convoy operations, consider marking the roofs of vehicles with call signs and frequencies; however, the tactical situation and operational security may prohibit this Tactic, Technique, and Procedure (TTP).
- Primary/alternate routes – Identify the start point, checkpoints along the route, terrain features, planned halt points, possible danger areas, preplanned landing zones, and the release point.

The MC has the responsibility for planning the utilization of air assets in CAS and MEDEVAC/CASEVAC along the convoy or patrol route. Communications should be pre-planned and coordinated when air support is available. The MC must also know the emergency frequencies for MEDEVAC/CASEVAC and air requests (Air Support Operations Center/Direct Air Support Center [ASOC/DASC]) along the route and brief this information during the Mission Operation Order (OPORD) Brief format.

Dedicated support aircraft should be given mission information for convoys, number of vehicles, vehicle markings, Joint Terminal Attack Controller (JTAC)/Forward Air Controller (FAC) frequencies/call signs, route confirmation, mission timeline, and desired type of support.

2.1.0 Placement for Security

In tactical convoy operations, the techniques used requires vehicle placement for security such as using the vehicle to physically block a road to prevent traffic from feeder roads, traffic circles, and on/off ramps from intermingling with the convoy.

Vehicle placement within the convoy should be in conjunction with the four principles of mounted movement for tactical convoys, which are:

1. 360-degree security – Combine maximum all-around visibility for situational awareness with interlocking sectors of fire and mutual support. Personnel should also be aware of what is above and below their position. Situational awareness should focus on approaching vehicles, potential Improvised Explosive Devices (IEDs)/mines, suspicious wires/antennae, canalizing terrain, and suspicious individuals or groups.
2. Deterrence – Present a menacing, aggressive, and professional posture that demonstrates readiness and willingness to engage. An aggressive posture deters the enemy from approaching or engaging.
3. Agility – Adapt to conditions set by the environment or the enemy.
4. Unpredictability – Minimize the enemy's ability to predict time, route, composition, or purpose of the convoy.

2.2.0 Personnel Placement for Security

Corpsmen and Combat Lifesavers (CLS) are responsible for all medical equipment assigned and they should be dispersed throughout the convoy. They also:

- Provide and supervise medical treatment.
- Perform triage, initial resuscitation/stabilization, and preparation for evacuation of sick, injured, or wounded personnel.
- Supervise evacuation of casualties.
- Coordinate the actions of Aid and Litter (A&L) teams.

The A&L teams usually have a corpsman assigned and are responsible for preparing casualties for transport and/or triage. A&L teams transport casualties from the point of injury to a casualty collection point or ambulance. The teams are responsible for all A&L equipment and they should be assigned throughout the convoy. They should consist of at least two people per team.

The LZ team is responsible for establishing, marking, and confirming the LZ is clear for MEDEVAC or CASEVAC, including a walk down of the LZ to ensure it is clear of foreign objects and debris. The team is responsible for communicating with the helicopter and should be familiar with rotary wing LZ requirements. Although the LZ team may have designated a specific landing point for the helicopter, the pilot makes the final determination on where to land.

2.3.0 Collapsing the Landing Zone after Lift-off

After the MEDEVAC helicopter departs, all convoy elements and personnel should return to their assigned positions. Although the requirements may vary based on the specific operating area, the MC is required to conduct a certain set of procedures.

Recommended actions that a MC or AMC can employ include:

- Place vehicles in convoy order.
- Confirm manifest (who and what is in each vehicle).
- Conduct communication/Counter Radio-controlled IED Electronic Warfare (CREW) system checks.
- Inform personnel of last minute changes to movement plan.
- Update strip maps.
- Update intelligence.

Ground-based EW checks should be conducted prior to continuing the convoy. Each element leader with radio communication should contact the MC and report their status.

The MC begins to monitor and control vehicle dispersion, convoy speed, element leader actions, and available aviation. The MC should also verify the following information (in accordance with established or local Standard Operating Procedures [SOPs]).

- Number of vehicles
- Number of personnel
- Convoy destination

3.0.0 MEDICAL EVACUATION REQUEST

The DASC and Patient Evacuation Team (PET) receive MEDEVAC request by way of the nine-line and CASEVAC request over the designated communications network. The PET then determines the appropriate means of patient movement and the destination for appropriate health care support. If air is the appropriate evacuation means, the DASC coordinates air support. If ground evacuation is required or more appropriate, the PET informs the requesting unit to coordinate patient movement with the DASC logistics officer. In a combat situation, the COC routes the request from the battalion aid station to higher headquarters. Higher headquarters will route the request to DASC personnel. In extreme situations where communication to the COC or the battalion aid station is interrupted, platoon commanders or company commanders should have the knowledge and capabilities to request a MEDEVAC. The Operation Plan (OPLAN) will explain the routing of a CASEVAC request. A CASEVAC request does not actually bring the helicopter to the LZ. The request simply identifies the requesting unit, location of the LZ, and describes the casualty. The DASC will make the necessary arrangements/decisions concerning the CASEVAC request.

3.1.0 Medical Evacuation versus Casualty Evacuation

Although the terms Medical Evacuation and Casualty Evacuation are at times used interchangeably, there is a distinct difference between the two.

3.1.1 Medical Evacuation

Medical evacuation is performed by dedicated, standardized medical evacuation platforms, with medical professionals who provide the timely, efficient movement and en route care of the wounded, injured, or ill persons from the battlefield and/or other locations to medical treatment facilities.

3.1.2 Casualty Evacuation

Casualty evacuation is a term used to refer to the movement of casualties aboard nonmedical vehicles or aircraft. Whenever dedicated medical evacuation platforms (ground and air) are available, they should be utilized to ensure casualties receive proper en route medical care.

3.2.0 Nine-Line CASEVAC

A nine-line CASEVAC request is a standard format used by the Armed Forces for coordinating the evacuation of casualties. CASEVAC request transmissions should be by the most direct communication means available to the medical unit controlling evacuation assets. The means and frequencies used will depend on the organization, availability, and location in the AOs as well as the distance between units.

The information must be clear, concise, and easily transmitted. This is done by use of the authorized brevity code. The authorized brevity code is a series of phonetic letters, numbers, and basic descriptive terminology used to transmit CASEVAC information. These codes indicate the standard information required for a CASEVAC commonly known as the “Nine Line.” This message is verbally transmitted in numerical “line” sequence utilizing the following brevity codes:

> Line 1 – Location – location of the LZ where the casualties are to be picked up. This information will be transmitted in the form of a grid coordinate.

Line 2 – Radio Frequency, Call Sign – radio frequency and call sign that will be used by the ground unit at the LZ. You should know this information before every operation.

Line 3 – Precedence – number of casualties by precedence. Use the following codes:

- Alpha – Urgent (1 hour)
- Bravo – Urgent Surgical (1 hour)
- Charlie – Priority (4 – 6 hours)
- Delta – Routine
- Echo – Convenience

Line 4 – Special Equipment – identifies any special equipment that will be needed, such as a hoist in the case where a helicopter cannot land. Use the following codes:

- Alpha – none
- Bravo – hoist
- Charlie – extraction equipment
- Delta – ventilator

Line 5 – Number of Patients by Type – number of patients who are ambulatory and the number of litter patients. This determines whether or not the helicopter should be configured to carry litters. Use the following codes:

- Lima – litter patients
- Alpha – ambulatory patients

Line 6 – Security of Pickup Site – whether or not the enemy is near the LZ. If all of your casualties are routine and the LZ is not secured, then you may not get your requested CASEVAC approved. Use the following codes:

- November – no enemy troops in area
- Papa – possible enemy troops (approach with caution)
- Echo – enemy troops in area (approach with caution)
- X-ray – enemy troops in area (armed escort required)

Line 7 – Method of Marking Pickup Site – method that you will use to mark your LZ and then ask the pilot to identify. Use the following codes:

- Alpha – panels (color)
- Bravo – pyrotechnic signal (color)
- Charlie – smoke signal (color)
- Delta – none
- Echo – other

Line 8 – Patient's Nationality and Status – provide the patient's nationality and combatant status. Use the following codes:

- Alpha – U.S. military

- Bravo – U.S. civilian
- Charlie – non-U.S. military
- Delta – non-U.S. civilian
- Echo – enemy prisoner of war

Line 9 – CBRN Contamination – whether the LZ has been contaminated with NBC agents. Use the following codes:

- Charlie – chemical
- Bravo – biological
- Romeo – radiological
- November – nuclear

NOTE

Some references call for a ten-line CASEVAC report. The ten-line report contains the same information as the nine-line with the tenth line providing the patient's full name, SSN last 4, and unit.

The format in *Figure 2-5* contains all the information required in a CASEVAC request. The format may change slightly at different organizations.

Example: During a routine patrol, your platoon takes two casualties. One receives a gunshot wound to his right arm. The other receives a gunshot wound to his abdomen and has signs and symptoms of shock associated with internal hemorrhage. While you perform initial treatment, members of your platoon determine that the closest potential landing zone for a helicopter is 300 feet to the West. Its grid location on the map is DH 1234 5678. Your call sign is Blue Thunder and your unit is operating on the frequency 99.65. Your unit commander informs you that the site is secure and will be marked with green smoke.

The following would be your nine-line radio CASEVAC request transmission:

Line 1: DH 12345678

Line 2: 99.65 Blue Thunder

Line 3: 1 Bravo, 1 Charlie

Line 4: Alpha

Line 5: 1 Lima, 1 Alpha

Line 6: November

Line 7: Charlie

Line 8: 2 Alpha

Line 9: None

Figure 2-5 — Nine-Line CASEVAC request example.

4.0.0 MEDEVAC PROCEDURES

The importance of a well-thought-out MEDEVAC plan cannot be emphasized enough. The lives of everyone in the unit depend on it. All personnel assigned to the unit must know the MEDEVAC procedures. The elements requiring special consideration are litter bearers, ambulance, Battalion Aid Station (BAS), and LZ security.

4.1.0 Litter Bearers

Litter bearers are assigned as stretcher teams with the COC being the prime coordinator for their utilization. The COC will inform the BAS for their assistance. Many variations occur however, and it must be emphasized that this source of litter bearers is not taken for granted. Platoon commanders and the company chief must be assured of an adequate number of litter teams. Eight personnel per company are considered adequate unless mass casualties are anticipated.

When a casualty occurs, the wounded person, if possible, should go to a relatively protected location away from the defensive lines or FEBA. The word is then quietly passed to the Command Post (CP) for a corpsman or litter bearer. The CP will then inform the COC for action. Passing the word back quietly and expeditiously is important.

Loud shouting for a corpsman by all the troops in the vicinity can have a demoralizing effect on other troops. Incidents have occurred when inexperienced troops have panicked because of frenzied shouting of the whole squad for a corpsman to take care of a single casualty.

Litter bearers are vital for the survival of a casualty, in the maintenance of good morale, and most of all to prevent loss of firepower for the defending platoons. For these reasons, it is vital that provisions for litter bearers be included in the MEDEVAC plan.

4.2.0 Ambulance

An ambulance is normally stationed at the BAS and functions as far forward as the terrain and enemy activity permits. The ambulance is primarily used to prevent the prolonged carrying of litters. When the ambulance is called forward, explicit instructions are given as to routes taken and the exact location to which it is to go. Ambulances frequently draw enemy mortar and artillery fire; therefore, they should not be brought up to an area under direct observation of the enemy.

4.3.0 Battalion Aid Station (BAS)

The BAS is the central location that all casualties are taken to before any type of evacuation. Medical staff personnel are the only personnel qualified in determining whether a casualty must be evacuated (commonly referred to by the term *MEDEVAC'd).* Other functions of the BAS are to give further first aid, check for continued hemorrhage, re-bandage where needed, and apply splints if needed. Seriously wounded casualties are given supportive therapy for shock in the form of plasma and serum albumen in preparation for a MEDEVAC. Once the medical staff has determined the priority of the casualties requiring a MEDEVAC and those not expected to survive the flight, the COC is contacted and sends a MEDEVAC request to higher authority. It is recommended that the chaplain is available for those not expected to survive.

4.4.0 Security

Once the MEDEVAC request has been sent to higher authority, the COC will quickly activate the security team. The security team (React Force) is responsible for securing the LZ, establishing communication, landing, and assisting the loading of the helicopter. Also controlled by the security team is the staging area for those requiring MEDEVAC. A member of the security team is established as a "Pit Boss" that will control the litter bearers and all movement of the wounded to the LZ.

4.4.1 Securing the LZ

Weapons and personnel required to secure an LZ are dictated by the size and terrain of the LZ. A 360-degree perimeter must be established around the LZ. All likely avenues of approach and sectors of fire must be covered. Helicopter pilots will not land if they feel the LZ is not properly secured.

4.4.2 Establishing Communication

Simultaneously, communication personnel assigned to the security team will establish communication at the landing site. It is important that communication personnel know the proper mission frequency for contacting the pilot and keeping in contact with the COC. The type of communication equipment needed depends on the terrain of the LZ. Usually, two PRC 119As that are equipped with an AS-3683 10-foot whip antenna are

used. Two radios are required because communication must be maintained with both the pilot and the COC.

4.4.3 Casualties

Once the LZ has been secured, casualties are transported from the BAS to the landing point by any means necessary. The casualties are arranged in priorities and according to the capacity of the helicopter.

When en route to the LZ, the helicopter pilot should inform the communicator at the LZ of the capacity of the helicopter and if a corpsman is on board the helicopter. For example, the pilot will inform the communicator that the helicopter has room for three litters and one walk-on. The medical staff will then arrange the casualties in that order. Casualties must be tagged with their name, rank, SSN, unit, and type of injuries.

4.4.4 Landing and Loading the Helicopter

Once the pilot has acknowledged the location of the LZ by means discussed previously in this chapter, LSE signals are used to land the helicopter. Only one person is designated as the landing signalman. Once the helicopter has landed and a representative disembarks the aircraft, the landing signalman directs the representative to the senior medical staff personnel in charge. The helicopter representative will coordinate with the medical staff representative on how the casualties are to be loaded on the aircraft. Once all the casualties have been MEDEVAC'd, the COC will send a Size, Activity, Location, Unit/Uniform, Time, Equipment (SALUTE) and Casualty Report (CASREP) to higher headquarters.

Summary

Evacuation by helicopter is the ideal evacuation method. This type of evacuation is usually available day or night. However, helicopters should be used with discretion as their number is usually limited and they draw enemy fire when observed. The individual Seabee should be taught basic first aid and, if wounded, to remain calm. If the wound is minor, a buddy should apply a battle dressing and continue to deliver fire until the action lessens. The ability of a buddy to give first aid depends on the tactical situation. Properly establishing an LZ and routes to the LZ from the BAS is important to any MEDEVAC plan. Pilots are just as concerned for their safety as you are about your troops' safety. Proper setup and control of MEDEVAC procedures are critical and will ensure that the individual Seabee will be back to build and fight another day.

Assignment 3

Objectives

1. Describe in detail the setup, control, preparation, and difference between pre-determined and hasty landing zones, landing sites, and landing points.
2. Describe the contents of a landing zone brief.
3. Describe the contents of a casualty evacuation request and medical evacuation procedures.

Questions

1. When landing helicopters, what is the specified ground area that is identified by color?

    1. Landing zone
    2. Landing site
    3. Landing point
    4. Landing station

2. What area is identified by a code name when landing helicopters?

    1. Landing zone
    2. Landing site
    3. Landing point
    4. Landing station

3. What area is identified by a two-digit number when landing helicopters?

    1. Landing zone
    2. Landing site
    3. Landing point
    4. Landing station

4. In most cases, how many landing sites are Seabee units required to construct?

    1. Zero
    2. One
    3. Two
    4. Three

5. When preparing a landing zone, what data is the first factor that must be considered?

    1. Terrain
    2. Equipment
    3. Type of helicopter using the landing zone
    4. Defense of the landing zone

6. When constructing a landing zone in the vicinity of a 12-meter tall tree, what distance, in meters, must the landing point be from the tree for a daylight landing?

    1. 96
    2. 120
    3. 144
    4. 168

7. When constructing a landing zone in the vicinity of a 12-meter tall tree, what distance, in meters, must the landing point be from the tree for a nighttime landing?

    1. 96
    2. 120
    3. 144
    4. 168

8. When preparing a landing zone, obstacles, such as rocks and stumps, should not exceed what height in meters?

    1. 0.35
    2. 0.45
    3. 0.55
    4. 0.65

9. In order for helicopters to land safely, landing points can NOT have a ground slope exceeding how many degrees?

    1. 7
    2. 9
    3. 12
    4. 15

10. In what direction do helicopter pilots prefer for landing on a slope?

    1. Parallel to the slope
    2. Perpendicular to the slope
    3. Downslope
    4. Upslope

11. A helicopter is required to land into the wind when the ground level wind is at or exceeds how many knots?

    1. 3
    2. 5
    3. 10
    4. 15

12. When using smoke to mark a landing zone, what should the pilot acknowledge after the smoke grenade is set off?

    1. The heading direction
    2. The azimuth of degrees from landing zone
    3. The color of the smoke
    4. The angle of the smoke

13. In addition to reduced visibility, for what other reason should the landing zone surface not have excessive dirt or snow?

    1. It can compromise the location of the site
    2. The helicopter can become bogged down
    3. It can damage the helicopter
    4. The patients cannot access the helicopter

14. Why should smoke be used only when needed to signal the helicopter?

    1. It interferes with communication
    2. It reduces the pilot's visibility
    3. It is easily identified by the enemy
    4. It will obscure the landing zone

15. What type of brief is provided to the pilot to ensure a safe landing?

    1. MEDEVAC
    2. Surface conditions
    3. Weather
    4. Landing zone

16. Who has the responsibility for planning the utilization of air assets for MEDEVAC along a convoy route?

    1. Combat operation center
    2. Mission commander
    3. Command post
    4. Communications officer

17. What command element/unit makes the final decision concerning a CASEVAC/MEDEVAC request?

    1. Direct air support center
    2. Combat operation center
    3. Joint terminal attack controller
    4. Battalion aid station

18. Upon receipt of a MEDEVAC request, what group determines the appropriate means of patient movement and the destination for appropriate care?

    1. Battalion aid station
    2. Direct air support center
    3. Combat operation center
    4. Patient evacuation team

19. What type of evacuation is the movement of casualties by nonmedical vehicles or aircraft?

    1. Emergency
    2. Casualty
    3. Situational
    4. Medical

20. On a CASEVAC request, what is the highest precedence used to prioritize casualties?

    1. Priority surgical
    2. Urgent surgical
    3. Priority
    4. Urgent

21. Under an ideal situation, litter bearers should be personnel from what company?

    1. Headquarters
    2. Alpha
    3. Bravo
    4. Delta

22. What is the primary function of an ambulance?

    1. Provide a mobile sterile environment for battlefield surgery
    2. Transport ambulatory battlefield casualties to the LZ
    3. Prevent the prolonged carrying of litters
    4. Provide medical supplies for the companies

23. By what method are casualties transported from the battalion aid station to the LZ?

    1. Walk or wheelchair, as applicable
    2. Litter bearers
    3. Ambulance
    4. Any means necessary

24. Before the arrival of a helicopter, casualties are arranged in priorities and according to what?

    1. The capacity of the helicopter
    2. Individuals' ranks
    3. Whoever has waited the longest
    4. Whoever has waited the least

25. After the MEDEVAC has been accomplished, what group is responsible for sending a casualty report to higher headquarters?

    1. Command post
    2. Combat operation center
    3. Battalion aid station
    4. Helicopter crew

Assignment 2

Patient Movement Operations

Directions: Select the correct answer from the list of alternates below each question in the end of chapter assignment. Write in the answer next to the corresponding question number below. Use this answer sheet as a reference to completing the online assignment related to this assignment.

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Additional Resources and References

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

Tactical Convoy OPS, U.S. Navy NTTP 4-01.3

Commander's Tactical Handbook, U.S. Marine Corps MCRP 3-11.1A

Patient Movement, U.S. Navy NTTP 4-02.2M

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(optional) Corrective action: _____
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(optional) Supporting reference(s): _____
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Your email address, if a response is requested: _____

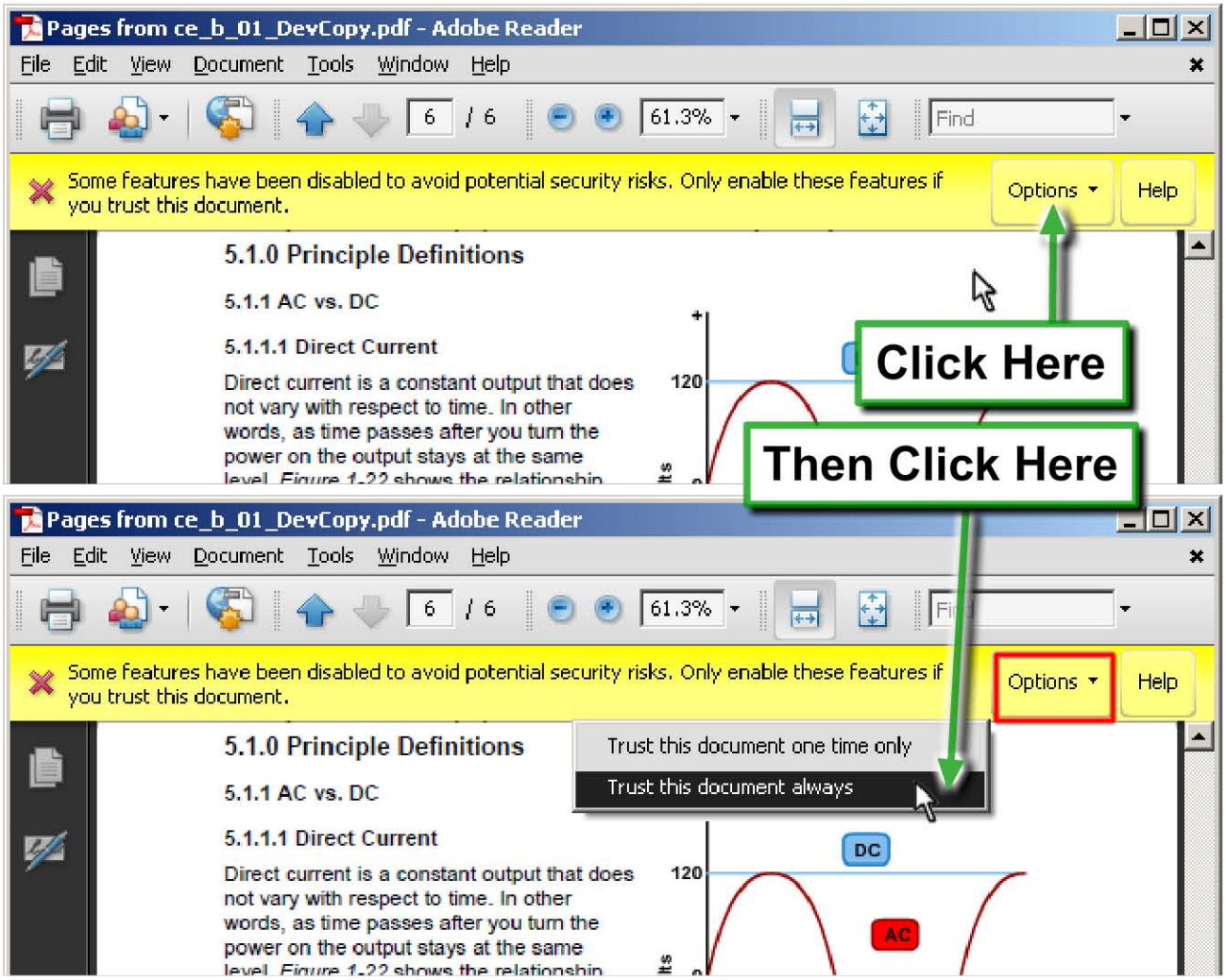
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Chapter 3

Planning and Development of Defensive Tactics

Topic

1.0.0 Fundamentals of Defense

2.0.0 The Squad in Defense

3.0.0 The Platoon in Defense

4.0.0 Crew-Served Weapons

5.0.0 Range Cards

To hear audio, click on the icon: 

Overview

Seabee battalions are primarily a defensive unit during combat and must consider the planning of defensive tactics as top priority. Poor planning of defensive tactics will not only endanger the battalion but will also endanger all other units involved with the operation. Other units assigned to the theater of operation depend on Seabee units to defend their area of responsibility. Defensive operations for Seabee battalions include those actions taken for destroying or trapping a hostile force, denying an enemy access to an area, and reducing the capabilities of the enemy. The goal is to accomplish these actions with minimum or no losses to the battalion. This chapter covers in depth the fundamentals of defense; the types of defense; and the platoon, squad, and fire team makeup and defensive positions. Also covered are crew-served weapons employment and the fire team, squad, and platoon fire plans

Objectives

When you have completed this chapter, you will be able to:

1. Describe the organization and positioning of a squad in the defense.
2. Describe the organization and positioning of a platoon in the defense.
3. Determine the best location for employing crew-served weapons and the role of each crew-served weapon in the defense.
4. Explain the importance of and the procedures for preparing a range card.

PREREQUISITES

There are no prerequisites for completing this manual.

FEATURES OF THIS MANUAL

This manual has several features which make it easy to use online.

- Figure and table numbers are italicized within the handbook text. Figure and table reference numbers are conveniently located next to (or near) the applicable handbook text.

- Audio and video clips are included in the text, with italicized instructions telling you where to click to activate the appropriate link.
- Review questions are included at the end of this chapter as the chapter assignment. To submit assignments log into https://www.courses.netc.navy.mil, go to “Student Services”, in the drop down click on “Active Courses”, go to "View/Submit Answers" next to the course you wish to submit answers for. Assignments may be submitted to the above Web site as they are completed, and instant scoring is available. Your completion letter is available as soon as you pass all assignments.
- A form at the end of each chapter allows your input for improving the manual or correcting errors to be brought to the attention of CSFE’s Technical Review Committee. Your input is important and will help keep this manual up to date and free of technical errors.

1.0.0 FUNDAMENTALS OF DEFENSE

1.1.0 Important Terms

1.1.1 Sector of Fire. A sector of fire is an area to be covered by fire. Sectors of fire are assigned to individuals, fire teams, squads, and crew-served weapons. They should overlap with others for mutual support. They are triangular/wedge-shaped with two lateral limits and a forward limit. See *Figure 3-1*.

Lateral Limits – Left and right side of the sector of fire; preferably using terrain features near the forward limit.

Forward Limit – The range at which a weapon opens fire on the enemy; can be up to the maximum range of the weapon. Use a terrain feature when possible.

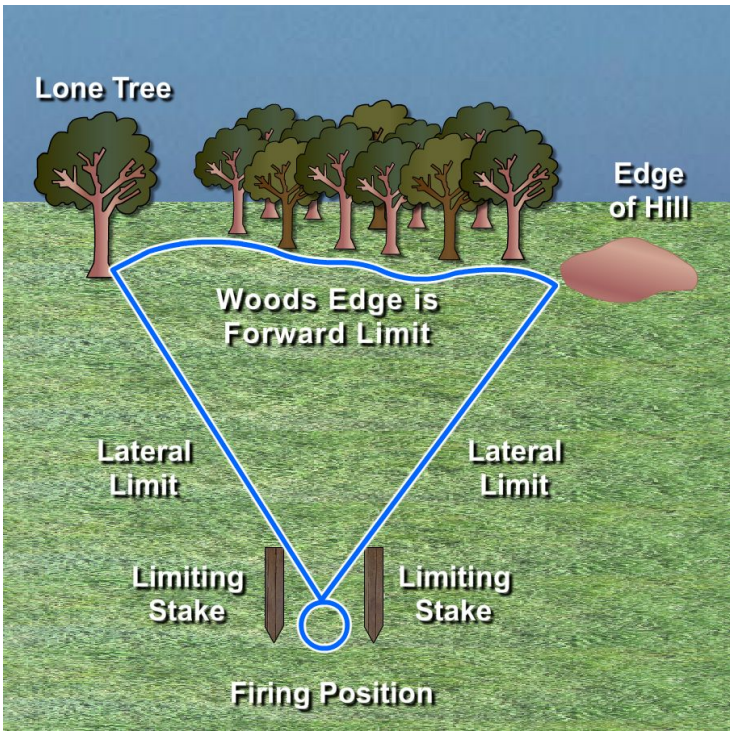


Figure 3-1 — Sector of fire.

1.1.2 Principal Direction of Fire (PDF). The principal direction of fire, or PDF, is the direction, within the sector of fire, of the primary mission/target (*Figure 3-2*).

- Normally only assigned to automatic rifles and crew-served weapons

- May be assigned to riflemen during reduced visibility
- Not assigned to units, squad leaders, or fire team leaders
- Usually a target or line of sight
- Readily identified terrain feature used when possible
- Stake may be placed when reduced visibility
- Assigned to a crew-served weapon only when final protective fire (FPL) not assigned
- Used to:
    - Cover a gap in the FPL
    - Cover a terrain feature or avenue of approach
    - Protect crew-served weapons

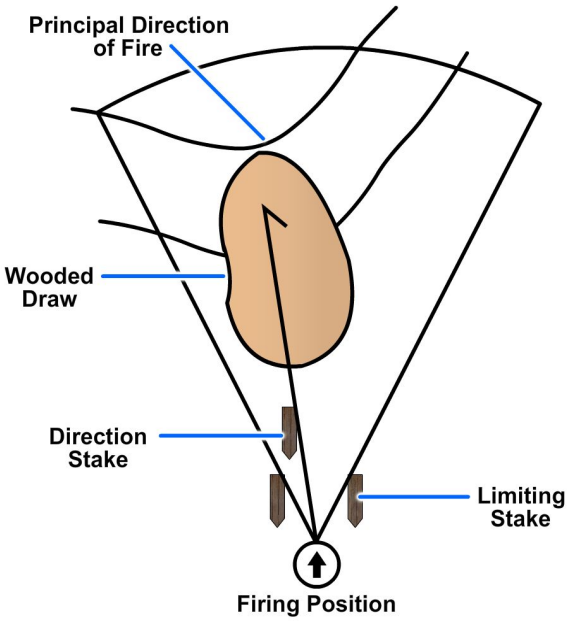


Figure 3-2 — Principal direction of fire (PDF).

1.1.3 Final Protective Fires. Final protective fires are called for when an attack is not broken and the enemy begins its assault. It is the final attempt to stop the enemy before reaching platoon position. Procedures under final protective fires include:

- Rifles and M-203s continue fire at average rates
- Automatic rifles increase rate of fire to rapid
- M-203s fire at largest concentration of enemy forces

1.1.4 Final Protective Line (FPL). The final protective line, or FPL, is the predetermined line along which crew-served weapons concentrate grazing fire (*Figure 3-3*).

- Fixed in direction and elevation
- Small shifts made to prevent enemy from crawling under or for irregularities in the terrain
- The crew-served weapon's part of final protective fire

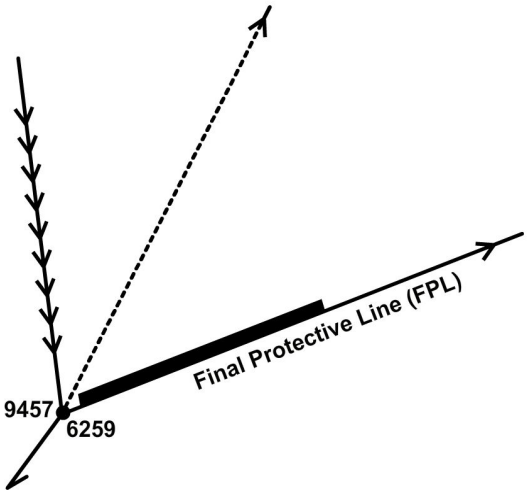


Figure 3-3 – Final protective line.

1.1.5 Fighting Positions. Fighting positions are the locations on the ground from which an individual, fire team, squad, or

crew-served weapon delivers fire. Before digging in, examine the sector of fire from a prone position to ensure:

- Good fields of fire
- Effective coverage of sector
- Use of available cover and concealment
- Facilitation of fire control by the fire team or squad leader

There are three categories of fighting positions; primary positions, alternate positions, and supplementary positions. See *Figure 3-4*.

Primary Fighting Position:

- Utilizes best observation and field of fire for the enemy's most likely avenue of approach
- Is normally located on the forward crest of terrain features
- Provides mutual support of adjacent squads/teams and crew-served weapons
- Is assigned to individuals, fire teams, squads, and crew-served weapons
- Includes well-known and rehearsed routes to alternate and supplementary positions

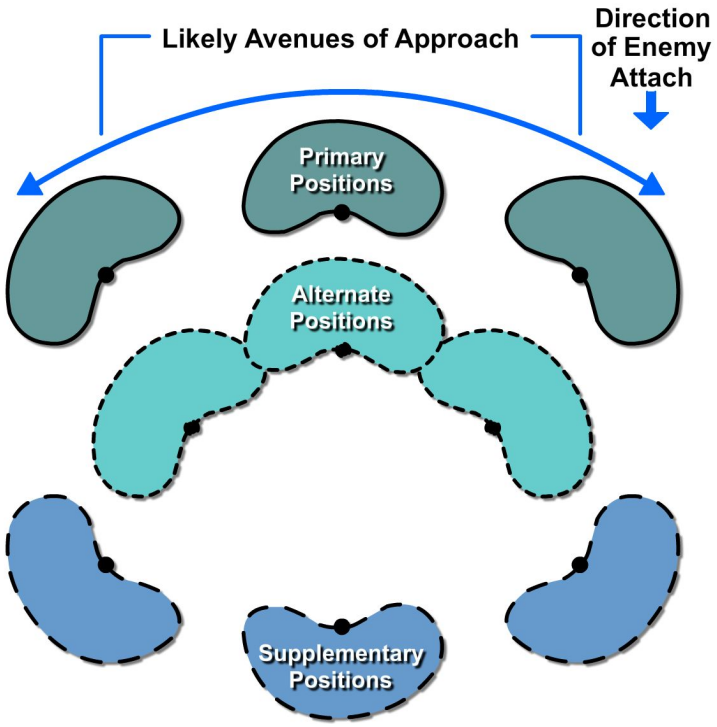


Figure 3-4 — Primary, alternate, and supplementary fighting positions.

Alternate Fighting Position:

- Used primarily for crew-served weapons
- Used when the primary fighting position becomes untenable or unsuitable
- Should cover the same avenues of approach

Supplementary Fighting Position:

- Covers the less likely avenues of approach
- Protects the flanks and rear of platoon's primary position and the crew-served weapon's supplementary position
- Covers routes of movement from the primary positions
- Covers most likely avenues of approach which may vary during the night or low visibility
- Provides security
- When occupied, ensures protection from attacks from other directions

1.1.6 Fire Plan. A fire plan is formulated by the fire team, squad, and platoon leaders to cover their assigned sectors with the heaviest fire possible. See *Figure 3-5*.

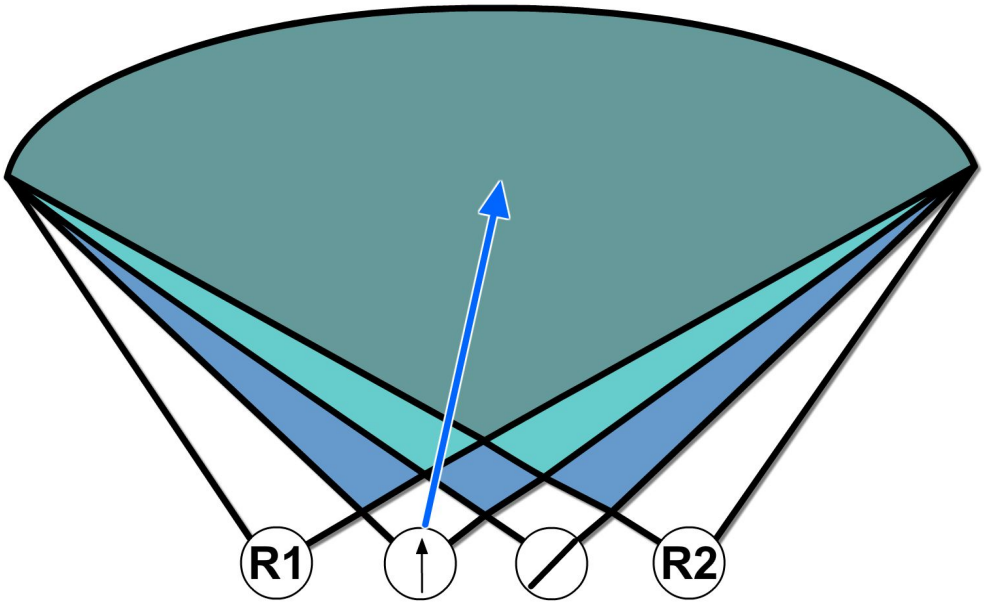


Figure 3-5 — Fire team fire plan.

It includes:

- Assigned sector(s) of fire
- Fighting positions
- PDF of automatic weapons
- Leader's position within the unit

1.1.7 Fire Team. In combat, a rifle fire team consists of four members; a fire team leader, an automatic rifleman, and two riflemen (#1 and #2). See *Figure 3-6*. A machine gun fire team also consists of four members; a fire team leader, a gunner, and two ammunition carriers (#1 and #2).

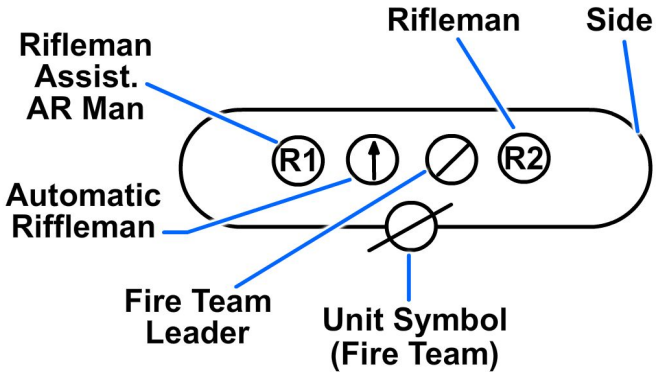


Figure 3-6 — Symbols for a fire team.

1.1.8 Squad. In a combat situation, a rifle squad is comprised of a squad leader, a grenadier, and three fire teams of four members each, for a total of 14 members.

1.1.9 Platoon. In combat, a platoon consists of a platoon commander, a platoon chief, a platoon guide, and three squads of 14 members each, for a total of 45 members.

1.2.0 Defense Areas

Area defense is used to protect and retain control of specific terrain. With this type of defense, forward positions are strongly held with the object being to stop or repel the enemy forward of this area. The defense area is separated into three areas; the Security Area, the Main Battle Area, and the Reserve Area. See *Figure 3-7.*

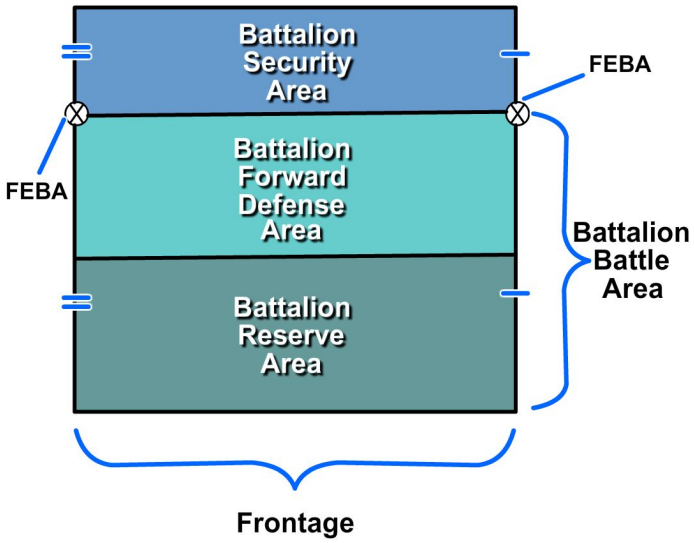


Figure 3-7 — Defense areas.

1.2.1 Security Area. The Security Area begins at the front of the main battle area, at the Forward Edge of the Battle Area or FEBA, and extends forward to effective small-arms range. Fire teams, squads, and platoons will be responsible for covering their assigned part of the Security Area with fire. The only Seabee forces in this area will be security elements such as listening posts, observation posts, and patrols who are responsible for providing advanced information about the enemy and its movements. Seabee leaders should always be aware of any friendly forces operating in this area.

1.2.2 Main Battle Area. The Main Battle Area is the area in which combat units are deployed. It is organized into sectors of defense assigned to each unit for positioning, and responsibility. The FEBA divides the Security Area from the Main Battle Area. The Main Battle Area contains all primary, alternate, and supplementary fighting positions.

1.2.3 Reserve Area. The Reserve Area is the area behind the frontline platoons extending from the rear of the Main Battle Area to the rear limits of the battalion's defensive area. Reserve platoons and other uncommitted battalion forces will occupy the Reserve Area and prepare primary and supplementary fighting positions. Forces in the Reserve Area add depth to the battalion's defense and provide forces for relief or counterattacks.

1.3.0 Planning the Defense

In planning the defense, a number of factors and fundamentals of defense should be considered. These factors and fundamentals will be discussed in the following paragraphs.

1.3.1 Proper Use of Terrain. The proper use of terrain is a key factor in planning the defense. Terrain features can be used to determine both the placement of defending forces and the most likely avenues of approach by the enemy. Planning should capitalize on the stronger aspects of the terrain and determine how to strengthen any weak points. Barriers and obstacles can be added to reinforce any existing terrain. Use the aspects of KOCOA as follows:

- **K**ey terrain
- **O**bservation and fields of fire
- **C**over and concealment
- **O**bstacles
- **A**venues of approach

1.3.2 Security. Since the attacker always has the advantages of initiative and flexibility, the defender should employ active and passive security measures to protect the defending units from surprise. Periodic patrols and the use of listening and observation posts will help eliminate the possibility of surprise.

1.3.3 Mutual Support. Mutual support is the support that one unit gives to another. The goal is that the enemy cannot attack one position without coming under fire from another supporting unit. Each fire team, squad, and platoon should have overlapping sectors of fire to provide that mutual support and eliminate gaps in the defense.

1.3.4 Defense in Depth. To achieve depth in the defense, squads open fire at maximum small-arms range and move to supplementary positions if they are in danger of being overrun or flanked. Reserve forces can be used to strengthen any weakening positions or even launch a counterattack to drive the enemy back.

1.3.5 Coordinated Fire Plan. The use of a coordinated fire plan will bring to bear small arms, crew-served weapons, and any supporting units such as artillery, naval gunfire or air support. This will put the enemy under fire as early as possible and with increasingly heavy fire as he approaches the battle area.

1.3.6 Coordinated Barrier Plan. Proper barrier planning should use a series of natural and man-made obstacles to funnel, delay, or block the enemy's movement. Patrols and other security elements must have routes available for returning to the battalion or for use in launching counterattacks, but all barriers should be covered by fire.

1.3.7 Maneuverability. Maneuverability is just as important in defense as it is in offense. Although the holding of key terrain is the primary mission, being able to concentrate or disperse defending forces by maneuvering troops to positions where they can bring more firepower to bear can make all the difference in holding that terrain.

1.3.8 Preparation. Although the enemy can choose the time and specific location for his attack, the defender, through proper preparation, can choose the terrain that is most advantageous for defense. Proper selection of terrain and construction of barriers can direct the enemy into positions where firepower can be concentrated. Preparations should begin as early as possible and be as thorough as time permits. The defender may be under constant observation, but regular use of patrols and counter-reconnaissance may inhibit the enemy's intelligence efforts. Plans should be prepared for fires, maneuver, counterattacks, fighting positions, routes, obstacles, logistics, and communications.

1.3.9 Mass and Concentration. The commander concentrates his or her forces to defend the most likely avenues of approach. Other positions may be lightly defended or even unoccupied, but covered by fire and/or obstacles. Security forces or sensors can be used to monitor the less likely approaches, and unexpected attacks can be met by reserves or by shifting forces.

1.3.10 Flexibility. Any defense must be flexible enough to deal with changing situations. The commander achieves this flexibility by:

- Using reserves to block or counterattack
- Designating alternate and supplementary fighting positions
- Controlling and shifting fire as required
- Maintaining good communications

Squad and platoon leaders should devise a course of action to take by asking themselves, “What should I do if the enemy does this…”

1.3.11 Maximum Use of Offensive Action. Offense is the decisive form of combat. Therefore, the defender should always take offensive action at the earliest feasible opportunity. This can be done by:

- Launching spoiling attacks while the enemy is still preparing
- Attacking with security forces to harass the enemy
- Counterattacking to repel any penetrations

Since squad leaders will often be tasked with conducting patrols; he or she should ensure his or her troops are in an offensive state of mind and ready to move out quickly and aggressively.

1.3.12 Surprise. Since the enemy will know the likely defensive locations, every effort should be taken to conceal the location, strength, and disposition of defending forces. This can be accomplished by using cover, concealment, camouflage, and security patrols.

1.3.13 Knowledge of the Enemy. For the most part, the defender will react to what the attacker does. Leaders can plan their defense more effectively if they know the enemy’s strength, capabilities, and objectives. A thorough intelligence report on the enemy can provide the information needed.

2.0.0 THE SQUAD IN DEFENSE

2.1.0 Fire Teams

The squad leader assigns general locations for each fire team and specifies a sector of fire, with lateral and forward limits based on terrain features, and a PDF for each automatic rifle. The fire teams are positioned to best cover the squad’s assigned sector of fire. They are normally positioned abreast, facing the direction of the enemy’s most likely avenue of approach. The location of crew-served weapons must also be considered so the fire teams are able to provide close-in support and protection.

2.1.1 Individual Fighting Positions. After the squad leader assigns general locations for the fire teams, each fire team leader will designate individual fighting positions to best cover the assigned sector of fire. Positions are prepared as single or double fighting positions, with normal intervals of 5 to 20 meters. Single positions are usually used in close terrain. When double positions are prepared, the Automatic Rifleman and the Assistant Automatic Rifleman will be placed together to enable the assistant to safely and quickly take over the weapon if necessary.

2.1.2 Fire Team Members. Each rifle fire team is comprised of a fire team leader, an automatic rifleman, and two riflemen. A machine gun fire team has a fire team leader, a gunner, and two ammunition carriers.

Automatic Rifleman. Automatic rifles are placed to cover the enemy's most likely avenue of approach and the fire team's sector of fire, support adjacent fire teams, and deliver final protective fire when called. The platoon leader will determine the general fighting position and assign a PDF for specific automatic rifles, while the squad leader selects the exact fighting positions and designates the PDF for the other automatic rifles in his or her squad. The symbol used for the automatic rifleman is a circle with an arrow whose tip points along the FPL or PDF. Refer to *Figure 3-8*.

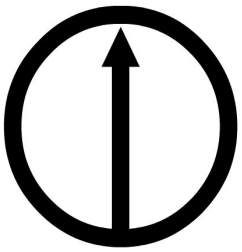


Figure 3-8 — Automatic Rifleman.

Rifleman. The two riflemen in the fire team are located where they can cover the team's sector of fire and provide support and protection for the automatic rifleman. Rifleman #1 carries ammunition for the automatic rifleman and takes over if needed. The symbol used for a rifleman is a circle with the letter "R" and a "1" or "2" inside. Refer to *Figure 3-9*.



Figure 3-9 — Rifleman.

Gunner. The gunner in a machine gun fire team is responsible for firing the machine gun as directed by the fire team leader. The symbol used for a gunner is a circle with an arrow and one, two, or three crossbars with weapon sizes light, medium, and heavy, respectively. Refer to *Figure 3-10*.

Ammunition Carriers. The ammunition carriers supply extra ammunition to the gunner and protect the machine gun fire team.

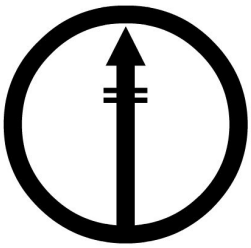


Figure 3-10 — Gunner.

Fire Team Leader. The fire team leader usually positions himself or herself at the center of the fire team. The symbol used for the fire team leader is a circle with a slanted line (*Figure 3-11)*. He or she is responsible for:

- Observing the fire team and its sector of fire
- Directing fire of the automatic rifleman or machine gun
- Changing the barrel of the machine gun during combat
- Observing the squad leader when possible
- Developing the fire team's fire plan

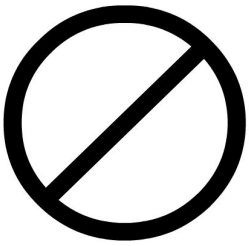


Figure 3-11 — Fire Team Leader.

Grenadier. Each squad has one grenadier armed with the M-203 grenade launcher. The squad leader positions the grenadier where he or she can deliver the most effective fire, usually near the center of the squad. M-203 fire is either focused on the best targets, such as larger enemy groups, or withheld to provide a devastating surprise at the most opportune time. The symbol used for a gunner is a circle with the letter “G” inside. Refer to *Figure 3-12*.



Figure 3-12 — Grenadier.

2.1.3 Fire Team Fire Plan. The fire team’s fire plan should cover the team’s entire sector of fire with the heaviest volume of fire possible. The plan includes individual sectors of fire, individual fighting positions (both primary and supplementary), the PDF for the automatic rifle, and the fire team leader’s position.

2.1.4 Fire Team Fire Plan Sketch. The fire team leader submits the team’s fire plan sketch to the squad leader. The fire plan sketch should include:

- Individual sectors of fire and fighting positions of each team member
- The PDF for the automatic rifle
- A magnetic north line with arrow to indicate the direction the fire team is facing
- A line drawn around the team, showing the forward edge, flanks, and rear of the team
- A symbol indicating the size of the team in a break in the rear of the above outline

See *Figure 3-13* for an example of a fire team fire plan sketch.

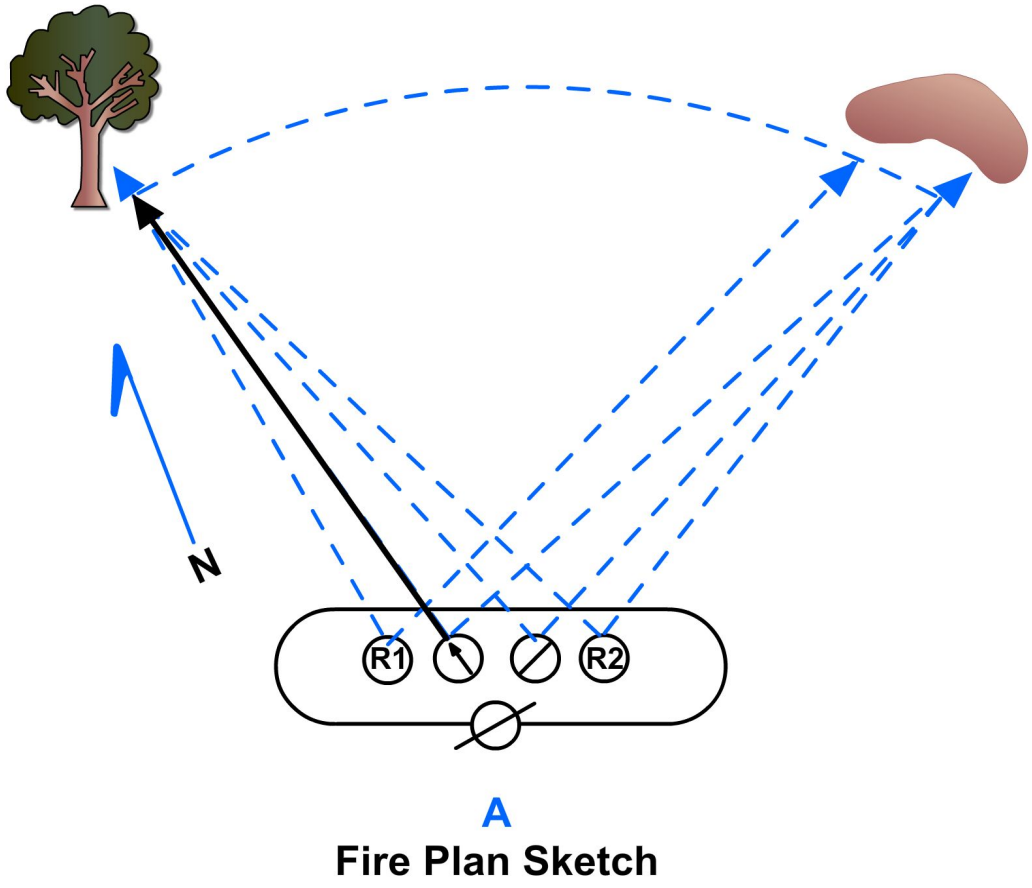


Figure 3-13 — Fire team fire plan sketch.

2.2.0 The Squad

2.2.1 Positioning the Squad. Once all sectors of fire have been assigned to the squad members, the squad leader positions the squad by:

- Manning any listening/observation posts and setting up security patrols
- Physically placing automatic weapons
- Clearing fields of fire
- Digging fighting positions
- Constructing obstacles and barriers
- Selecting supplementary fighting positions
- Camouflaging the squad's location

2.2.2 Squad Fire Plan and Fire Plan Sketch. Once the squad leader has completed the squad's fire plan sketch in duplicate, he or she submits one copy to the platoon commander and retains the other for reference. The fire plan sketch should include (*Figure 3-14*):

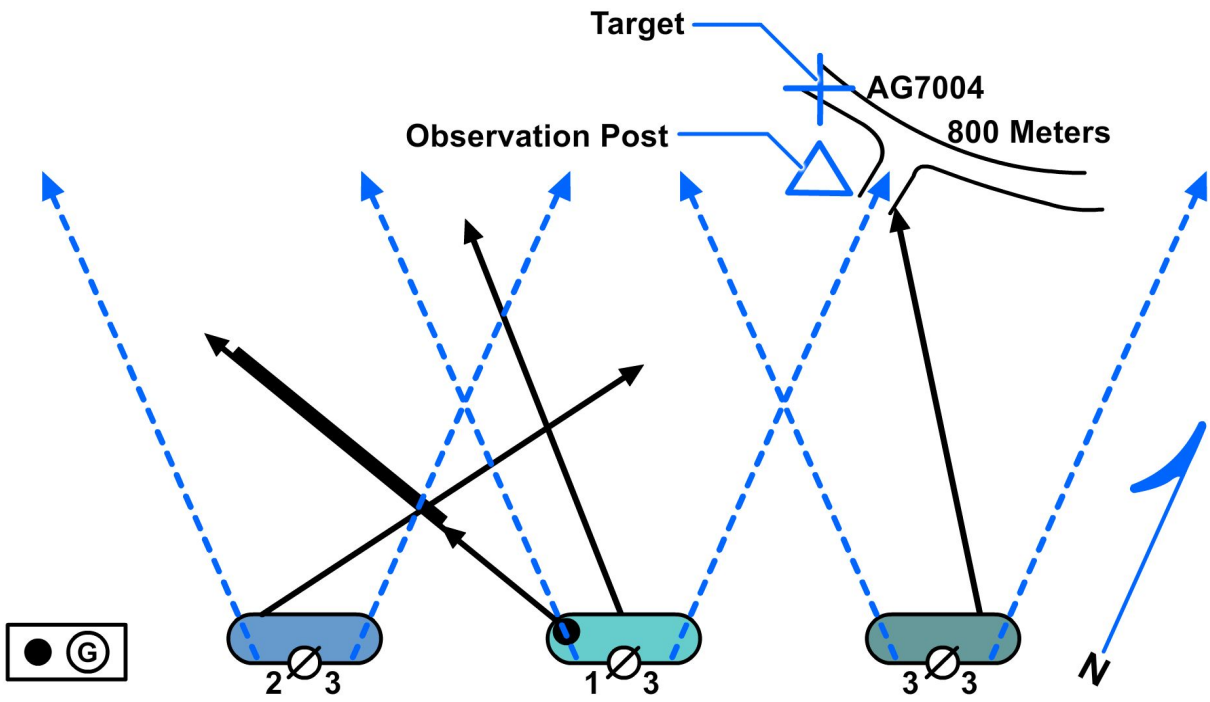


Figure 3-14 — Squad fire plan sketch.

- All fire team fighting positions and sectors of fire
- Fighting positions and PDFs for automatic rifles

- The squad leader's position

If the squad is providing protection for a crew-served weapon, the sketch should also indicate its position and either its FPL for machine guns, or PDF for other crew-served weapons.

3.0.0 THE PLATOON IN DEFENSE

3.1.0 Organizing the Platoon in the Defense

The platoon is assigned a portion of the company's security area and is responsible for assigning security elements such as listening posts and patrols in that area. Under ideal terrain conditions, the platoon will normally be responsible for defending a frontage of 750 meters. His or her platoon will normally only physically occupy a portion of that area, up to 450 meters, and will cover the remaining area with fire. Refer to *Figure 3-15*.

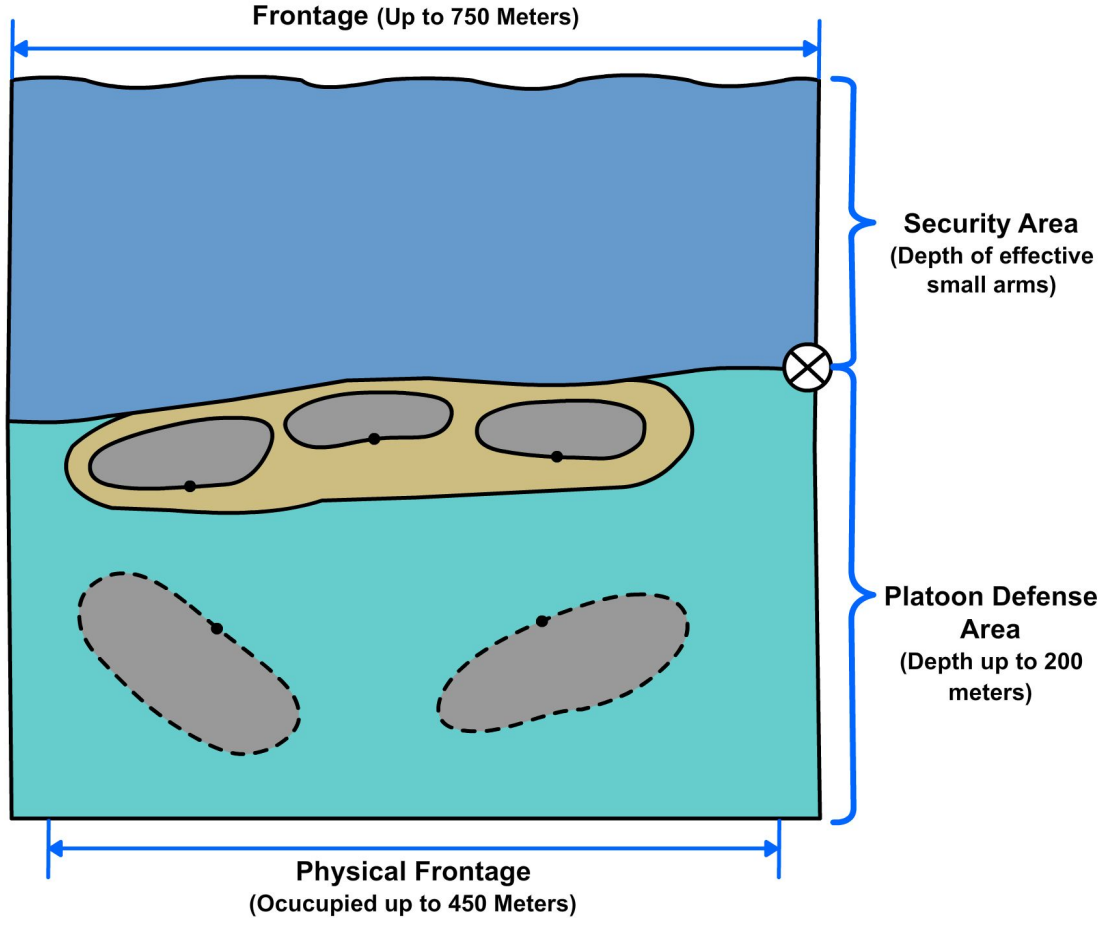


Figure 3-15 — Platoon defense area.

The platoon leader will assign a sector of fire to each squad, ensuring they overlap for mutual support. Flanking squads may have to be positioned back from the FEBA in order to provide flanking fire with adjacent platoons and avoid gaps in the overall defense. If any gaps still exist, they will be covered by indirect fire, by automatic rifles, or the M-203.

3.2.0 Platoon Fire Plan Sketch

The platoon commander, after receiving each squad's fire plan sketch, will prepare the platoon's fire plan sketch and submit it to the company commander for approval. This sketch should include (*Figure 3-16*):

- Squad primary positions and sectors of fire
- Position and PDFs for all automatic rifles
- Location of the platoon observation post
- Position and PDF of M-203s when assigned
- Position and FPLs for any machine guns in the platoon defense area
- Positions, PDFs, and sectors of fire for any assigned crew-served weapons

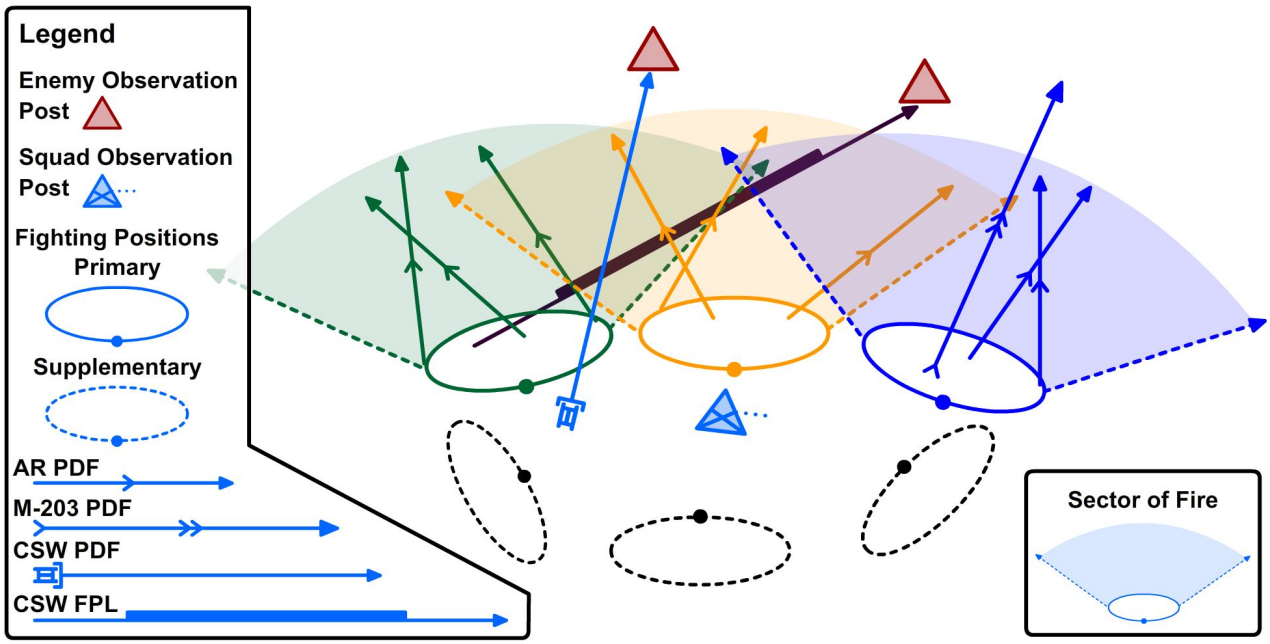


Figure 3-16 — Platoon fire plan sketch.

4.0.0 CREW-SERVED WEAPONS

Crew-served weapons are the backbone of the defense. They provide a heavy volume of close, accurate, and continuous fire, providing the major portion of a company's final protective fire. They break up or stop enemy assaults and can deliver intense fire in support of counterattacks and allow the unit to hold any ground regained. All machine guns in a squad are generally assigned the same mission. They are each assigned an FPL and a sector of fire. The FPL should provide good flanking, interlocking, and grazing fire. Refer to *Figure 3-17*. Interlocking fire adds to their effectiveness, leaving few gaps and providing mutual support. The assigned sectors of fire are the areas where targets of opportunity will be engaged and are usually 45 degrees or less in angle. All sectors should overlap for mutual support. If the terrain doesn't permit good FPLs, PDFs are assigned to cover the most dangerous avenues of approach. The PDF should either fall within the sector of fire or be one of its limits, left or right.

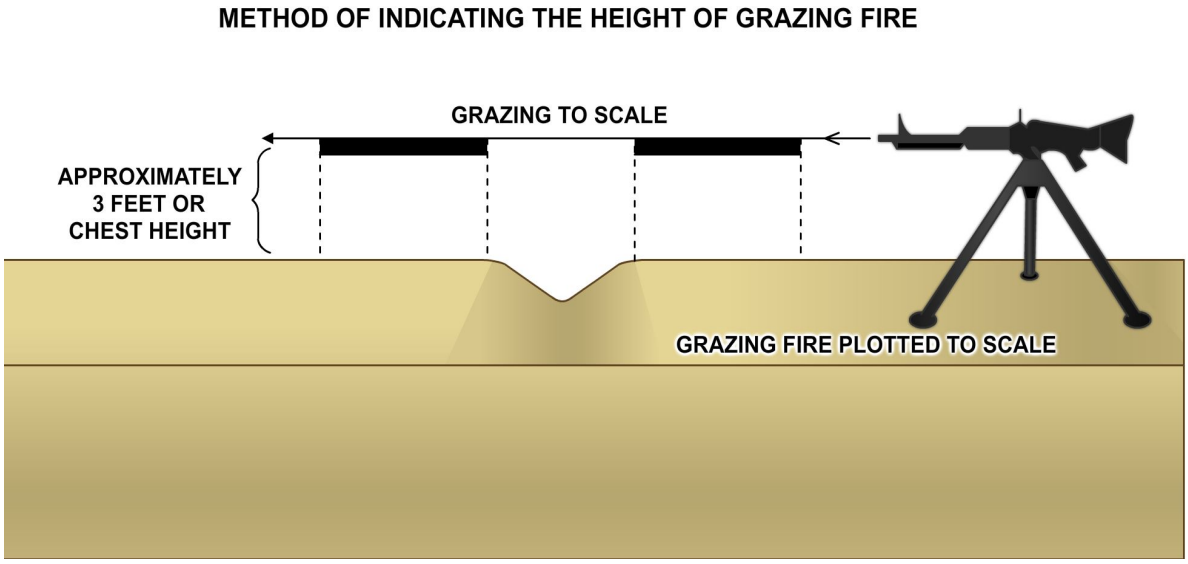


Figure 3-17 — Interlocking and grazing fire for crew-served weapons.

4.1.0 Employment

Usually all three machine guns are placed along the FEBA, with an interval of at least 35 meters. If defense in depth is desired, one machine gun can be assigned to the reserve platoon. Machine guns may also be split if perimeter defense is being used, or if the terrain is mountainous, heavily wooded, or jungle. If machine guns are split, they should still be located as close to each other as possible for ease of control and resupply. Machine guns should be assigned primary, alternate, and supplementary positions which are accessible, but provided cover and concealment.

4.2.0 Roles

All three crew-served weapons, the M240B and M2 .50 caliber machine guns, and the MK19 grenade machine gun, are good in both offense and defense. They can be employed against personnel, fortifications, and lightly armored vehicles. The M2 can be

used effectively against low-flying enemy reconnaissance aircraft. The effectiveness of the MK19 in both long range and close-up defense makes it the ideal weapon.

5.0.0 RANGE CARDS

A range card is a rough sketch used by crew-served weapon crews in defensive fire planning and recording firing data. Refer to *Figure 3-18*. Each gunner uses the Standard Range Card DA Form 5517-R and fills it out in duplicate. One copy is retained to enter firing data and the other is submitted to the platoon commander who checks it for accuracy, then forwards it to the company Command Post (CP). The range card is used by the gunner to recall data for firing on predetermined targets and in estimating ranges to other targets. Preparation of range cards should begin as soon as the weapon is in place and constantly revised.

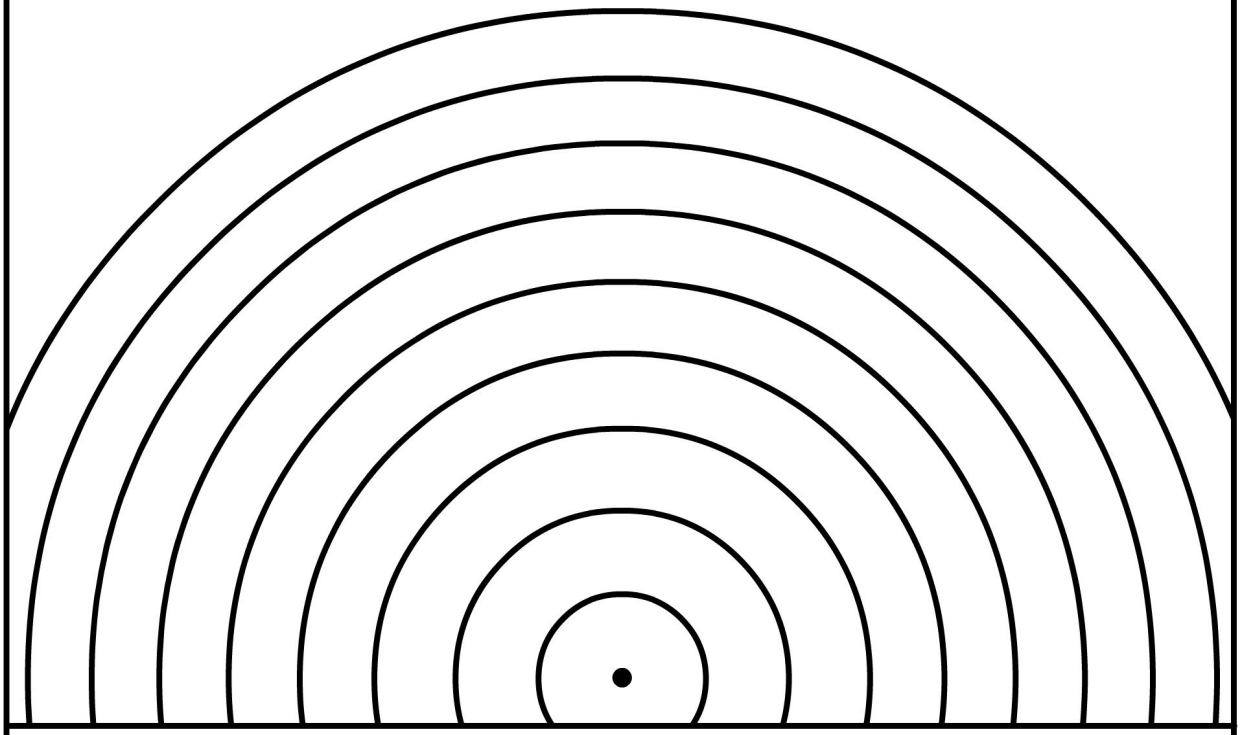
NOTE

The data section of the range card is the most important section.

STANDARD RANGE CARD

For use of this form FM 3-21.71; the proponent agency is TRADOC.

SQD _____ PLT _____ CO _____	May be used for all types of direct fire weapons.	MAGNETIC NORTH



DATA SECTION

POSITION IDENTIFICATION	PREPARED BY / DATE
WEAPON	EACH CIRCLE EQUALS _____ METERS

NO.	DIRECTION/ DEFLECTION	ELEVATION	RANGE	AMMO	DESCRIPTION

REMARKS:

Figure 3-18 — Standard Range Card DA Form 5517-R.

5.1.0 Range Card Symbols

To be useful in planning, the range card indicates the location of the weapon by using an 8-digit grid coordinate. The range card will contain the following symbols and information (*Figure 3-19*):

- **Identification Block** – This identifies which weapon the card is for and the date it was created.
- **Weapon symbol** – A single dot is used to represent the location of the weapon, with a solid arrow in the direction of the FPL or PDF.
- **Magnetic North Arrow** – A line from the weapon symbol with a single-barbed arrow points toward magnetic north.
- **Magnetic Orientation Line and Location Grid Coordinates** – These are the two methods used to locate the weapon's position. If the Magnetic Orientation Line is used, it will be a line drawn from a prominent terrain feature — preferably behind enemy lines — to the weapon with arrow heads pointing in the direction of the weapon. The magnetic azimuth from the terrain feature will be recorded along this line. Otherwise, the 8-digit grid coordinates of the weapon position are written next to the weapon symbol. Only one of these methods needs to be used.
- **Sector Limits** – These are drawn as broken lines ending in arrow heads. If the weapon is assigned an FPL, only one sector limit line will be drawn since the limit is the same as the FPL.
- **Grazing Fire** – If an FPL is assigned, a heavy-shaded area will be added along the inside of the FPL showing the limits of grazing fire. Any dead space will be indicated by a gap in this line. Near and far limits of any dead space, in meters, should be recorded at each dead space, or the range placed at the end of the shaded areas.
- **Terrain Features** – Any terrain features will be added, drawn to perspective, which will significantly clarify the range card.
- **Location of Friendly Troops/Equipment** – The positions of any friendly troops or equipment that is in or near the weapon's sector limits will be drawn and clearly labeled with description, range, and direction.
- **Targets** – Each target will be drawn and labeled with a number. This number will be consecutive beginning either with the FPL, if assigned, or the left sector limit. If the FPL is the right sector limit, number from right to left; otherwise, number from left to right. Either record target data along each line, or use a data block at the bottom or reverse side of the card.

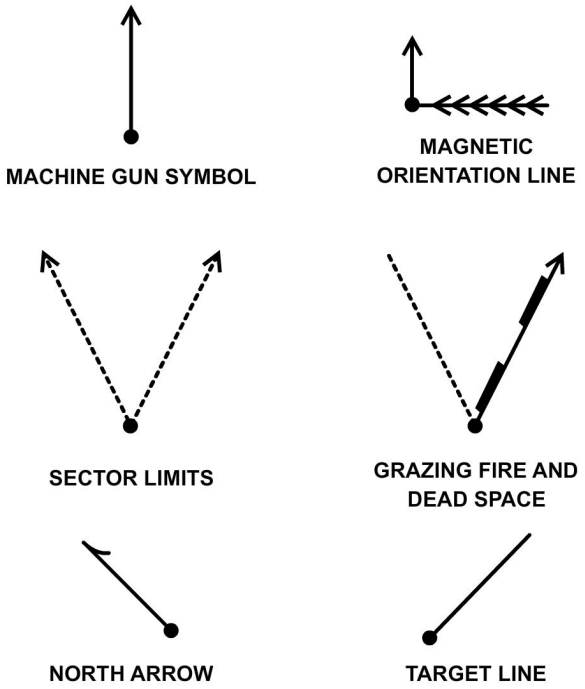


Figure 3-19 — Range card symbols.

5.2.0 Scenarios

5.2.1 Range Card Example for an FPL

The following scenario, along with *Figure 3-20*, illustrates how a range card is prepared for an FPL tactical field setting.

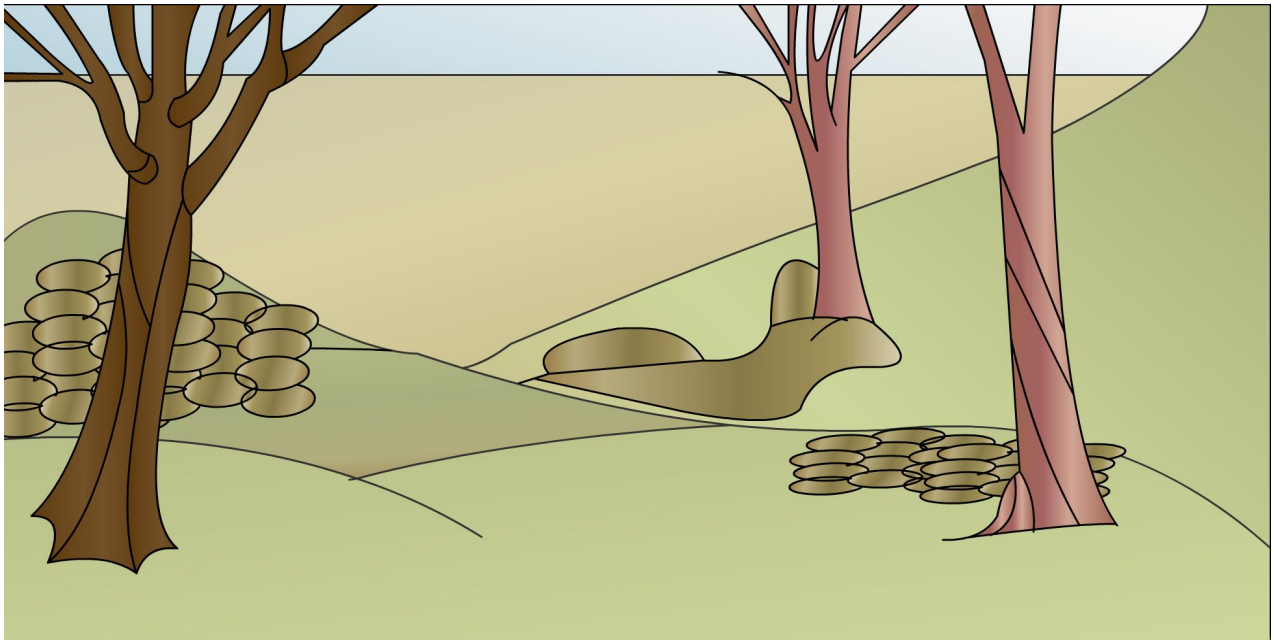


Figure 3-20 — Panoramic view of tactical area.

Scenario One

A machine gun fire team from the weapons platoon is attached to the second platoon of Charlie Company deployed along a low ridge overlooking a narrow valley. The weapons platoon squad leader, along with the other gun team, is supporting another company. The creek bottom across the valley is suspected of being a major infiltration route for the enemy. The first platoon is located on the second platoon's right limit. Bravo Company joins the second platoon on the left limit. The second platoon commander has informed the machine gun team leader that the gun is to be positioned on the left flank of the platoon. The team leader informs the machine gun team to lay the gun to be able to fire an FPF across the front of the ridge. The line formed by the base of the ridge is to be the right sector limit. The trees at the bend in the creek in front of the gun position are the left limits. Interlocking fire for the FPF will be obtained from the third squad gun team attached to the first platoon. Using a compass or Global Positioning System (GPS), the gun team has located the gun at grid coordinate 94576259. The grid is also 750 meters from the water tower that is located on a magnetic back azimuth of 5,980 mils. The FPL lies on a magnetic azimuth of 4,250 mils.

Figure 3-21 shows the beginning stages of the range card. It shows the weapon symbol; the magnetic north arrow; the magnetic orientation line and location grid coordinates; the sector limits; and the grazing fire.

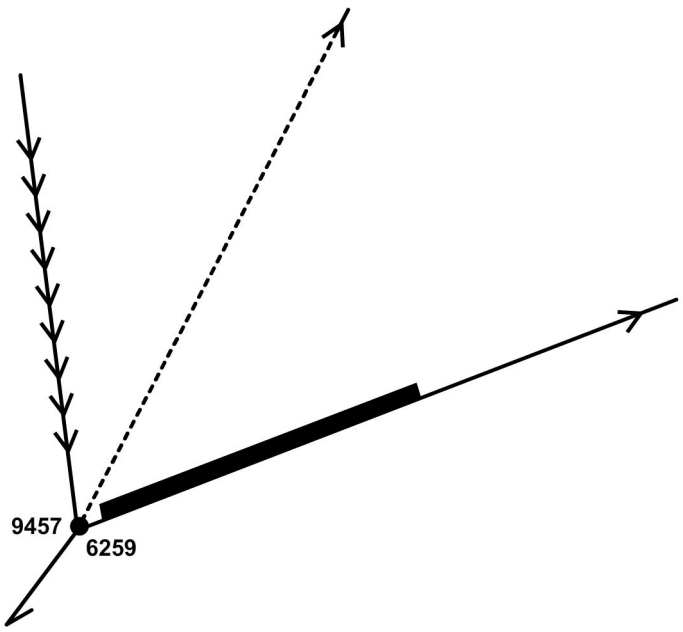
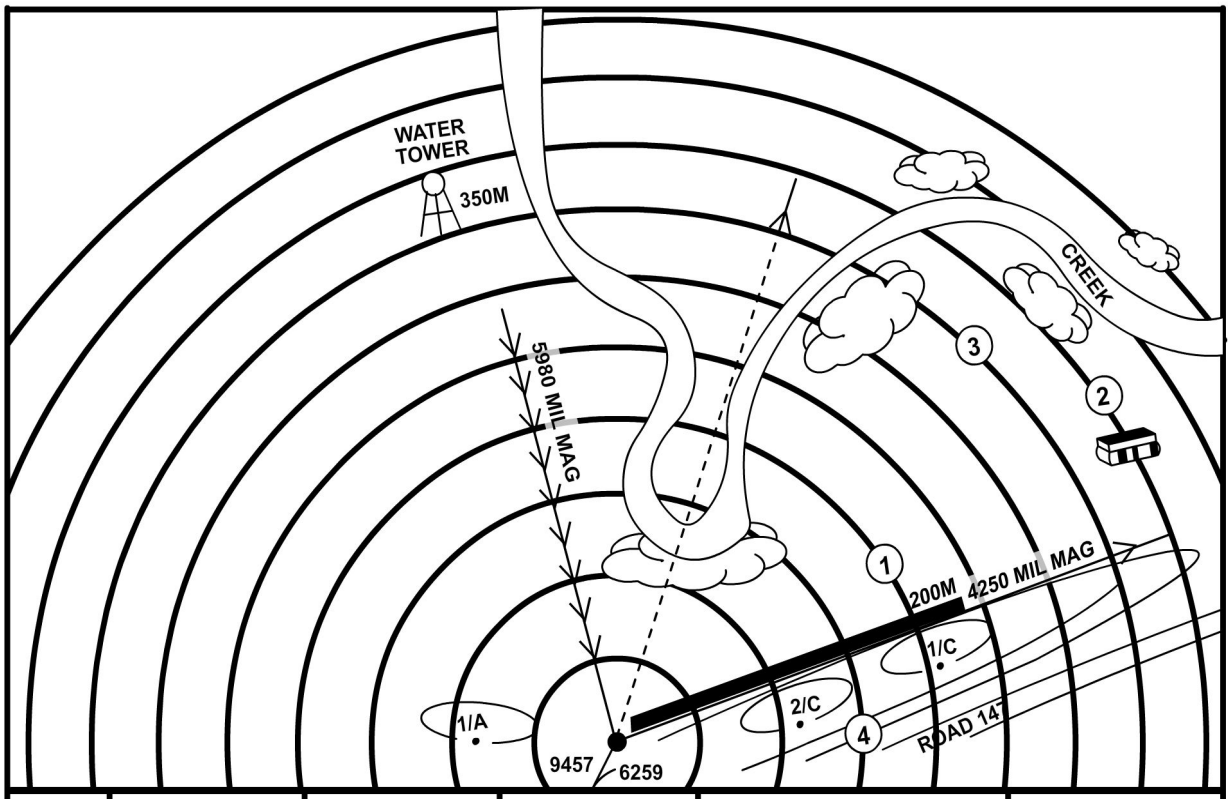


Figure 3-21 — Beginning of a range card.

Figure 3-22 shows the completed range card. Details have been added, such as the unit identification block, the terrain features, the location of friendly troops or equipment, and the targets with their individual data.



NO.	DIRECTION	ELEVATION	RANGE	DESCRIPTION	
1	350	+50/45	200	FPF	
2	700	+ 0/10	400	DISABLED APC	GUN #1
3	600	+ 0/5	350	TREE LINE	SOUND #1
4	250	+ 0/5	150	CREEK BEND	CO. 'C'
					891110

Figure 3-22 — Completed range card for Scenario One.

5.2.2 Range Card Example for a PDF

The range card for a PDF is very similar to an FPL range card. The only real difference is the machine gun symbol. A PDF does not align with a sector limit. The following scenario is to illustrate how to prepare a range card for a PDF. *Figure 3-23* provides an illustration of a tactical field setting.

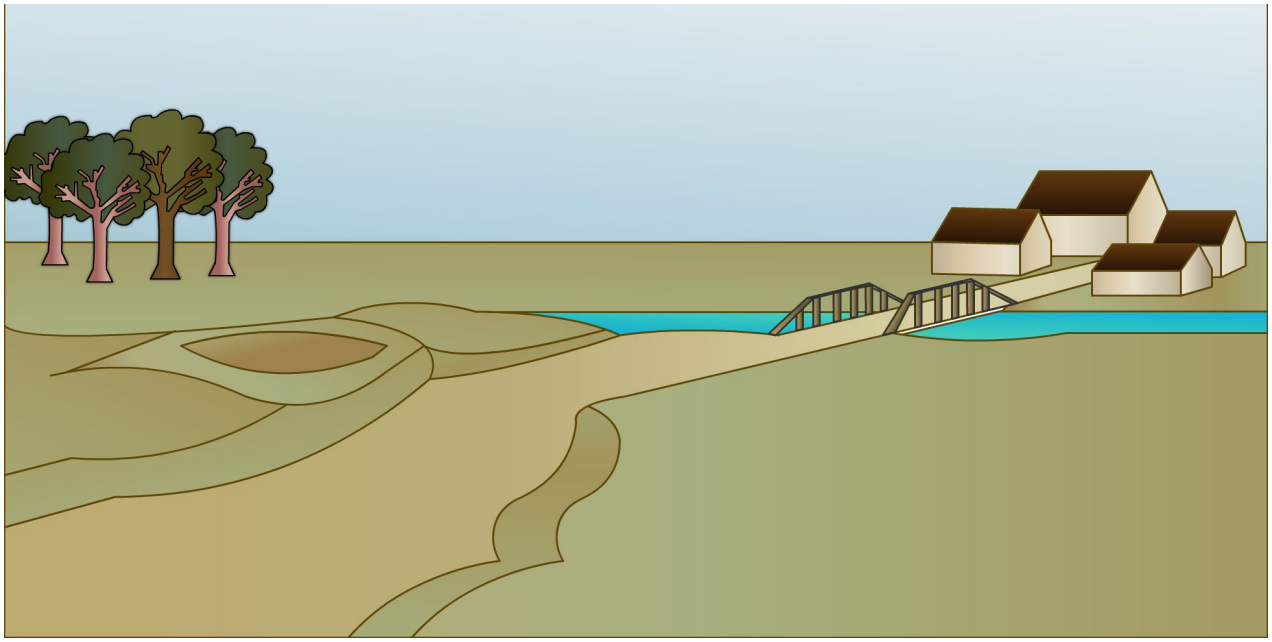
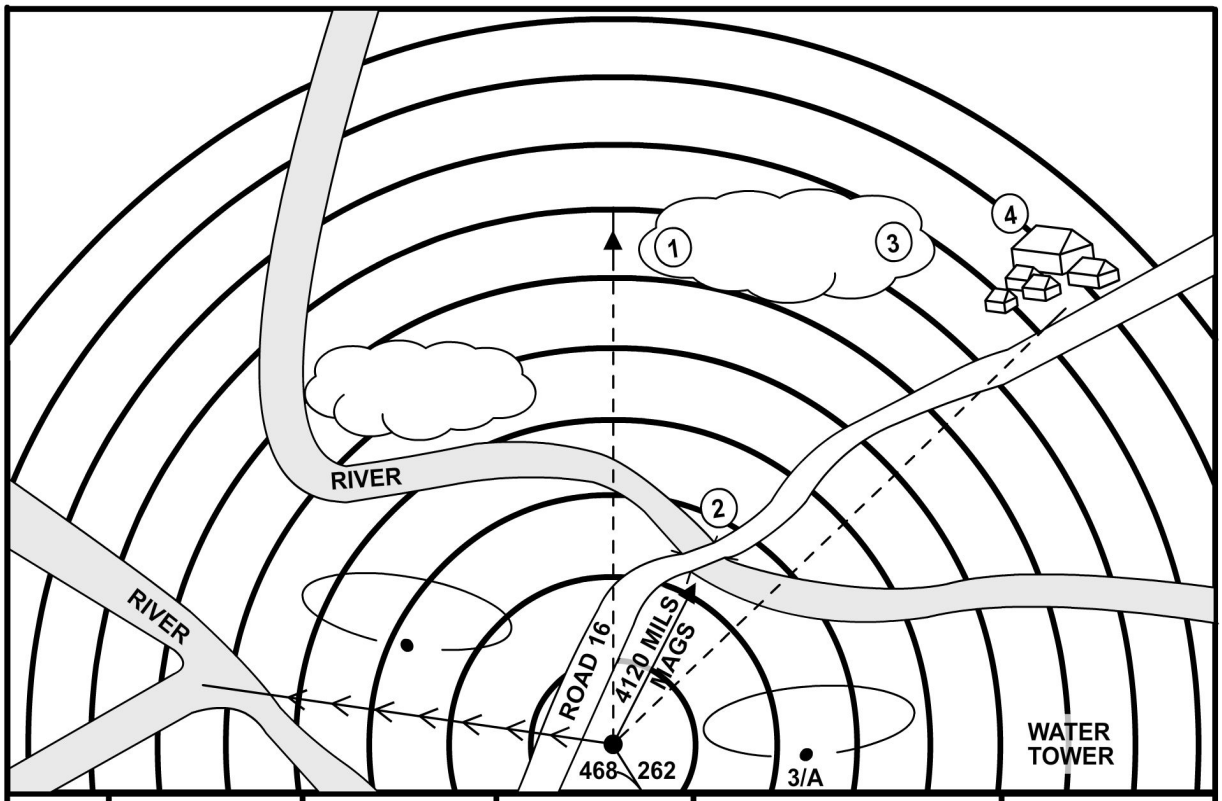


Figure 3-23 — Panoramic view of tactical area.

Scenario Two

A machine gun fire team has been attached to the third platoon of Alfa Company. The squad leader and another gun team have become casualties. The platoon is deployed in a tree line overlooking a bridge. The enemy is suspected to have infiltrated the village on the other side of the river. The mission of the platoon is to stop any attempt from the enemy to cross the river via the bridge. The first platoon is to the right of the third platoon, and Bravo Company has joined the third platoon on the left. The commander of the third platoon has informed the machine gun team leader that the machine gun fire team is to be deployed on the left flank of the platoon. The team leader is to get the best angle to fire across the bridge. The team leader informs the machine gun fire team to lay the gun on a PDF centered on the bridge. The lone tree on the immediate right is the right sector limit, and the leftmost edge of the grove of trees across the river is the left sector limit. Using a compass or GPS, the machine gun fire team has located the gun at grid coordinate 468262. The grid is also 350 meters from a road junction that is located on a magnetic back azimuth of 5,420 mils. The PDF lies on a magnetic azimuth of 4,120 mils.

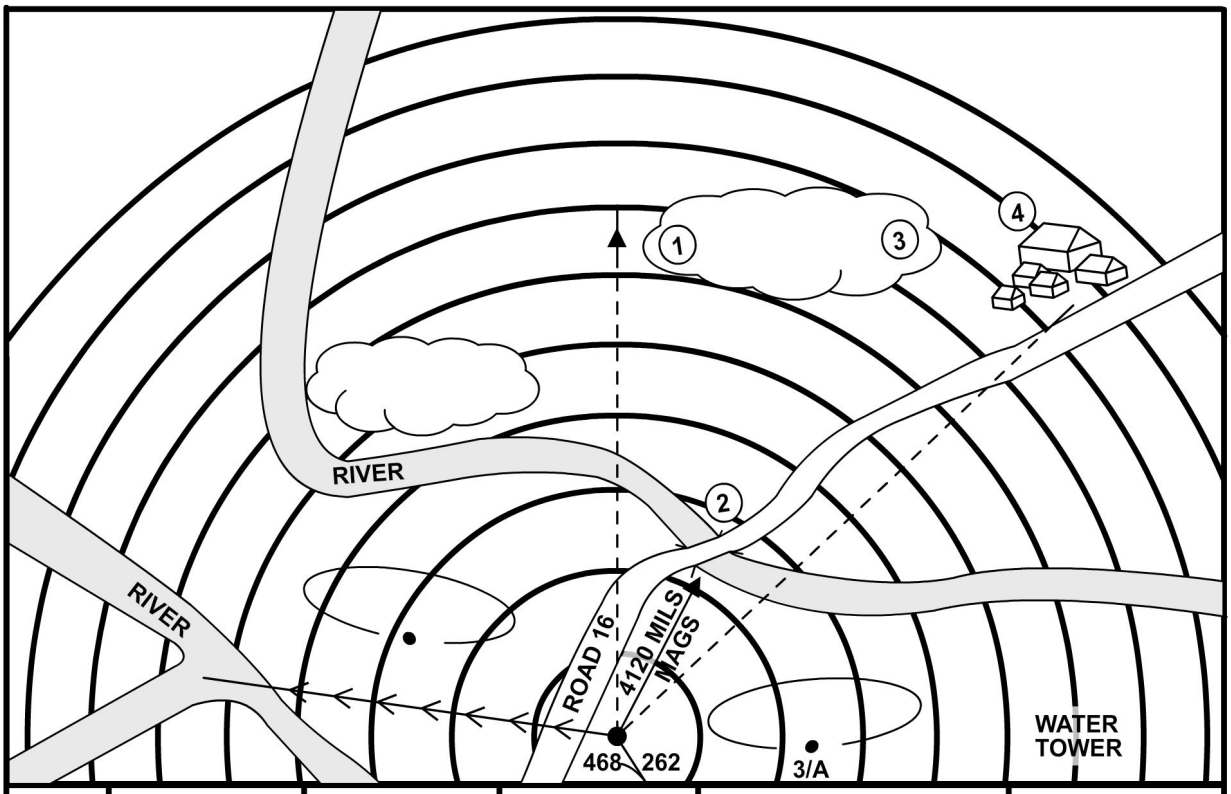
Figure 3-24 shows the beginning stages of the range card. It shows the weapon symbol; the magnetic north arrow; the magnetic orientation line and location grid coordinates; the sector limits; and the PDF.



NO.	DIRECTION	ELEVATION	RANGE	DESCRIPTION	

Figure 3-24 — Beginning of the range card for Scenario Two.

Figure 3-25 shows the completed range card. Details have been added, such as the unit identification block, the terrain features, the location of friendly troops or equipment, and the targets with their individual data.



NO.	DIRECTION	ELEVATION	RANGE	DESCRIPTION	
1	200 L	+ 50/25	325	LT EDGE TREE LINE	GUN #3
2	40 L	+ 0/25	150	PDF BRIDGE	SOUND #2
3	100 R	+ 50/45	375	RT EDGE TREE LINE	CO. 'A'
4	300 R	+ 100/10	450	VILLAGE	890704

Figure 3-25 — Completed range card for Scenario Two.

Summary

In this chapter you learned that Seabee units are primarily defensive during combat. As a Seabee you must consider the planning of defensive tactics a priority. You learned that defensive operations for Seabee battalions include actions taken for destroying or trapping a hostile force, denying enemy access to an area, and reducing the capabilities of the enemy. This chapter covered in depth fundamentals of defense; the types of defense; and the platoon, squad, and fire team makeup to include their defensive positions. Additionally, this chapter introduced you to crew-served weapons employment, fire team employment, the squad and platoon fire plan and how important it is to understand the procedures when preparing a range card.

Assignment 3

Objectives

1. Describe the organization and positioning of a squad in the defense.
2. Describe the organization and positioning of a platoon in the defense.
3. Determine the best location for employing crew-served weapons and the role of each crew-served weapon in the defense.
4. Explain the importance of and the procedures for preparing a range card.

Questions

1. Which of the following has two lateral limits and a forward limit?

    1. Final Protective Line (FPL)
    2. Primary fighting position
    3. Principal Direction of Fire (PDF)
    4. Sector of fire

2. Which of the following is triangular/wedge shaped?

    1. FPL
    2. Primary fighting position
    3. PDF
    4. Sector of fire

3. Which of the following is the left and right side of a sector of fire?

    1. FEBA
    2. FPL
    3. Lateral limits
    4. PDF

4. Which of the following is the direction, within a sector of fire, of a primary target?

    1. FEBA
    2. FPL
    3. Primary fighting position
    4. PDF

5. Which of the following is normally assigned to an automatic rifle or crew-served weapon?

    1. FPL
    2. Primary fighting position
    3. PDF
    4. Sector of fire

6. Which of the following is fixed in direction and elevation?

    1. Final protective fire
    2. FPL
    3. PDF
    4. Sector of fire

7. Which of following is normally located on the forward crest of a terrain feature?

    1. FPL
    2. Primary fighting position
    3. Sector of fire
    4. Supplementary fighting position

8. Alternate fighting positions are assigned primarily to which of the following?

    1. Crew-served weapons
    2. Fire teams
    3. Squads
    4. Team leader

9. Which of the following describes alternate fighting positions?

    1. Assigned to individuals and fire teams
    2. Best observation and fields of fire
    3. Covers less likely avenues of approach
    4. Used primarily by crew-served weapons

10. (True or False). Supplementary fighting positions cover the less likely avenues of approach.

    1. True
    2. False

11. A typical rifle fire team consists of the fire team leader and how many other personnel?

    1. 1
    2. 2
    3. 3
    4. 4

12. How many riflemen are usually assigned to a rifle fire team?

    1. 1
    2. 2
    3. 3
    4. 4

13. A rifle squad consists of how many members?

    1. 11
    2. 13
    3. 14
    4. 16

14. A platoon consists of three squads and how many staff/support personnel?

    1. 1
    2. 2
    3. 3
    4. 4

15. In area defense, the defense area is divided into three areas; the security area, the main battle area, and which of the following?

    1. FEBA
    2. Perimeter area
    3. Reserve area
    4. Supplementary area

16. Which area in a Seabee area defense will contain listening and observation posts?

    1. Main battle
    2. Perimeter
    3. Reserve
    4. Security

17. What divides the security area from the main battle area in area defense?

    1. FEBA
    2. FPL
    3. Perimeter
    4. Reserve area

18. Uncommitted battalion forces are located in which of the following areas?

    1. Main battle
    2. Perimeter
    3. Reserve
    4. Security

19. Individual fighting positions are normally spaced how far apart, in meters?

    1. 1 to 5
    2. 5 to 20
    3. 15 to 45
    4. 45 to 100

20. (True or False). With a good coordinated barrier plan, barriers do not need to be covered by fire.

    1. True
    2. False

21. The symbol shown at right is used to represent which of the following fire team members?



    1. Automatic Rifleman
    2. Fire Team Leader
    3. Grenadier
    4. Rifleman

22. The symbol shown at right is used to represent which of the following fire team members?



    1. Automatic Rifleman
    2. Fire Team Leader
    3. Grenadier
    4. Rifleman

23. The symbol shown at right is used to represent which of the following fire team members?



    1. Automatic Rifleman
    2. Fire Team Leader
    3. Grenadier
    4. Rifleman

24. Which of the following fire team members assumes the duties of the automatic rifleman if necessary?

    1. Fire team leader
    2. Grenadier
    3. Rifleman number one
    4. Rifleman number two

25. A platoon is normally assigned a frontage in the defense area of how many meters?

    1. 150
    2. 400
    3. 600
    4. 750

26. Crew-served weapons are normally assigned which of the following?

    1. An FPL and a sector of fire
    2. An FPL and a PDF
    3. A PDF and a sector of fire
    4. A sector of fire only

27. The sector of fire for a crew-served weapon is normally what angle?

    1. 30 degrees or less
    2. 30 degrees or more
    3. 45 degrees or less
    4. 45 degrees or more

28. Crew-served weapons are positioned at intervals of at least how many meters?

    1. 20
    2. 35
    3. 100
    4. 450

ASSIGNMENT 3

Planning and Development of Defensive Tactics

Directions: Select the correct answer from the list of alternates below each question in the end of chapter assignment. Write in the answer next to the corresponding question number below. Use this answer sheet as a reference to completing the online assignment related to this assignment.

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28.	

Additional Resources and References

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

Marine Rifle Squad, MCWP 3-11.2 Ch 1

Commanders Tactical Handbook, MCRP 3-11.1A

Marine Rifle Company/Platoon, FMFM 6-4

Machine Guns and Machine Gun Gunnery, MCWP 3-15.1

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Course Date: _____ Chapter Number: _____ Page: _____

Paragraph: _____ Sentence: _____ Figure: _____ Frame/View: _____

Description: _____
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(optional) Corrective action: _____
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(optional) Supporting reference(s): _____
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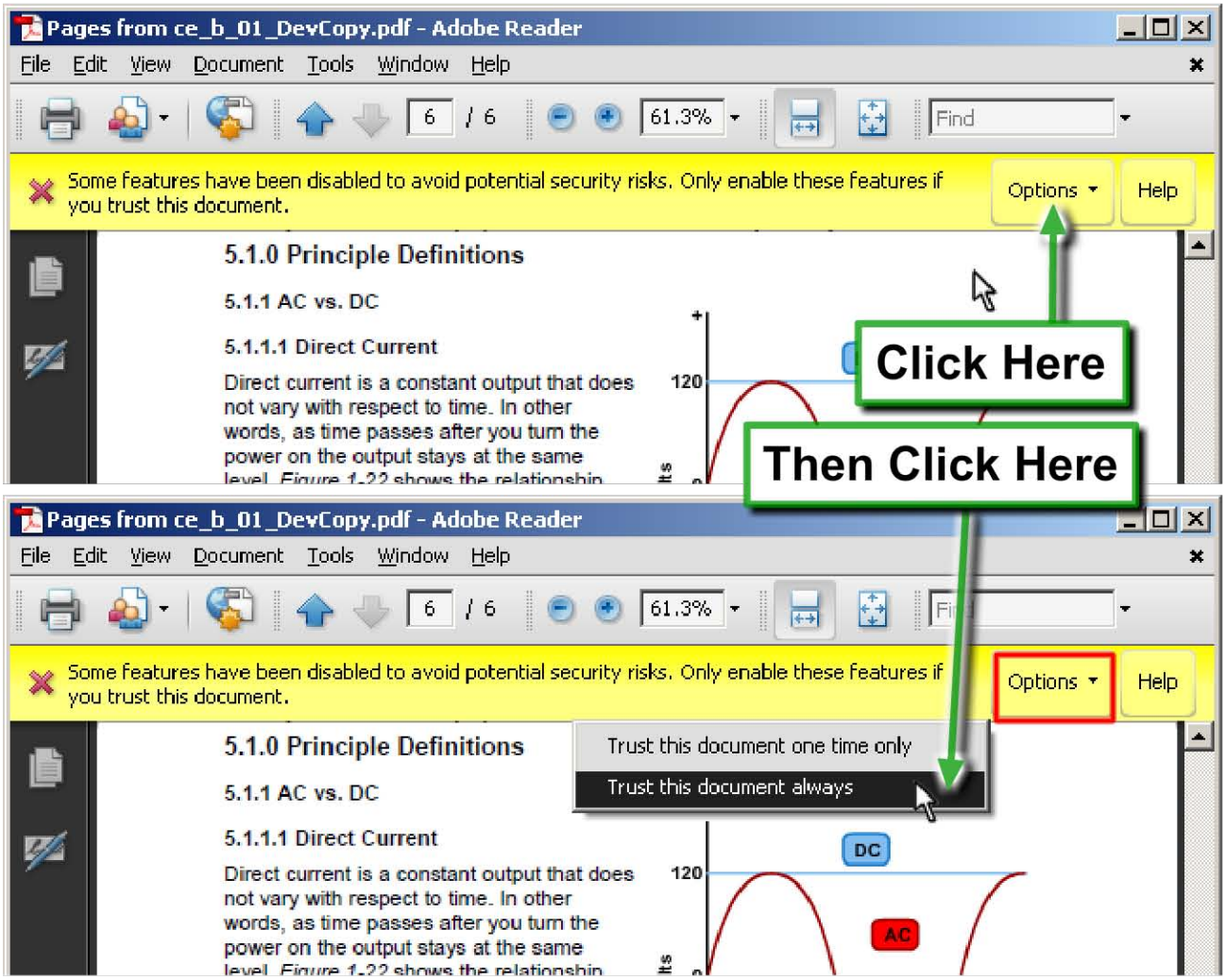
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Chapter 4

Tactical Convoy Operations

Topics

1.0.0 Convoy Organization

2.0.0 Planning Considerations

3.0.0 Improvised Explosive Device (IED)

4.0.0 Convoy Execution

5.0.0 Post Mission Operations

To hear audio, click on the icon: 

Overview

Seabees spend a considerable amount of time convoying from the bivouac area to project sites. This makes it important for you to know and understand proper convoy procedures. Navy Tactics, Techniques, and Procedures (NTTP) 4-01.3, *Tactical Convoy Ops,* provides the guidance you need for convoy procedures. This chapter will focus on how a tactical convoy is organized and planned, identifying improvised explosive devices or IEDs and related drills, convoy movement formations, techniques, and drills, and what is involved in post mission reports, actions, and debriefs.

Objectives

When you have completed this chapter, you will be able to:

1. State the roles and responsibilities of convoy personnel.
2. Describe typical convoy configurations, both large and small.
3. State the importance of communication as it applies to convoys, and the various types used.
4. Explain the purpose of the gun truck and escort employment used during convoy operations.
5. State the convoy troop leading procedures/planning considerations used during convoy operations.
6. Explain the reasons for employing risk management when planning a convoy.
7. Describe the convoy forms that make up a convoy mission package.
8. Describe the reports used during convoy operations.
9. Explain the procedures for identifying IEDs and the actions you should follow when in contact with possible IEDs while performing convoy operations.
10. Describe the suspicious activities and objects that are common characteristics of an ambush.
11. Describe the various movement formations and techniques used by convoys.
12. Explain the importance of immediate action drills during convoy operations.

13. Explain the importance of convoy post mission operations and after-action reports used during convoy briefing.

PREREQUISITES

There are no prerequisites for completing this manual.

FEATURES OF THIS MANUAL

This manual has several features which make it easy to use online.

- Figure and table numbers are italicized within the handbook text. Figure and table reference numbers are conveniently located next to (or near) the applicable handbook text.
- Audio and video clips are included in the text, with italicized instructions telling you where to click to activate the appropriate link.
- Review questions are included at the end of this chapter as the chapter assignment. To submit assignments log into https://www.courses.netc.navy.mil, go to “Student Services”, in the drop down click on “Active Courses”, go to "View/Submit Answers" next to the course you wish to submit answers for. Assignments may be submitted to the above Web site as they are completed, and instant scoring is available. Your completion letter is available as soon as you pass all assignments.
- A form at the end of each chapter allows your input for improving the manual or correcting errors to be brought to the attention of CSFE’s Technical Review Committee. Your input is important and will help keep this manual up to date and free of technical errors.

1.0.0 CONVOY ORGANIZATION

1.1.0 Convoy Personnel

Each member of a tactical convoy has a specific role and assigned responsibilities. These functions and roles are the same for all convoys, regardless of size or mission.

1.1.1 Convoy Commander (CC). The Convoy Commander has the overall responsibility for the convoy. He or she is the final decision maker for coordination, preparation, equipment, personnel, safety, etc. He or she should be positioned in the best location to control the convoy. Additional responsibilities include:

- Approving task organization and convoy configuration
- Assigning personnel and vehicle responsibilities
- Conducting the Operation Order (OPORD) brief and debrief
- Maintaining all communications, both internal and external
- Reviewing all intelligence and briefing personnel of such
- Conducting Pre-Combat Inspections (PCIs)

1.1.2 Assistant Convoy Commander (ACC). The Assistant Convoy Commander is the second in command and assumes the duties as the CC if necessary. The ACC is normally positioned in the trail or rear of the convoy, but should not be collocated with the CC. The ACC's responsibilities include:

- Supervising rehearsals and drills
- Performing duties in accordance with (IAW) the unit Standard Operating Procedures (SOP)

1.1.3 Security Element Commander. The Security Element Commander is subordinate to the CC and responsible for controlling the convoy's security element. He or she may be the escort unit commander and is responsible for:

- Positioning all security units to observe/engage the enemy when required
- Maintaining dedicated internal communications

1.1.4 Navigator (or Pace Setter). The Navigator ensures the convoy is on route and maintains the pace needed to meet the convoy's schedule. He or she is responsible for:

- Pre-mission route planning, including:
    - Checkpoints
    - Choke points
    - Alternate routes
    - Landing zone (LZ) identification
- Communicating checkpoints, turns, and danger areas to the CC
- Providing strip maps to all Vehicle Commanders

Note: Use of Global Positioning System (GPS) can aid in the planning and identification of specific points during movement.

1.1.5 Vehicle Commander (VC). Each vehicle assigned to the convoy has a Vehicle Commander responsible for all personnel, cargo, and equipment in the assigned vehicle. VCs are responsible for:

- Tasking personnel assigned to their vehicle

- Conducting Pre-Combat Checks (PCCs) and PCIs of assigned personnel and equipment
- Supervising their vehicle and personnel during rehearsals
- Maintaining communications with the CC and other VCs
- Accounting for all sensitive items in their vehicle if removed or destroyed
- Briefing their personnel on the Rules of Engagement (ROE) and Escalation of Force (EOF)/continuum of force procedures

1.1.6 Driver. Each vehicle has an assigned driver. His or her primary duty is to drive, but he or she is also responsible for:

- Managing the personnel, safety, cargo, fueling, and maintenance of their vehicle
- Scanning their sector of observation
- Being prepared to return fire, but not while driving
- Maintaining the proper vehicle interval

1.1.7 Gunner. The gunner is responsible for the operation, maintenance, and use of the assigned weapon system. He or she must be aware of current ROE and EOF along the route.

1.1.8 Designated Marksman. The designated marksman should be an expert shooter and have an advanced optical sight. The designated marksman provides precision fire against enemy threats designated by the CC.

1.1.9 Medics/Corpsmen/Combat Lifesavers. These medical personnel should be dispersed throughout the convoy and are responsible for:

- Managing assigned medical equipment
- Providing/supervising all medical treatment
- Performing evaluation and initial resuscitation/stabilization of casualties
- Performing/supervising evacuations of casualties
- Coordinating litter teams

1.1.10 Aid and Litter (A&L) Team. A&L teams should be dispersed throughout the convoy and consist of at least two personnel. They are responsible for:

- Maintaining all A&L equipment
- Transporting casualties to ambulances or collection points

1.1.11 Landing Zone (LZ) Team. The LZ team is responsible for:

- Establishing, marking, and confirming the LZ is clear for medical evacuation (MEDEVAC)/casualty evacuation (CASEVAC)
- Maintaining the LZ marking kit
- Being familiar with rotary wing LZ requirements

1.1.12 Enemy Prisoner of War (EPW) Team. The EPW team should consist of two personnel trained in detainee and EPW procedures. They are responsible for:

- Handling EPWs and detainees
- Maintaining the EPW kit

1.1.13 Recovery Team. The recovery team assists in the maintenance and recovery of convoy assets. They are usually located in the rear of the convoy.

1.1.14 Other Convoy Personnel. All other personnel should be formed into tactical teams. They will be responsible for:

- Rehearsing as a tactical team
- Acting as additional security assets when required
- Observing their assigned sectors for threats from the ground or air
- Being prepared to dismount when required
- Signaling/directing civilian traffic

1.2.0 Convoy Configuration

Convoys are made up of three sections; the lead or head section, the main body, and the trail section. Refer to *Figure 4-1***.**

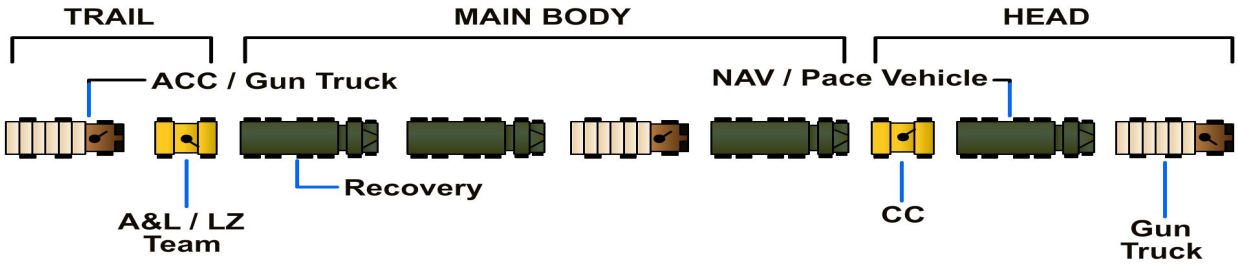


Figure 4-1 — Three sections of a typical convoy.

Lead/Head Section. The lead or head section of the convoy is comprised of a pace vehicle and a gun truck or security element vehicle. The pace vehicle should be the heaviest vehicle with the slowest top speed. The security element vehicle or gun truck is part of the convoy, not the Forward Security Element or FSE.

Main Body. The main body consists of the majority of the convoy vehicles. The CC is usually located in this section for ease of control and observation. Any fuel or ammunition vehicles should be interspersed in the main body, with the heaviest vehicles towards the front.

Trail Section. The trail section consists of recovery vehicles and a rear convoy security element vehicle or gun truck. The ACC, A&L teams, LZ teams, and medical personnel are usually located in this section.

Convoy configuration should also take into account the presence of counter-IED jammers, such as Counter Radio-controlled IED Electronic Warfare (CREW) equipment and systems available. In larger convoys of 20 or more vehicles, multiple medical and recovery teams and additional security elements should be interspersed in vehicles. See *Figures 4-2 and 4-3.*

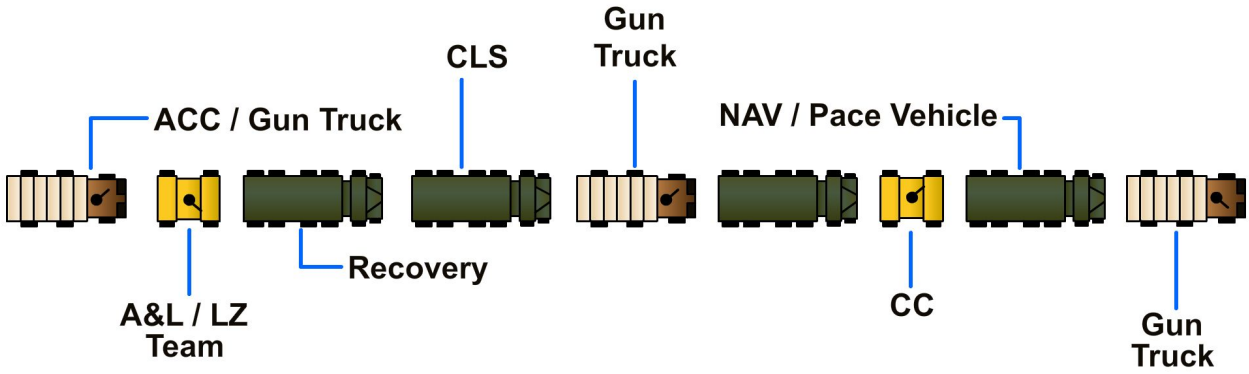


Figure 4-2 — Typical small convoy configuration.

Additional configuration considerations should include internal security elements and vehicle speed and intervals. Internal security elements should be dispersed throughout the convoy and are comprised of gun trucks and dismounts. Dismounts are security personnel armed with automatic weapons that are ready to dismount when required. Gun trucks can be any type of vehicle, but are preferably armored vehicles with mounted crew-served weapons that command a 360-degree firing radius. These gun trucks should be off-road-capable to shield dismounts and evacuate casualties. All internal security elements should have good communications equipment using multiple nets.

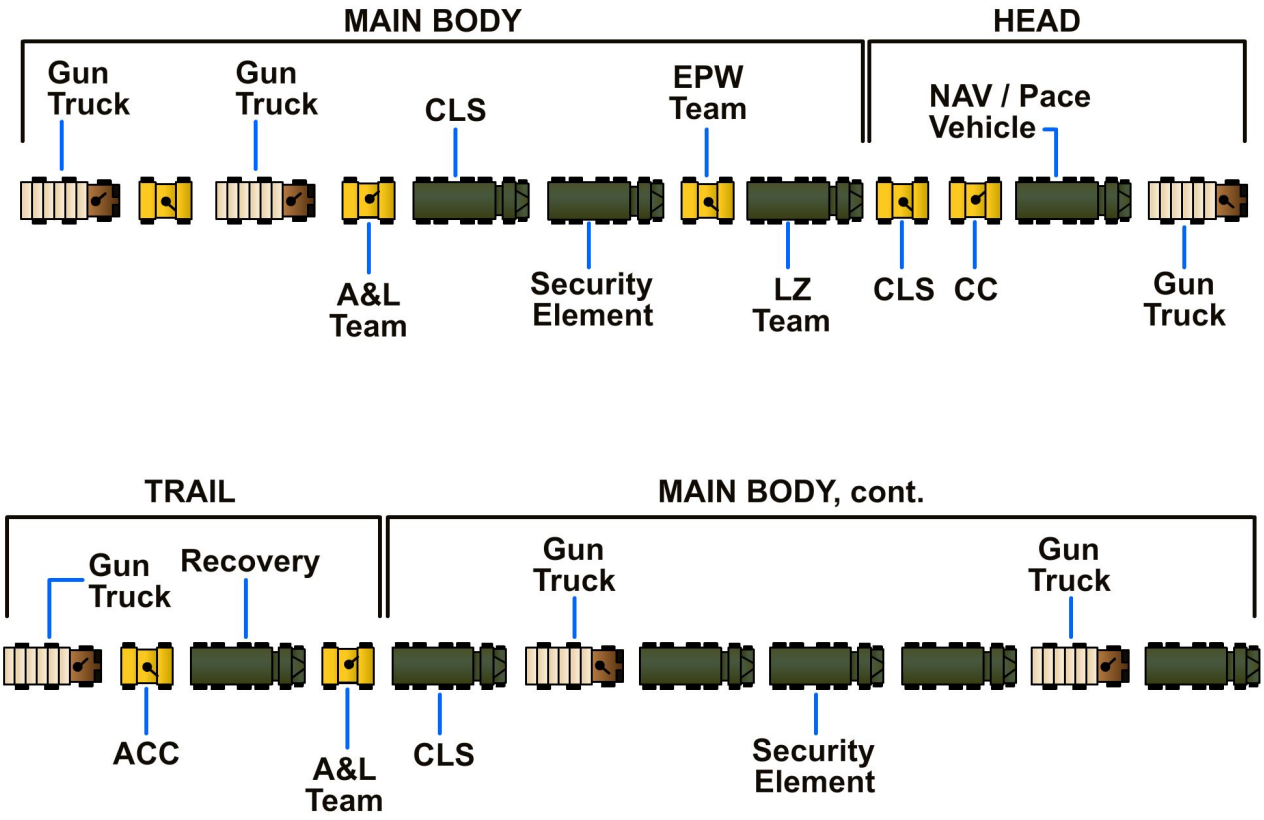


Figure 4-3 — Typical large convoy configuration.

The CC dictates the normal speed, catch-up speed, and vehicle intervals using the **M**ission, **E**nemy, **T**errain and weather, **T**ime available, **T**roops and support available, and **C**ivilian considerations or METT-T(C) process. Speeds should take into consideration factors such as driver fatigue and experience, speed of the slowest vehicle, the degree of urgency, condition of roads, and civilian traffic. Intervals are recommended to be between 75 and 100 meters between vehicles on open rural roads, but should always consider maneuverability and timing so as to:

- Lessen enemy effectiveness
- Maximize mutual supporting fire
- Allow safe stopping distances

1.3.0 Vehicle Configuration

1.3.1 Vehicle Hardening. Even factory-hardened vehicles may require extra protection using Kevlar® blankets, armor plating, ballistic glass, or sand bags. Hardening:

- Reduces vehicle component vulnerability
- Protects personnel on board
- Alters the vehicle’s center of gravity and responsiveness
- Increases braking distance and maintenance requirements

1.3.2 Camouflage, Concealment, and Deception. All shiny surfaces should be covered or camouflaged. Use camouflage netting to break up the profile of gunners, and remove any placards from vehicles with hazardous cargo to avoid identification.

1.3.3 Vehicle System Components. Antennas and wires should be removed or altered so as to not "stand out," but be aware that such removal or alterations may degrade that system's capability. See *Figure 4-4.*

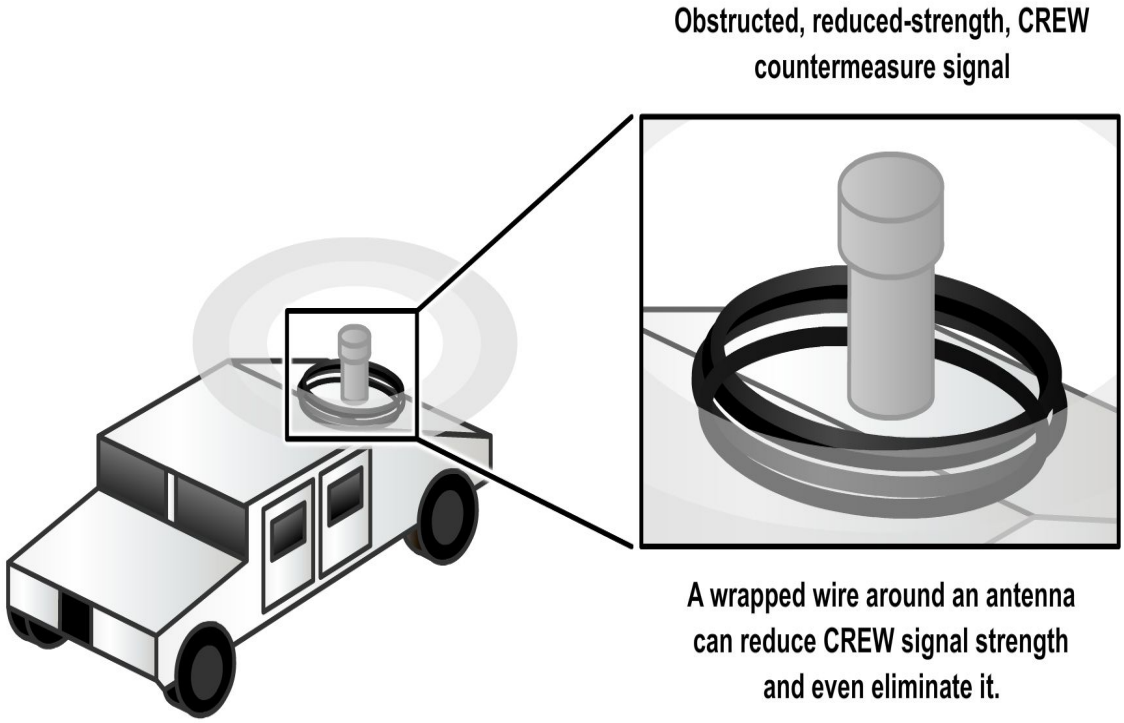


Figure 4-4 — CREW antenna obstruction.

1.4.0 Communications

Good communications throughout the convoy is necessary to:

- Control movement
- Coordinate with friendly units
- Control and coordinate responses to enemy actions
- Request and control supporting arms fire
- Request CASEVAC/MEDEVAC
- Report convoy progress to Higher Headquarters (HHQ)

There are four types of communications used by the convoy; internal communications within the convoy, communications with HHQ, communications with adjacent units, and communications with aviation units. See *Figure 4-5*.

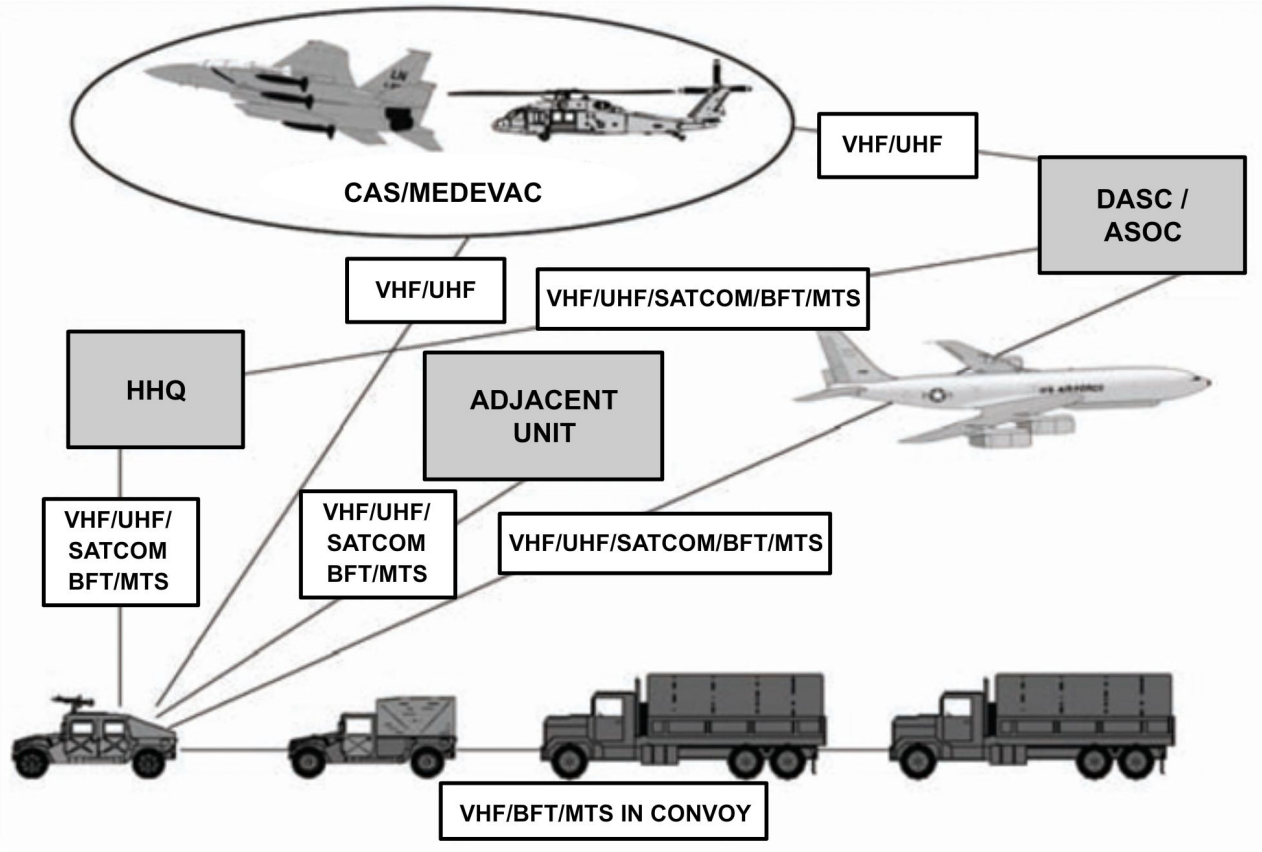


Figure 4-5 — Convoy communications diagram.

1.4.1 Internal Convoy Communications. Each member of the convoy should be proficient with the single-channel ground and airborne radio system or SINGCARS. They should be able to:

- Set up the system for operations
- Load a frequency
- Switch between encrypted and non-encrypted communications
- Follow proper radio communications procedures

Alternate forms of communications such as hand signals (*Figure 4-6*), voice, horn, light, pyrotechnics, etc. should be planned and briefed as a backup to radio. Escorts and security elements should have their own separate network.



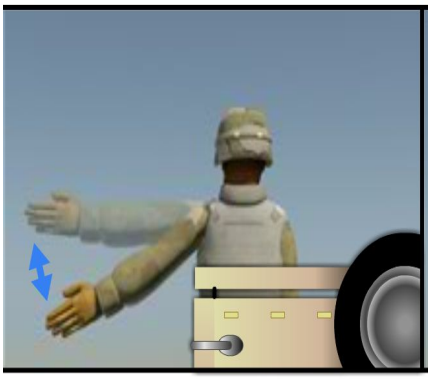
I Am Ready To Move
Are You Ready?



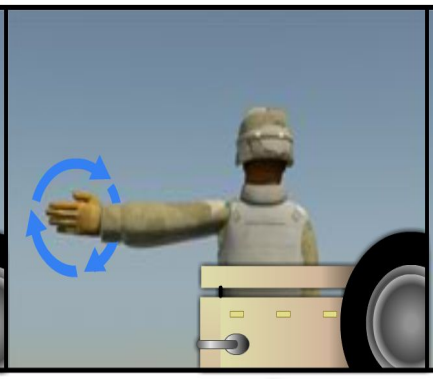
Attention



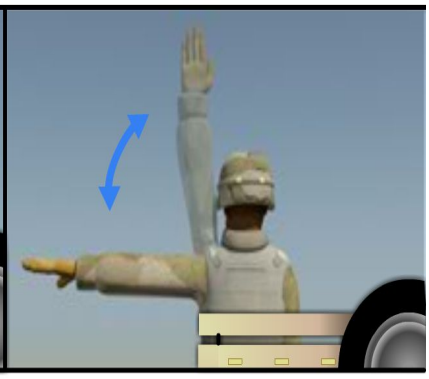
Mount



Open Up (Extend Distance
Between Vehicles)



Pass and Keep Going



Close Up



Move in Reverse



Dismount



Move Forward

Figure 4-6 — Convoy hand and arm signals.

1.4.2 Communications with Higher Headquarters. The CC must keep in contact with HHQ during all convoy movements by establishing primary, alternate, and tertiary communications methods. If necessary, communications with HHQ can be re-routed through adjacent units or other methods such as High Frequency (HF) and satellite telephone. All planned movements should be sent to HHQ using a Ground Transport Request/Transportation Movement Request (GTR/TMR).

1.4.3 Communications with Adjacent Units. Communications with adjacent units when moving through another unit's area of operations (AO), such as friendly forces, allied or coalition forces, or other convoys should be maintained so that the CC is aware of potential assets, support, and communication boundaries.

1.4.4 Communications with Aviation Units. Having communications availability with aviation units allows for rapid air support and emergency CASEVAC/MEDEVAC requirements. This can only be done with frequencies and communications methods predetermined as part of convoy planning.

1.5.0 Escorts and Forward Security Elements (FSEs)

A convoy escort is a unit, with an independent task organization, assigned to provide ground security for a convoy. Armored vehicles are better for escort units than High Mobility Multipurpose Wheeled Vehicles (HMMWVs) due to their lethality and survivability. A typical convoy escort is comprised of three sections; a forward security element, flank/main body security element, and a rear security element. The escort normally uses the column formation due to its speed and maneuverability.

1.5.1 Personnel. The convoy escort leader, who may also be the security element leader, is directly under the CC for unity of command. Although the CC determines whether to break contact or fight in an enemy encounter, he or she will rely heavily on the escort leader's advice and recommendations.

Engineer assets are located in the FSE or near the front of the convoy to clear obstacles. The Fire Support Team (FiST) will be located near the CC or security element leader for ease of command and control. There will normally be a Counter Assault Element (CAE) located in each section of the escort unit. Escort unit dismount forces are positioned in the FSE to be deployed at danger areas such as bridges, overpasses, or other likely ambush sites. The remainder of the dismount forces is interspersed in the convoy as a response force. The escort leader will place a designated marksman in each vehicle. See *Figure 4-7*.

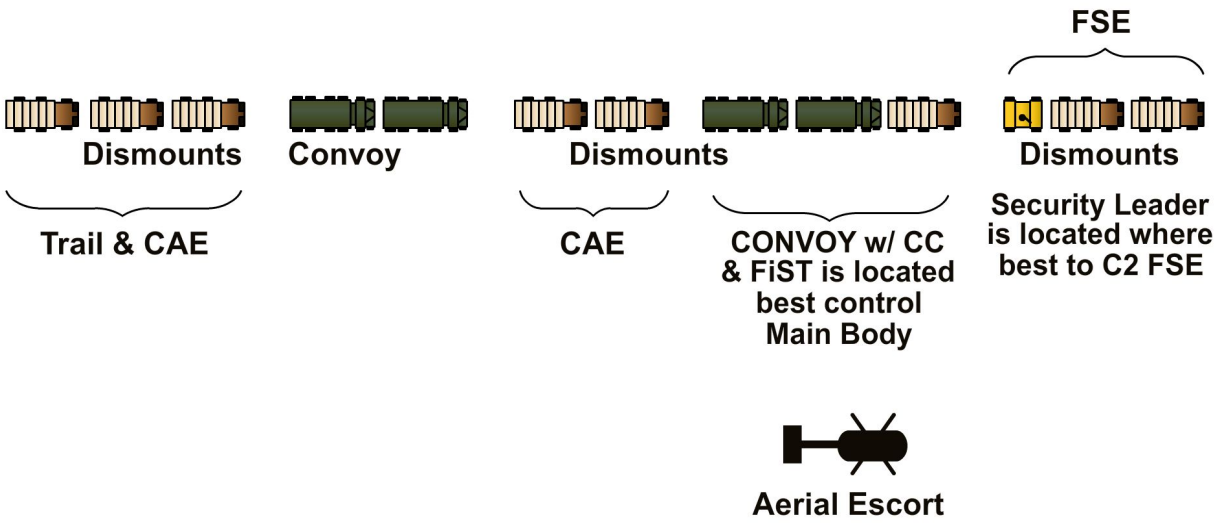


Figure 4-7 — Convoy escort security elements.

1.5.2 Mission Planning and Execution. The primary mission of the escort unit is to provide close-in protection for the convoy from direct fire or complex ambushes. Since their task is not to engage in a sustained firefight, the escort unit will normally only engage the enemy as long as necessary for convoy safety. During planning, the escort leader determines where potential problems with civilians may occur and selects alternate routes to avoid conflicts or delays. When crowds are encountered, the escort leader has to decide whether to bypass the crowds or close intervals and push through. He or she may also use non-lethal force to disperse civilian crowds.

When performing forward reconnaissance of danger areas, one of the FSE's primary missions, the escort leader has the following options:

- Avoid the danger area if possible
- Request preplanned fire support
- Deploy an over-watch unit
- Use advanced optics to locate IEDs and ambushes
- Have dismounts conduct a sweep for IEDs and ambushes

All battle drills should be rehearsed by the escort unit, regardless of escort experience. See the Immediate Action Drills section later in this chapter for actions to take at overpasses, off-ramps, choke points, etc.

2.0.0 PLANNING CONSIDERATIONS

2.1.0 Convoy Troop Leading Procedures

The convoy Troop Leading Procedures (TLP) provided here are tailored specifically for tactical convoy operations and are similar to the troop leading steps (BAMCIS) outlined in MCRP 3-11.1A, *Marine Troop Leader's Guide,* as follows:

1. Receive the mission.
2. Issue the Warning Order (WARNORD).
3. Gather intelligence.

4. Make a tentative plan.
5. Conduct pre-movement preparations.
6. Complete the plan.
7. Issue the convoy brief.
8. Supervise.

2.1.1 Receive the Mission. The convoy commander receives his or her mission in the form of a WARNORD, OPORD, Fragmentary Order (FRAGORD), or verbally. The CC must then analyze the mission and his or her unit's capabilities, then conduct a risk assessment. See the section later in this chapter on Risk Management Assessment and the accompanying tables for more details on risk assessment.

2.1.2 Issue the WARNORD. After analyzing the mission, the CC will issue a WARNORD to provide subordinates with any key information they need in their preparations. This WARNORD should include:

- Destination of the convoy
- Manifest of all personnel, equipment, and supplies to load
- Timeline of all preparatory tasks to perform, from the mission receipt until the convoy's start point

2.1.3 Gather Intelligence. All available intelligence concerning the intended route and surrounding areas should be obtained from sources such as:

- Unit Intelligence Officer (S-2)
- Unit Operations Officer
- Tactical Operations Center (TOC)
- Movement control elements
- Recent after-action reports
- Units located in the operational areas along the route
- Coalition and host-nation sources

Significant activity (SIGACT) reports may provide information concerning current threat levels and enemy tactics. These reports can be obtained from the unit's intelligence officer. See *Figure 4-8* for a sample SIGACT report.

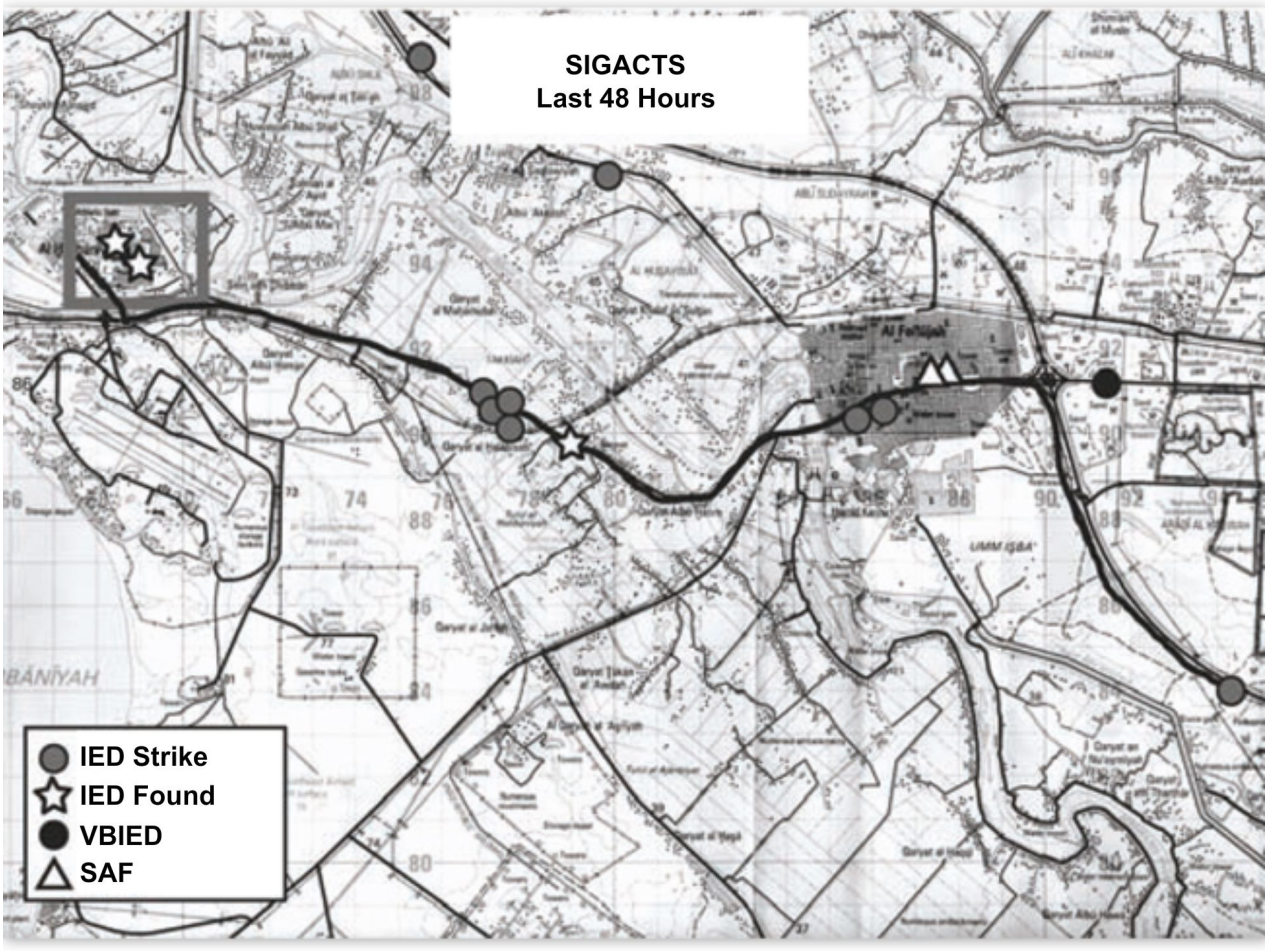


Figure 4-8 — Sample SIGACT overlay.

2.1.4 Make a Tentative Plan. The CC should make a tentative plan, and then conduct a back brief to the higher commander. The plan should be formulated using the principals of METT-T(C):

M – Mission. The CC develops the plan based on essential tasks identified in the OPORD received and the commander's intent. He or she identifies any restrictions and limitations, including ROE and EOF/continuum of force.

E – Enemy. Using any intelligence information previously gathered about the enemy situation along the proposed route, the CC tries to determine:

- Enemy order of battle
- Current enemy activity
- Danger areas
- Possible/previous ambush sites

T- Terrain and Weather. The CC uses the KOCOA process (*Figure 4-9*) to determine the military aspects of terrain. The primary focus of the analysis should be on the actual route of the convoy. A reconnaissance of the route should be conducted or the route be known prior to step off so the vehicles used will be able to navigate the route successfully. This reconnaissance along with imagery, geospatial products, and detailed notes on navigation, traffic, congestion, and threats are used to create a strip map. Strip maps for line haul routes will be created at the brigade/regiment level or higher, but maps for local haul routes are created by the battalion level or lower. The CC issues these strip maps to every vehicle.

The CC evaluates the effects of weather on the convoy, including visibility, winds, precipitation, cloud cover, temperatures, humidity, and lighting. It is important to note the Begin Morning Civil Twilight (BMCT) and End of Evening Civil Twilight (EECT) times, as these will determine the first and last time of day a target can be verified, unaided.

Key train

Observation and fields of fire

Cover and concealment

Obstacles

Avenues of approach

Figure 4-9 — KOCOA acronym.

T - Time available. The CC should complete the plan as soon as possible so subordinates can maximize their time in preparation and implementation of the plan. PCCs and PCIs should be supervised by the CC.

T - Troops and support available. The CC identifies any shortfalls, taking the following into consideration:

- Movement support requirements through any adjacent unit's area of operation
- Battle hand-off procedures with Quick Response Forces (QRF).
- Logistics, medical, and fire support availability along the route
- Availability of Material Handling Equipment (MHE) at the start and end points
- Additional requirements for military forces to safeguard non-military personnel and vehicles
- Host-nation support requirements

C - Civilian Considerations. There are strict limitations under the Law of Armed Conflict concerning the use of civilians in combat environments. Heavy concentrations of local civilians along the route are a major complicating factor. The level of interference varies with the types of civilian activity, such as:

- Active insurgents
- Criminals
- Sympathizers
- Unwilling accomplices
- Innocent bystanders

- Drivers and pedestrians
- Legitimate police and militia

2.1.5 Conduct Pre-movement Preparations. As part of the preparations for actual convoy movement, some elements may have to be refueled, rearmed, or loaded. These movements should be scheduled by the CC on the convoy's timeline, with the actual execution delegated to subordinates. This will ensure the CC's planning is not interrupted.

2.1.6 Complete the Plan. Although convoy briefings are verbal, a convoy mission package containing the following items should be completed and used during the briefing:

- **WARNORD** initiating the planning and preparation by all element leaders and individuals
- **Convoy mission order** issued and briefed by the CC before convoy movement
- **Ground Transport Request (GTR)/Transportation Movement Request (TMR)** submitted to HHQ
- **Ground Transport Order (GTO)/Transportation Movement Order (TMO)** in response to the GTR/TMR, containing movement information from the requesting unit within the designated area of operations
- **Convoy manifest** containing a lists of all personnel, vehicles by USN number, and equipment that will make up the convoy
- **Strip map** used as a navigational aid by all vehicles in the convoy. The strip map should provide route control and battle tracking information, operational and logistical support points, major terrain features, key built-up areas, highway infrastructure, and danger areas. See *Figure 4-10* for a sample strip map.
- **Communications Smart Package** containing frequencies, network identifications, and call signs. It should also contain a roster of all key Force XXI Battle Command, Brigade and Below (FBCB2) role names with their cell and DSN numbers.
- **Fire Support Asset Availability Matrix** to assist the CC in fire support planning and execution

2.1.7 Issue the Convoy Brief. After the CC issues the convoy brief as an OPORD, subordinate leaders should give a confirmation or back brief to the CC.

2.1.8 Supervise. The CC should inform the ACC of any time-consuming tasks that need to start early, such as crossloading, vehicle hardening, etc. While the CC is planning the mission, the ACC and other subordinates can concentrate on staging, inspecting, manifesting, and rehearsing.

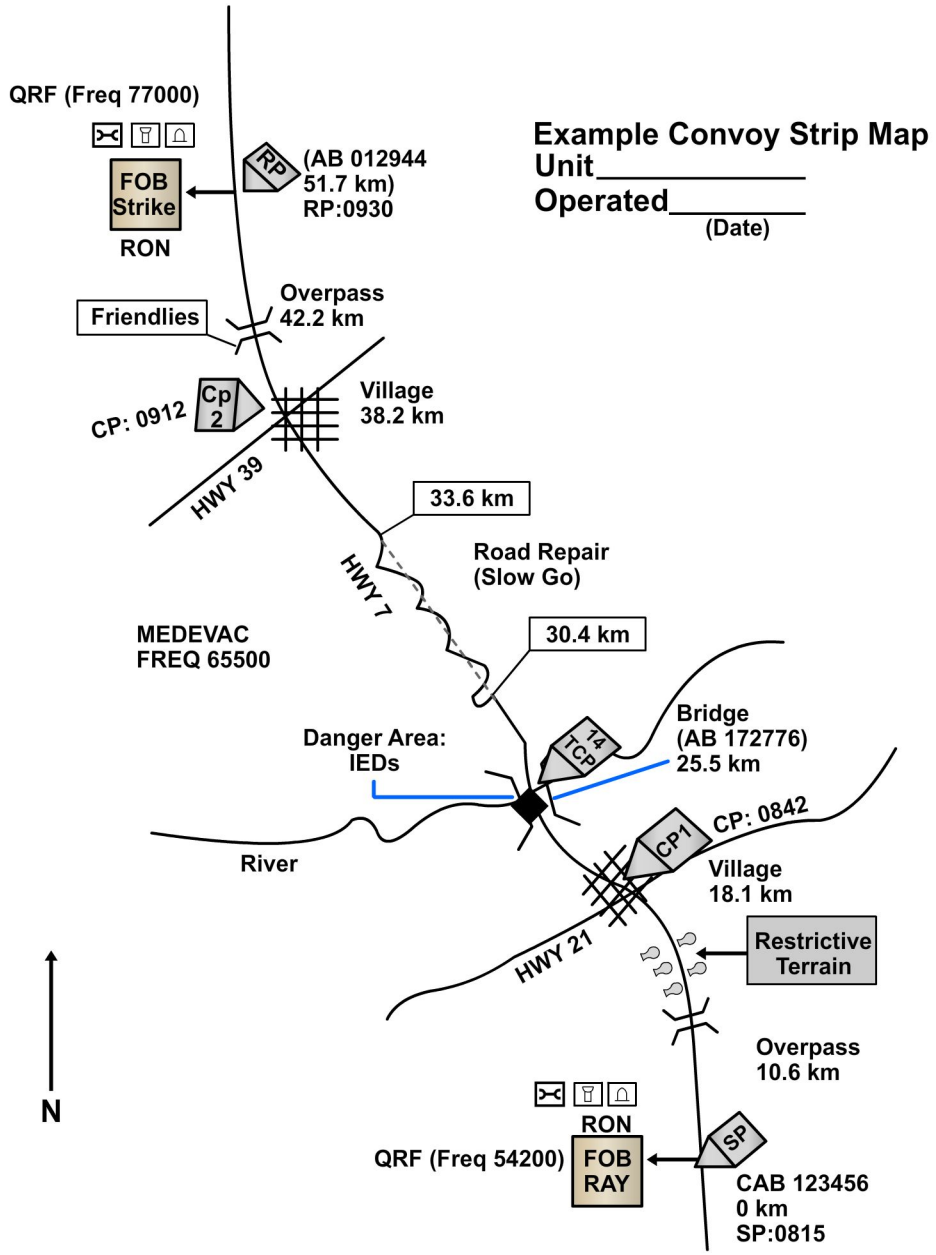


Figure 4-10 — Sample convoy strip map.

2.2.0 Additional Planning Considerations

Additional factors that the CC should consider while planning the convoy include:

- Including gun trucks and an FSE for additional firepower and reconnaissance
- Any time constraints involved
- Maintaining Operations Security or OPSEC to deny the enemy advanced information concerning the convoy such as:
    - Concealing vehicle windows, headlights, and other reflective surfaces
    - Conducting convoys at night

    - Using proper radio procedures and methods
    - Covering loads to prevent identification
    - Removing placards and not adding markings that might identify hazardous or high-value loads
- Maintaining accountability of sensitive materials such as Communications Security (COMSEC) and classified documents
- Developing and rehearsing a vehicle recovery plan
- Developing a counter-IED plan
- Coordinating ambulance and medical coverage, both on the ground and in the air
- Developing a casualty plan
- Developing a rest or rotation plan for drivers
- Dispersing cargo vehicles throughout the convoy

The CC should plan rehearsals to ensure all participants are confident and prepared to execute the plan. The primary focus should be on battle drills, but drills/rehearsals should be conducted in the following areas:

- Sand table exercise or route walk-through
- Immediate Action (IA) drills
- MEDEVAC/CASEVAC
- Communications
- Escorts
- Vehicle recovery operations

2.3.0 Risk Management Assessment

Risk management should be used by all CCs in planning a tactically successful convoy operation. Operational Risk Management (ORM) is a method used to identify hazards, assess risks, and implement controls to reduce the risk associated with any operation. By reducing the potential for loss, the probability of a successful mission is increased. *Table 4-1* shows a sample risk assessment completed for a convoy mission, and *Table 4-2* shows the standard hazard severity/mishap probability matrix used in completing a risk assessment. See Appendix E of NTTP 4.01.3, *Tactical Convoy Ops*, for more information concerning convoy risk assessment. See COMFIRSTNCDINST 3500.1, dated 16 May 2006 for more information on ORM.

Table 4-1 — Sample Risk Assessment for a Convoy

Example Convoy ORM Worksheet						
Event Description Tactical Convoy Operation	Date		Time	Location	CC	
	SOURCES OF RISK/MITIGATION **Notes:** There is inherent risk when conducting convoy operations. The contemporary operating environment can inhibit safe operations. Personnel must be trained and certified on crew and individual weapons. Drivers and vehicle crews must rehearse immediate action and roll over drills.					
Hazard	**Hazard Prob**	**Hazard Severity**	**Initial Risk Code**	**Control**	**Supervision**	**Residual Risk Code**
Adverse terrain	B	II	High	-Convoy briefs -Driver training -Route selection	-CC will give a thorough convoy brief before operations	Mod
Ambush	C	I	High	-Security element conducts appro-priate sweeps -All convoy personnel will maintain SA -IA drills -Harden vehicles	-ACC super-vise rehearsal of all IA drills -VCs super-vise vehicle hardening	Mod
Fratricide	D	I	High	-Air panels on all vehicles -Brief no-comm plan -Review weapons safety	-VCs ensure compliance & direct sectors of fire during engagement	Mod

Table 4-2 — Risk assessment matrix.

Risk Assessment Matrix						
	PROBABILITY					
SEVERITY		Frequent A	Likely B	Occasional C	Seldom D	Unlikely E
Catastrophic	I	E	E	H	H	M
Critical	II	E	H	H	M	L
Marginal	III	H	M	M	L	L
Negligible	IV	M	L	L	L	L
E=EXTREMELY HIGH H=HIGH M=MODERATE L=LOW						

2.4.0 Convoy Reporting Forms and Procedures

The following reports and procedures are commonly used for tactical convoy operations.

2.4.1 Accident Procedures and Reporting.

1) Establish local security and traffic control.
2) Assess the damage to personnel, vehicles, and loads.
3) Determine the accident location, using 8-digit grid coordinates.
4) Report all information to HHQ.
5) Contact the nearest base camp and provide the following information:
    a) Status of personnel
    b) MEDEVAC/CASEVAC request if needed
    c) Status of vehicles
    d) Location of accident
    e) Current situation
    f) Recovery assistance, if needed, stating the type of equipment and damage
6) Complete the accident report form in duplicate. Use cameras to document damage if available.
7) Follow instructions from HHQ.

2.4.2 Unexploded Explosive Ordnance (UXO). If any mines, explosives, or other UXO are found, immediately report them to the unit's tactical operations center using the format below:

LINE 1: DATE/TIME group discovered
LINE 2: Reporting unit and grid location and AO of UXO
LINE 3: Method of contacting over-watching unit (radio freq/call sign/telephone number)
LINE 4: Type of munitions (dropped, projected, placed, or thrown)
LINE 5: CBRN contamination: C – Chemical; B – Biological; R – Radiological; N – Nuclear; D – None
LINE 6: Resources threatened
LINE 7: Impact on mission
LINE 8: Protective measures taken
LINE 9: Recommended priority (immediate, indirect, minor, or no threat)

- Immediate: stops a unit's maneuver and mission capability or threatens critical assets vital to the mission
- Indirect: stops the unit's maneuver and mission capability or threatens critical assets important to the mission
- Minor: reduces the unit's maneuver and mission capability or threatens non-mission critical assets of value
- No Threat: has little or no effect on the unit's capabilities or assets

If it is safe to do so, mark the area of the UXO with marking tape, engineer's tape, candy-striped tape, mine sign, or any means available. Doing so will keep locals and military personnel out of the danger area. Build a barricade far enough from the UXO that it won't fall onto it.

NOTE

Do not enter an uncleared area to mark UXO. Place markings in the nearest cleared area.

2.4.3 SPOT Report. A SPOT report should be used for any information requiring a report and should include at least the following:

WHO: unit or personnel involved

WHAT: a detailed description of the incident

WHERE: the grid coordinates or location of the incident

WHEN: date and time of the incident

ACTIONS ALREADY TAKEN

2.4.4 Enemy Contact Report. An enemy contact report should be made, internal to the convoy, using the following format:

CALL SIGN: “Convoy commander, this is truck six, CONTACT

DIRECTION: “3 o’clock”

DISTANCE: “200 meters”

TYPE OF THREAT: “RPG and small arms”

2.4.5 SALUTE Report (for Enemy Contact). A SALUTE report should be made upon enemy contact, using the following format:

S – Size. The size of the enemy unit

A – Activity. What the enemy is doing

L – Location. Grid coordinates of the contact

U – Unit/Uniform. What unit is it and/or what uniforms are they wearing, if any?

T – Time. Date/Time Group (DTG) of contact

E – Equipment. What equipment the enemy possesses

2.4.6 Ammunition, Casualties, and Equipment (ACE) Report. For reorganization after enemy contact, submit an ACE report using the following format:

AMMUNITION: how much ammunition remains, by weapon type; ammunition is best counted by magazine, drum, or belt

CASUALTIES: how many casualties and what priority; begin MEDEVAC/CASEVAC if possible

EQUIPMENT: type of damage, severity, and recoverability

2.4.7 MEDEVAC/CASEVAC Report. See Appendix D of NTTP 4.01.3, *Tactical Convoy Ops*, for contents and format.

2.4.8 Call for Fire. A call for fire is a concise message prepared by an observer. Remember, it is a request, not an order. The call for fire message is sent to the Fire Direction Center (FDC) in three transmissions, using the following six elements:

(First transmission)

1) Observer identification
2) WARNORD (type of mission – adjust fire, fire for effect, immediate suppression)

(Second transmission)

3) Target location

(Third transmission)

4) Target description
5) Method of engagement (danger close, high angle, ammunition type requested)
6) Method of control (at my command, request time for flight, request splash, request time on target)

2.4.9 Close Air Support Brief. See Appendix D of NTTP 4.01.3, *Tactical Convoy Ops*, for contents and format.

3.0.0 IMPROVISED EXPLOSIVE DEVICE (IED)

IEDs are one of the greatest threats to convoys. All convoy personnel should be briefed on the latest types, concealment methods, and any known previous locations along the proposed convoy route. Since the bottom line is to protect the convoy, its personnel, and cargo, all members of a convoy should be scanning the route ahead for actual IEDs or likely locations. Some of the other ways to reduce the risk of IEDs are:

- Varying routes and times
- Randomly switching lanes
- Entering overpasses on one side, but exiting on the other
- Training weapons on overpasses as the convoy passes underneath
- Avoiding chokepoints

An IED encounter should be expected at any time or place, and is likely to be followed immediately by an ambush. Early morning hours and periods of reduced visibility are the most likely times to encounter an IED because the enemy has a better chance of successfully placing them. Convoy leaders can better prioritize their responses and lessen the loss of time and resources by using the following suspicion categories:

- **Level 1** – Large amounts of debris on a road with a history of IEDs
- **Level 2** – Evidence of ongoing emplacement, such as prepared holes, suspicious or lack of activity where there normally would be more
- **Level 3** – Suspicious objects or road conditions, such as rucksacks, mail bags, dead animals, rock piles, etc.
- **Level 4** – Clear indicators of imminent IED activity, such as protruding wires, an individual with what appears to be a detonating device

3.1.0 Identifying IEDs

IEDs can be made out of almost anything, such as old ordnance, diesel fuel, or fertilizer (*Figure 4-11*). They can then be hidden in potholes or abandoned vehicles, or disguised as trash, milk cans, burlap bags, etc. See *Figure 4-12*.



Figure 4-11 — Possible IED configurations.

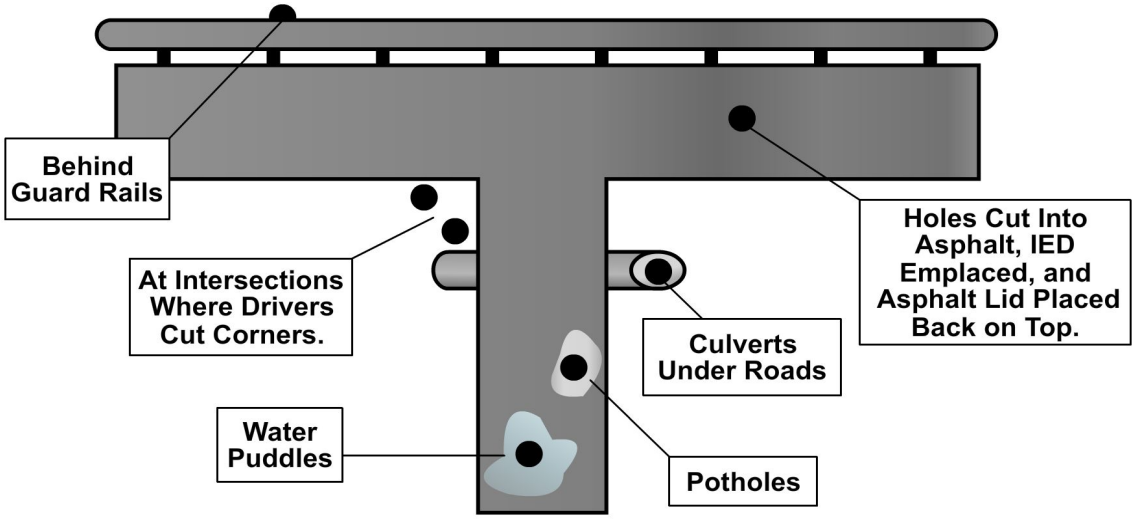


Figure 4-12 — Potential IED locations.

IEDs are detonated on command using wires or wireless devices such as cell phones, activated by the victim using a trip wire or pressure switch, or even by a timer. If

detonated on command, the enemy will have a direct line of sight and a quick escape route. Sometimes, IEDs are daisy-chained so that when one is detonated, it detonates others down the line. IEDs are typically placed along the side of the road, a median strip, or even dropped from or attached to an overpass.

3.1.1 Suspicious Activities and Objects. With both IEDs and ambushes, there are some objects that are suspicious and may indicate the presence of an IED or a pending ambush, such as:

- Abandoned vehicles on or near the road
- Fresh concrete or asphalt work
- Suspicious packages or containers on or near the road
- Markings in the local language or symbols such as a blue “X”, warning locals to stay away
- Exposed wires or objects taped or otherwise attached to guardrails and the like
- Freshly dug holes
- Objects in the roadway intended to force vehicles into a trap

There are also activities, or the lack thereof, that could indicate the presence of an IED or a pending ambush, such as:

- Civilian vehicles trying to pass or enter the convoy
- Vehicles following the convoy for an extended time, then suddenly pulling off or away
- Signal flares or lights flashing on/off as the convoy approaches
- Third party vehicles or personnel on an approaching overpass
- Third party personnel trying to approach the convoy (even children may be wearing explosive vests)
- Unusual changes in civilian activity such as:
    - The absence of women or children where they are usually present
    - Third party personnel dispersing as the convoy approaches
    - Dramatic changes in the number of civilians from one block to the next
    - No activity where there are usually large crowds
    - Sudden activity as the convoy approaches
    - Sudden reduction/absence of civilian traffic

3.1.2 Preventive Measures. There are certain things that a driver, or any member of the convoy, can do to prevent or minimize the effects of an IED or ambush:

- Be unpredictable by varying driving techniques, schedules, or routes.
- Attach signs to vehicles in the host-nation language warning civilians not to approach convoy vehicles.
- Avoid or eliminate blind spots by moving mirrors and fording kits and not obscuring vision during vehicle hardening.
- Use any available optics to enhance scanning for IEDs and likely ambush sites.

- Use two designated spotters in the FSE.
- Use available electronic countermeasures.
- Wear helmets, body armor, seat belts, and hearing and eye protection.
- Set minimum and maximum speeds and vary according to threat level.
- Maintain proper intervals between convoy vehicles.
- Follow the tracks of vehicles ahead when on unpaved roads.
- Stay on the pavement whenever possible.
- Travel in the lane best suited for speed.
- Travel in the middle of the road, changing lanes often and avoiding the shoulders.
- When stopping, either dismount and establish 360-degree security, or use a "rolling stop" where you slow down gradually and scan using the 5/25 meter scan before coming to a complete stop.
- Exercise extra caution at choke points, bridges, one-way roads, traffic jams, sharp turns, and during vehicle breakdowns.

4.0.0 CONVOY EXECUTION

There are specific procedures to follow for convoy movement, from the Starting Point (SP) to the Release Point (RP). These procedures include:

- Departing friendly lines
- Counter Radio-controlled IED Electronic Warfare
- Movement formations and techniques
- Danger areas
- Immediate action drills
- Re-entering friendly lines

Principles of mounted movement. Before discussing these procedures in detail, there are some principles and concepts that need to be explained. First of all, there are four principles of mounted movement for convoys:

- 360-degree security – maximum visibility, interlocking fires, and mutual support combine to create 360 degrees of security. Convoy personnel should be aware of what is around, above, and below them. They should focus on approaching vehicles, potential IEDs, suspicious wires, channeling terrain, and all suspicious individuals and groups.
- Deterrence – the enemy can be deterred from attacking or even approaching a convoy that appears menacing, aggressive, and more than willing to engage them.
- Agility – the convoy needs to be constantly adapting to the surrounding environment and conditions.
- Unpredictability – varying the convoy's schedule and route, and concealing its purpose and composition keeps the enemy guessing.

Sectors of observation. Sectors of observation are assigned to each vehicle occupant. Observers should scan their assigned sector in both depth and width, but not focus on specific object's activities, or individuals unless they seem suspicious. The sectors of observation assigned should be as follows:

- Driver – from 9 o'clock to 1 o'clock
- VC – from 11 o'clock to 3 o'clock
- Rear occupants – from 3 o'clock to 7 o'clock and from 5 o'clock to 9 o'clock respectively

In the event of an enemy threat by air, individuals throughout the convoy should be assigned as air guards in hourly shifts to avoid dulling their senses. Spotting the enemy first gives the convoy an important advantage and more options for reactions.

Sectors of fire. A sector of fire is that area that can be covered by direct fire. Sectors of fire should interlock and overlap for complete coverage and mutual support. Vehicles with full up-armoring will have more limited sectors of fire. More complete sectors can be covered when the crew dismounts. Drivers do not usually fire while driving, but are still assigned a sector for use when halted or dismounted. For vehicles whose windows open and for dismounted crews, the following sectors of fire should be assigned:

- Driver – from 9 o'clock to 11 o'clock
- VC – from 1 o'clock to 3 o'clock
- Rear occupants – from 3 o'clock to 5 o'clock and from 7 o'clock to 9 o'clock respectively

See *Figure 4-13* (The dead spaces at front and rear are to avoid firing on friendly forces.)

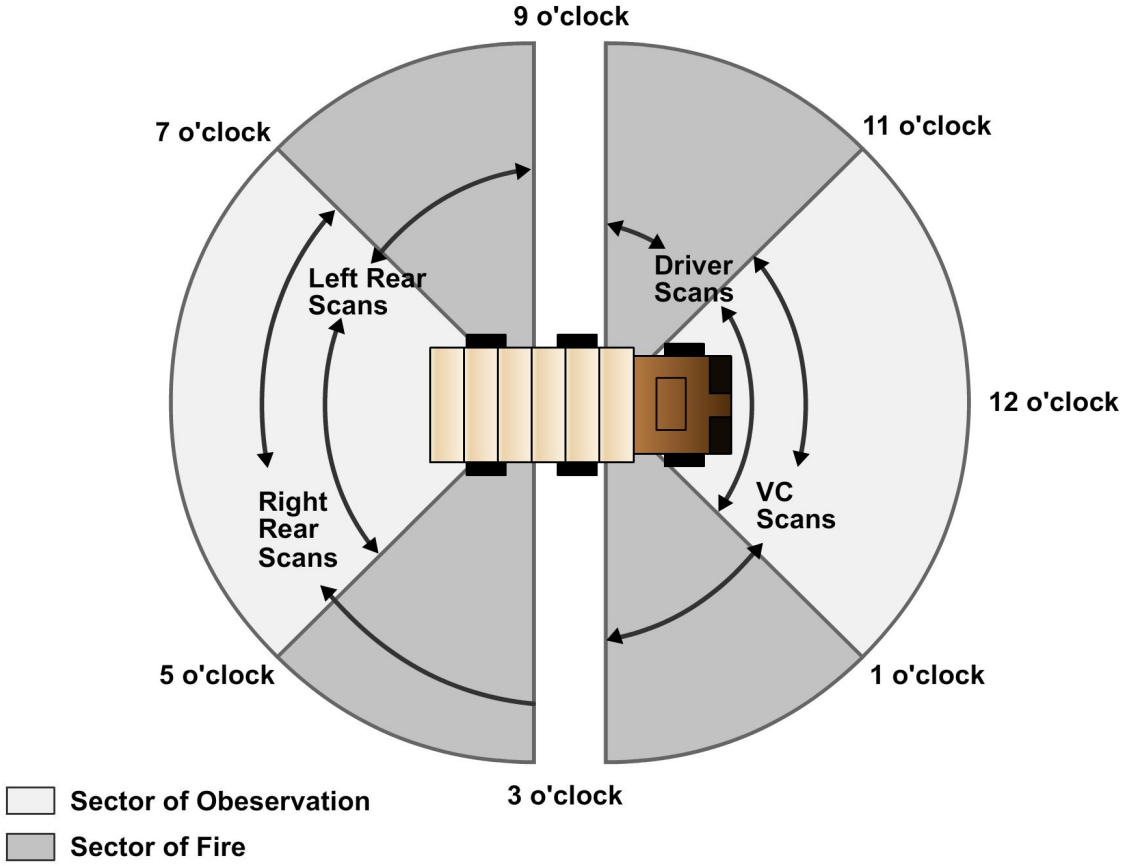


Figure 4-13 — Single vehicle sectors of observation and fire.

4.1.0 Departing Friendly Lines

The CC is required to conduct a set of procedures to depart friendly lines. These procedures vary depending on operational areas, but the recommended procedures include:

Pre-staging. Each VC conducts PCCs before reporting to the staging area. These PCCs are listed in Appendix B of NTTP 4-01.3, Tactical Convoy Ops.

Staging area. The following actions should be taken at the staging area:

1. The CC or ACC inspects selected equipment during their PCI.
2. Vehicles are placed in convoy order.
3. The convoy manifest is confirmed as to who and what is in each vehicle.
4. Final communications checks are conducted.
5. All personnel are informed of any last minute changes.
6. Strip maps and intelligence are updated.
7. Watches are synchronized.
8. Weapons are test fired, IAW local SOPs.

Start Point (SP). The SP should be located far enough from the staging area to allow for proper vehicle intervals. Ground-based Electronic Warfare (EW) checks are

conducted before the SP, but not in the staging area unless there is sufficient separation. Other actions at the SP include:

- Each element leader with radio communications contacts the CC when crossing the SP, but limits all other communications.
- The CC monitors and controls vehicle intervals and speed, element leader's actions, and available aviation.
- The CC should have the following information available IAW established/local SOPs:
    - Number of vehicles
    - Number of personnel
    - Convoy call sign
    - Convoy destination

4.2.0 Counter Radio-controlled IED Electronic Warfare (CREW)

CREW systems are electronic attack assets designed to assist in countering radio-controlled IEDs. Although CREW systems provide enhanced protection from IEDs, they are not 100 percent effective and do not provide any protection from other types of IED detonators such as timed pressure plates, trip wires, etc. The Electronic Warfare Officer (EWO), Combat Systems Officer (CSO), or a qualified expert will assist the CC in placing CREW systems within the convoy. All convoy personnel should be familiar with:

- On/off procedures
- Destruction/zeroize methods
- Verifying emission

CREW systems only provide protection a limited distance around the vehicles they are in, not a protective "bubble" around the whole convoy. If every vehicle in the convoy does not have a CREW system on board, CREW-equipped vehicles should be positioned to maximize coverage. Any vehicles without CREW should maintain a line-of-sight with the CREW-equipped vehicle protecting them (*Figure 4-14*).

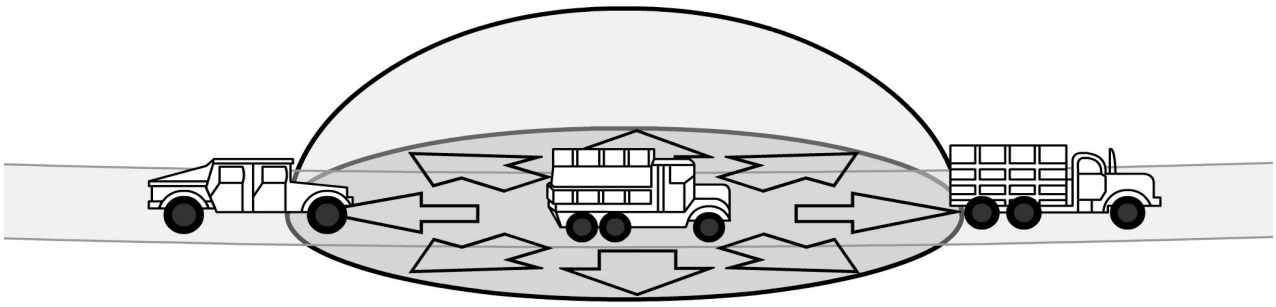


Figure 4-14 — CREW coverage.

Since the CREW system can be masked by large objects, vehicles should avoid sharp turns around buildings that will degrade their effectiveness (*Figure 4-15*).

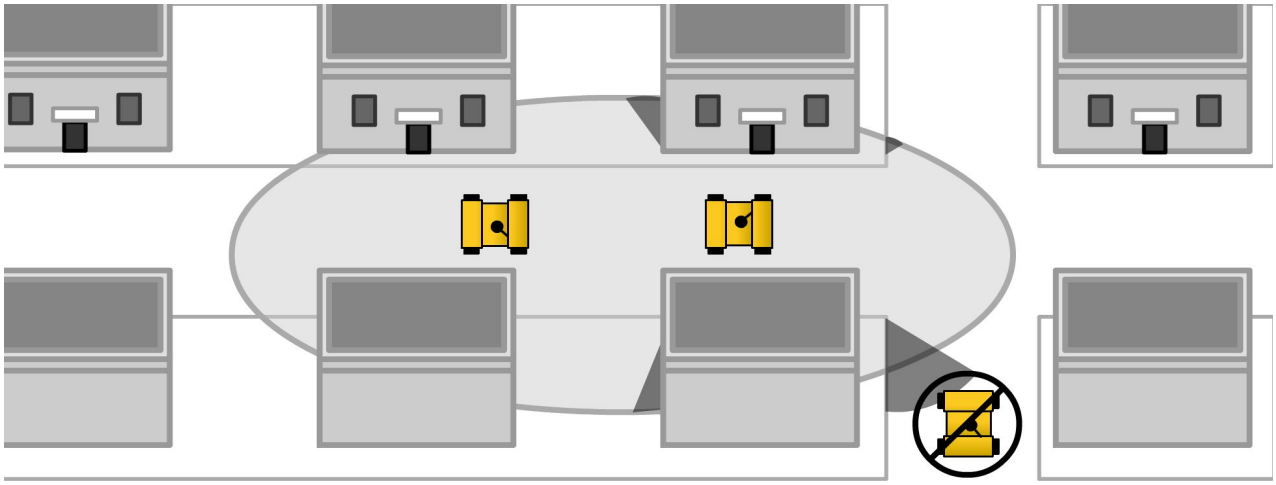


Figure 4-15 — CREW system line-of-sight coverage.

CREW-equipped vehicles can be used as over-watch units at likely IED locations and choke points. See *Figure 4-16*. Use the following guidelines with CREW:

- Ensure compatibility with coalition systems.
- CREW may interfere with communications or GPS equipment, so contact the EWO to deconflict them.

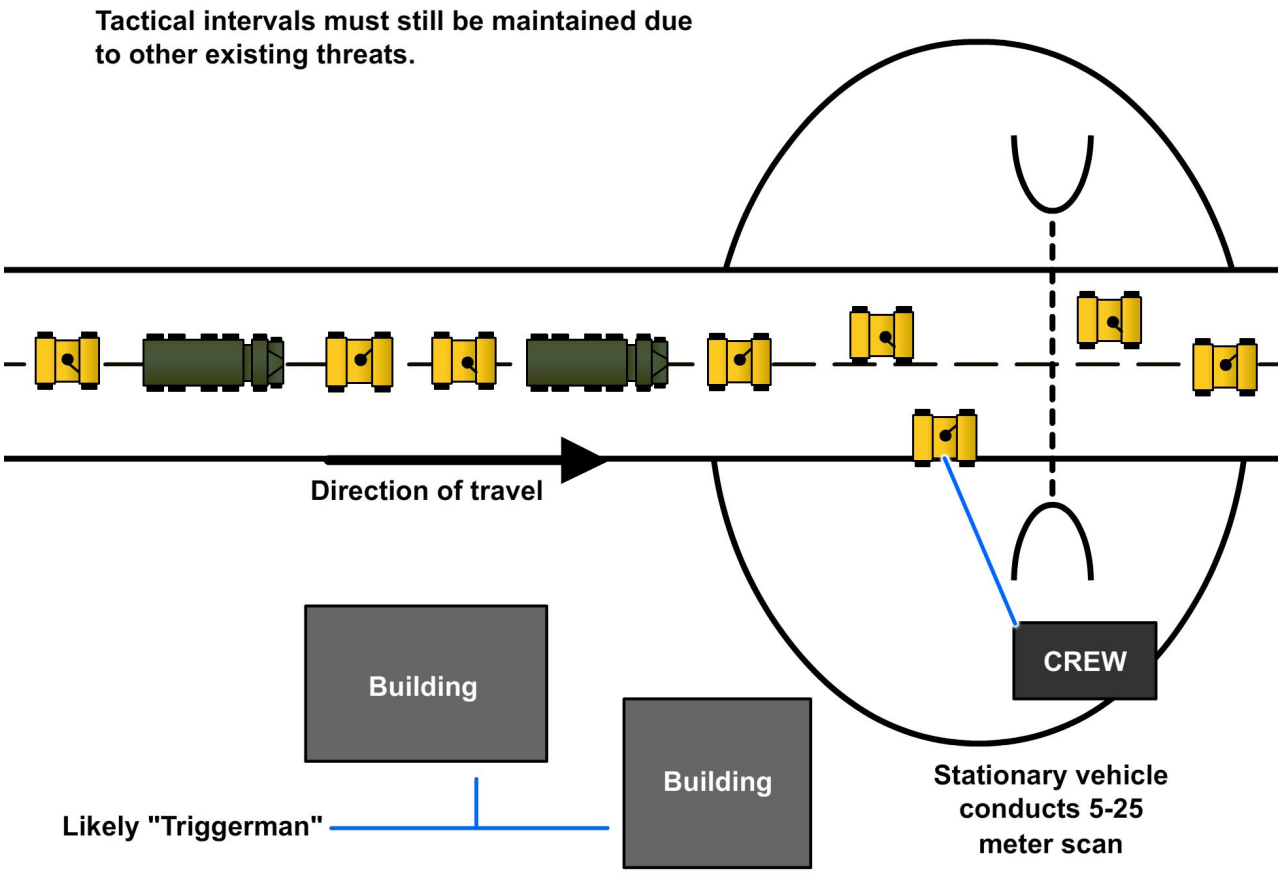


Figure 4-16 — CREW employment as an over-watch unit.

- Some CREW systems cancel each other out when used near each other.
- At known or likely IED sites:
    - NEVER turn the system off unless directed to do so.
    - When possible, personnel should remount their vehicles or take cover before energizing or de-energizing the system.

4.3.0 Movement Formations and Techniques

Based on METT-T(C), the experiences of convoy personnel, and the judgment of the CC, the following formations are recommended for use:

4.3.1 File Formation. The file formation is the best to use when the convoy contains inexperienced or foreign drivers. It has the advantages of being simple, usable at night as long as intervals are compressed appropriately, and it minimizes IED blast effects. Its disadvantages are that it creates a weak left flank since the driver is not a primary shooter; it provides a reduced field of view, and reduced headlight coverage. See *Figure 4-17.*

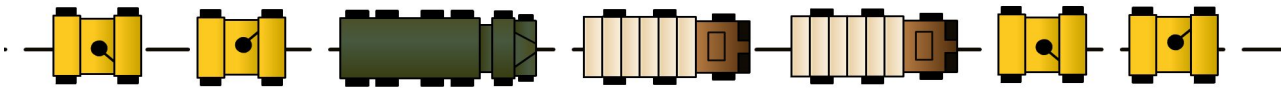


Figure 4-17 — File formation.

4.3.2 Staggered Formation. The staggered formation should only be used on multilane roads. Its advantages are that it allows for good all-around security; provides greater flexibility and ease of movement during contact; limits third party vehicle interference, and provides greater headlight coverage. The only disadvantages of the staggered formation are it requires more command and control and driver experience, and that it makes the convoy more vulnerable to IED blast effects. See *Figure 4-18*.

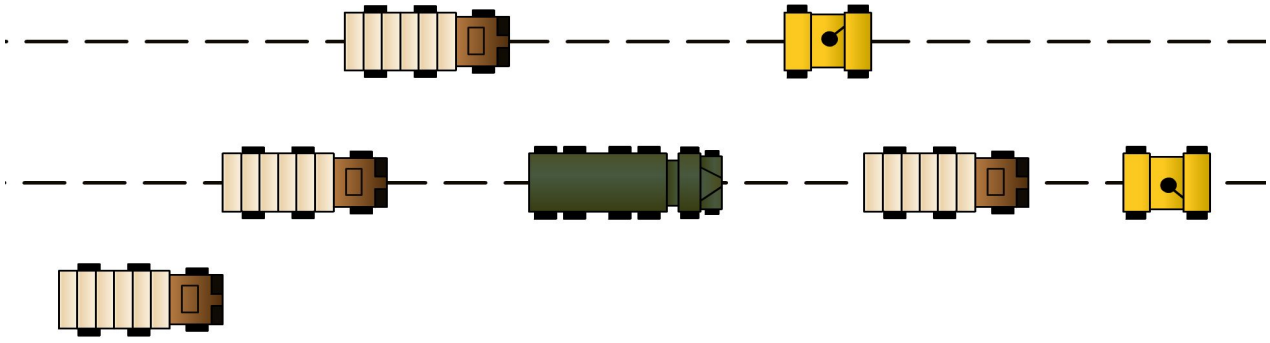


Figure 4-18 — Stagger formation.

4.3.3 Offset Formation. The offset formation is primarily used to block third party traffic and assist in changing lanes. Its advantages are that it combines the flexibility of the staggered formation with the ease of the file formation. It also allows the CC to control third party traffic. The offset formation has the disadvantages of command and control difficulty and vulnerability to IED blast effects. See *Figure 4-19*.

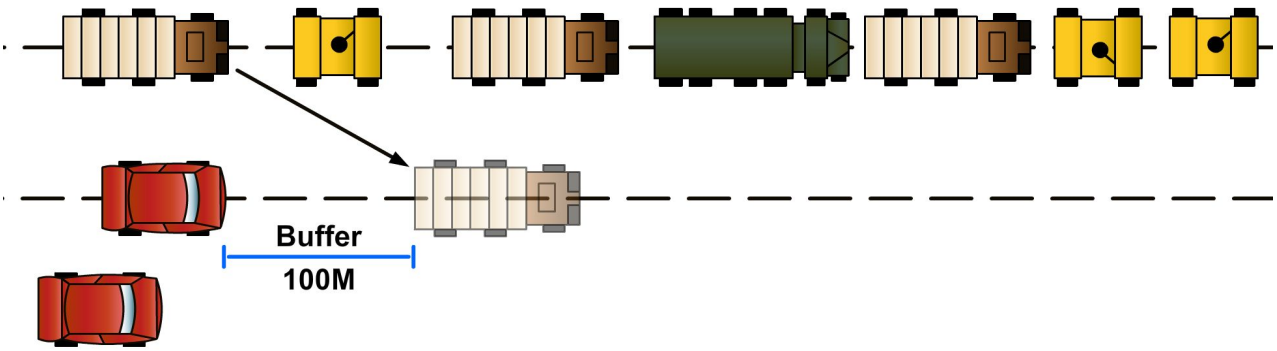


Figure 4-19 — Offset formation.

4.3.4 Inverted "T" Formation. The inverted "T" formation is used on multilane roads where the convoy uses the center lane. As an advantage, it limits third party vehicle infiltration. Its disadvantages are that it requires experienced drivers, leaves a weak left flank, and without sufficient communications it is difficult for command and control. See *Figure 4-20*.

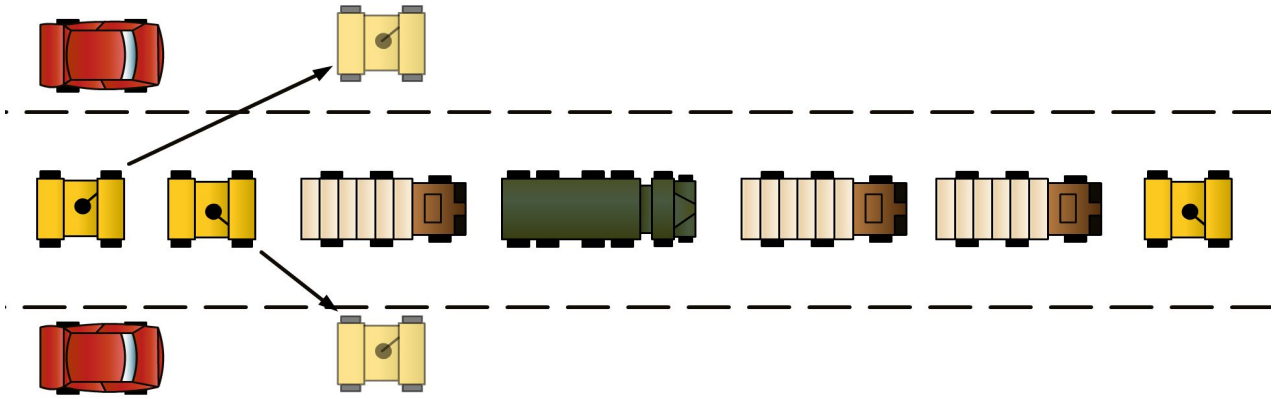


Figure 4-20 — Inverted "T" formation with security element.

4.3.5 Diamond Formation. The diamond formation uses multiple lanes on multilane roads. It limits third party vehicle infiltration, but requires experienced drivers and without sufficient communications it can be difficult for command and control. See *Figure 4-21*.

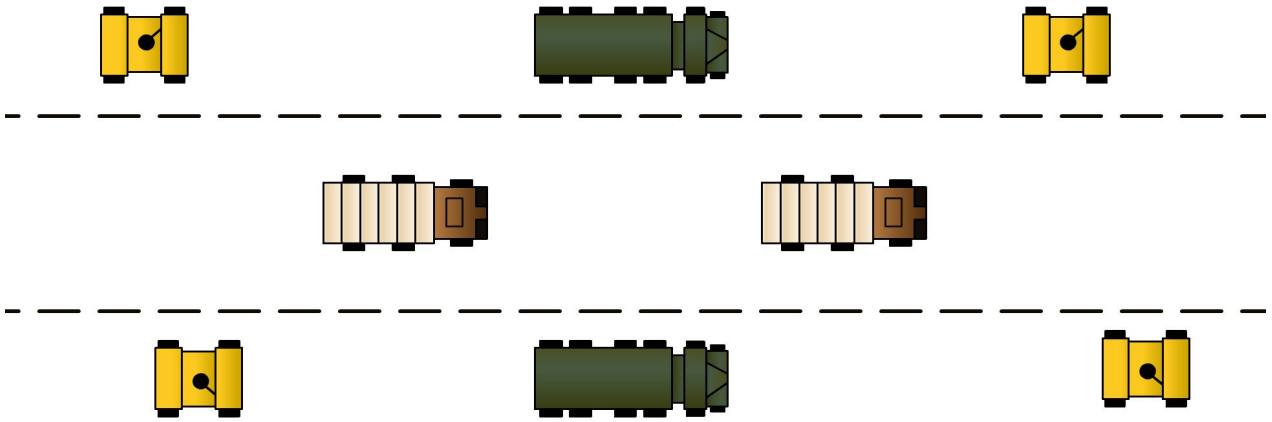


Figure 4-21 — Diamond formation.

4.3.6 Changing Lanes. The changing lanes technique is used to prevent third party traffic interference with the convoy's ability to change lanes. A pre-designated blocking vehicle (BV) in the rear (and front) is ordered to block left (or right). The blocking vehicles then move into the appropriate lane to block third party traffic. Once the blocking vehicles are in place, the convoy changes lanes. This technique can be used easily with the offset formation. See *Figure 4-22*.

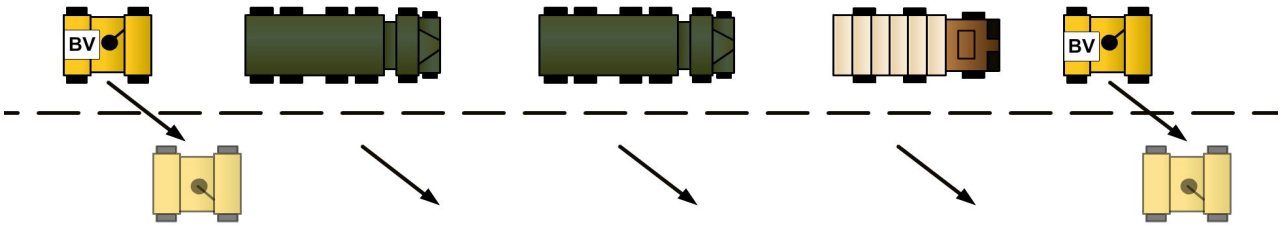


Figure 4-22 —Changing lanes technique.

4.4.0 Danger Areas

Danger areas are specific areas along the convoy route where there may be potential danger. Moving through these areas requires good command and control and extra alertness to the potential threats, while controlling third party traffic. Examples of danger areas include intersections, traffic circles, and overpasses. The techniques that follow are specific to these danger areas and are based on the CC's mission analysis. Blocking is the technique where a vehicle or vehicles are used to physically block the road to prevent third party vehicles from intermingling with the convoy. Bumping is the replacement of one blocking vehicle with another.

The techniques used in danger areas are battle drills that require extensive rehearsals. Blocking vehicles are designated during mission planning, but should not be the front or rear security vehicles. Proper reconnaissance and mission analysis will determine where these techniques will be used. Executing blocking requires experienced drivers and well-coordinated command and control. The commands "Block right" and "Block left" determine which side of the road to block. The CC or a designated VC will give the command for the designated vehicle(s) to bump up to the blocking location.

4.4.1 Road Intersections (*Figure 4-23*).

1) As the convoy approaches the intersection, it reduces its speed.
2) Convoy vehicles also reduce their interval, but maintain room for maneuvering.
3) The blocking vehicle(s) move up the side of the convoy and set up before the convoy enters the intersection.
4) Once the convoy passes, the blocking vehicle(s) move forward and resume the original order of march

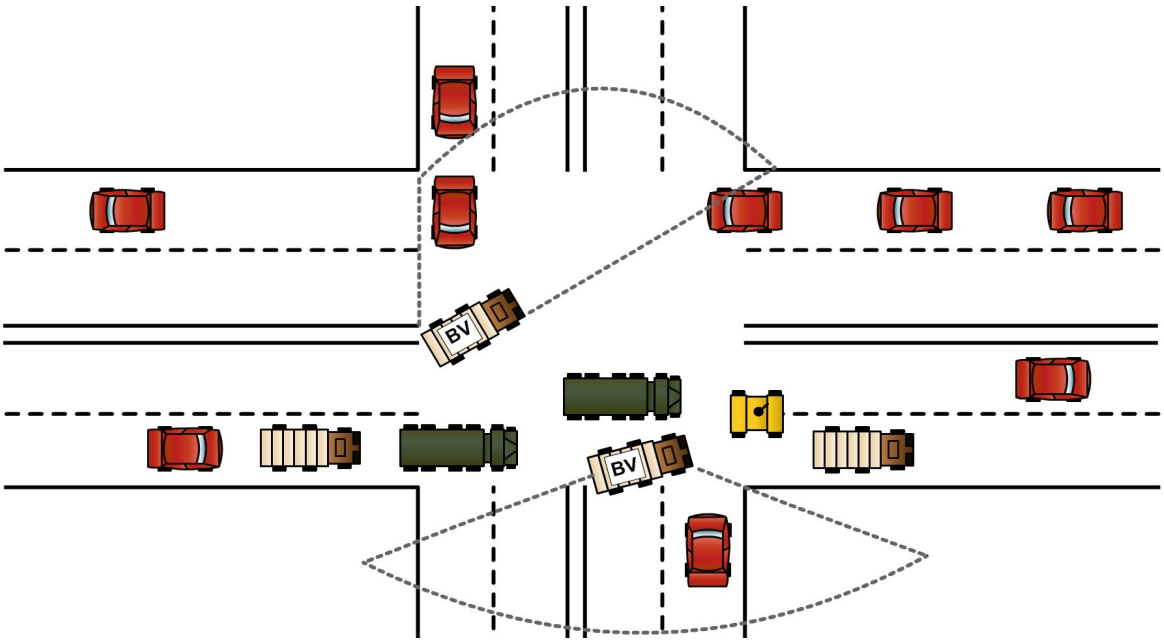


Figure 4-23 — Blocking intersection.

4.4.2 Multiple Intersections (*Figure 4-24*). Each additional intersection is handled by different blocking vehicles.

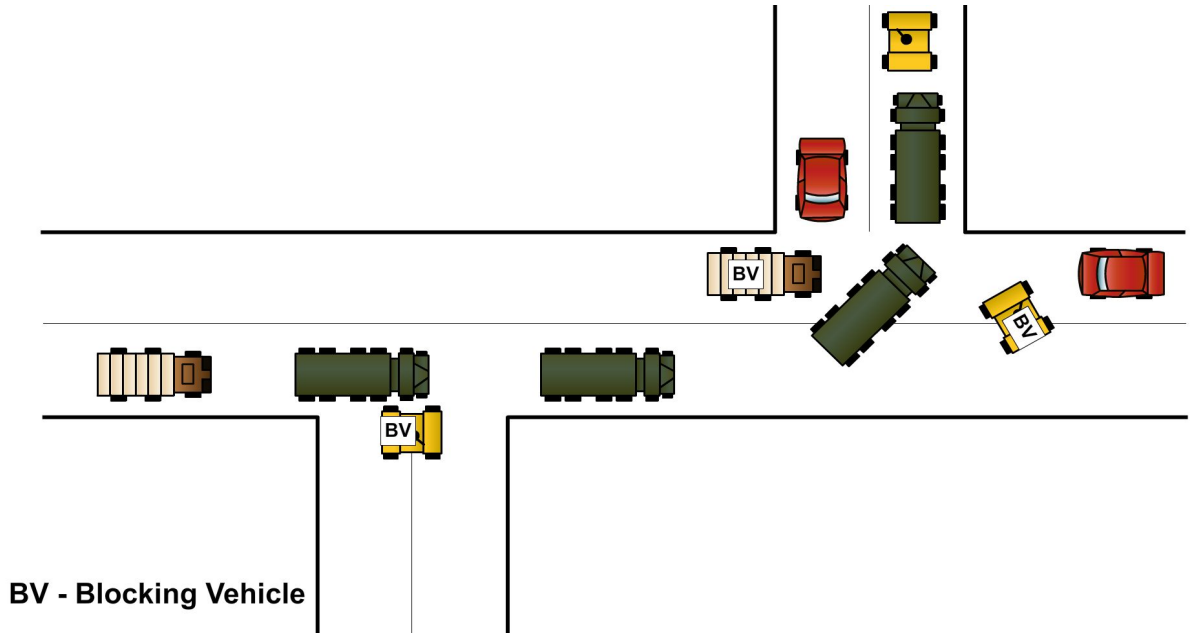


Figure 4-24 — Blocking multiple intersections.

4.4.3 On/Off Ramps (*Figure 4-25*). The same concept that is used for intersections is used for on/off ramps.

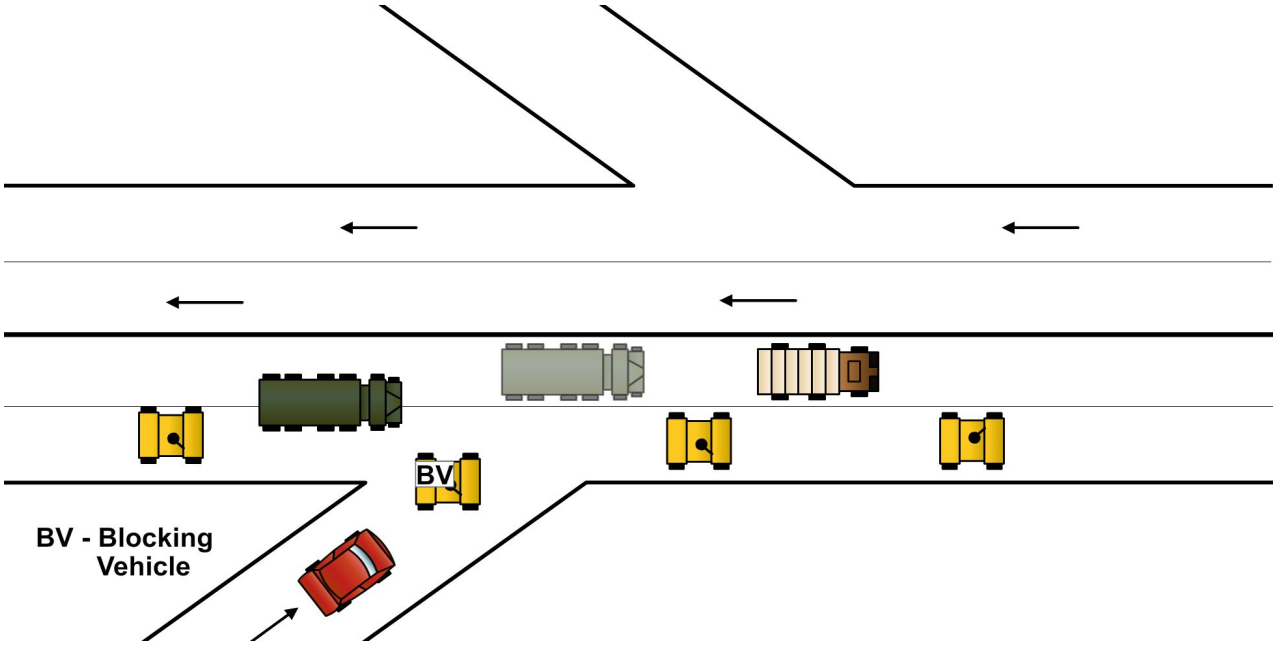


Figure 4-25 — Blocking on/off ramps.

4.4.4 Bumping (*Figure 4-26*). This technique is similar to that used by “road guards” when ground units march or perform training runs. A blocking vehicle “bumps out” from the front of the convoy to block third party vehicles and then a blocking vehicle from the rear “bumps out or through” to relieve the front vehicle. This way, both blocking vehicles can return more quickly to their positions for the next danger area.

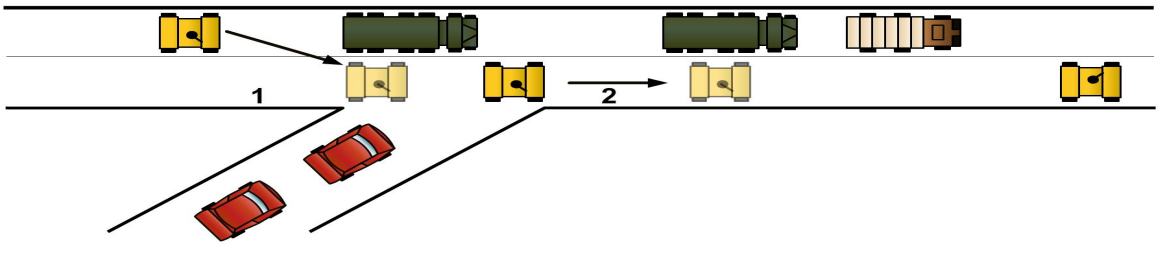


Figure 4-26 — Bumping through.

4.4.5 Traffic Circles (*Figure 4-27*).

1) The convoy reduces speed and interval as it approaches the traffic circle.
2) Blocking vehicles then move up to control the circle before the convoy enters it.
3) The convoy can then move rapidly through the circle without interference.
4) Once the convoy passes, the blocking vehicles move forward and resume their order of march.

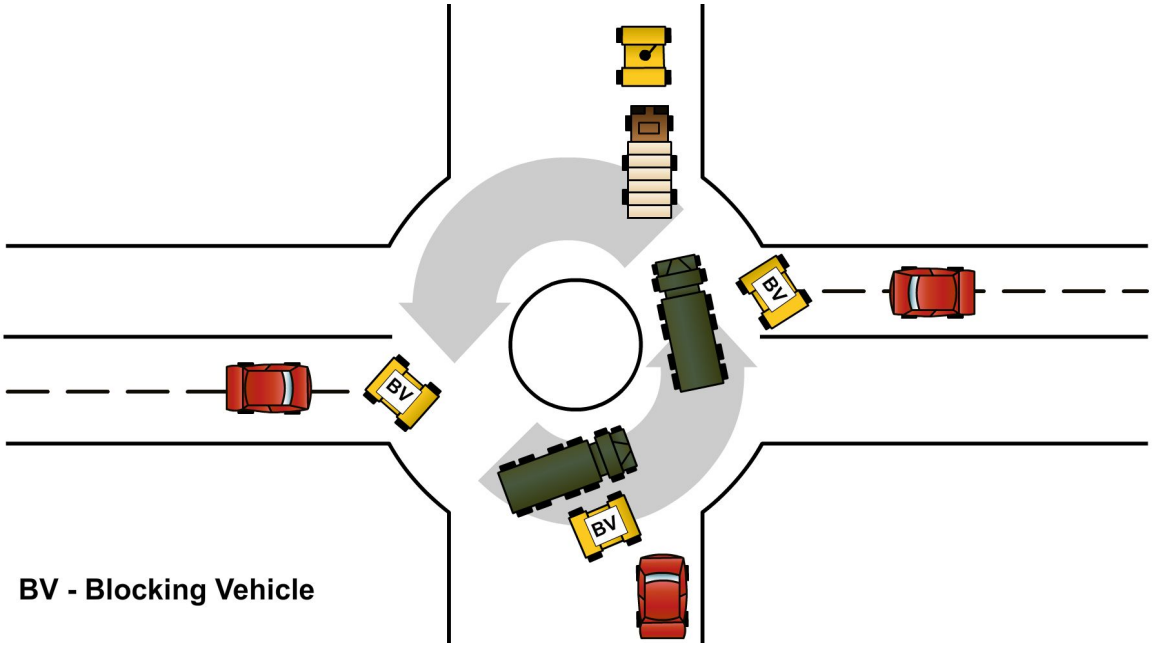


Figure 4-27 — Traffic circles.

4.4.6 Alternate Traffic Circles (*Figure 4-28*). This variation of the standard traffic circle technique allows the convoy to control the entire circle and take a more direct route through it.

1) The convoy reduces speed and interval as it approaches the circle.
2) The blocking vehicles move up and are set before the convoy reaches the circle.

3) Once the convoy passes, using the shortest route, the blocking vehicles resume their order of march.

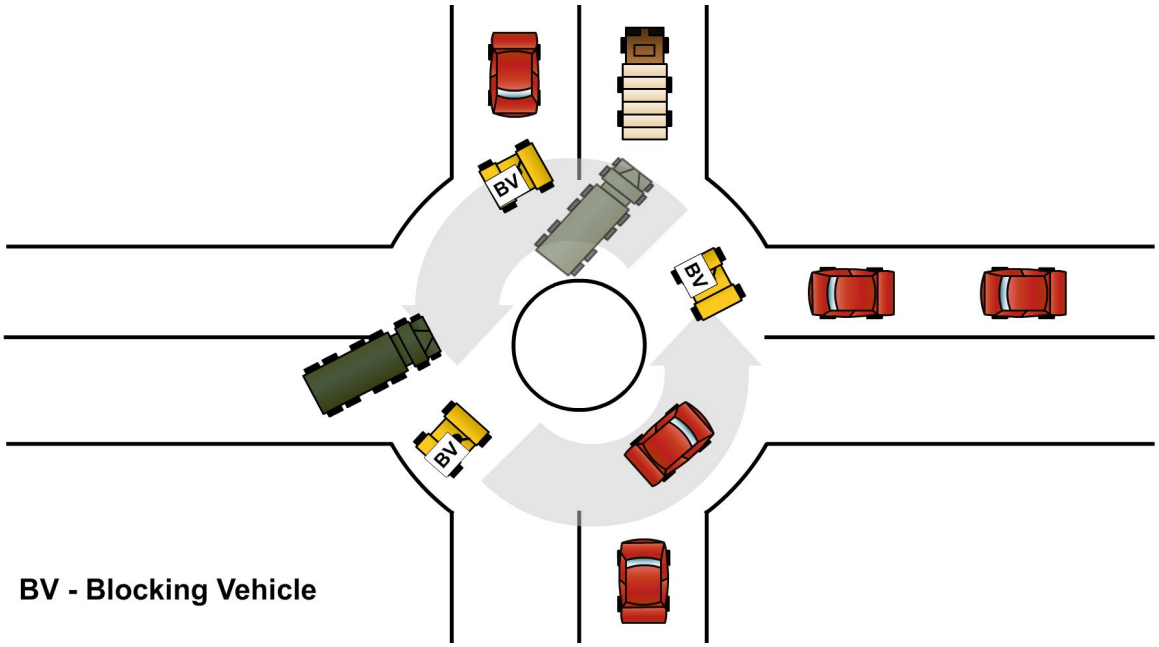


Figure 4-28 — Alternate traffic circles.

This method is more risky due to the convoy travelling against the flow of traffic, and requires significant training to perform.

4.4.7 Overpasses. Overpasses present a unique hazard due to the dead space on top of the overpasses that can't be readily observed. Three clearance methods are shown below. The appropriate method to be used will be decided during mission analysis.

Deliberate High Clear (*Figure 4-29*):

1) Clearing vehicles accelerate ahead of the convoy to the overpass.
2) The lead or low security vehicle stops short of the overpass and covers it with their weapons.

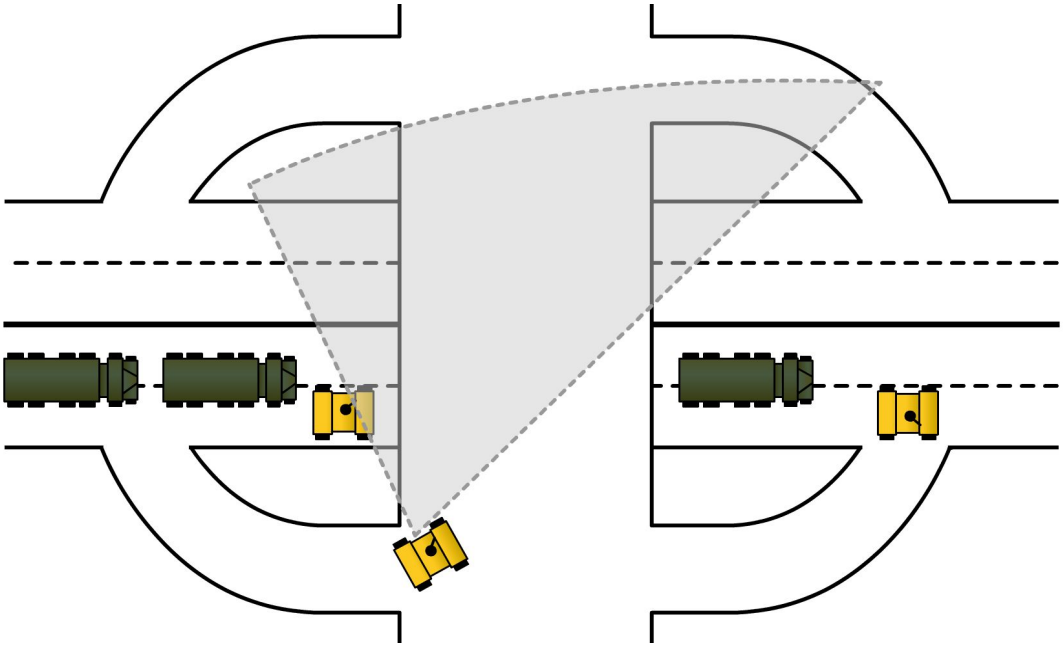


Figure 4-29 — Deliberate high clear.

3) The second or high security vehicle then takes the off-ramp to the overpass, stops, and observes the top of the overpass.
4) When the convoy clears the overpass, the high security vehicle comes down the ramp while the low security vehicle continues to cover the overpass.
5) Finally, the low security vehicle moves in behind the high security vehicle and they both rejoin the convoy.

Deliberate Low Clear (*Figure 4-30*):

1) Clearing vehicles accelerate to reach the overpass before the convoy.
2) The lead vehicle, or gun truck, stops short of the overpass, then elevates its weapons to cover the overpass from the near side.
3) The second vehicle passes under the overpass, stops, and covers the far side of the overpass.
4) Once the convoy passes, the lead vehicle moves out while the vehicle on the far side continues to cover the overpass.
5) The far side vehicle then moves out to rejoin the convoy.

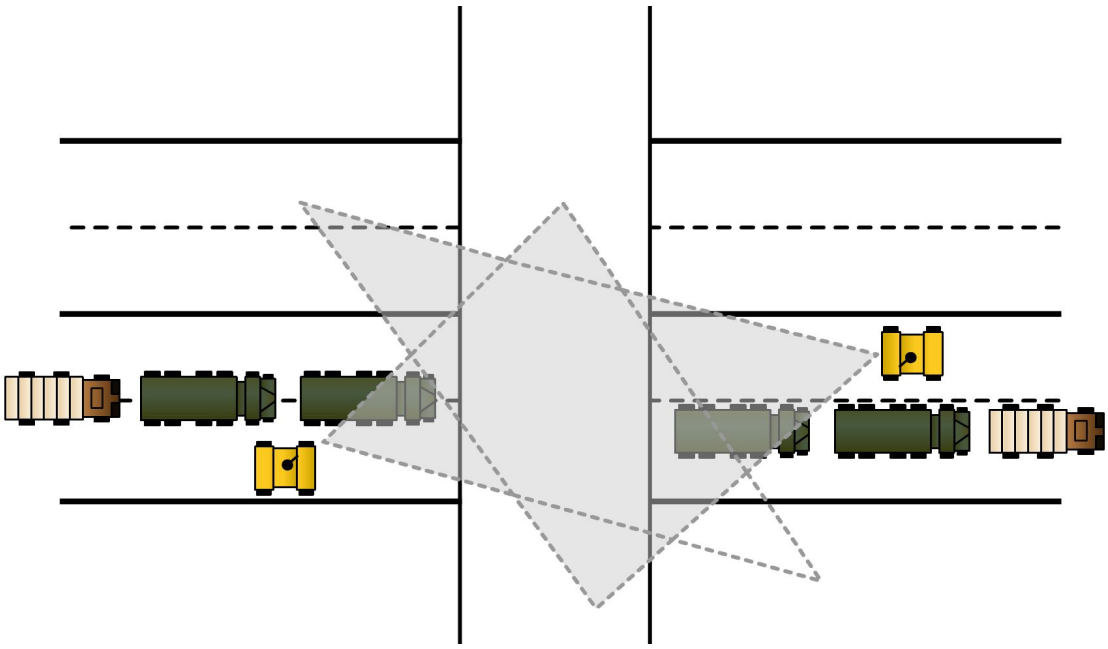


Figure 4-30 — Deliberate low clear.

Hasty Clearing (*Figure 4-31*). Hasty clearing is used when the situation does not allow one of the deliberate clearing methods to be used, such as in an urban setting.

1) The lead vehicle stops and elevates its weapons to cover the overpass.
2) Each succeeding vehicle has one crewmember designated to train their weapon on the overpass and observe.
3) As each vehicle passes under the overpass, the designated crewmember faces to the rear and covers the overpass from the far side.

NOTE

Caution must be taken not to fire into the convoy line in the event of an enemy engagement.

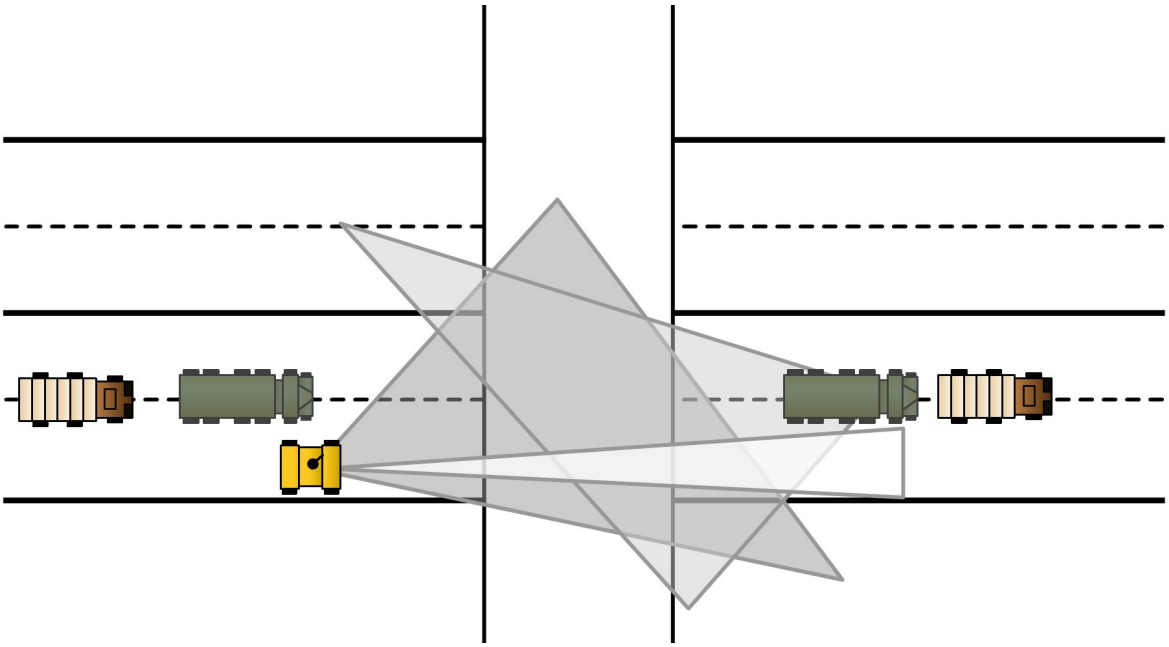


Figure 4-31 — Hasty clearing.

4.5.0 Immediate Action Drills

There are two basic categories of IA or battle drills; for individuals/vehicles, and for units.

4.5.1 Individual/Vehicle Crews IA Drills

4.5.1.1 Downed Driver. The actions for this drill are vehicle dependent, but in general, the first action should be for the VC to gain control of the steering wheel. Next, if possible, a third person should pull the driver out of his or her compartment so the VC can move into the driver's seat.

4.5.1.2 Downed Gunner. This IA drill is also dependent on the type of vehicle. First, the VC pulls the gunner into the vehicle. Next, the VC should take control of the weapon system and report to the CC for further guidance.

4.5.1.3 Bailout. The bailout drill is used when the vehicle is inoperative or its occupants need to use the vehicle as cover. The crewmembers on the cold side of the vehicle (not receiving fire) dismount, assume the hasty position at the rear of the vehicle, and return fire. Meanwhile, crewmembers on the hot side return fire until it is clear to dismount on the cold side. They then dismount on the cold side, move to the front of the vehicle, and assume fire positions using the vehicle as cover. All crewmembers should establish 360-degree security, looking for enemy presence.

4.5.1.4 Rollover Drills. If a rollover occurs in the vicinity of water, and tactical conditions permit, the VC informs the crewmembers that the vehicle is operating around water hazards, reminding them of the risk-mitigating measures. The VC then unlocks the combat door locks and ensures that all loose gear and cargo are secured.

The rollover drill should begin when the driver feels he or she has lost control of the vehicle and anticipates a rollover. Each crewmember then has specific actions to take:

The driver:

- Releases the accelerator
- Shouts “Rollover, rollover, rollover!” or “Water, water, water!” if going into water
- Keeps his or her hands on the steering wheel with his or her arms extended but not locked
- Plants his or her feet firmly on the floor
- Tucks the head and chin into his or her chest and braces for impact

The VC:

- Shouts “Rollover, rollover, rollover!” or “Water, water, water!” if going into water
- Uses his or her hand to pull the gunner into the vehicle
- Uses his or her left hand or arm to hold the gunner in place
- Plants his or her feet firmly on the floor, holding onto a stationary object with his or her right hand
- Tucks his or her head and chin into the chest and braces for impact

The gunner:

- Shouts “Rollover, rollover, rollover!” or “Water, water, water!” if going into water
- Pushes or pulls himself or herself into the vehicle
- Holds onto a stationary object
- Does not place his or her fingers on the turret, as its movement could cause additional injuries

Other crewmembers:

- Shout “Rollover, rollover, rollover!” or “Water, water, water!” if going into water
- Assist the VC in pulling the gunner into the vehicle and hold him or her in place
- Tuck his or her chin and head into the chest and brace for impact
- Hold onto a stationary object

4.5.1.5 After Rollover Drill. After a rollover has occurred, the following actions should be taken:

- The driver turns off the motor.
- All crewmembers disconnect their headsets.
- Everyone but the gunner braces one hand on the ceiling, unbuckles their seat belts, then immediately places both hands on the ceiling.
- Each crewmember slides out of their seat, sits up, and orients themselves on the nearest door.
- The crewmember unlocks and opens combat doors (if a door won’t open, a different door should be tried).
- Everyone exits with their weapons, assisting others to exit if necessary.

- All crewmembers establish security.
- All crewmembers check for fire, using an extinguisher if needed.
- Everyone recovers any sensitive items.
- Everyone provides first aid if needed.
- All crewmembers assist in vehicle recovery.
- The VC should also:
    - Account for weapons, ammunition, and sensitive items.
    - Request medical support if needed.
    - Report the accident.

If the vehicle rolls over into water, each crewmember decides whether or not to remove personal equipment, then gets to the safest shore. If the vehicle rolls onto its side, the lower level crewmembers should assist the upper level crew in unfastening their seat belts, then carefully help lower them. Crewmembers should exit through roof hatches or cargo areas if possible, working as a team to open any jammed doors or hatches.

4.5.1.5 Water Rescue Recovery Drill. Use this drill if one or more crewmembers don't get out of the vehicle:

- Rescuers secure the accident site.
- Staying in contact with the vehicle, rescuers swim to a vehicle high point in buddy teams, then tie a rope or cable to the vehicle.
- Rescuers open the doors and hatches, using a rescue wrench if necessary.
- If the doors and hatches are inaccessible, rescuers immediately use all available means to move the vehicle for better access.
- Trapped survivors should seek the highest point in the vehicle to reach any air pockets.
- Rescuers remove body armor and personal equipment from injured crewmembers, then carefully move them to the highest point in the vehicle.
- Rescuers evacuate the vehicle from the high point, determining the safest location based on:
    - Enemy situation
    - Water level and flow
    - Water temperature
    - Distance to the water's edge

4.5.2 Unit IA Drills

4.5.2.1 Rolling Stops. Rolling stops are a way to minimize the chances of stopping next to or on an IED by using situational awareness. This is a precursor to the 5-to-25-meter scans.

- The VC determines where to stop.
- When the command to halt is given, the driver slows down but does not completely stop. All other crewmembers are alerted.

- At least one pre-designated crewmember from each side of the vehicle looks for suspicious objects and visually confirms a safe place to stop.
- The turret gunner looks for suspicious objects and indicators ahead in the middle of the road to prevent an underbelly detonation.

If an area looks suspicious or a possible IED is located, the driver pushes past the spot or stops short. The grid location should be noted, using FBCB2 or GPS if available. If possible, physically mark the general location with a water bottle, MRE, orange marker panel, etc. This gives a visual indication to following convoy vehicles of the danger area and helps EOD responders to locate the potential threat.

4.5.2.2 Actions at Halts. When a convoy vehicle is going to halt, the VC should indicate a position to halt using a rolling stop. The CC will then submit a situation report (SITREP) to HHQ. A designated crewmember on each side of the vehicle remains in the vehicle and visually scans a 0-to-5 meter area around the vehicle (*Figure 4-32*). At the same time, the gunner uses optics to scan for likely enemy observation posts or triggermen. Crewmembers should look for any indications of IEDs such as disturbed earth, wires, loose bricks in walls, fresh paint, or anything out of the ordinary. The scan should be systematic, searching the ground level, then up. Initially, all crewmembers should stay inside the vehicle, scanning 0 to 5 meters around, relaying information to the VC. Once the 0-to-5-meter scan is completed, the VC will announce “Clear.” At this point, crewmembers will conduct a scan to 25 meters (*Figure 4-33*), using optics if available. Crewmembers should only dismount if necessary, as doing so makes them more vulnerable to snipers and IEDs. If crewmembers dismount, they should conduct a physical search to 25 meters IAW unit SOPs.

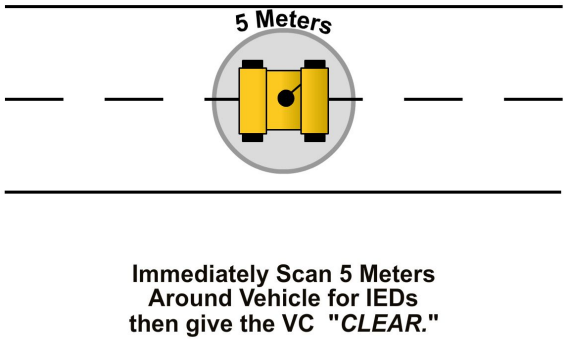


Figure 4-32 — 5-Meter scan.

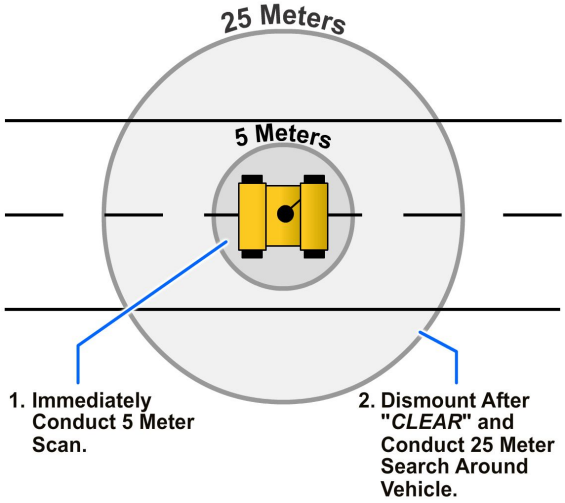


Figure 4-33 — 5-25-Meter scan.

4.5.2.3 Dismount and Remount Procedures. These procedures can be used to dismount when the unit is not in contact, but close to personnel who may pose a threat. The current enemy situation and the duration of the halt will determine how physical searches are conducted.

Dismount/Mount:

- The dismount call is made by the VC.

- Dismounts should not get in between vehicles; just protect the spaces between.
- Dismounts use buddy teams to protect each other, maintaining a line of sight with their buddy at all times.
- Rear security should be the only personnel behind a vehicle, but off to one side.
- If civilians need to be moved back, dismounts can use hand motions or verbal commands. If this is not successful, dismounts should put their weapons at port arms to motion civilians back.
- If more force is required to control civilians, dismounts must ensure they follow current ROE.
- If any dismounts are fired upon, they should move to cover, suppress with fire, or mount and extract, depending on the situation.
- Convoy vehicles that are moving forward can signal the mounting call.

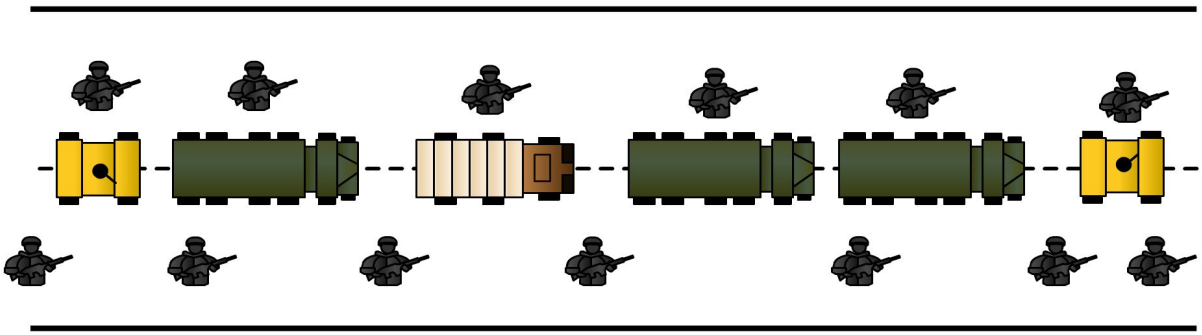


Figure 4-34 — Dismount - short halt.

Dismount – Short Halt (*Figure 4-34*). This procedure is used when the convoy has to stop for short durations due to slow traffic, market places, or brief rests. The dismounts will serve as a buffer between third party personnel and the convoy's vehicles.

- All dismounts should be aware of their surroundings at all times, continuously scanning their sectors and acting as a deterrent. Scans should start in the area within 5 meters of each dismount, then increase the area out to 25 meters.
- The convoy should have more than one egress/exit route at all times.
- All crew-served weapons should be manned, with interlocking sectors of fire.
- Drivers should remain in their vehicles, ready to move out or even use their vehicles as weapons when necessary.
- Dismounts should make sure that no third party vehicles or personnel get in between or near the convoy's vehicles.
- The CC will give the call to remount via the VCs.
- Dismounts will then collapse their perimeters back into their vehicles. This requires considerable rehearsing since the vehicles will be spread out.

- The VCs will signal the CC when all of their personnel are mounted and accounted for.
- At this point, the CC will signal rollout and convoy movement will begin.

If vehicles are slowly moving alongside their dismounts, the VC needs to ensure that the dismounts keep pace. If the dismounts are running, the vehicle either needs to slow down or the dismounts should remount.

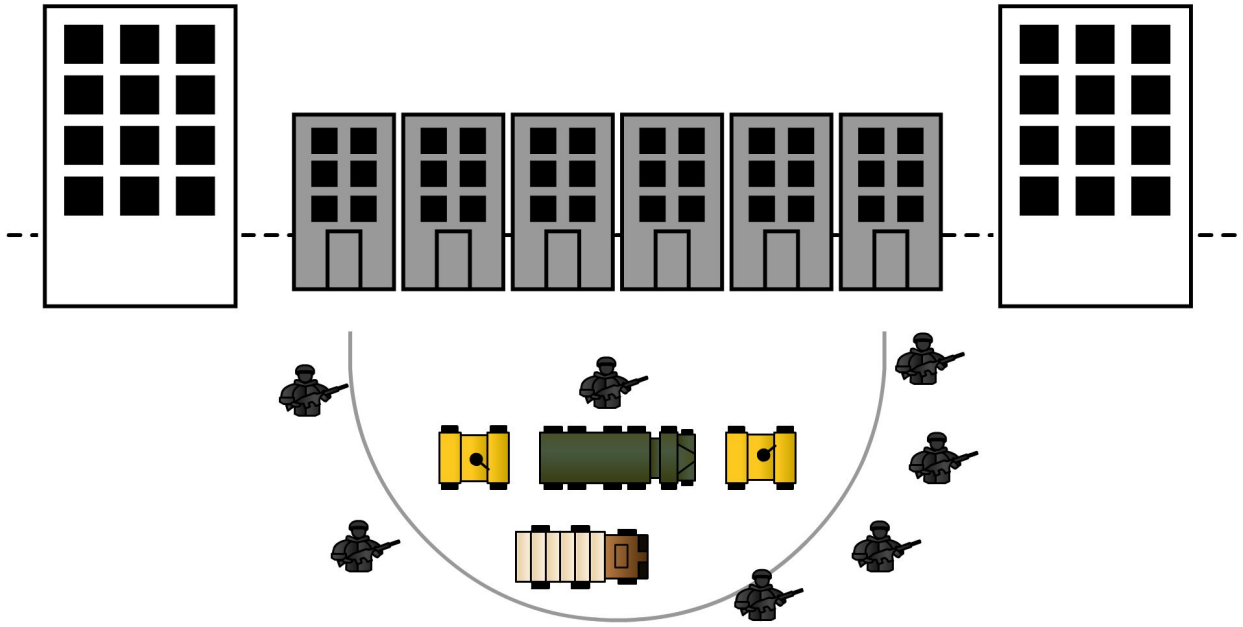


Figure 4-35 — Dismount – long halt.

Dismount – Long Halt (*Figure 4-35*). This procedure is used for longer halts, such as vehicle breakdowns, dropping off cargo, etc.

- Dismounts find and use hard cover, such as vehicle hard points, buildings, etc.
- The dismounts should clear any blind spots and cover nearby alleys and streets.
- Crew-served weapons should remain manned and ready.
- Drivers should only dismount if absolutely necessary.
- All dismounts will establish a security perimeter and maintain mutual support.
- Dismounts are responsible for protecting convoy vehicles from approach by third party vehicles or personnel.
- The CC will give the call to remount through the VCs.
- The dismounts will then collapse their security perimeters back into their vehicles.
- When the VCs signal the CC that their personnel are mounted and accounted for, the CC will signal for rollout.

4.5.2.4 React to Direct Fire Contact. The convoy has three basic drills or reactions it can take when faced with enemy contact. The CC will determine which of these drills to use based on the decision matrix shown in *Figure 4-36*.

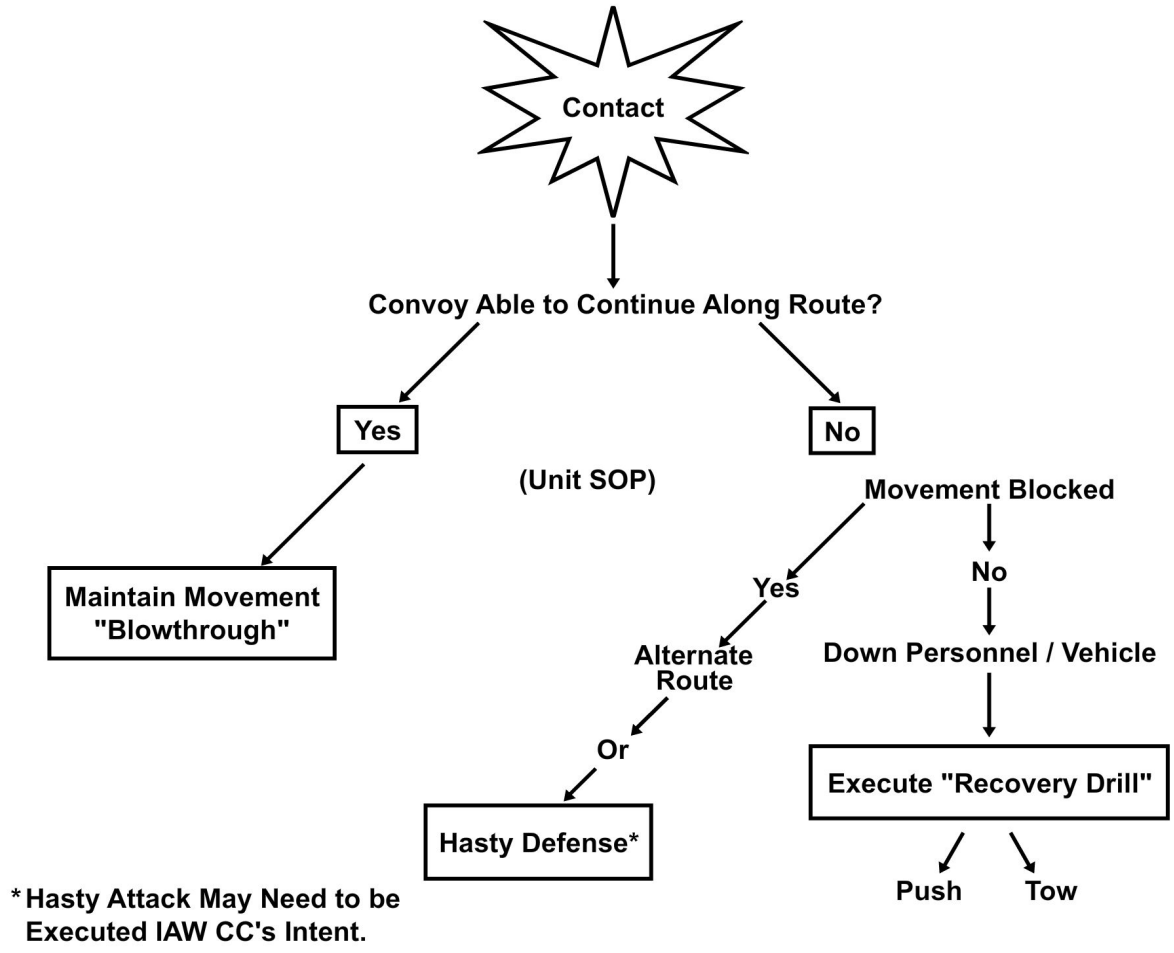


Figure 4-36 — React-to-contact flow chart.

React-to-contact drill – maintain movement (*Figure 4-37*). This immediate action drill, also referred to as a blow through, is used when the nature of the enemy contact allows the convoy to continue along its route. These procedures can be used with both escorted and unescorted convoys:

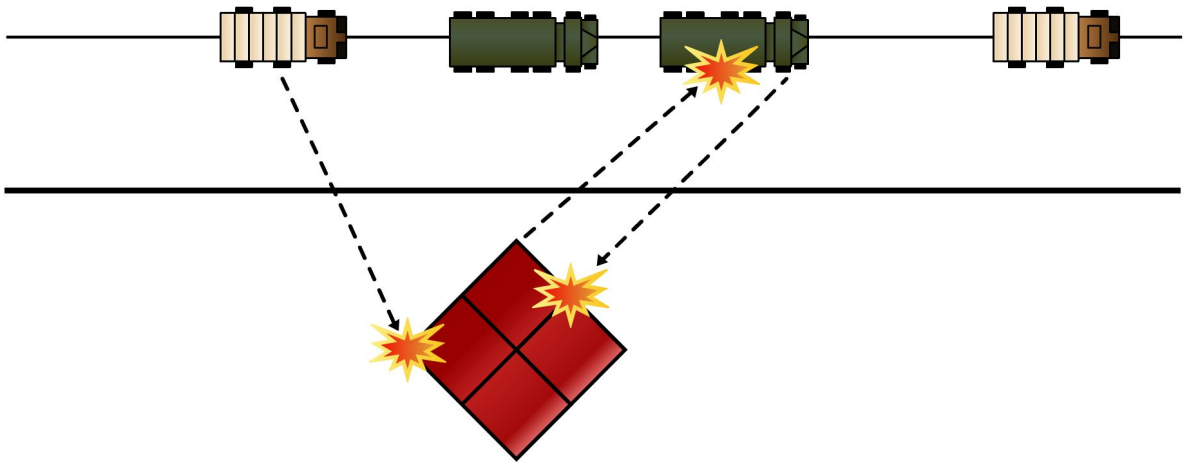


Figure 4-37 — Maintain movement IA drill.

- The convoy speeds up.
- A visual signal should be given indicating the general direction of the enemy contact.
- Proportional and accurate return fire should be done within the ROE.
- The CC sends a Situation Report (SITREP).
- The convoy moves to a rally point away from the site of the initial contact, based on SOP and METT-T(C).
- The convoy then establishes 360-degree security.
- An ACE report is sent to HHQ.
- The convoy continues its mission.

IA drill – recovery with no obstacles (*Figures 4-38 and 4-39*). Use this drill when the convoy is forced to stop, but its movement is not blocked:

- The convoy stops.
- Upon enemy contact, the convoy achieves fire superiority by moving security elements into support-by-fire positions.
- Dismounts establish 360-degree security, maintaining their sectors of fire/scan.
- All convoy members look for indications of enemy presence, such as triggermen, snipers, secondary devices, etc.
- A report is made to HHQ of the encounter, requesting assistance if needed.
- The dismounts recover any casualties from the cold side of vehicles.

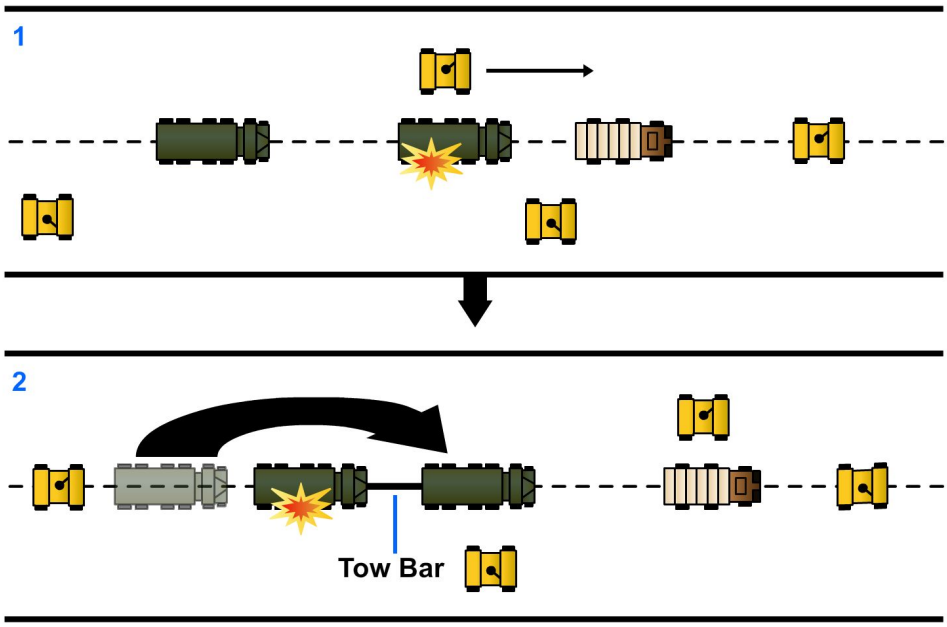


Figure 4-38 — IA drill recovery (in-stride tow).

- Recovery vehicles execute a hasty recovery of any disabled vehicles by either towing with straps, chains, or cables (*Figure 4-38*), or by pushing the vehicle out of the kill zone (*Figure 4-39*).

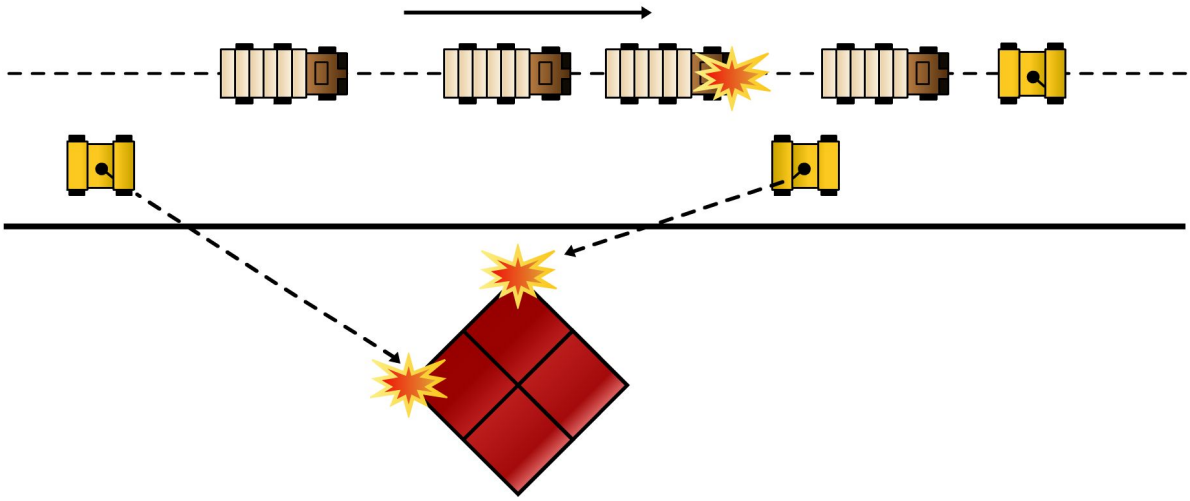


Figure 4-39 — IA drill recovery (push through).

- The convoy then continues movement with security vehicles covering them.
- The convoy moves to the rally point and establishes 360-degree security.
- The CC sends an ACE report to HHQ and the convoy continues its mission.

IA drill – recovery with obstacle to movement (*Figure 4-40*). These procedures are used in the event that a crowd or other obstacle prevents movement and the convoy is forced to stop while still dispersed:

- Drivers and crew-served weapons (CSW) personnel remain in their vehicles, ready to react.
- VCs and other crewmembers dismount and establish 360-degree security.
- All personnel maintain their sectors of scan/fire while looking for indications of enemy presence.
- Upon enemy contact, fire superiority should be achieved by maneuvering security elements into suppress-by-fire positions.
- Dismounts will recover any casualties from the cold side of vehicles.
- The CC assesses the situation and either establishes a hasty defense and awaits the QRF, or he or she directs the escort force to conduct a hasty attack through the enemy ambush using fire and maneuver.

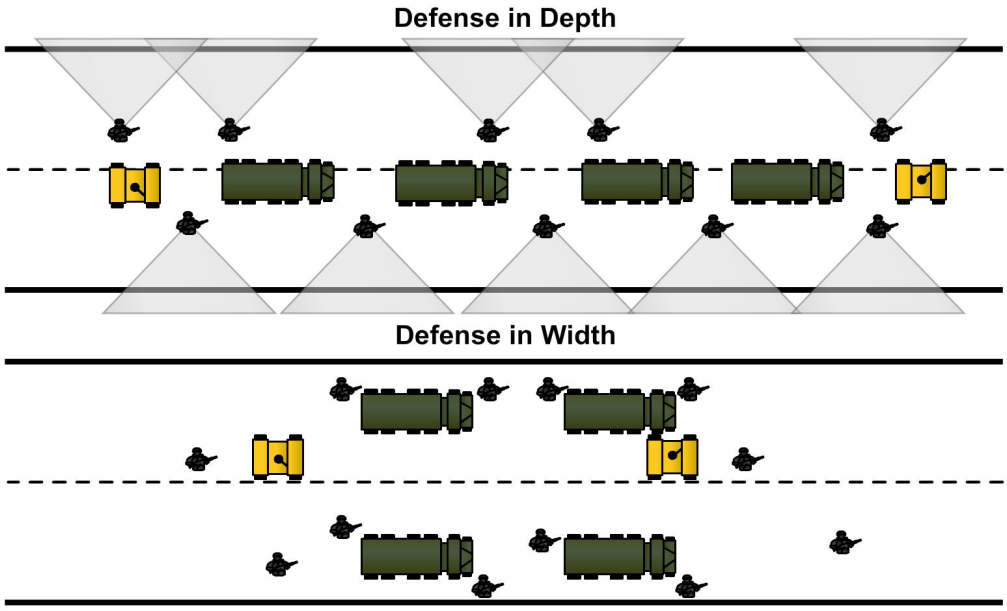


Figure 4-40 — IA drill recovery (hasty defense).

Hasty attack (*Figures 4-41 and 4-42*). The convoy's security element, designated marksman, and assault force suppress (*Figure 4-41*) the identified threat with accurate fires. Dismounted security elements maneuver to a suitable position under cover of suppression fires, and assaults through the ambush (*Figure 4-42*). The hasty attack should be conducted by a trained escort or assault force IAW the unit SOP and Service doctrine.

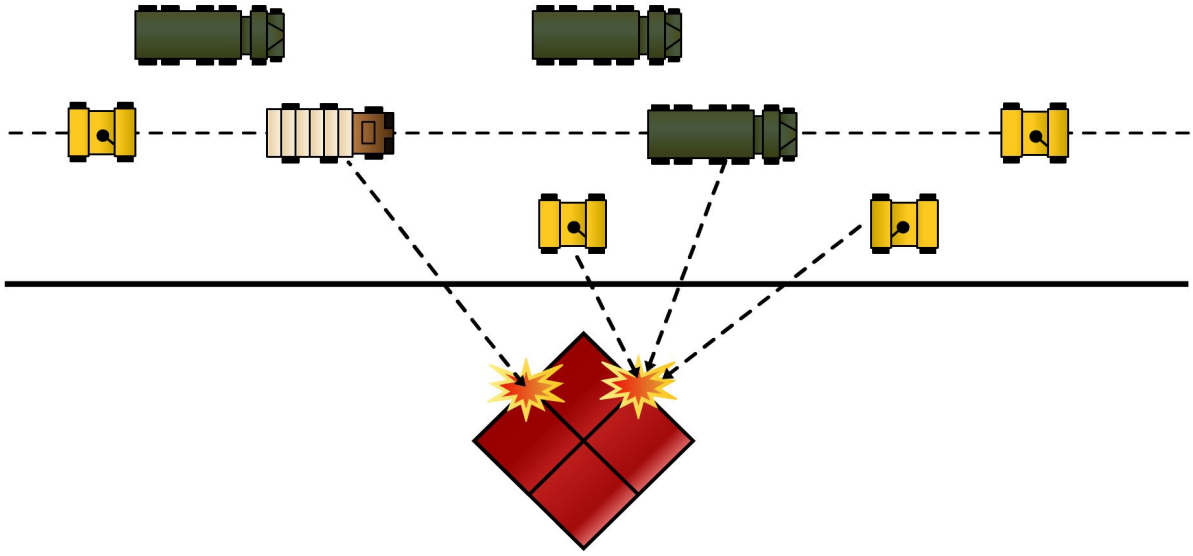


Figure 4-41 — IA drill hasty attack (suppress).

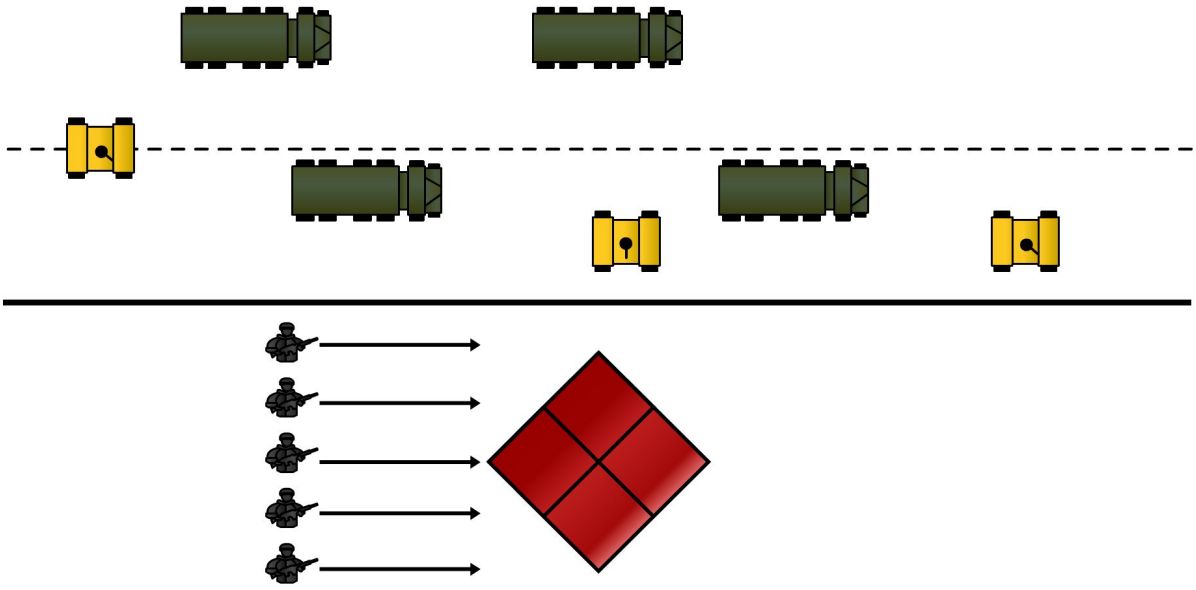


Figure 4-42 — IA drill hasty attack (assault).

4.5.2.5 React to Sniper. Apply the following principles for the react to sniper IA, when dismounted:

- Rehearse the IA drill beforehand.
- Perform preplanning patrol briefs based on enemy tactics, techniques, and procedures (TTP).
- Remember that everyone is a counter-sniper.
- Maintain 360-degree security.
- Limit stationary time and exposure.
- Adopt an offensive response. Do NOT “hunker down.”

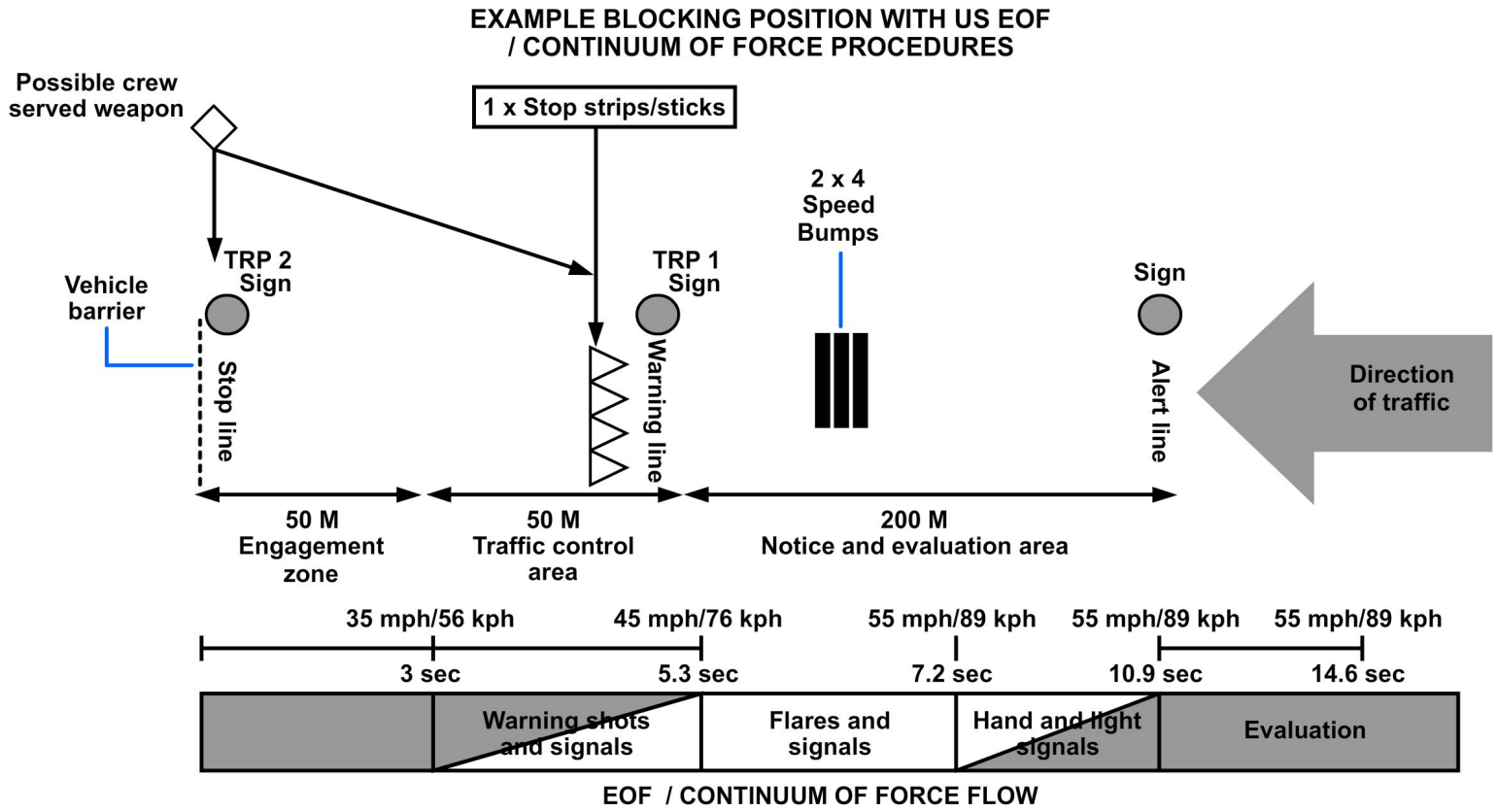
- Follow through by finding, fixing, finishing, exploiting, and analyzing.
- Use optics to “out look” the enemy.
- Use field expedient or improvised techniques immediately, such as nets, screens, etc.

If the unit is mounted, use the following procedures:

- All gunners drop immediately to eyeball defilade.
- With positive identification, suppress and continue the mission.
- Send a report to HHQ in accordance with SOP.

4.5.2.6 Reaction to Possible IED. The following principles should be applied in reaction to a possible IED:

- Individuals and vehicles should move to a safe distance away from the possible IED.
- After clearing the immediate area, check for secondary devices at the stand-off/cordon location using visual and physical 5-25-meter scan checks as appropriate.
- Confirming the IED should only be done if the initial assessment of the IED is unclear, or upon the decision of the CC. The actual IED can be confirmed using weapons optics and binoculars already on hand. In all cases, individuals should continue to maintain the minimum safe distance away from the possible IED, utilizing a 90-degree offset view and cover where possible. Individuals should never approach or tamper with the possible IED. If the IED is confirmed, the CC will notify HHQ to dispatch EOD to the scene. The CC’s report (significant act, spot report) provides the first source of intelligence on the IED. [All IED reports should use the IED-related terms found in the Weapons Technical Intelligence (WTI) IED Lexicon. Refer to appendix H. This publication is DOD’s authoritative guide for naming, defining, and describing IED event and components.] Additionally, FBCB2 or Movement Tracking System (MTS) reports should be sent utilizing the preformatted reporting feature to alert all friendly units as to the location of the possible IED.
- Establish a cordon around the possible IED, sizing it based on METT-T(C). Provide 360-degree security and focus outward on the enemy: visually scan and conduct a physical search/sweep for a triggerman, cameraman, or spotter when assets allow. Check people, buildings, and high ground in the area for command-initiating devices, power source, wire, and video cameras. Search for explosive residue on personnel, vehicles, and houses (via x-spray, vapor trace, or military



EOF / CONTINUUM OF FORCE FLOW:

- Audible warnings (horns, loudspeakers, sirens, flash, band device).
- Visual warnings (hand signals, spotlights / flashlights, visible lasers red / green, star clusters, display of weapon and demonstration of intent to engage, signs).
- Physical restraint or blocking of access (vehicle barrier, stop strips, drop gate, vehicle, natural obstacle).
- Warning shots (if authorized) in vicinity of threatening vehicle.
- Disabling fire focused on tires and engine of threatening vehicle.
- Deadly force.

Note: EOF / continuum of force flow is illustrative and assumes that forces manning the checkpoint feel that the approaching vehicle is continuing to present a threat.
If a vehicle demonstrates compliance, or is evaluated as non-threatening then the EOF / continuum of force flow would cease.

Figure 4-43 — Example blocking positions.

working dogs). The cordon must be in place when EOD arrives and must remain in place during EOD operations until the area is clear.

- Do not let suspicious individuals/enemy out of the cordon. Divert coalition forces and civilian traffic away from the possible IED (*Figure 4-43 above*). Use contents from traffic control point kits, and the principles of "notify, impede, disable, and destroy" (NIDD). Do not let anyone into the cordon area.
- Establish a staging area for the EOD's arrival. Only allow authorized personnel inside the cordon, such as EOD.
- The individual who initially spotted the possible IED should personally designate its location to EOD personnel.
- Maintain complete 360-degree security during the entire conduct of EOD's actions. Individuals should focus on outward security and not be distracted by watching the actions of EOD.
- Prior to the EOD's departure, the CC should get a complete after-action report on the composition of the IED (if found) utilizing existing information reporting requirements from HHQ.

4.5.2.7 IA Drills for Detonated IED. IA drills in response to a detonated IED should be rehearsed and well-understood by all convoy personnel. The key to an effective drill is concurrent actions that quickly establish outboard security and, if necessary:

- Conduct emergency secondary sweeps to treat and evacuate casualties.
- Establish casualty collection points.
- Establish an LZ for MEDEVAC/CASEVAC.

During rehearsals, personnel should assume there will be casualties and secondary IEDs. Keep in mind that secondary devices may be victim-activated and/or command-detonated. Use the acronym REACTER as described below to develop unit SOPs:

R – Report contact. This report is internal and designed to increase the convoy's awareness of the situation. The CC:

- Needs to know the status of all injured personnel and affected vehicles
- Should have a backup visual signal to designate whether an IED strike had casualties or not
- Will need to quickly assess the number and type of casualties in order to send the first three lines of the ten-line MEDEVAC/CASEVAC report to HHQ

E – Establish security. All convoy personnel should focus outward toward the enemy. They should establish 360-degree security with blocking positions, over-watch positions, and traffic control points along the avenues of approach to create an exclusion area around the IED site. Conduct 5-to-25-meter scans, anticipating follow-on attacks from IEDs, snipers, small-arms, rockets, etc. See *Figure 4-44*.

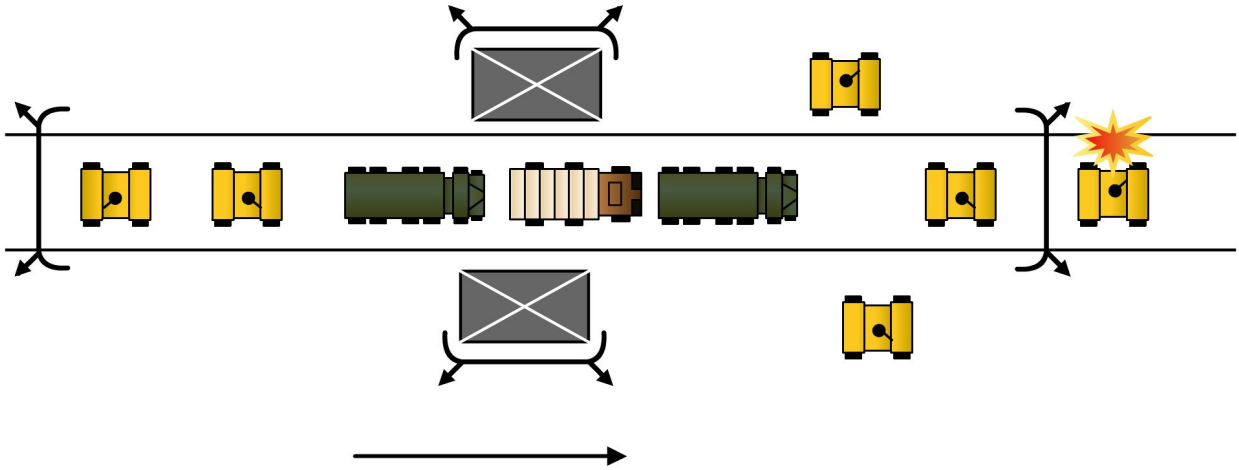


Figure 4-44 — Establish security.

A – Assault the enemy. If the convoy is taking fire, convoy personnel should return fire, maneuver out of the kill zone, and assault the enemy. If they are not taking fire, they should scan the area for triggermen, cameramen, and spotters. Secure any likely triggermen near the site and if necessary, search for, question, and detain any suspicious individuals.

C – Clear to and secure damaged vehicles/casualties. Conduct a rapid, but methodical sweep for secondary IEDs, clearing a path to any damaged vehicles or casualties. If available, CREW systems and mine detectors can be used in the sweep. Use a sweep to and through method (*Figure 4-45*), with first responders moving behind the sweep and stopping in the kill zone, while the sweep continues past it. There are three different types of sweeps that may be used under these circumstances; a V sweep, a broken V sweep, and a deliberate sweep. The current situation determines which of these sweeps should be used.

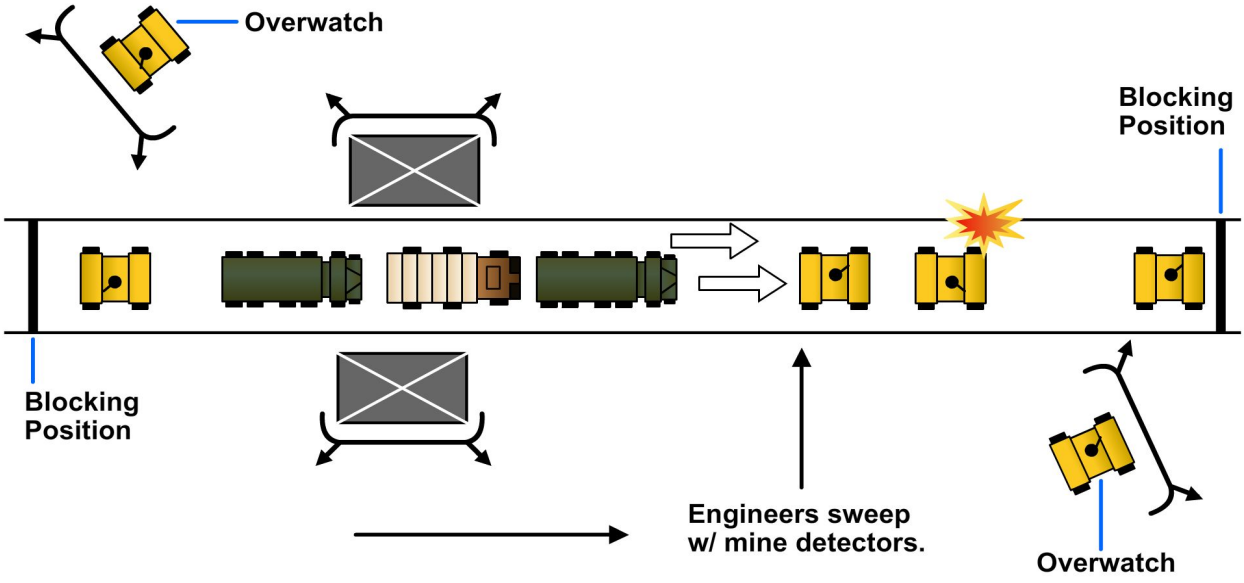


Figure 4-45 — Clear to and secure damaged vehicles/casualties.

V-sweep (*Figure 4-46*). The V sweep is used to search suspected danger areas or for secondary IEDs. It is the preferred method to mitigate casualties. This sweep is intended to flush out any triggermen or identify indicators, before convoy personnel and vehicles reach the danger area. The V-sweep denies the enemy a target while providing maximum standoff and protection to personnel sweeping danger areas. Guidelines for conducting a V-sweep include:

- Personnel conducting the sweep should have optics to improve visibility.
- Those personnel searching closest to the road should use metal/mine detectors to improve detection capability.
- Personnel at the top of the formation should push out at least 200 to 300 meters off the road, since triggermen are going to get as much distance between themselves and the detonation site as possible.
- The main focus is to get eyes on the places where triggermen might hide or where IED indicators might be located.

The advantage of conducting a V-sweep is that even if the triggerman is not identified, he might abandon his post if he does not think he can detonate the IED and still escape.

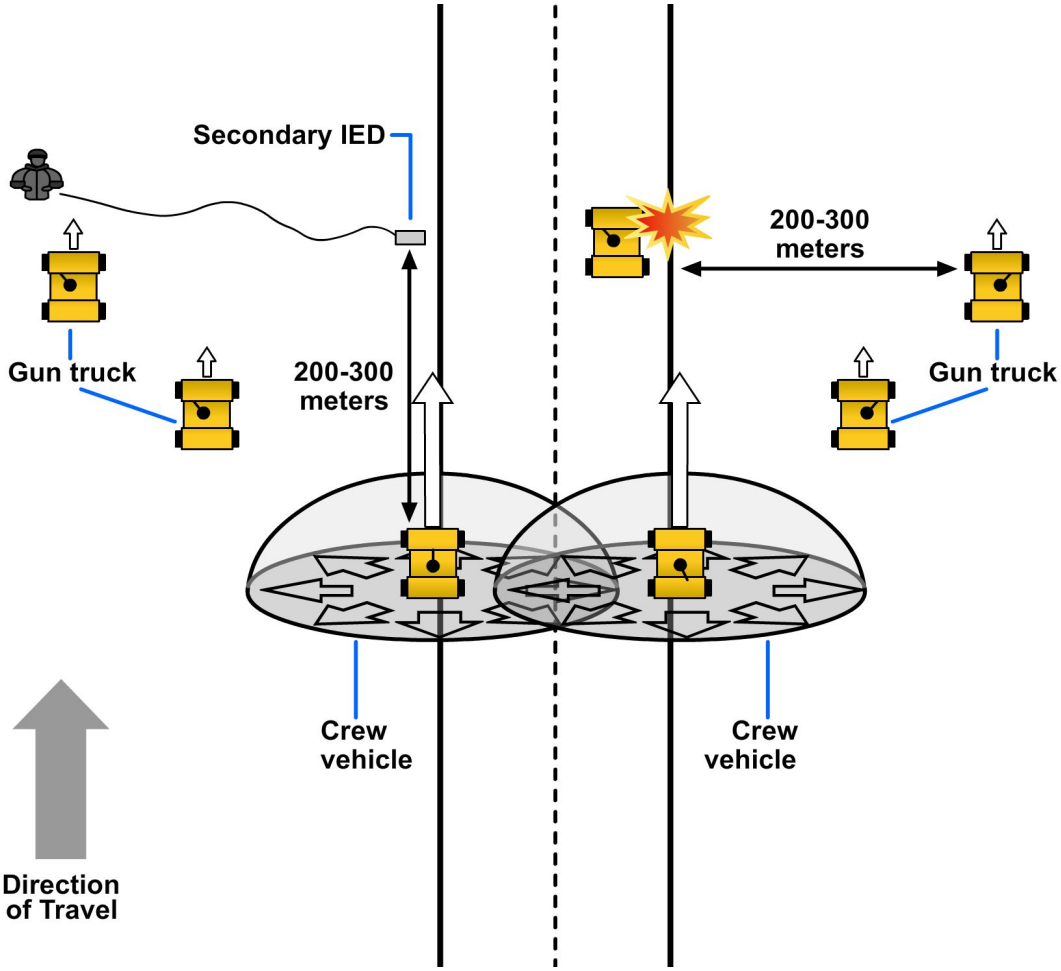


Figure 4-46 — V-sweep.

Broken V-sweep (*Figure 4-47*). The broken V-sweep keeps personnel safely off the road and shoulders where most IEDs are located. It can be used after an IED

detonation where there are casualties and time is important. Guidelines for conducting a broken V-sweep include:

- Gun trucks should utilize 90-degree offsets to 200- to 300-meter flanking positions, covering the threat from the front and flank.
- Establish both rear and flank security.
- CREW-equipped vehicles move forward to the downed vehicle.
- Remember, the focus is on triggerman.

A disadvantage of the broken V-sweep is that IEDs and mines may still be missed.

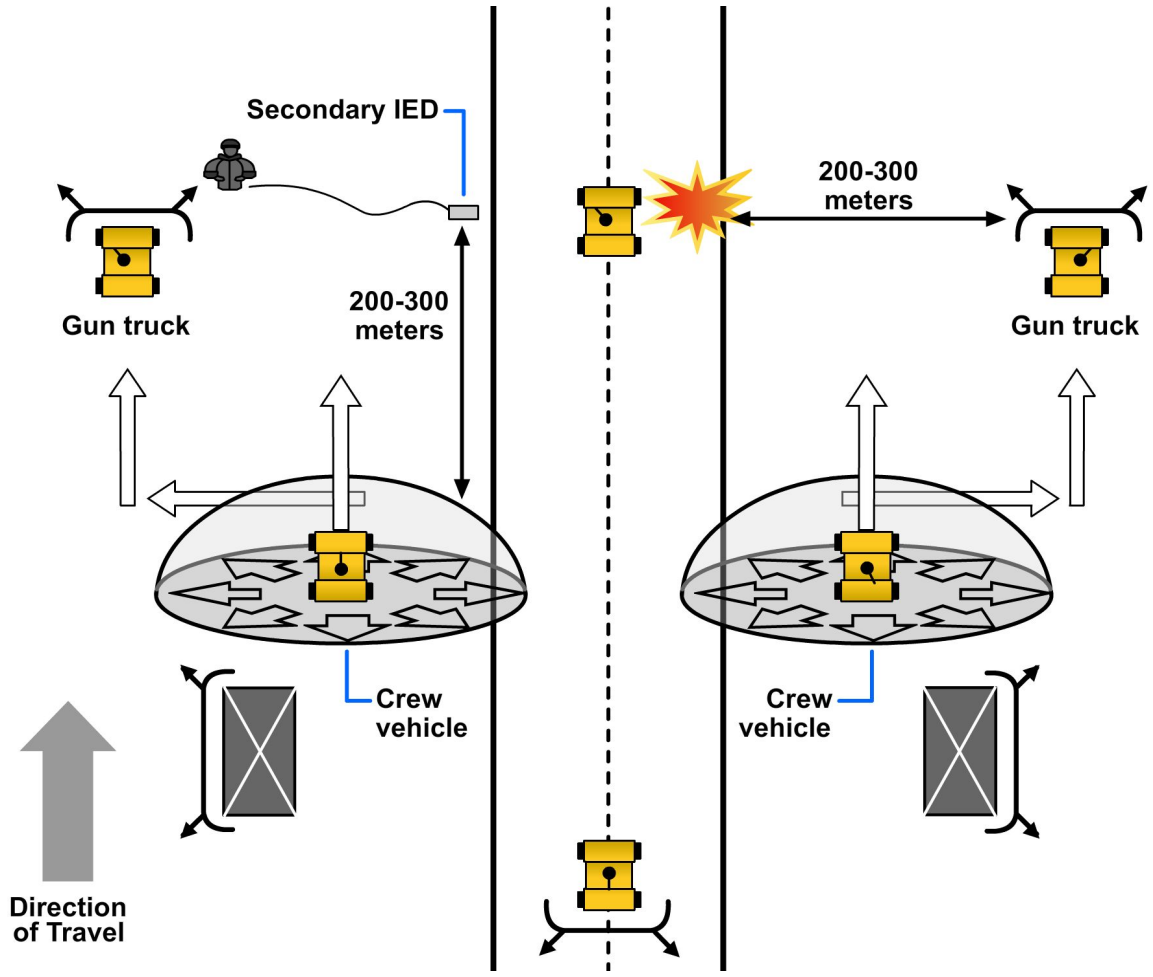


Figure 4-47 — Broken V-sweep.

Deliberate sweep (*Figure 4-48*). A deliberate sweep incorporates dismounted personnel and mine detectors. It should be used when there are likely to be victim-operated IEDs in the area. It can also be used when time is not as important, but an area needs to be occupied or passed through, such as a choke point. A deliberate sweep may also be conducted after an IED has been employed or in an area that is notorious for IEDs. Guidelines for conducting a deliberate sweep include:

- If an IED has been employed and there are casualties, engineers should conduct a cursory sweep with mine detectors in order to get first responders up to the downed vehicle safely.
- After casualties are taken care of, a more thorough deliberate sweep should be conducted to clear a path so the convoy can carry on with its mission.

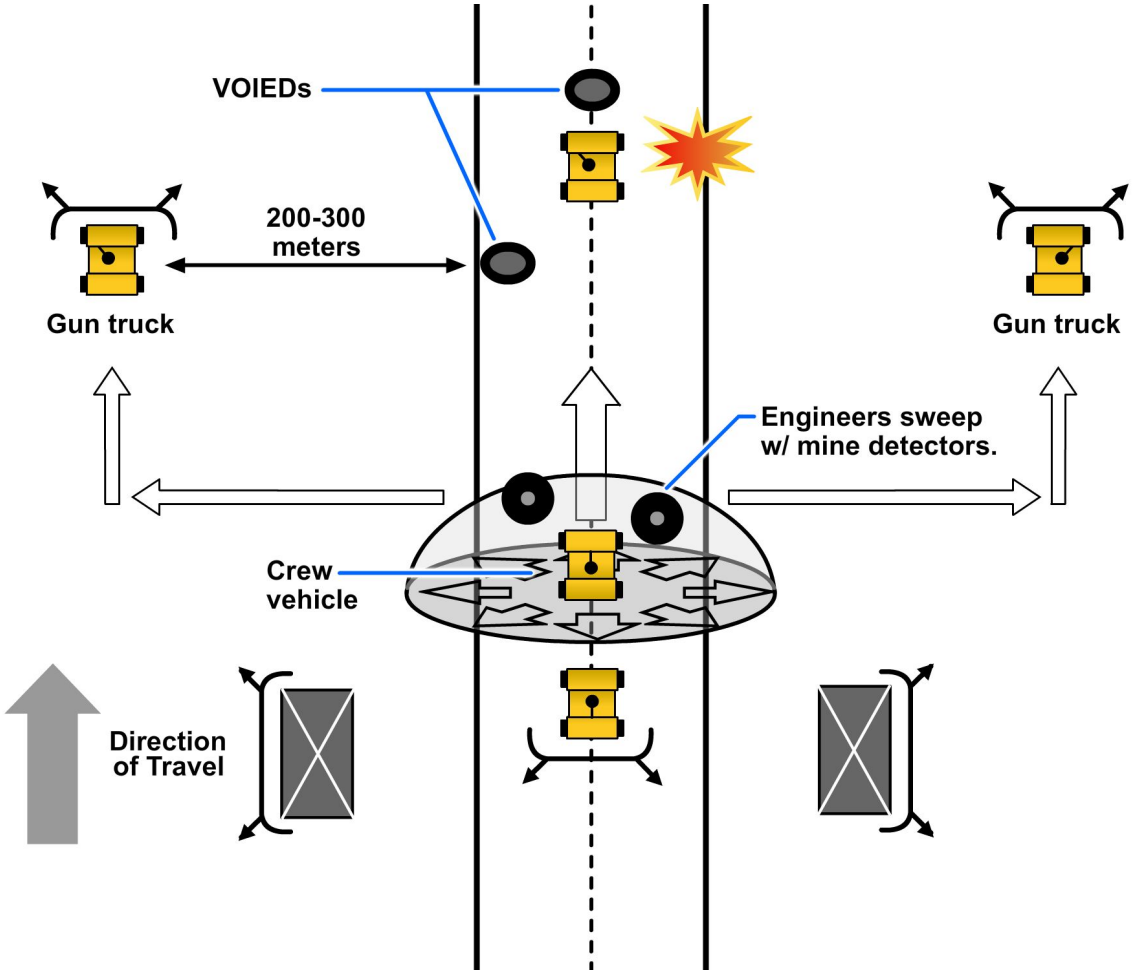


Figure 4-48 — Deliberate sweep.

T – Treat casualties. The IED site should be secured and an emergency sweep conducted before first responders arrive. Only initial lifesaving procedures should be conducted in the kill zone. Any detailed assessment and triage should wait until the casualties have been transported to a secure Casualty Collection Point (CCP). This CCP should always be located outside of the kill zone, and first responders should also conduct their own 5-to-25-meter scans at the CCP. See *Figure 4-49*.

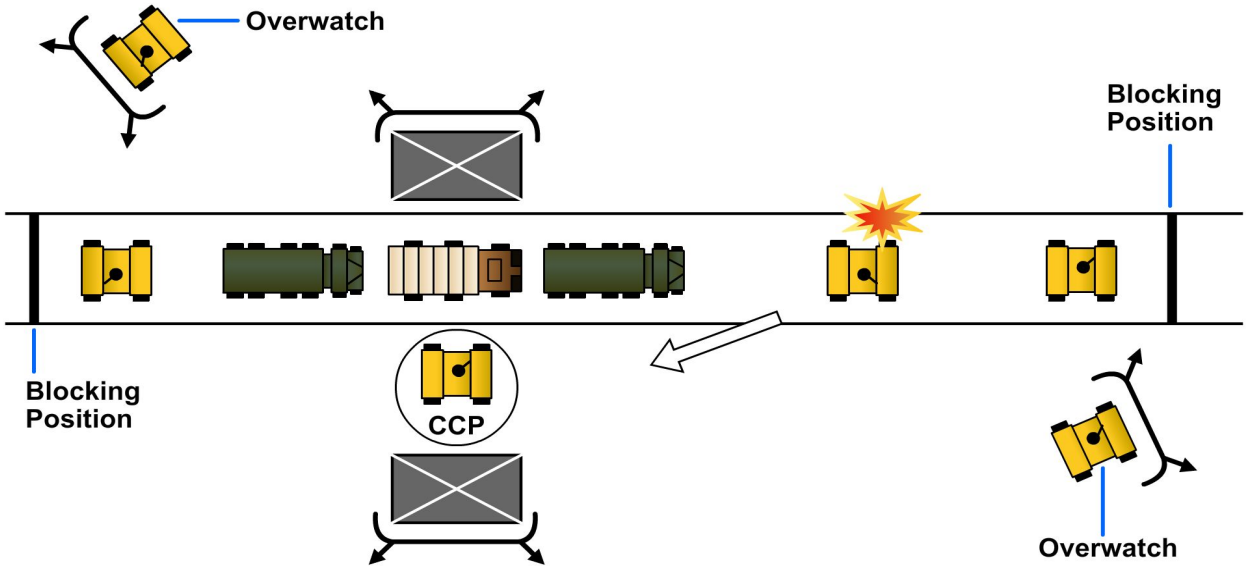


Figure 4-49 — Treat casualties.

E – Evacuate casualties. Casualties should be moved from the initial IED site to the CCP. Whenever possible, vehicles best suited for movement and treatment of casualties should be used. The remaining lines of the MEDEVAC/CASEVAC request

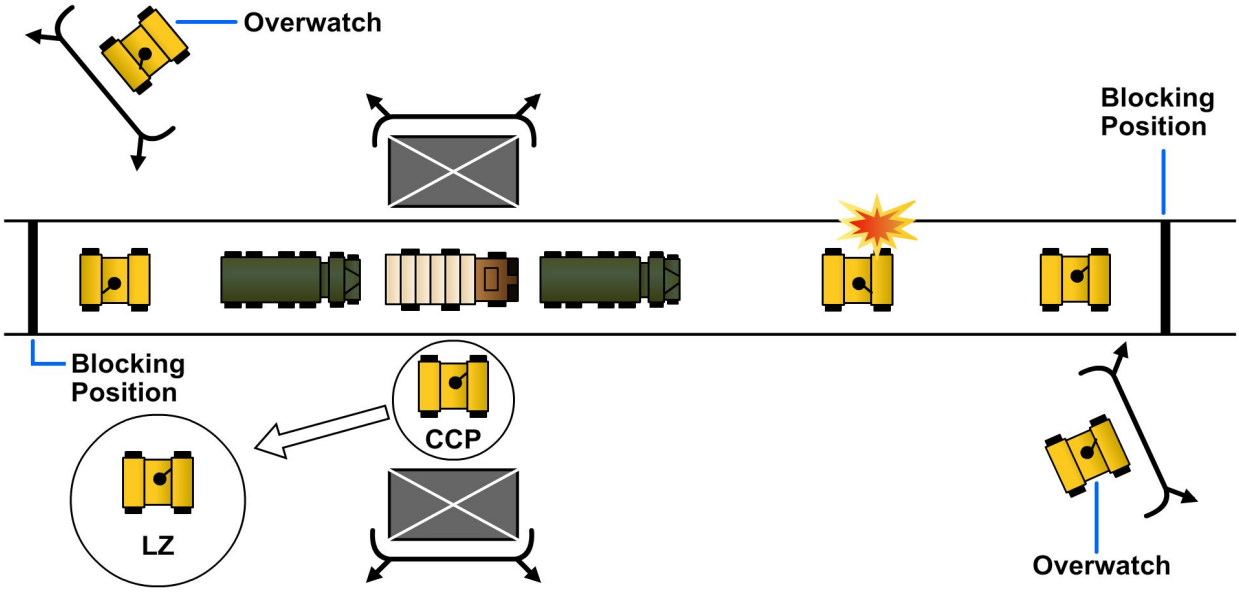


Figure 4-50 — Evacuate casualties.

should be sent at this time, along with any corrections to previous transmissions.

Establish and secure an LZ away from the site, but always be prepared to conduct a ground MEDEVAC/CASEVAC. See *Figure 4-50*.

R – Recover damaged vehicles. The last priority after an IED attack is to recover any damaged vehicles. The recovery may be hasty or deliberate depending on the circumstances, however, this drill must be rehearsed and all personnel should know where to find tow assets such as tow bars, straps, and chains. Ensure that key leaders have a list of all sensitive items that were in the damaged vehicle so they may be accounted for.

4.5.2.8 Vehicle Recovery Drills. Vehicle recovery drills consist of both hasty and deliberate procedures:

Hasty vehicle recovery. The procedures for a hasty vehicle recovery include:

- Preposition straps, cables, or chains on all vehicle for quick use.
- After fire superiority is achieved, recovery vehicles should move forward.
- The driver should stay in the recovery vehicle while the VC hooks up the damaged vehicle.
- The VC then enters the disabled vehicle to steer and work the brakes.
- The recovery vehicle moves out, pulling the disabled vehicle, moving to a rally point to reconfigure for a more stable towing method.
- If the recovery vehicle is unable to get in front of the damaged vehicle, pushing is an option.
- If time permits, a deliberate recovery using a tow bar or other assets can be performed.
- A unit SOP should be established for detailed recovery.

Deliberate vehicle recovery. Deliberate vehicle recovery is usually conducted by dedicated maintenance and recovery personnel with established procedures and specialized equipment.

4.6.0 Re-entering Friendly Lines

Re-entering friendly lines includes actions upon arrival at the RP. The RP is the objective of the convoy. Upon closing with friendly lines, the convoy must unload and clear all weapons (IAW local SOP). Before re-entering friendly lines, the CC must have the following information:

- Total number of vehicles and types, including civilian attachments
- Total number of personnel, both military and civilian
- Convoy call sign
- Convoy number
- Convoy origination

If the RP is an en route location and not the final destination, the CC will need to provide guidance on link-up for return trips, billeting, messing, and where refueling is to take place.

5.0.0 POST MISSION OPERATIONS

Post mission operations, when properly performed, allow the convoy team to quickly prepare for their next mission, provide other personnel conducting tactical movement with invaluable information, and provide HHQ with an up-to-date picture of the current threat in their AO. Post mission operations include specific responsibilities for individuals, crews, and leadership. They also include after-action reports (AARs) and post mission debriefs.

5.1.0 Post Mission Responsibilities

The post mission responsibilities of individuals and crews are similar to those achieved during convoy preparation, including equipment accountability, inspections, and vehicle/equipment maintenance. The convoy leadership focuses on conducting AARs, while higher unit-level leaders focus on sharing debrief information provided by the unit's operations and intelligence sections.

Individual post mission responsibilities include weapon and night vision goggle maintenance, and servicing/cleaning their equipment and personal gear.

Vehicle crew responsibilities include:

- Refueling vehicles
- Accounting for and inspecting equipment
- Ensuring proper shut down of all communications and CREW systems
- Conducting 3M/R1 checks and services
- Verifying the vehicle's load plan, restocking and organizing as necessary
- Securing and cleaning all weapons systems
- Checking the serviceability and completeness of the combat lifesaver bags

Convoy leadership responsibilities include:

- Conducting after-action reviews, both internally and to HHQ
- Reviewing and updating radio COMSEC
- Inventorying all sensitive items
- Downloading and updating CREW systems
- Submitting a closure report to HHQ
- Validating crew selections for vehicles, per unit SOP
- Conducting PCC/PCI post operations equipment inspections
- Verifying work/reset cycles for convoy personnel

Higher unit-level responsibilities include completing the S-2/S-3/Other reports that deal with route validation and intelligence review. They also validate any Serious/Critical Incident Reports (SIR/CIR).

5.2.0 Post Mission AARs

Post mission AARs are an important part of convoy operations. They identify how to correct deficiencies and sustain strengths. AARs should focus on the performance of specific mission-essential tasks. AARs can be either formal or informal. Convoy

operations typically conduct informal AARs. Although they are considered informal, it is important that they are still professional and well organized. All personnel should be able to openly discuss events in sufficient detail that everyone understands.

Formal AARs have external observers and controllers. They take more time, use complex training aids, are scheduled beforehand, and are conducted where they are best supported. On the other hand, informal AARs are conducted by the internal chain of command and take less time. They use simple training aids and are conducted whenever needed.

Convoy AARs should follow a chronological timeline beginning with receipt of the mission. Following a rigid sequence will help leaders keep the discussions focused. The leader can ensure no details are missed by referencing those products generated during the convoy planning and preparation phase. The following items should be used to conduct a productive AAR:

- Schedule a time and place.
- Limit distractions.
- Maintain a professional atmosphere.
- Review the commander's intent and mission.
- Set and follow a timeline.
- List both positives and negatives.
- Summarize all findings.
- Follow up on unresolved issues and items.

If the convoy takes place over multiple days, the CC should conduct interim AARs at Remain Over Night (RON) locations, or as often as necessary. Details can be lost or forgotten, so interim AARs will allow the CC to get details while they are still fresh. Ensure any actionable intelligence is report to HHQ.

5.3.0 Post Mission Debriefs

The CC and ACC should compile their debrief after AARs have been conducted at the convoy level. This will ensure all relevant information is captured from the entire convoy's perspective prior to debriefing at the HHQ. As a minimum, a thorough debrief with HHQ should include:

- Date-time group (DTG) mission received
- Size and composition of convoy
- Mission number
- Time of departure
- Pickup location(s)
- Time of return
- Drop-off location(s)
- Route (SP to RP) (main supply routes/alternate supply routes used)
- Terrain observation (include route issues)
- Enemy observation

- Attitude of local populace (hostile, friendly, indifferent)
- Map correction (issues with map books or errors on maps)
- Front haul issues
- Back haul issues
- Third Country National (TCN) personnel / equipment assessment / issues
- Issues with getting intelligence or maps from Forward Operating Bases (FOBs) (where and who)
- Strange activity or particularly dangerous areas during convoy
- Ammo expenditures
- Convoy Support Team (CST) issues
- Training issues (what needs to be trained/improved)
- Safety issues
- Maintenance issues
- Communications issues
- Positives/negatives
- Award recommendations
- General comments/CC assessments

Summary

This chapter focused on how a tactical convoy is organized and planned. The chapter topics covered and explained convoy movement formations and techniques, related drills, and what is involved in post mission reports, actions, and debriefs. This chapter also discussed how to identify improvised explosive devices or IEDs and what you should do when encountering IEDs.

Assignment 4

Objectives

1. State the roles and responsibilities of convoy personnel.
2. Describe typical convoy configurations, both large and small.
3. State the importance of communication as it applies to convoys, and the various types used.
4. Explain the purpose of the gun truck and escort employment used during convoy operations.
5. State the convoy troop leading procedures/planning considerations used during convoy operations.
6. Explain the reasons for employing risk management when planning a convoy.
7. Describe the convoy forms that make up a convoy mission package.
8. Describe the reports used during convoy operations.
9. Explain the procedures for identifying IEDs and the actions you should follow when in contact with possible IEDs while performing convoy operations.
10. Describe the suspicious activities and objects that are common characteristics of an ambush.
11. Describe the various movement formations and techniques used by convoys.
12. Explain the importance of immediate action drills during convoy operations.
13. Explain the importance of convoy post mission operations and after-action reports used during convoy briefing.

QUESTIONS

1. The convoy commander should not be located in the same vehicle as which of the following personnel?

    1. ACC
    2. Gunner
    3. Navigator
    4. VC

2. Which of the following convoy personnel supervises the convoy's rehearsals and drills?

    1. ACC
    2. CC
    3. Escort leader
    4. VC

3. Which of the following personnel may also be the escort unit commander?

    1. ACC
    2. CC
    3. Security element commander
    4. VC

4. Which of the following convoy personnel is responsible for ensuring the convoy is on route and on schedule?

    1. ACC
    2. Driver
    3. Navigator
    4. VC

5. Strip maps are provided to all VCs by which of the following personnel?

    1. ACC
    2. CC
    3. Escort leader
    4. Navigator

6. Each vehicle in the convoy will contain a driver and which of the following personnel?

    1. ACC
    2. CC
    3. Navigator
    4. VC

7. Each Aid & Litter Team should consist of at least how many personnel?

    1. 1
    2. 2
    3. 3
    4. 4

8. A typical convoy is made up of how many sections?

    1. 1
    2. 2
    3. 3
    4. 4

9. A typical convoy consists of a head section, a trail section, and which of the following?

    1. FiST
    2. Forward security element
    3. Main body
    4. Middle section

10. In which section of a convoy will the CC usually be located?

    1. Forward security element
    2. Head section
    3. Main body
    4. Trail section

11. Medical personnel are usually located in which section of a convoy?

    1. FSE
    2. Head section
    3. Main body
    4. Trail section

12. The trail section of a convoy normally contains which of the following?

    1. CC
    2. Fuel vehicles
    3. Pace vehicle
    4. Recovery vehicles

13. Convoy vehicle intervals are recommended to be what distance in meters between vehicles on open rural roads?

    1. 5 to 25
    2. 25 to 75
    3. 75 to 100
    4. 100 to 200

14. All planned convoy movements should be sent to HHQ using which of the following?

    1. ACE report
    2. GTR/TMR
    3. SALUTE report
    4. SPOT report

15. A typical escort unit is comprised of how many sections?

    1. 1
    2. 2
    3. 3
    4. 4

16. A convoy escort normally uses which of the following formations?

    1. Column
    2. Diamond
    3. Offset
    4. Staggered

17. Where are engineer assets of a convoy escort normally positioned within the convoy?

    1. CAE
    2. FSE
    3. Main body
    4. Rear

18. Where is the FiST security element of a convoy escort located?

    1. Dispersed throughout
    2. In the FSE
    3. Near the CC
    4. Near the rear

19. What is the convoy commander's next responsibility, after receiving the mission?

    1. Issue an operation order
    2. Issue the warning order
    3. Gather intelligence
    4. Make a tentative plan

20. Conducting a risk assessment is part of which of the following convoy troop leading procedures?

    1. Gather intelligence
    2. Issue the WARNORD
    3. Make a tentative plan
    4. Receive the mission

21. From where/whom does the CC obtain SIGACT reports?

    1. HHQ
    2. Operations officer
    3. S-2 officer
    4. TOC

22. The principles of which of the following are used in making a tentative convoy plan?

    1. BAMCIS
    2. METT-T(C)
    3. PMCS
    4. SALUTE

23. The CC uses which of the following processes to determine the military aspects of terrain?

    1. KOCOA
    2. RMA
    3. SALUTE
    4. SPOT

24. What risk management action should be conducted for each convoy?

1. Assessment
2. Immediate action drill
3. Roll-over drill
4. Safety survey

25. Which of the following risk mitigation controls apply when considering tactical convoy operations over adverse terrain?

1. Convoy briefs and driver training
2. Harden vehicles and IA brief
3. IA drills and maintain situational awareness
4. Rehearsals and breach teams

26. Which of the following convoy mission package items initiates the planning and preparations by all element leaders and individuals?

1. Convoy manifest
2. GTO/TMO
3. GTR/TMR
4. WARNORD

27. Which of the following convoy mission package items contains a list of all personnel, vehicles, and equipment that will make up a convoy?

1. Convoy manifest
2. GTR/TMR
3. Strip map
4. WARNORD

28. Which of the following convoy mission package items is used as a navigational aid by all vehicles in the convoy?

1. Convoy manifest
2. GTO/TMO
3. Strip map
4. WARNORD

29. Which of the following convoy mission package items contains a roster of all key FBCB2 personnel role names and numbers?

1. Communications smart package
2. Convoy manifest
3. GTR/TMR
4. WARNORD

30. Whom should you send a report to when mines, explosives, or any unexploded ordnance is found?

    1. ACC
    2. HHQ
    3. TMO
    4. TOC

31. What information is contained in the enemy contact report?

    1. Call sign, direction, distance, and type of threat.
    2. How much ammunition remains and how many casualties.
    3. Observer identification, target location and target description.
    4. The location, the unit involved, and a description of incident.

32. What report is used for reorganization and consolidation after enemy contact?

    1. ACE
    2. Enemy contact
    3. Spot
    4. SALUTE

33. Which of the following reports is basically a “Who, what, where, and when” report?

    1. ACE report
    2. Enemy contact report
    3. SALUTE report
    4. SPOT report

34. Which of the following reports should be made, internal to the convoy, upon any enemy contact?

    1. ACE report
    2. Enemy contact Report
    3. GTR/TMR
    4. SALUTE report

35. Which of the following reports should be made, externally from the convoy, upon any enemy contact?

    1. ACE report
    2. Enemy contact Report
    3. GTR/TMR
    4. SALUTE report

36. Which of the following reports should be made for reorganization after enemy contact, which includes any casualties or equipment damage?

1. ACE report
2. Enemy contact report
3. GTR/TMR
4. SALUTE report

37. Which of the following materials are frequently used to construct IEDs?

1. Mortar shells, artillery projectiles, antitank mines, and diesel fuel
2. Rucksacks, mail bags, and dead animals
3. Small arms, debris, and burlap bags
4. Vehicle components

38. Which of the following best describes a Level 2 IED suspicion category?

1. Clear indicators of imminent IED activity, protruding wires, an individual with a command detonating device
2. Evidence of ongoing emplacement-prepared holes, removed curbstone, suspicious activity or total lack of activity when there would be otherwise
3. Large amounts of debris on road that has history of recent IED attacks
4. Suspicious object, activity or condition on road; Rucksacks, mail bags, dead animals, and meals ready to eat (MRE) bags

39. Which of the following is one way to reduce the risk of IEDs?

1. Entering and exiting overpasses on the same side
2. Staying in the same lane as much as possible
3. Training weapons on overpasses as the convoy passes beneath
4. Using standard routes and times

40. Which of the following indicates the presence of an IED or ambush?

1. Empty overpasses
2. Large crowds of third party personnel
3. Lights flashing on/off as the convoy approaches
4. Vehicles following the convoy

41. Which of the following should the convoy do to prevent or minimize the effects of an IED or ambush?

1. Avoid following the tracks of vehicles ahead when on unpaved roads
2. Avoid the middle of the road
3. Stay on pavement as much as possible
4. Vary intervals between vehicles

42. What movement formation limits third-party vehicle interference between the convoy?

1. File
2. High clear
3. Offset
4. Staggered

43. Which occupant of a convoy vehicle is assigned the sector of observation from 9 o'clock to 1 o'clock?

1. Driver
2. Left rear
3. Right rear
4. VC

44. Which of the following sectors of observation is assigned to the VC?

1. 3 o'clock to 7 o'clock
2. 5 o'clock to 9 o'clock
3. 9 o'clock to 1 o'clock
4. 11 o'clock to 3 o'clock

45. Which of the following sectors of fire are assigned to the rear occupants of a convoy vehicle?

1. From 1 o'clock to 3 o'clock and from 5 o'clock to 7 o'clock
2. From 3 o'clock to 5 o'clock and from 7 o'clock to 9 o'clock
3. From 5 o'clock to 7 o'clock and from 9 o'clock to 11 o'clock
4. From 7 o'clock to 9 o'clock and from 11 o'clock to 1 o'clock

46. At which point/time should watches be synchronized to depart friendly lines?

1. Planning
2. Pre-staging
3. Staging
4. Start point

47. Which of the following convoy movement formations is best to use with inexperienced or foreign drivers?

1. Diamond
2. File
3. Offset
4. Staggered

48. The Changing Lanes technique can be used easily with which of the following convoy movement formations?

1. Diamond
2. File
3. Offset
4. Staggered

49. Which of the following convoy movement formations is used on multilane roads where the convoy uses the center lane?

1. Diamond
2. Inverted “T”
3. Offset
4. Staggered

50. The replacement of one blocking vehicle with another is called which of the following?

1. Bumping
2. High clear
3. Overwatch
4. Pushing

51. What IA drill is used when a vehicle is inoperative and occupants are required to use the vehicle as cover?

1. Bailout
2. Dismount
3. Downed driver
4. Rolling stops

52. A vehicle is inoperative and receiving fire from the enemy. What action is taken by the crew on the cold side?

1. Dismount and assume hasty position to rear of vehicle and return fire
2. Immediately dismount the vehicle and look for enemy presence
3. Immediately inform the convoy commander and return fire from vehicle
4. Remain with the vehicle at all times and establish security

53. What immediate action should dismounts take if fired upon?

1. Halt the vehicle and disembark
2. Move to cover, suppress with fire, or mount and extract
3. Signal for help and inform the convoy commander
4. Use weapons at port arms to motion civilians back

54. What are the responsibilities of the drivers when a convoy is dismounted for short halts?

1. Be ready to drive and be prepared to use the vehicle as a lethal weapon
2. Dismount the vehicle on the first perceptible slackening of enemy fire
3. Immediately inform the convoy commander that the vehicle is at halt
4. Maintain situational awareness and continually scan sectors

55. What is the most effective react-to-contact drill for an unescorted convoy to maintain movement?

1. Blow through
2. Call for an air strike
3. Perform a flank maneuver against the enemy
4. Withdrawal to a safe area

56. When a disabled convoy vehicle that is in the kill zone, and does not impede movement, what action should be taken?

1. Destroy all radios left behind and move on with the convoy
2. Execute a hasty recovery with strap, chain, or cable
3. Move on with the convoy and leave vehicle and cargo intact
4. Send a report and continue the mission

57. What should be the first action taken by the VC in a Downed Driver IA drill?

1. Gain control of the steering wheel
2. Pull the driver out of his or her compartment
3. Report to the CC for further guidance
4. Take control of the Gunner's weapons so he or she can drive

58. Who is responsible for pulling the Gunner inside the vehicle in a Rollover IA drill?

1. Driver
2. Navigator
3. Rear occupant
4. VC

59. After crewmembers have completed their 0 to 5 meter scans during a Unit IA, Actions at Halt, the VC should do which of the following?

1. Announce "Clear"
2. Designate a crewmember to dismount first
3. Exit the vehicle
4. Submit a SITREP to HHQ

60. Which of the following convoy personnel calls for a dismount?

1. CC
2. Driver
3. Gunner
4. VC

61. Which of the following react-to-contact drills is also referred to as a blow through?

1. Hasty attack
2. Maintain movement
3. React to sniper
4. Recovery with no obstacles

62. Which of the following should be done when the presence of an unexploded IED is confirmed?

1. Attempt to disarm it
2. Continue the mission, giving the confirmed IED a wide berth
3. Notify HHQ to dispatch EOD and establish a cordon around the IED
4. Properly mark the IED's location, then continue convoy movement

63. Which of the following personnel should designate a probable IED's location to EOD?

1. CC
2. Individual who initially spotted it
3. Security Element Leader
4. VC

64. Which of the following sweeps is the preferred method to mitigate casualties in a detonated IED drill?

1. Broken v-sweep
2. Bubble sweep
3. Deliberate sweep
4. V-sweep

65. Which of the following sweeps is intended to flush out any triggermen?

1. Broken v-sweep
2. Bubble sweep
3. Deliberate sweep
4. V-sweep

66. Where there are casualties and time is important, which of the following sweeps should be utilized?

1. Broken v-sweep
2. Bubble sweep
3. Deliberate sweep
4. V-sweep

67. Which of the following sweeps should be used when time is not as important, but the area needs to be occupied or passed through?

1. Broken v-sweep
2. Bubble sweep
3. Deliberate sweep
4. V-sweep

68. What information should AARs identify?

1. How to allow a convoy team to quickly reconstitute for the next mission while providing invaluable information to other personnel
2. How to correct deficiencies, sustain strengths, and focus on performance of specific mission-essential tasks
3. When to provide HHQ with an overall threat picture in their AO
4. When you should compile debriefs

69. What are the two types of AARs?

1. Brief and formal
2. Formal and informal
3. Individual and crew
4. Unit level and HHQ

70. When should the CC and ACC compile the convoys debrief?

1. After debriefing HHQ
2. After the AAR is conducted
3. Before the AAR is conducted
4. When requested by HHQ

71. AARs are part of which of the following?

1. Convoy movement
2. IA drills
3. Mission planning
4. Post-mission operations

72. Weapon and night vision goggle maintenance is a responsibility in post-mission operations of which of the following?

1. Convoy leadership
2. Higher unit-level leadership
3. Individual convoy personnel
4. Vehicle crews

73. Ensuring proper shut down of all communications systems in post-mission operations is the responsibility of which of the following?

1. Convoy leadership
2. Higher unit-level leadership
3. Individual convoy personnel
4. Vehicle crews

74. Validating SIR/CIR reports during post-mission operations is the responsibility of which of the following?

1. Convoy leadership
2. Higher unit-level leadership
3. Individual convoy personnel
4. Vehicle crews

75. Which of the following allows CCs to get details while they are still fresh?

1. Formal AARs
2. Informal AARs
3. Interim AARs
4. Post mission debriefs

ASSIGNMENT 4

TACTICAL CONVOY OPERATIONS

Directions: Select the correct answer from the list of alternates below each question in the end of chapter assignment. Write in the answer next to the corresponding question number below. Use this answer sheet as a reference to completing the online assignment related to this assignment.

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Additional Resources and References

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

Multi-Service Tactics, Techniques, and Procedures for Tactical Convoy Operations, Department of the Navy, Commander, Navy Warfare Development Command, NTTP 4-01.3.

Commander's Tactical Handbook, U.S. Marine Corps, MCRP 3-11.1A.

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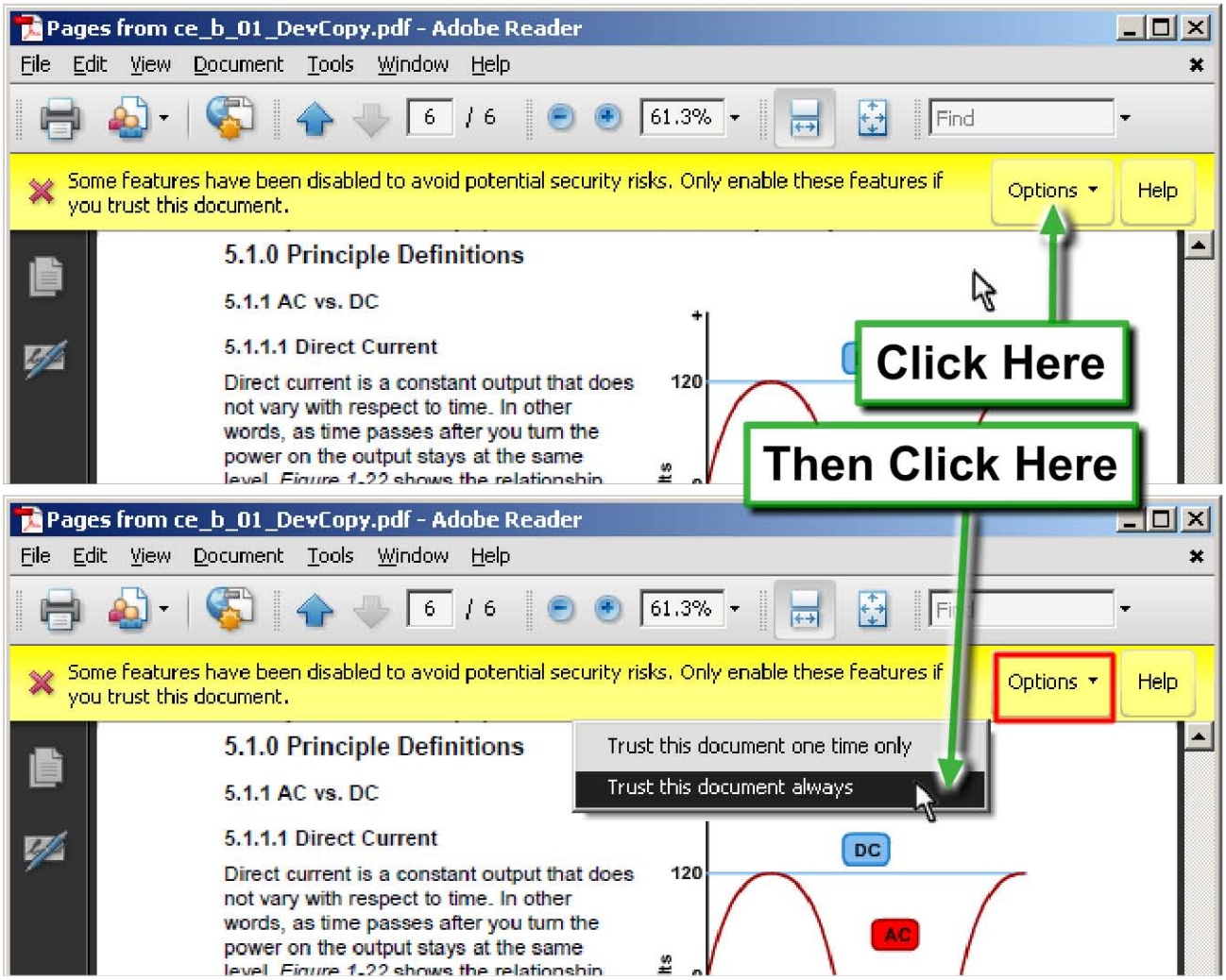
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Chapter 5

Chemical, Biological, and Radiological Decontamination

Topic

1.0.0	Forms of Contamination
2.0.0	Types of Contamination Hazards
3.0.0	Persistency
4.0.0	Negligible Risk
5.0.0	Contamination Combinations
6.0.0	Reasons for Decontamination
7.0.0	Levels of Decontamination
8.0.0	Immediate Decontamination Operations
9.0.0	Operational Decontamination Operations
10.0.0	Overview of Thorough Decontamination Operations

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Overview

The presence of contamination can greatly reduce the effectiveness of the combat forces. Contaminated personnel are forced to wear protective equipment that degrades their ability to conduct individual and collective tasks. Therefore, an understanding of the behavior and characteristics of contamination enables personnel to better direct their efforts in taking countermeasures to avoid or reduce a nuclear, a biological, or chemical hazard. Consideration of these factors will help the individual Seabee, planner, and leader integrate Chemical, Biological, and Radiological (CBR) defensive measures in tactical operations.

Objectives

When you have completed this chapter, you will be able to:

1. Explain the reasons for decontamination and the types and forms of contamination.
2. Identify the four principles of decontamination.
3. Differentiate the four levels of decontamination.
4. Explain immediate decontamination operations.
5. Explain the preparation, execution, and site clearance phases of operational decontamination.

6. Explain the steps for performing Mission-Oriented Protective Posture (MOPP) gear exchange.
7. Identify the four phases of thorough decontamination.
8. Identify the different detailed equipment decontamination site configurations.

Prerequisites

There are no prerequisites for completing this manual.

Features of this Manual

This manual has several features which make it easy to use online.

- Figure and table numbers are italicized within the handbook text. Figure and table reference numbers are conveniently located next to (or near) the applicable handbook text.
- Audio and video clips are included in the text, with italicized instructions telling you where to click to activate the appropriate link.
- Review questions are included at the end of this chapter as the chapter assignment. To submit assignments log into https://www.courses.netc.navy.mil, go to “Student Services”, in the drop down click on “Active Courses”, go to "View/Submit Answers" next to the course you wish to submit answers for. Assignments may be submitted to the above Web site as they are completed, and instant scoring is available. Your completion letter is available as soon as you pass all assignments.
- A form at the end of each chapter allows your input for improving the manual or correcting errors to be brought to the attention of CSFE’s Technical Review Committee. Your input is important and will help keep this manual up to date and free of technical errors.

NOTE

Nuclear, Biological, and Chemical (NBC) warfare and CBR are similar. Army Field Manuals (FMs) and Marine Corps publications refer to CBR as NBC; therefore, when this chapter refers to CBR, it is also referring to NBC.

1.0.0 FORMS OF CONTAMINATION

Successful decontamination requires that you understand the forms of contamination and what makes it dangerous. The different origins and forms of contamination cause different hazards. A brief discussion of the major forms and origins of contamination will clarify the meaning of contamination, as it is used in this chapter.

1.1.0 Solids

Chemical agents, biological agents, and radiological (rad) contamination can all take solid forms. Often, they appear as fine dust. The dust could take the form of radioactive dirt (fallout), a frozen chemical mist, or a dust pollinated with biological toxins and/or biological spores. Another form is a powder, coated with chemical/biological agents (for example, dusty mustard).

1.2.0 Liquids

Liquid contamination is generally delivered in a mist, a vapor, or rain that falls to the ground. Liquid contamination can be made thick, like syrup or gelatin. It sticks to what it touches and evaporates slowly. Low vapor pressure and high viscosity make it difficult to decontaminate. Chemical, biological, and radiological contaminates, when mixed with rain, can contaminate large areas. When the liquid contamination evaporates, the solid or liquid contamination may remain for some time.

1.3.0 Gases

Chemical contaminants give off vapors. Toxic chemical agents, delivered as a gas cloud, are used either directly on the target or upwind of the target. Depending on the weather conditions, wind currents can spread toxic gas clouds over a large area. Most toxic gases disperse or evaporate quite readily. However, surfaces contaminated with liquid chemical agents may give off toxic gases for days.

2.0.0 TYPES OF CONTAMINATION HAZARDS

If you understand the contamination hazards (transfer, spread, vapor, desorption, and radiation), you will understand contamination characteristics. This will help you to understand the importance of decontamination in successfully completing your mission under CBR conditions.

2.1.0 Transfer

Anything that touches a surface covered with liquid or solid contamination tends to pick up that contamination and move it from one surface to another. You must eliminate or limit contamination transfer into clean areas. For example, troops climbing in and out of a contaminated vehicle can transfer agents to the inside of the vehicle. This activity results in two hazards: inhaling the gas given off by the agent brought into the vehicle and physical contact with the agent brought into the vehicle.

2.2.0 Spread

Touching a surface covered with a liquid chemical agent can spread contamination on the same surface, thus increasing the size of the contaminated area. When this condition occurs, more decontaminates (along with more of an effort) will be spent decontaminating. Therefore, limit the spread of contamination to a clean surface by decontaminating it with a designated decontaminate and/or the appropriate equipment.

2.3.0 Vapor

A vapor hazard includes any contamination you can breathe, no matter what form it takes—such as dust in the air, atomized liquids (aerosols), or true gases. Generally, vapors in an open/outdoor area disperse rapidly so you do not need to decontaminate them. However, some agent vapors, such as atomized blister, create a transfer hazard because they settle from the air and coat the surfaces they touch. Since solid or liquid contamination remains on a surface, it can continually generate new vapors. Liquid contamination mixed with dust can result in a vapor hazard due to wind or movement of vehicles. Generally, when a transfer or spread hazard exists, a vapor hazard could also exist.

2.4.0 Desorption

Liquid chemical contamination quickly absorbs into porous surfaces. Once absorbed, it begins to desorb or give off gas; that is, low levels of vapor pass out of the contaminated surface into the air and can be transferred to any surface that contacts it, including bare skin. For example, if you were operating a vehicle that was desorbing a nerve agent, you should protect yourself by wearing, as a minimum, your protective mask and gloves. Exposure to the desorbing nerve agent might blur your vision or interfere with your ability to think clearly. Handling a steering wheel bare-handed when it is desorbing nerve agent may also cause acute nerve agent poisoning. Prevent desorption by decontaminating quickly before any agent can be absorbed into the surface. Surfaces, protected with a Chemical Agent Resistant Coating (CARC) that consists of a polyurethane paint coating, can prevent agent absorption. These surfaces can be easily decontaminated with soap and hot water or with M100 SDS.

2.5.0 Radiation

The penetrating energy of radiation does not directly fall into any of the previous categories. Radiation is given off by radioactive dust or dirt, most of which appears as fallout. For decontamination purposes, radiation can be thought of as a solid. Radioactive contamination can usually be removed by brushing, wiping, or shaking. Decontaminate quickly to decrease the cumulative effects of radiation; otherwise, small but frequent exposure to radiation may cause radiation sickness.

3.0.0 PERSISTENCY

The length of time a hazard remains depends on the “persistency” of the contamination. In biological or chemical warfare, this agent characteristic pertains to the duration of its effectiveness under determined conditions after its dispersal.

3.1.0 Chemical

Non-persistent contamination generally requires no decontamination. However, the duration and effectiveness of chemical agents used on the battlefield will depend on a series of factors that affect agent persistency. Some of these factors are as follows:

- Type of contamination
- Contamination density and droplet size
- Temperature
- Wind speed
- Sunlight
- Humidity and rain
- Composition of the contaminated surface
- Type of soil and terrain

Any contamination found on your skin must be decontaminated immediately, regardless of persistency. Some contamination hazards can affect you within minutes after touching your skin (an agent like CX will affect you within seconds). After you conduct skin decontamination, use detection equipment to determine the type of contamination. This will help to decide whether additional decontamination or treatment is required.

Changes to the physical behavior of chemical agents can be caused by changes in weather conditions. For example, in cold weather, non-persistent agents tend to become semi-persistent, lasting from 2 to 10 days.

3.2.0 Biological

The many variables involved in estimating persistency of biological hazards require separate consideration for each instance of contamination. Specially trained medical personnel will consider specific treatment direction only after the contamination has been specifically identified. For example, biological agents will persist longer in cold weather. Temperate inversions (stable conditions) that exist over snowfields also tend to prolong the stay of an aerosolized biological cloud.

3.3.0 Radiological

A general idea of the persistency of radiological hazards can be gained by taking radiation dose readings using the Radioactive Detection Identification and Computation (RADIAC) set AN/PDQ-1.

These are hand-held electronic monitoring devices containing an internal gamma detector and an interface to a family of radiation measurement probes for alpha, beta, gamma, neutron, and x-ray. The measurement is displayed on a Liquid-Crystal Display (LCD) screen for visual monitoring. The multi-function RADIAC has been designed to replace the existing RADIACs in use today.

The AN/PDQ-1 has a Built-In Test (BIT) function that verifies the equipment is in operating standards within all modes of operation. The single line LCD screen displays either the interior detector reading or the external probe reading, when attached. It also provides information on battery condition, alarm thresholds, audio and alarm status, BIT status, and probe type. The device uses two “D” cell batteries that provide 200 hours of operation without the use of a probe and only 100 hours of operation with a probe installed.

NOTE

Only qualified personnel are authorized to operate RADIAC instruments.

For operational purposes, you can use the “7-10 rule of thumb” to estimate future radiation levels. This rule provides a general estimate and should be used for planning only. The rate of radioactive decay is proportional over time. The 7-10 rule means that for seven multiples of time after the burst, the radiation intensity will decrease by a factor of 10. For example, if 2 hours after the burst your radiation reading is 100 Centigray (cGy) per hour, then 14 hours after the burst (7 times 2 hours), you can expect a reading of about 10 cGy (100 cGy divided by 10). Radiation contamination is not affected by climatic conditions or other variables that affect chemical contamination.

4.0.0 NEGLIGIBLE RISK

You must consider decontamination if the levels of contamination exceed negligible risk levels.

4.1.0 Biological and Chemical

Negligible risk levels for biological and chemical contamination are contamination that will cause mild incapacitation among no more than 5 percent of unprotected troops operating for 12 continuous hours within 1 meter of contaminated surfaces.

Measurements that determine safe levels are made with detection equipment held 1 inch away from the surface. For example, a one-bar reading displayed on the Joint Chemical Agent Detector (JCAD) indicates a reduced hazard level that should be considered as a negligible risk level.

4.2.0 Radiological

Negligible risk levels for radiological contamination are measurements of 0.33 cGy or less. This level of radiation will cause no more than 2.5 percent mild incapacitations to unprotected troops.

5.0.0 CONTAMINATION COMBINATIONS

Simultaneous enemy CBR attacks will probably be part of the strategy of the enemy. Risk assessments include consideration that the enemy may use combinations of chemical, biological, and radiological weapons or may use any of these combined with conventional fire. Once CBR weapons have been introduced on the battlefield, the enemy may try to deceive you regarding the type of hazard.

The thermal effects of a nuclear blast might destroy the effects of any chemical or biological weapons used simultaneously. However, chemical or biological weapons effectiveness is increased if used following a nuclear attack. Nuclear blast casualties and psychologically stressed troops are vulnerable to a CBR agent attack. Agents could enter collective protective shelters, communication facilities, and vehicles damaged by the nuclear detonation.

When CBR contamination hazards exist, decontaminate the chemical agents first. Chemical agents are normally the most lethal and fastest acting type of contamination. The reverse is not true—decontamination methods for biological and radiological agents are not effective for neutralizing the effects of chemical agents.

The enemy may use a mixture of agents in their munitions to cause multiple types of contamination. Such mixtures could be used to achieve any of the following:

1. Lower the freezing point of the agents and increase agent persistency, such as mustard lewisite mixture.
2. Create both percutaneous (through the skin) and inhalation hazards, such as thickened GD and GB (nerve agents).
3. Complicate agent identification of mixed agents, making treatment of casualties more difficult.
4. Combine agents with both immediate and long-term persistency, such as anthrax, with an incubation period of 1 to 5 days and histoplasmosis (pulmonary infection disease) with an incubation period of 5 to 18 days.

There is no field detecting system that can detect or identify biological agents. Therefore, combinations of biological and chemical contaminants present a different challenge. This challenge can be dealt with if standard chemical decontamination measures are followed at once. Use standard chemical decontaminants when combinations are known or suspected to exist. They can be used for toxins and biological agents as well as chemical agents.

Do not base decontamination measures solely upon the first hazard identified. Make sure you check thoroughly to identify all agent hazards. When specific agents are detected, take appropriate decontamination measures.

6.0.0 REASONS FOR DECONTAMINATION

You must have a good idea of the reasons for decontamination and the types/techniques of decontamination. You must assess your tactical situation and consider your decontamination resources within the context of Mission, Enemy, Terrain, Troops, and Time available (METT-T). You must know the principles of decontamination and know how decontamination affects your combat power. Protective clothing and equipment (Mission-Oriented Protective Posture [MOPP] gear) and collective protection shelters offer only a temporary solution. Refer to the Seabee Combat Handbook Volume 1 Chapter 9 for more information regarding MOPP gear. Decontamination is a more permanent solution because it includes the removal, destruction, or neutralization of contamination. When you have become contaminated, there are practical reasons why at least some decontamination must occur as soon as possible. You must use these decontamination concepts in selecting the best action to take to accomplish your mission.

Decontamination should be considered within the context of METT-T and resources available. The four factors that must be addressed before you decide to decontaminate are as follows:

- Lethality
- Performance degradation
- Equipment limitations
- Transfer and spread

6.1.0 Lethality

Some types of contamination are so toxic they can kill or incapacitate if they contact exposed skin for only a few minutes. If your skin becomes contaminated, you must stop breathing, mask, give the alarm, and decontaminate your skin immediately. Periodically, observe for nerve agent symptoms if the agent type is unknown.

6.2.0 Performance Degradation

The MOPP gear provides protection but also degrades performance. The use of tools and weapons while wearing the protective gloves is awkward, and the longer you are in MOPP 4, the lower your efficiency. The mask reduces your field of view, making it difficult to use some optical sights and night vision devices. Extended operations in MOPP gear tire and discourage troops. Troops cannot eat while wearing a mask. Urinating and defecating are potentially dangerous in a contaminated area. Even resting and sleeping are difficult because it is hard to breathe through the mask. Hot or humid climates compound these problems because the mask makes breathing more difficult.

6.3.0 Equipment Limitations

The MOPP ensemble protects against NBC contamination. It consists of the over garment, mask, hood, overboots, and protective gloves. Before personnel can protect themselves against NBC hazards, they must first know the purpose of MOPP and the capabilities of the Individual Protective Equipment (IPE) that is available for their use during tactical operations. The types of IPE used depend on the protection required, but all fall within two major divisions: permeable and impermeable. Permeable clothing allows air and moisture to pass through the fabric. Impermeable clothing does not. An

example of permeable protective clothing is the Joint Service Lightweight Integrated Suit Technology (JSLIST) protective overgarment.

The JSLIST is a lightweight, two-piece suit that can be worn as an overgarment or as a primary uniform over underwear. It has an integral hood, high waist trousers, adjustable suspenders, adjustable waistband and a waist-length jacket. The JSLIST is an air permeable fabric that is lighter, cooler, and provides a higher level of protection without blocking the movement of air and perspiration through the suit. The suit weighs just less than 6 pounds. It is available in 4-color woodland or a 3-color desert camouflage pattern. The JSLIST can be worn in an uncontaminated environment for 45 days with up to six launderings or for over 120 days with no launderings. The JSLIST can be worn in a contaminated environment for 24 hours.

The JSLIST provides protection against liquid, solid, and/or vapor Chemical and Biological (CB) agents and radioactive alpha and beta particles. The JSLIST ensemble will be worn in all environments when under threat of an imminent NBC attack and after chemical operations have been initiated. Over time, the JSLIST Chemical Protective Overgarment (CPO) will replace its predecessor, the Battle Dress Overgarment (BDO), as stocks become available.

Unit commanders conducting extended operations in full MOPP gear, weigh the risk of whether or not to conduct decontamination. The unit commander must consider the capabilities and limitations of the unit while performing in MOPP during different types of conditions.

A contamination hazard will be reduced by conducting hasty decontamination (MOPP gear exchange and vehicle wash down). This action also provides temporary relief from MOPP and the reduction of risk during combat operations. The commander considers the time and the resources needed to conduct decontamination versus the degradation caused by operating in full MOPP gear. The commander also understands that before ordering the removal of protective masks, they must move their unit to a clean area and conduct unmasking procedures. After hasty decontamination, the following reduce the Seabee's risk:

1. Decreasing the time personnel are exposed to chemical agents
2. Providing temporary relief from full MOPP – helps to increase survivability of the unit on the battlefield because the MOPP encapsulation causes limitations that may result in conventional casualties (for example, heat stress in combat)
3. Decreasing the risk of transfer and spreading of contamination

MOPP gear provides little direct protection from the hazards of radiological contamination, such as the radiation from fallout. But commanders may often decide to use MOPP gear for its indirect advantages. MOPP 4 can prevent the inhalation of radioactive particles, keep contamination off the skin, and greatly simplify decontamination. Although the danger from fallout is not immediate, the radiation may gradually build up to a dangerous level. Therefore, the contamination must be removed when the mission allows. The protective mask filter elements will need to be replaced because of radioactive particle buildup.

6.4.0 Transfer and Spread

You must avoid contamination as much as possible. Once a unit becomes contaminated with a chemical agent, quick or rapid decontamination is critical to prevent further spread or transfer of contamination onto a clean area or surface. Rapid

decontamination may allow the unit to be in the lowest MOPP level possible and preserve its combat power.

6.5.0 Principles of Decontamination

The resources of manpower, time, and material are critical in reaching a decision on how to sustain combat operations. Two concepts must be considered: the use of these resources and the ability to sustain combat operations. You must know when, where, what, and how to perform decontamination by following the four principles.

First, decontaminate as soon as possible. This is the most important principle of the four. Consider this principle before you consider any other. Contamination hazards force you into higher levels of MOPP and immediately begin to degrade the ability to perform your mission. The sooner the contamination is removed, the sooner you can reduce MOPP levels.

Second, decontaminate only what is necessary. Do **NOT** waste precious resources decontaminating everything. Decontaminate only what is necessary to continue your mission. Consider the following factors when you decide whether decontamination will interfere with the mission:

- Mission – “tempo of battle”
- Time available
- Degree of contamination
- Length of time you have been in MOPP 4
- Decontamination assets available

Third, decontaminate as far forward as possible (limit spread). Do not transport contaminated personnel and equipment away from your operational area if you can bring decontamination assets forward safely. This will keep your equipment on location where it is needed, allow decontamination to begin earlier, and limit the spread of contamination to other areas.

Fourth, decontaminate by priority. Clean important items of equipment first and the least important items last. The Combat Operations Center (COC) will prioritize the equipment for decontamination.

7.0.0 LEVELS OF DECONTAMINATION

Four levels of decontamination are used today: immediate, operational, thorough, and clearance. The following paragraphs provide descriptions of techniques involved in each of the levels depicted in *Figure 5-1*.



Figure 5-1 — Decontamination techniques.

7.1.0 Immediate Decontamination

The aim of immediate decontamination is to minimize casualties, save lives, and limit the spread of contamination. Immediate decontamination is carried out by individuals upon becoming contaminated. Three immediate decontamination techniques are used today:

- Skin decontamination
- Personal wipe down
- Operator's wipe down

7.2.0 Operational Decontamination

The aim of operational decontamination is to sustain operations, reduce the contact hazard, and limit the spread of contamination. Operational decontamination will also eliminate the necessity or reduce the duration of wearing MOPP gear. Operational decontamination is carried out by individuals and/or units. It is restricted to specific parts of operationally essential equipment, material, and/or working areas. Operational decontamination minimizes contact and transfer hazards. Further decontamination may be required to reduce contamination to negligible risk levels. Two operational decontamination techniques are used today:

- Vehicle wash down
- MOPP gear exchange

7.3.0 Thorough Decontamination

The aim of thorough decontamination is to reduce or eliminate the need for individual protective clothing. Thorough decontamination is carried out to reduce contamination on

personnel, equipment/material, and/or working areas to the lowest possible level (negligible risk). This permits the reduction or removal of individual protective equipment and maintains operations with the least degradation. Thorough decontamination reduces CBR contamination levels to a negligible risk. There are two thorough decontamination techniques that Seabees use:

- Detailed Troop Decontamination (DTD)
- Detailed Equipment Decontamination (DED)

7.4.0 Clearance Decontamination

Clearance decontamination provides decontamination to a level that allows unrestricted transportation, maintenance, employment, and disposal.

Clearance decontamination of equipment and personnel allows the operation to continue unrestricted. Decontamination at this level will probably be conducted at or near a shipyard, advanced base, or other industrial facility. Clearance decontamination involves factors such as suspending normal activities, withdrawing personnel, and having materials and facilities not normally present. Essentially, resources from an industrial base (e.g., Army Material Command, Air Force Material Command, Naval Sea Systems Command, and Marine Corps Systems Command) will be required. During clearance decontamination, resource expenditures are documented, Force Health Protection (FHP) measures are conducted, and after-action reviews are prepared.

You now know that contamination causes casualties and restricts the use of equipment and terrain. Decontamination reduces or eliminates the hazard and permits units to continue their mission. You also know the three levels of decontamination. We will now discuss decontamination operations for each level of decontamination.

8.0.0 IMMEDIATE DECONTAMINATION OPERATIONS

Individual Seabees initiate immediate decontamination techniques—without command—once they become aware they have contamination on their bare skin. The personal M291 SDK (Skin Decontamination lit) is used to decontaminate exposed skin. This is followed by decontamination of MOPP gear and weapons, using the M295 IEDK (Individual Equipment Decontamination Kit). These items are used for chemical and biological contamination removal only.

Radiological contamination hazards affect you differently, but the principle is the same. Remove radiological contamination from equipment and personnel by brushing and/or using soap and water, respectively.

8.1.0 Skin Decontamination

The M291 SDK kit (*Figure 5-2*) consists of six identical packets that contain a mixture of activated resins. This resin mixture adsorbs and neutralizes liquid chemical agents present on an individual’s skin and neutralizes agents. The mixture consists of an adsorbent resin, a resin containing sulfonic acid, and a hydroxylamine-containing resin. The black powder residue will provide a visual confirmation of the thoroughness of application and will not cause any skin irritation even after prolonged contact with skin. However, normal precautions must be observed so that the powder does not enter open wounds, the mouth, or the eyes. This kit will also be used for training; no training aid will be produced. The issue is twenty M291 SDKs per box.

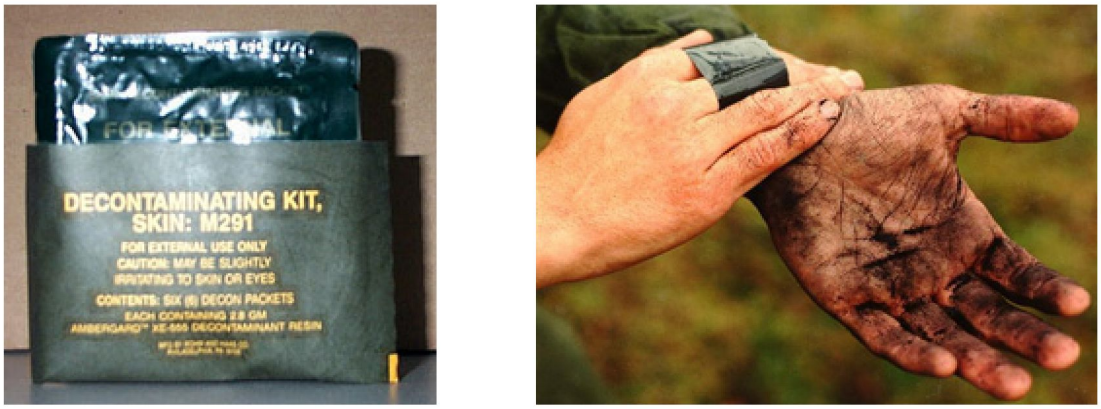


Figure 5-2 — M291 SDK skin decontamination kit.

The M291 SDK contains materials used to decontaminate the skin, a mask, hood, and protective gloves. After masking, the individual opens a packet from the kit, removes the applicator pad, and applies an even coating of resin powder while scrubbing the entire skin area suspected to be contaminated.

One applicator pad will decontaminate both hands and the face if necessary. If the face must be decontaminated, the neck (including the throat area) and the ears must also be decontaminated using a second applicator pad. Reactive Skin Decontamination Lotion (RSDL) is a broad-spectrum liquid Chemical Warfare (CW) agent decontaminant that will remove and destroy military chemical agents on contact. After CW agent destruction, RSDL leaves a nontoxic residue that may be washed off with water. It does not need to be removed immediately. RSDL is safe for use on all intact skin surfaces and for limited duration use in the eyes. RSDL reacts rapidly, providing the full removal and destruction of CW agents within 2 minutes, enabling efficient decontamination of casualties. The RSDL kit is fielded with three kits per package.

The RSDL is used to decontaminate intact skin only. It is impregnated in a sponge pad and packaged as a single unit in a heat-sealed foil pouch. When exposed to CW agents, the user wipes the exposed skin with the lotion.

RSDL acts within seconds of being applied to the skin, neutralizing the toxicity of chemical agents by breaking down their molecules. Apply the lotion within 1 minute of contamination. The lotion is effective against cutaneous nerve and blister agents, such as mustard, sarin nerve agent GB, and nerve agent VX.

WARNING

> Protect the kit from temperatures above 110°F (43°C) and below 32°F (0°C). The solutions are flammable and unstable in storage at temperatures above 110°F (43°C) or for prolonged periods of time in sunlight.

Shelter is necessary to prevent further contamination during the decontamination process. If no overhead cover is available, throw a poncho or tarp over your head before beginning decontamination.

8.1.1 Biological

Currently, no means exists of detecting biological agents. You probably will not know immediately when you have become contaminated. Most biological agents, except

toxins, pose their primary threat through inhalation or ingestion. The skin is an effective barrier against most biological agents if it has no cuts or scratches.

Unit medical personnel know the types and levels of natural infection for the area of operations. They monitor these levels. If a given disease reaches a high level, they decide whether or not a deliberate biological attack has occurred.

The best biological defense is to take action before you are attacked. Keep immunizations up-to-date; observe basic sanitary precautions; and keep skin breaks covered. Treat minor cuts or abrasions by ordinary first-aid measures (iodine, Zephiran, or Merthiolate). Washing with soap and water removes nearly all biological agents from the skin. Frequent showering or bathing lessens chances of infection and disease. A 0.5 percent sodium hypochlorite (household bleach) solution is also an effective biological decontaminant.

8.1.2 Radiological

Because no immediate life-threatening hazard is caused by radiological contamination, no immediate skin decontamination is required. However, wash exposed areas of your skin when possible. If your skin is contaminated by radiological contamination, use operational decontamination techniques immediately. To remove radiological dust particles, brush, wash, or wipe them off. If MOPP gear is wet, conduct a MOPP gear exchange as soon as possible because brushing or shaking will not remove the contamination. Wash the exposed areas of the skin with soap and water, and pay particular attention to the hair and fingernails.

8.2.0 Personal Wipe Down

The personal wipe down technique is most effective when done within 15 minutes of becoming contaminated. Every Seabee is responsible to wipe down their mask, hood, gloves, and other essential gear (an exception is when a thickened agent is globbed on the overgarment). For chemical and biological decontamination, Seabees use their skin decontamination kits. Radiological contamination may be brushed away.

Do not attempt to remove chemical contamination from your protective overgarment. The special protective properties of the garment minimize hazards from chemical agents. However, brush off radiological, biological, or frozen chemical agent contamination from your overgarment. If radiological contamination is not removed, your radiation exposure will increase over time.

8.2.1 Chemical

The stocks and handgrips of individual weapons also tend to absorb chemical agents. Once absorbed, they may present a vapor hazard for days. To reduce this penetration and vapor hazard, decontaminate individual equipment using the M291 SDK kit. Also remember to decontaminate gloves, hood, mask, helmet, and the weapon itself if they are contaminated. Perform personal and equipment wipe down within 15 minutes after being exposed to liquid contamination. Additionally, wearing your Kevlar helmet protective cover will prevent or reduce the absorption of any liquid chemical agent.

If an agent is globbed on your overgarment, you may scrape it off with a stick or other object. Otherwise, do not attempt to decontaminate chemical agents on your overgarment. This will provide little, if any, extra protection and you probably will not have enough M291 SDK decontamination wipes to do so.

8.2.2 Biological

If you know or suspect toxins or other biological agents are present, remove the contamination with soap and water. If water is not available, use M291 SDK decontamination wipes in the same manner as described for chemical agent decontamination.

8.2.3 Radiological

Radiological contamination can readily be detected and located with monitoring equipment. Remove the contamination and you reduce the hazard. Brush the dust off your load-bearing equipment and mask carrier. If you are contaminated with a dry contaminant, such as fallout, shake your clothing and gear. Wash the exposed areas of your skin. Use M291 SDK decontamination wipes if soap and water are not available. Pay particular attention to your hair and fingernails. Avoid breathing the dust you shake off by wearing a piece of cloth over your face. If you were contaminated by a wet radiological contaminant, you must immediately conduct a MOPP gear exchange. Brushing or shaking will not remove the wet radiological contaminant or its hazard. Wipe off your mask, hood, helmet, gloves, footwear covers, and other personal equipment with warm, soapy water. If warm, soapy water is unavailable, use rags or damp paper towels. Ensure contamination is not spread to clean areas.

8.3.0 Operator's Wipe Down

After you have decontaminated yourself and your personal equipment, you may need to decontaminate other mission-essential portions of your equipment before continuing your mission. For example, you may need to decontaminate the vehicle you are operating or a crew-served weapon. To ensure you do not pick up contamination from these items, decontaminate surfaces you or your crew must touch while operating the equipment. This decontamination is called the "operator's wipe down" and is most effective when done within 15 minutes after personal wipe down. Starting this technique later is not as effective as contamination—especially chemical agents—will probably have spread and will be more difficult to remove by this technique.

8.3.1 Chemical

Decontaminate the surfaces you must touch to do your job using the M100 Sorbent Decontamination System (SDS) (*Figure 5-3*).

The M100 SDS replaces the M11/M13 DAP and associated Decontamination Solution number 2 (DS2) used formerly in operator wipe down (immediate decontamination) with a reactive, neutralizing sorbent powder.

The M100 SDS uses a reactive sorbent powder to remove and neutralize chemical agents from surfaces. The use of the M100 SDS decreases decontamination time and eliminates the need for water. Each M100 SDS consists of two 0.7 pound packs of reactive sorbent powder, two wash mitt-type sorbent applicators, a case, straps, and detailed instructions. An optional chemical



Figure 5-3 — M100 SDS.

resistant mounting bracket is also available. The sorbent decontamination system provides a simple, rapid, and efficient system to decontaminate small and individual issue items. The sorbent is used during the operator's wipe down portion of immediate decontamination on surfaces that personnel must touch or contact to operate the equipment, such as door handles, crew-served weapons, etc. The sorbent powder is applied to the mitt or flat surfaces prior to decontaminating. The M100 SDS is not classified as a hazardous material and, therefore, can be shipped through normal transport processes.

8.3.2 Biological

A 0.5 percent bleach solution is the preferred decontaminant for biological contamination; however, if it is not available, hot, soapy water should be used. The bleach solution should be applied with brushes and the surface scrubbed well.

WARNING

Bleach is corrosive to most metals and fabrics so rinse thoroughly and oil the metal surfaces after completion.

8.3.3 Radiological

If you are contaminated by fallout, rain out, neutron-induced contamination, or any type of radiological agent, use your monitoring equipment to help locate contamination and decontaminate as required. If detection equipment is not available and you suspect you are contaminated, decontaminate.

Radiological contamination can usually be removed by brushing or scraping (use brooms or tree branches). Water is effective for flushing away radiological contamination. Control the runoff by using drainage ditches that flow into a sump. Remember, you have not destroyed contamination, just moved it. The runoff will still be hazardous. Brushing or scooping away the top inch of soil from your fighting position will also lower the amount of radiological contamination.

9.0.0 OPERATIONAL DECONTAMINATION OPERATIONS

Operational decontamination generally follows immediate decontamination. The objective is to reduce the level of contamination to regenerate needed combat power allowing the unit to sustain its mission in a contaminated environment. Operational decontamination will further reduce the risk of contamination transfer, the spread of contamination, and the speed of the weathering process by removing much of the gross contamination.

Decontaminate only what is necessary by conducting immediate equipment decontamination before operational decontamination. Once operational decontamination is completed, the contamination hazard on the equipment is neutralized. Therefore, the operator's wipe down, combined with operational decontamination, increases the opportunities to conduct unmasking procedures. Operational decontamination is accomplished primarily by using the following assets:

- M26 (contains diesel engine, pump, water blivet, personnel shower set, and water heater unit)
- M100 Sorbent Decontamination System (SDS)
- Joint Chemical Agent Detector (JCAD)

Vehicles must be identified as contaminated or non-contaminated before arriving at any operational decontamination station. If the contamination on the vehicle or equipment can be neutralized with immediate decontamination procedures, decontaminate and go on with the mission. To be most effective, you should accomplish operational decontamination as soon as possible.

MOPP gear exchange and vehicle wash down are done in conjunction with each other. The COC establishes a MOPP gear exchange site upwind of the vehicle wash-down area. This is the site where Seabees exchange contaminated MOPP gear for a reserve set of MOPP gear. The exchange is normally accomplished by squad-size elements. Unmasking may or may not be possible during this exchange. A well-practiced unit Standing Operating Procedure (SOP) will greatly simplify and ease the carrying out of operational decontamination procedures.

9.1.0 Preparation Phase

The preparation stage, as its name implies, includes all of the things that must be done before any operational decontamination can take place.

9.1.1 Site Selection

The COC, along with the CBR officer, selects an operational decontamination site where little preparation is required and considers the following factors when selecting a decontamination site:

- Good overhead concealment
- Good drainage
- Off the main route but with easy access for vehicles
- Wind direction
- Large enough area to handle vehicle wash down and MOPP gear exchange for a squad-size element (100 square meters per site)
- A water source for about 100 to 150 gallons of water for each vehicle (larger or dirtier vehicles need more water)

9.1.2 Site Setup

The battalion decontamination crew will set up the vehicle wash-down area. An operational decontamination site takes minimal setup and preparation. The site setup requires positioning the M26 along the roadway, ready to dispense hot, soapy water. The M26 Joint Service Transportation Decontamination System-Small Scale (JSTDS-SS) shown in *Figure* 5-4 is a diesel-powered, high pressure cleaning and decontamination system. It can provide 383 gallons of water per hour to a decontamination site.

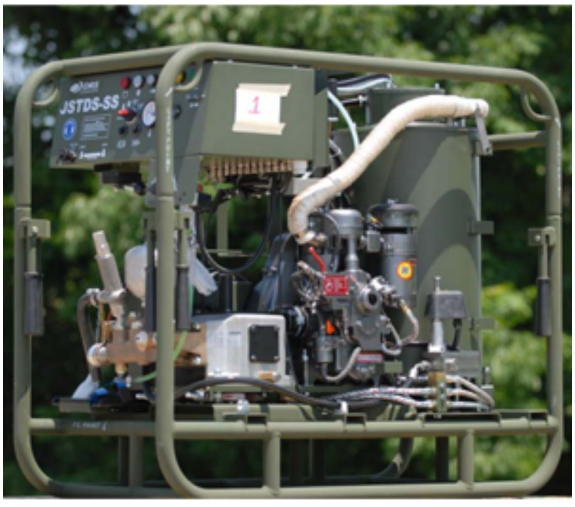


Figure 5-4 — M26 JSTDS-SS.

The associated water blivet (*Figure* 5-5) is an open top collapsible bladder capable of holding 3,000 gallons of water. It is intended for use as a potable water storage container when quick storage facilities are needed and or where permanent potable water storage facilities are not available.



Figure 5-5 — 3000 gal. water bladder.

The vehicle wash-down process consists of contaminated vehicles moving forward into a site to be washed down (removing gross contamination) and then moving out. Site setup requires the decontamination crew to position itself upwind from the entrance, set up the MOPP gear exchange about 164 feet upwind from the vehicle wash down at a 45° angle, and notify the contaminated unit when the site is ready.

Because the M26 heats water instantaneously, setting up for vehicle wash down should take no more than 10 minutes (this is a guideline). If the water bladder is used and must be filled, preparation for vehicle wash down will take more time. Personnel in wheeled vehicles should dismount the vehicles to avoid getting wet.

9.2.0 Execution Phase

This phase is the actual conduct of the two operational decontamination techniques: the vehicle wash down and the MOPP gear exchange. Units will provide their own security while vehicle wash down and MOPP gear exchange are in progress.

When finished, troops mount their vehicles and move to their new battle positions**.** For planning purposes, the vehicle wash-down site will process one vehicle every 2 to 3 minutes; and MOPP gear exchange will take approximately 30 minutes.

9.2.1 Vehicle Wash Down

A vehicle wash down may be conducted with or without standard decontamination equipment in a one-lane or two-lane configuration. An unsupported wash down requires the contaminated unit to use its assigned decontamination apparatuses or other alternate washing equipment that can produce 60 to 120 pounds per square inch (psi) of water pressure. The capacity to heat water and inject soap increases the effectiveness. A supported wash down requires decontamination equipment assets that are organic to the unit or from a supporting decontamination unit. A two-lane wash down is simply two one-lane wash downs parallel to each other (*Figure 5-6*).

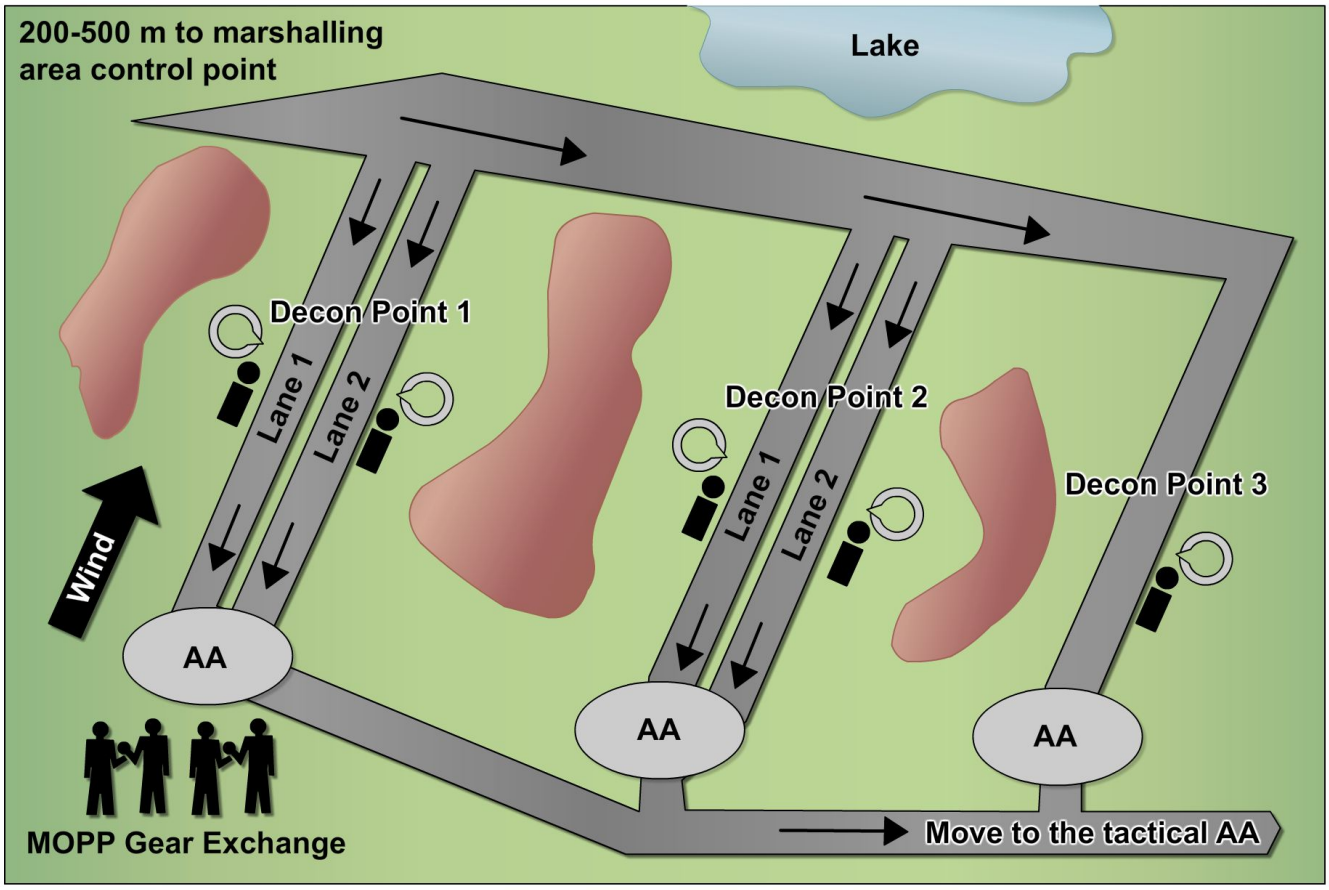


Figure 5-6 — Two-lane wash down.

Other configurations are limited only by the constraints of the METT-T. *Figure 5-7* illustrates a dispersed operational decontamination setup. *Table 5-1*, describes the vehicle wash-down process.

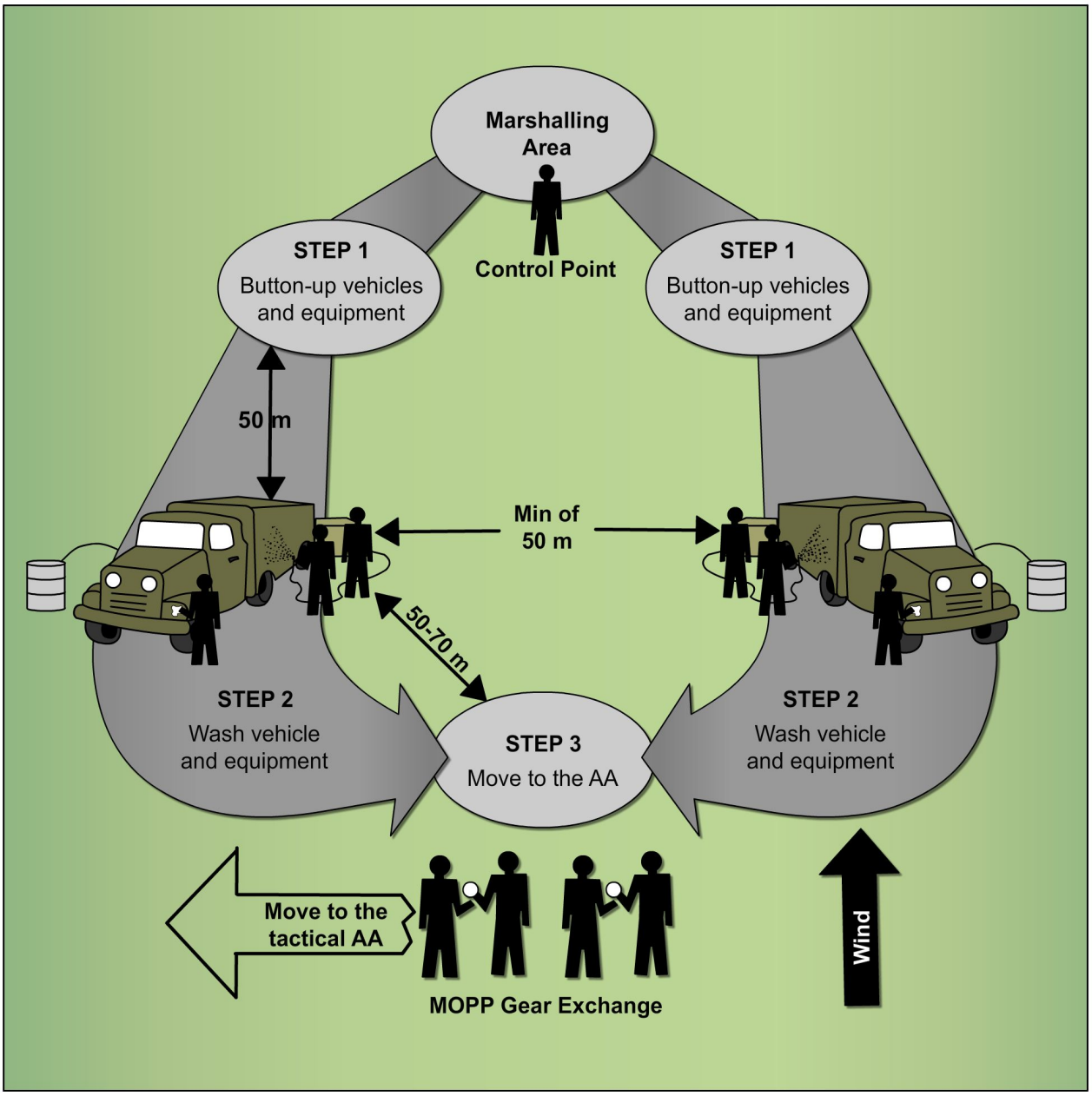


Figure 5-7 — Dispersed operational decontamination setup.

Table 5-1 — Vehicle Wash-Down Process

Steps	Equipment	Procedures
1. Marshal the area. The unit is tactically dispersed. Personnel at the control point direct movement.	None	Personnel at the control point supervise the preparation of vehicles and direct movement out of the Assembly Area (AA).
2. Button up.	None	The crew closes all access doors, hatches, windows, and other openings. They remove camouflage and cover muzzles. If required, they (less drivers) move to the MOPP gear exchange area. They move to the wash area on order.
3. Wash down.	Delivery system (such as the M26, M100, MPDS, 65- or 125-GPM pump, firefighting equipment, and so forth) that delivers hot, soapy water at 60 to 120 psi. Sufficient water, fuel, and detergent for vehicles.	Personnel wash equipment from top to bottom. The decontamination crew wears a TAP or wet-weather gear over MOPP gear.
4. Move to AA.	None	Vehicles move to the MOPP gear exchange area (if required) or the next battle position.

9.2.2 MOPP Gear Exchange with the JSLIST

MOPP gear exchange is done by squads or crews so that leaders can control the rate of overgarment exchange. This procedure also ensures that adequate stocks of overgarments at company level are maintained and accounted for. Two Seabees can work as a buddy team, or a Seabee can execute the technique individually. However, when squad leaders supervise, they can prevent unnecessary exchanges of MOPP gear by using the improved JCAD.

During the MOPP gear exchange, contaminated MOPP gear is exchanged for new, uncontaminated gear. The squad or platoon is responsible for conducting its own MOPP gear exchange at the assembly area of the operational decontamination site. Decontaminants and chemical suit replacements are provided by supply (S-4) and issued near the decontamination site.

MOPP gear exchange removes nearly all liquid or solid contamination from you and your individual equipment. When personnel have little, if any, vapor hazards on themselves, they may use hazard-free areas to unmask, eat, drink, and rest temporarily. Before unmasking and lowering MOPP levels for temporary relief, conduct unmasking procedures using the JCAD.

Fourteen steps are used in the JSLIST MOPP gear exchange. The squad forms a circle around a lead team—typically the squad leader and another Seabee. The troops are

paired into buddy teams and spaced around the circle with 1 to 3 meters between teams. Members of each team alternate as they go through step 1 (decontamination gear). At steps 2 through 13, one member completes all steps with the assistance from the other team member. Roles are then reversed. See *Table 5-2* for detailed instructions on this method.

These techniques do not guarantee safe conditions required to allow unmasking on or near equipment. However, troops may move upwind of dirty vapor equipment into a clean area or collective protection shelter, check for contamination, and then briefly unmask. Conduct continuous contamination checks and monitoring to ensure you stay in clean areas. Use the M291 SDK kit and check it every 15 to 20 minutes. Use the JCAD every 5 minutes. Use the JCAD together with unmasking procedures.

Table 5-2 — Buddy Team Method of MOPP Gear Exchange with the JSLIST Chemical Protective Ensemble

Required steps	Contamination type	Required equipment	Required procedures
1. Decontaminate gear (removes gross contamination from individual gear [weapon, helmet, load-bearing equipment, and mask carrier]).	All	Four long-handled brushes A large piece of plastic (poncho or similar material) STB (bulk) Shovel	The individual mixes three parts earth to two parts STB.
	CB	One 30-gallon container STB dry mix One IEDK	The individual removes and discards the chemical-protective helmet cover. They brush or rub STB onto their individual gear (helmet and mask carrier) and the hose of the M42 or M43 mask if worn. They gently shake off any excess STB and set aside their gear on an uncontaminated surface.
	Radiological	Hot, soapy water	The individual brushes or wipes radiological contamination from their individual gear. They wash it with hot, soapy water (if available) and then set it aside to dry on an uncontaminated surface (plastic, poncho, or similar material).
2. Prepare to decontaminate (facilitates later removal of overgarment trousers and overboots).			Buddy 1 removes the M9 paper from Buddy 2's overgarment. They untie the bow in Buddy 2's coat retention cord if tied. They unfasten the webbing-strip snap at the bottom front of Buddy 2's coat and release the coat retention-cord loop at the waist. Buddy 1 then loosens the bottom of the coat by pulling the material away from Buddy 2's body. **NOTES** **1. If wearing the M43 protective mask, tie the microphone cord to the hose of the mask.** **2. The M40 voice amplifier (M7) and the M42 detachable microphone cannot be decontaminated and will be disposed of as contaminated waste; however, ensure that these items are contaminated before disposing of them.** Buddy 1 unfastens and loosely refastens the hook-and-pile fasteners at Buddy 2's wrists and ankles. Then unfastens or cuts the fasteners on Buddy 2's overboots. **NOTE** **A person can do this step by themselves or with the help of their buddy**.

Table 5-2 — Buddy Team Method of MOPP Gear Exchange with the JSLIST Chemical Protective Ensemble – cont.

Required steps	Contamination type	Required equipment	Required procedures
			Buddy 1 removes the M9 paper from Buddy 2's overgarment. They untie the bow in Buddy 2's coat retention cord if tied. They unfasten the webbing-strip snap at the bottom front of Buddy 2's coat and release the coat retention-cord loop at the waist. Buddy 1 then loosens the bottom of the coat by pulling the material away from Buddy 2's body. **NOTES** **1. If wearing the M43 protective mask, tie the microphone cord to the hose of the mask.** **2. The M40 voice amplifier (M7) and the M42 detachable microphone cannot be decontaminated and will be disposed of as contaminated waste; however, ensure that these items are contaminated before disposing of them.** Buddy 1 unfastens and loosely refastens the hook-and-pile fasteners at Buddy 2's wrists and ankles. Then unfastens or cuts the fasteners on Buddy 2's overboots. **NOTE** **A person can do this step by themselves or with the help of their buddy**.
3. Decontaminate mask and hood (removes gross contamination).	CB	Two IEDKs per person	Buddy 1 instructs Buddy 2 to decontaminate their own gloves using an IEDK. Buddy 1 instructs Buddy 2 to place two fingers (thumb and forefinger) on their own voicemitter to ensure the mask-to-face integrity. Buddy 1 uses an IEDK to wipe Buddy 2's eye lens outserts from the top, down. **NOTE** **Do not press so hard that you break Buddy 2's face mask seal. If wearing the JSLIST hood, stop here and move on to Step 4.** If wearing the one-piece hood or the quick-doff hood, Buddy 1 wipes the rest of Buddy 2's hood from the top of the head to the bottom of the hood. After they have finished wiping Buddy 2's mask and hood, they must wipe their own gloves in preparation for rolling Buddy 2's hood. They start from the rear and roll Buddy 2's hood, using 2-inch tucks, until it reaches the center of their head. They roll the front of Buddy 2's hood tightly under the outlet valve and filter. They ensure that the hood is off Buddy 2's garment.
	Radiological	Three containers (about 3-gallon capacity) Two sponges Soapy water Rinse water Paper towels or similar drying material	Buddy 1 wipes Buddy 2's mask and hood (if wearing the one-piece or quick-doff hood) with a sponge dipped in hot, soapy water and rinses them with a sponge dipped in clean water. They will dry Buddy 2's mask and hood with paper towels or rags. Buddy 2 wipes their own gloves. **NOTE** **Cool, soapy water is not as effective for removing contamination, but it can be used if you scrub longer. If the water supply is limited, use drinking water from a canteen and a wet sponge or cloth**. **If water is not available, brush off the radioactive dust particles.**

Table 5-2 — Buddy Team Method of MOPP Gear Exchange with the JSLIST Chemical Protective Ensemble – cont.

Required steps	Contamination type	Required equipment	Required procedures
4. Remove chemical-protective coat (limits the spread of agents and helps prevent agents from penetrating through to the undergarments or the skin).	All	Two discard containers (e.g., plastic bags)	Buddy 2 locates the suspender snap couplers on the outside of their coat and releases them. If Buddy 2 is wearing the JSLIST hood, then Buddy 1 unties Buddy 2's draw cord, presses the barrel lock release, and unsnaps the barrel lock. **NOTE:** **If Buddy 1 has difficulty grasping the barrel lock, they should use the draw cord to pull the barrel lock away from the mask. This will allow them to grasp and unfasten the barrel lock without touching the interior of the hood.** Buddy 1 unfastens Buddy 2's front closure flap and pulls the slide fastener down from the chin to the bottom of the coat. Buddy 1 instructs Buddy 2 to turn around. Buddy 1 grasps Buddy 2's hood, rolls it inside out, and pulls it off Buddy 2's head. Buddy 1 grasps Buddy 2's coat at the shoulders, instructs them to make a fist to prevent the chemical-protective gloves from coming off, and pulls the coat down and away from them, ensuring that the black part of the coat is not touched. **NOTE** **If there is difficulty removing the coat in this manner, Buddy 2 should pull one arm out at a time.** Buddy 1 lays the coat on the ground, black side up. **NOTE** **Buddy 2 will use the coat later as an uncontaminated surface to stand on when putting on their new overgarment.**
5. Remove chemical-protective trousers.	All	Two discard containers (from step 4)	Buddy 1 unfastens Buddy 2's hook-and-pile fastener at the waistband, unfastens the two front closure snaps, and opens the fly slide fastener on the front of the trousers. Buddy 1 grasps Buddy 2's trousers at the hips and pulls them down to their knees. Buddy 1 instructs Buddy 2 to lift one leg (with the foot pointed down and bent slightly at the knee for stability). Buddy 1 grasps the trouser leg near Buddy 2's elevated foot with a hand on each side and pulls the trouser leg in an alternating motion until Buddy 2 can step out of it. Repeat the process for the other leg. Buddy 1 discards the trousers. ⚠ **CAUTION** ⚠ Care must be taken to avoid contaminating Buddy 2's clothing or skin.

Table 5-2 — Buddy Team Method of MOPP Gear Exchange with the JSLIST Chemical Protective Ensemble – cont.

6. Remove chemical-protective overboots.	All	Two discard containers (from step 4)	Buddy 1 Instructs Buddy 2 to loosen their overboots by alternately stepping on each heel and pulling up on their foot. Buddy 1 pulls off Buddy 2's overboots (one overboot at a time), and Buddy 2 steps directly onto the coat spread on the ground as each foot is withdrawn from the overboot. **NOTE** **Buddy 2 may put their hand on Buddy 1 for balance but must then decontaminate their gloves.** Buddy 1 discards the overboots.
7. Remove chemical-protective gloves and liners.	All	Two discard containers (from step 4)	Buddy 2 holds the fingertips of their gloves and partially slides their hand out. When the fingers of both hands are free, they hold their arms away from their body and let the gloves drop off, away from the black side of the coat. Buddy 2 removes the glove liners. Buddy 1 discards the chemical-protective gloves and liners. **NOTE** **If Buddy 2 has difficulty removing the gloves, then Buddy 1 can assist.** ⚠ **CAUTION** ⚠ Buddy 1 and Buddy 2 must take care to avoid letting their gloves come in contact with the coat spread on the ground.
8. Put on chemical-protective trousers.	All	One JSLIST chemical-protective ensemble per person	Buddy 1 opens the package containing the new trousers without touching the inside of the package. Buddy 2 removes the trousers. While standing on an uncontaminated surface, Buddy 2 puts on their trousers, closes the slide fastener, and fastens the two fly opening snaps. Then they pull their suspenders over their shoulders and fasten the snap couplers. Then they adjust the length of the suspenders to ensure a comfortable fit. They will adjust the hook-and-pile fastener at the waistband for a snug fit. ⚠ **CAUTION** ⚠ Buddy 2 must take care to ensure that the trousers touch only the uncontaminated surface.
9. Put on chemical-protective coat.	All	One JSLIST chemical-protective ensemble per person	Buddy 1 opens the package containing the new coat without touching the inside of the package. Buddy 2 removes the coat without touching the outside of the package. They will put on the coat, pull the slide fastener up as far to their chest, and secure the front closure hook-and-pile fastener on the front flap up as far as their chest. They pull the bottom of the coat down over their trousers. They grasp the loop on the back of the overgarment, pull the loop away from the coat, and bring the loop forward between their legs, pulling on it so that the bottom of the coat fits snugly over the trousers. They place the loop over the webbing-strip snap and fasten it. They adjust the coat retention cord if necessary and tie the excess cord in a bow.
10. Put on chemical-protective overboots.	All	One set of chemical-protective overboots per person	Buddy 1 opens the package containing the new overboots without touching the inside of the package. Buddy 2 removes the overboots without touching the outside of the package. They put the overboots on over their combat boots and secure the fasteners. They pull their trouser legs over the overboots and secure the two hook-and-pile fasteners on each ankle so that they fit snugly around the overboots.

Table 5-2 — Buddy Team Method of MOPP Gear Exchange with the JSLIST Chemical Protective Ensemble – cont.

Required steps	Contamination type	Required equipment	Required procedures
11. Put on chemical-protective hood.	All	One JSLIST chemical-protective ensemble per person	Buddy 2 puts the hood on their head. They completely close the front slide fastener on the coat and secure the hook-and-pile fastener on the front flap as far as the top of the slide fastener. They place the edge of the hood around the edge of the mask and secure the hook-and-pile fastener on the hood. **WARNING** **The barrel lock release button must face away from the rear of the user when worn to avoid the barrel lock from unfastening and possibly exposing the user to contamination.** The Seabee pulls the draw cord tight around the edge of the mask, snaps the ends of the barrel lock together, squeezes both ends of the barrel lock while pulling the draw cord, and slides the barrel lock up under the chin to keep the cord in place. Without touching Buddy 2, Buddy 1 inspects the hood and mask to ensure that the hood is positioned properly and the skin is not exposed. Buddy 2 adjusts the hood and mask as directed. If Buddy 1's assistance is required for proper adjustment, Buddy 2 will decontaminate Buddy 1's gloves before touching the hood or mask.
12. Put on chemical-protective gloves and liners.	All	One set of chemical-protective gloves with liners per person (correct size) M9 detector paper	Buddy 1 opens the package containing the new chemical-protective gloves and liners without touching the inside of the package. Buddy 2 removes the gloves and liners without touching the outside of the package. They will put on the gloves and liners, pull the cuffs of the coat over the chemical-protective gloves, and fasten the hook-and-pile fasteners on each sleeve of the coat. They will put the M9 detector paper on as required by the SOP.
13. Reverse roles.	All	One JSLIST chemical-protective ensemble per person One set of chemical-protective gloves with liners per person (correct size)	Buddy 1 and Buddy 2 reverse roles and repeat steps 2 through 13.
14. Secure gear.	All	One chemical-protective helmet cover per person	Buddy 1 places the new chemical-protective helmet cover on the PASGT helmet if used. They use the buddy system to check the fit of all secured gear.

9.3.0 Site Clearance Phase

Although the operational decontamination operation is done rapidly with little site preparation, these areas will be contaminated when the operation is completed. This could be a hazard to friendly forces reoccupying the area.

9.3.1 Cleanup

The units PDDE crew clean the MOPP gear exchange area. They bury or burn the contaminated refuse and retrieve any unused decontaminants. Burying is the preferred

method of disposal of contaminated waste. Caution should be exercised when burning because burning will cause a downwind vapor hazard. If you burn it, notify the COC; the COC will notify any units that may be affected by the vapor hazard.

The PDDE crew must control contamination runoff during the execution of operational decontamination. The PDDE crew should move the PDDE a few meters away from the vehicle wash-down area and wash the decontamination equipment, including hoses, after the operation is completed. Wet weather gear or Toxicological Agent-Protective (TAP) aprons should be decontaminated with Super Tropical Bleach (STB) slurry and retained for future use. If MOPP gear exchange is done at a different location, the contaminated unit will be required to clean up after itself.

9.3.2 Marking and Reporting

The PDDE crew of the battalion marks the operational decontamination site with standard NBC warning markers and reports location of the contaminated area to the COC. The COC sends out an NBC 5 report to alert friendly forces to avoid the area.

9.4.0 Operational Decontamination Summary

For operational and logistical purposes, units should plan to conduct vehicle wash down and MOPP gear exchange concurrently. This should be done between 1 to 6 hours of becoming contaminated. This action reduces degradation and improves the ability of the unit to conduct its mission. Decontaminants and replacement MOPP gear are provided by the supply company with a vehicle near the decontamination site.

MOPP gear exchange and vehicle wash down are best used by squad-size or platoon-size elements. When larger elements try to process through an operational decontamination site, they lose many benefits of a small decentralized operation. Benefits of a squad- or platoon-sized decontamination operation include the following:

1. Tailored decontamination operations are flexible and responsive to small unit needs.
2. Small, speedy operations are more easily concealed in one location near the forward area.
3. A water source may not be needed at the decontamination site because most PDDE have a water-carrying capability to support squad-sized elements.

Units must develop their own SOP for obtaining temporary relief from MOPP 4. The SOP is based on each unit's equipment and mission. Although every operation is unique, methods should be standardized when possible. In any case, personnel must know:

1. How to recognize and understand contamination hazards and how to avoid contamination when possible
2. How to protect yourself and your equipment if contaminated
3. The capabilities and limitations of MOPP gear
4. How to neutralize or remove contamination hazards
5. To do only as much decontamination as needed to continue the mission

The three phases for an operational decontamination are preparation, execution, and site clearance (*Table 5-3*). They can be used by the battalion decontamination team for planning operational decontamination operations.

It is important to remember that performing operator's wipe down before hasty decontamination will decrease the contamination transfer and increase the survivability of the crew.

Table 5-3 — Operational Decontamination Phases

Area	Action
Preparation	
Decontamination assessment	Identify the personnel and equipment to be decontaminated.
Coordination	Request decontamination support. The CBR section conducts coordination with the contaminated unit on the linkup point. Decontamination operations should be done between 1 and 6 hours after becoming contaminated.
Site selection (selected by the controlling Headquarters HQ)	Ensure that the site is off the main route but has easy access. Ensure that the site has a large enough area (100 square meters per site for a squad-size element). Ensure that the site has good overhead concealment. Ensure that the site has food and water sources (plan for 100 gallons of water per vehicle). Ensure that the site has good drainage.
Linkup	Ensure that the leader knows where to link up with the contaminated unit and knows the location for site setup. Radio communication is essential for the operations.
Site setup	Ensure that the decontamination element is positioned properly and ready to dispense hot, soapy water. Ensure that the contaminated unit sets up and operates the MOPP gear exchange at the same time as the vehicle wash down. Consider contamination runoff when positioning the decontamination element.
Execution	
Site control	Ensure that the drivers of the contaminated vehicles know when to move into position at the wash-down location. Ensure that the contaminated unit has provided site security.
Vehicle spray down	Ensure that the decontamination site leader is processing vehicles at a rate of 2 to 3 minutes per vehicle.
MOPP gear exchange (buddy team)	Ensure that personnel are going through the MOPP gear exchange at the rate of 60 minutes per squad/crew.
Site Clearance	
Cleanup	Ensure that the MOPP gear exchange area is cleaned up.
Marking	Ensure that the team properly marks the decontamination site.
Reporting	Send the NBC 5 report forward.

10.0.0 OVERVIEW OF THOROUGH DECONTAMINATION OPERATIONS

Thorough decontamination operations reduce and sometimes eliminate contamination from equipment and personnel. This allows the MOPP level to be reduced. Operators and crew members must perform periodic checks on their equipment since there is a risk of residual contamination. Operators make these checks with standard detectors (e.g., M8/M9 paper, JCAD) and the M256A1 kit.

Combat Service Support (CSS) elements replenish combat stocks, refit equipment, and replace personnel and equipment, as required. The contaminated unit, with some assistance from a decontamination unit, performs the DTD.

A supporting CBR unit performs the DED or Detailed Aircraft Decontamination (DAD). The planning considerations that are required to conduct a thorough decontamination operation and the methods that various decontamination units use to conduct DTD/DED are discussed in this chapter. The exact layout of a thorough decontamination site is determined by the METT-T. After a thorough decontamination operation, the unit moves out of the decontamination site into a tactical assembly area. The unit, while in this tactical assembly, may undergo reconstitution or may prepare for future operations.

Thorough decontamination is the most effective type of decontamination, but it is the most resource-intensive.

Thorough decontamination operations are conducted beyond the range of enemy direct-fire systems. If a contaminated unit requires a thorough decontamination as part of its reconstitution operations, the decontamination site is established near the reconstitution area or the parent unit rear area. Company-size units are usually reconstituted in the brigade rear area while battalion-level units are reconstituted in the division rear area.

All echelons prepare for thorough decontamination operations as part of the overall planning process. The CBR staff can begin to develop the decontamination plan from the commander’s general guidance. Coordination with higher HQ is required to determine the availability of engineer support for site preparation and closure. Engineers provide support for sumps and drainage ditches. They also coordinate with the civil affairs office for Host Nation Support (HNS) (personnel, equipment, and supplies) and for environmental requirements and restrictions.

The CBR staff selects possible lineup points throughout the unit Area of Operation (AO) based on such factors as the decontamination type, terrain, mission, threat, road network, and availability of water. Decontamination site locations that support these lineup points are finalized after reconnaissance of the sites by the decontamination platoon. After the decontamination sites are selected, linkup points are chosen to support each site. A site may have more than one linkup point.

Since decontamination assets are limited, the commander must establish priorities of decontamination support and list the units in the order they will be decontaminated. This can change from phase to phase during an operation. The CBR staff develops the priority of support based on an understanding of the commander’s intent.

Giving the priority of support to the lead task force during the assault phase may not be the best choice since the contaminated elements will not stop for decontamination until after the assault is complete. The commander should establish a priority of work that specifies the order in which equipment will be decontaminated. (For example, a priority of work may be in this order: engineer equipment, artillery pieces, main battle tanks, and long-haul vehicles.) Ships with embarked amphibious and aviation units will have to

prioritize similarly, as will aviation units operating ashore. A limiting factor is the availability of water. A typical vehicle requires 500 gallons of water during the DED. The actual amount of water required varies by the vehicle and its contamination level. The supported unit CBR staff must develop a water resupply plan for thorough decontamination operations.

A water resupply plan can be as simple as selecting a series of linkup points along a route where the chemical unit can link up with a bulk water truck. More complex water resupply plans include caching water throughout the AO, coordinating for the movement of water bladders by aircraft, and identifying water sources in the unit AO. The use of non-potable, salt, and brackish waters should be considered.

10.1.0 Pre-decontamination Staging Area

The contaminated unit moves to the pre-decontamination staging area about 500 meters downwind of the thorough decontamination site. The contaminated unit performs pre-decontamination actions, to include segregating vehicles by checking for contamination.

For chemical contamination, use the JCAD and the M8/M9 detector paper (*Figure 5-8*). When monitoring vehicles for contamination, there should be about 15 meters between each vehicle to prevent false positive readings with the JCAD. For radiological contamination, use the AN/PDR-77, AN/VDR-2, or ADM-300 radiac detector.

If the vehicle only has isolated areas of contamination, use the M100 to decontaminate those areas. Recheck for contamination, and consider the vehicle clean if contamination is not detected.

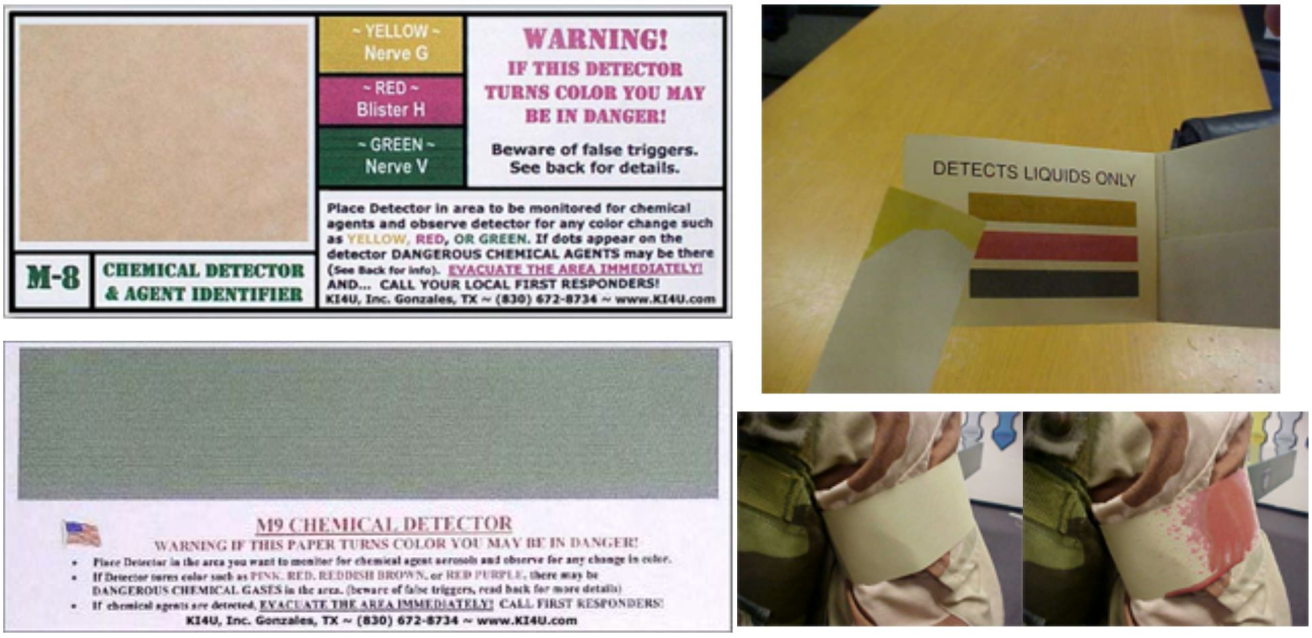


Figure 5-8 — Contamination levels.

10.1.1 Vehicle Crews

Vehicle crews play an integral part in the thorough decontamination process. The vehicle crews, except for the drivers, dismount. As the crews dismount, they remove all contaminated equipment, including sensitive items (i.e. electro-optical) from the top and sides of the vehicles. Once the crews have exited the vehicle, they will not reenter. This prevents contamination from being spread into the vehicle interior.

Using the pioneer tools from the contaminated vehicles, the crew removes all heavy mud and debris. They concentrate on the undercarriage, which would be the most likely place for contamination to collect and the hardest place to decontaminate. Once the crew is finished with the pioneer tools, they are placed back on the vehicle. The initial removal of the mud and debris makes it more likely that the decontamination wash will remove any remaining contamination.

Seat covers (when applicable), canvas items, camouflage netting, wooden rails, and any other material that can absorb liquid contamination are removed. These items create a potential transfer hazard and are not easily decontaminated. Left untreated, absorbed chemical agents will desorb after being decontaminated and will create a vapor hazard. The crew removes the items that cannot be decontaminated by the standard methods used in the DTD and places them at the collection point. Decontamination unit personnel provide advice concerning the decontamination or disposal of these items.

Design vehicle-loading plans to minimize the amount of equipment carried on the outside of the vehicle that cannot be readily decontaminated. Whenever possible, CBR covers should be used when a chemical attack is expected. All CBR covers are removed and disposed of as contaminated waste during the pre-decontamination actions.

Equipment and supplies that are exposed after removal of coverings should be checked for contamination. If the items that can be removed are uncontaminated, they should be moved via a clean route to the post-decontamination area. Contaminated equipment and supplies will be decontaminated or disposed of properly.

10.2.0 Post-decontamination Assembly Area

The CBR unit leader selects the general location for the post-decontamination AA. It must be big enough to hold the entire unit and provide the proper cover and concealment while undergoing the thorough decontamination. The post-decontamination AA is located about 1 kilometer (km) upwind from the DED and DTD areas. The unit assembles in the post-decontamination AA after completing the DTD and DED operations. The unit occupies the post-decontamination AA until the entire unit has gone through decontamination and will then be instructed to move to a reconstitution location or a tactical AA to prepare for future operations.

10.3.0 Detailed Troop Decontamination (DTD)

Removing contaminated MOPP gear, including the protective mask, is the major action in DTD. If DTD is not performed, chemical agents may eventually penetrate the overgarment and contaminate underclothing or skin. How long the chemical agent will take to penetrate the clothing depends on the condition of the MOPP gear and the amount of agent on the gear. If contaminated with radiological contamination, the hazard will remain until removed.

The contaminated unit is responsible for setting up, operating, and closing the DTD area at the thorough decontamination site (see *Figure* 5-7). The CBR officer recommends to the COC the general location of the DTD within the decontamination site and provides technical advice on setting up, operating, and closing the DTD area.

The supervisor of the DTD must establish a work/rest cycle. There are eight stations for a DTD. Spacing between the stations is approximately 5 meters. Whenever possible, personnel should process through the DTD in buddy teams. If a buddy is not available, the station attendant will provide assistance.

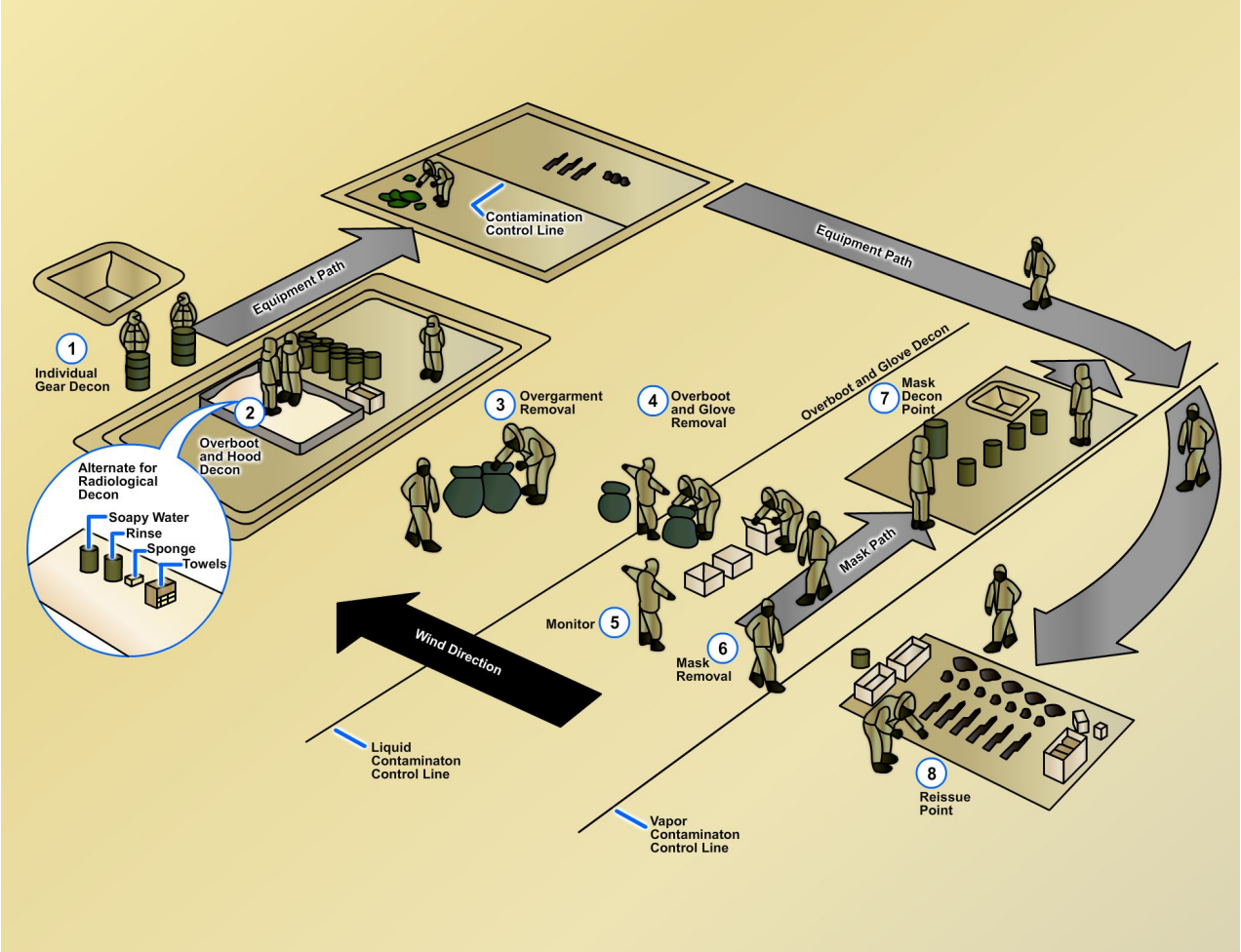


Figure 5-9 — Detailed troop decontamination layout.

As shown in *Figure* 5-9, there are three lines established during set up of a DTD: contamination control line, liquid contamination line, and vapor contamination line. It is critical that contamination is maintained at each line and does not cross each line. Eight stations are used for DTD.

10.4.0 Detailed Equipment Decontamination (DED)

Decontamination units are responsible for setting up, operating, and closing the DED portion of the thorough decontamination operation. The DED for CB contamination is comprised of five stations. For radiological contamination, the DED uses all but Station 2. Stations are normally 50 meters apart; however, spacing is METT-T-dependent. Resupply procedures are of critical importance. Resupply vehicles typically operate independently and need to maintain communications with the platoon HQ in the event

that the platoon relocates or needs to change linkup locations or the mission requirements change.

Figure 5-10 illustrates the configuration of a DED set up using the M26 JSTDS-SS. While this layout is manpower- and equipment-intensive, it provides for rapid decontamination of vehicles and equipment (eight vehicles processed per hour). Since the most labor intensive work takes place at Station 3, this station is designed to process three vehicles at a time. The processing rate of this layout will be affected by personnel work/rest cycles.

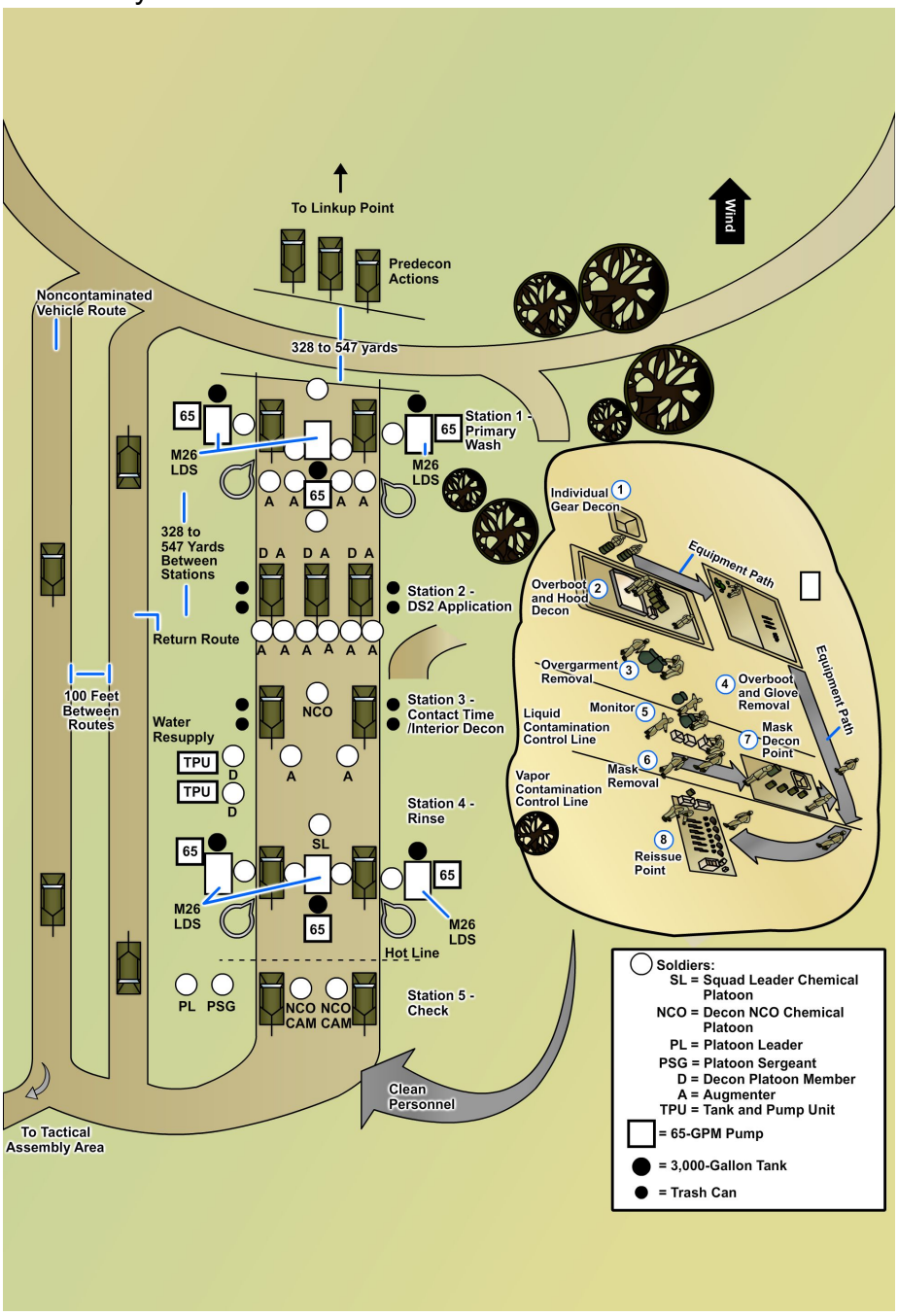


Figure 5-10 — Optimum DED layout for an M16 equipped unit.

WARNING

When using the M26 JSTDS-SS there are several important operational safety considerations that must be taken into account.

The M26 weighs 562 lbs. To avoid injury, use mechanical lift only to off-load, on-load or reposition the system. DO NOT attempt to manually lift the system.

The M26 produces high water pressure (873 psi) and high temperatures (120 and 175 °F). The hot spray can cause severe injury such as burns and cuts. NEVER direct the spray jet at other personnel. ALWAYS maintain a firm and secure grip on the lance and spray gun and NEVER let go of the spray gun during operation.

During operation the unit produces high noise levels. Hearing protection IS REQUIRED during all M26 operations.

Decontamination Solution, DF-200 is used during decontamination. This solution is a skin and mucus membrane irritant. Protective eye ware, clothing, and water proof gloves ARE REQUIRED to be worn during all decontamination operations. In the event of skin contact, wash the affected area with soap and water. For eye contact, flush with plenty of water for 15 minutes. The DF200 solution is harmful if swallowed and vapors can cause respiratory irritation. The use of a mask or pesticide respirator is recommended when operating the unit in confined areas. ALWAYS seek medical attention as soon as possible when coming in physical contact with the DF200 solution.

10.5.0 Detailed Equipment Decontamination Summary

Decontamination units are responsible for setting up, operating, and closing the DED portion of the thorough decontamination operation. The DED for CB contamination is comprised of five stations. For radiological contamination, the DED uses all but Station 2. Stations are normally 50 meters apart; however, spacing is METT-T-dependent. Resupply procedures are of critical importance. Resupply vehicles typically operate independently and need to maintain communications with the platoon HQ in the event that the platoon relocates or needs to change linkup locations or the mission requirements change.

The DED for chemical and biological contamination consists of five stations:

1. Station 1 – Primary Wash
2. Station 2 – Decontamination Application
3. Station 3 – Contact Time/Interior Decontamination
4. Station 4 – Rinse
5. Station 5 – Check

DED configurations may vary because of organizational and equipment differences. The optimum configuration provides the maximum output for decontamination teams at 100 percent personnel and equipment. Both the DED and the DTD must be properly closed and marked. Once closed, an NBC 4 report must be sent to higher headquarters.

10.6.0 Clearing the Thorough Decontamination Site

Once all vehicles and personnel from the contaminated unit have processed through the thorough decontamination site, the site can be closed. Coordination with the supported unit is necessary before actually closing the site to ensure that all contaminated elements have been processed. The decontamination unit closes the DED first. Once the DED is closed, the decontamination unit processes through the DTD. After the chemical unit has processed through the DTD, the DTD is closed. At this point, the decontamination unit marks the area as a contaminated area and reports its exact location to the supported unit using an NBC5 report.

10.6.1 Closing the DTD Area

Once all personnel from the DED have been processed through the DTD, the DTD may be closed. After the last person has exited the DTD, the following steps for closing the DTD are as follows:

- Pick up all used supplies from Station 7 and put them in the Station 7 sump. Remove the contamination control line. If engineer tape was used, dispose of it in the Station 7 sump.
- Move all usable supplies and equipment from all the stations to Station 1. Discard all unusable supplies from Stations 5, 4, and 3 into the Station 1 sump.
- Decontaminate all supplies and equipment collected at Station 1, using the decontaminant and rinse water at Station 1. Empty the rinse water and decontaminant containers from Station 1 into the sump and decontaminate the containers.
- Mark the entire decontamination area. Remove your overgarments using the MOPP gear exchange technique and dispose of the overgarments in the sump at Station 1.
- Move any equipment used to fill the sump upwind of the decontamination area. Decontaminate the rubber gloves and move all the remaining equipment and supplies in Station 1 upwind of the decontamination area. Keep this equipment and supplies separate from that used to fill the sump. Your overboots and gloves may now be contaminated. Remove them. Dig a hole and bury them. Mark the hole and/or area.

Summary

Chemical, Biological, and Radiological (CBR) agent contamination is the deposition on or absorption of CBR agents by personnel, materiel, structures, and terrain. United States forces may encounter CBR agent contamination through direct attack, movement through contaminated areas, the unwitting use of contaminated facilities, or the movement of agent clouds.

The CBR agent contamination should be avoided when possible. When this is not possible, personnel and equipment must be decontaminated to reduce or eliminate the risk to personnel and to make equipment serviceable. Decontamination procedures will not degrade the performance of personnel or equipment and will not harm the environment. The levels of decontamination are immediate, operational, thorough, and clearance.

Decontamination is the removal or neutralization of hazardous levels of contamination from personnel, equipment, materiel, and terrain. The ultimate purpose of decontamination is to restore full combat power in the shortest possible time.

Decontamination is necessary to allow personnel to remove their protective gear and resume normal operations after they become contaminated. Weathering is the most desirable means of decontamination. However, time and operational needs may not permit this option.

Assignment 5

Objectives

1. Explain the reasons for decontamination and the types and forms of contamination.
2. Identify the four principles of decontamination.
3. Differentiate the four levels of decontamination.
4. Explain immediate decontamination operations.
5. Explain the preparation, execution, and site clearance phases of operational decontamination.
6. Explain the steps for performing Mission-Oriented Protective Posture (MOPP) gear exchange.
7. Identify the four phases of thorough decontamination.
8. Identify the different detailed equipment decontamination site configurations.

Questions

1. A battalion is required to have a minimum of how many six-man teams per unit qualified to conduct decontamination operations?

    1. One
    2. Two
    3. Three
    4. Four

2. What are the three MAJOR forms in which CBR contamination can be delivered?

    1. Fine dust, dust pollinated, or powder
    2. Mist, vapor, or rain
    3. Dust pollinated, mist, or vapor
    4. Solids, liquids, or gases

3. What MINIMUM protection is required if you are operating a vehicle that has absorbed a nerve agent?

    1. Full MOPP gear
    2. A protective mask only
    3. A protective mask and gloves
    4. Gloves only

4. For decontamination purposes, radiation can be thought of as existing in what state of matter?

    1. Liquid
    2. Solid
    3. Gases
    4. Vapor

5. Using the “7-10 rule of thumb,” if 3 hours after a burst your radiation reading is 100 Centigray (cGy) per hour, then how many hours after the burst can you expect a reading of about 10 (cGy)?

    1. 14
    2. 21
    3. 30
    4. 70

6. Negligible risk levels for biological and chemical contamination are contamination that will cause mild incapacitation among no more than what percent of unprotected troops operating for 12 continuous hours within 1 meter of a contaminated surface?

    1. 5%
    2. 10%
    3. 15%
    4. 20%

7. Which of the following measurements for radiological contamination in cGy, is considered a negligible risk level?

    1. .10
    2. .33
    3. .40
    4. .50

8. Which of the following agents should you decontaminate first if your unit is contaminated by a mixture of agents?

    1. Chemical
    2. Biological
    3. Radiological
    4. Biological and radiological

9. What level of decontamination aims at sustaining operations, reducing the contact hazard, and limiting the spread of contamination?

    1. Immediate
    2. Operational
    3. Thorough
    4. Detailed equipment

10. What level of decontamination is designed to reduce contamination on personnel, equipment/materiel, and/or working areas to the lowest possible level (negligible risk)?

    1. Operational
    2. Thorough
    3. Immediate
    4. Personnel wipe down

11. What level of decontamination includes skin decontamination?

    1. Thorough
    2. Operational
    3. Operator's wipe down
    4. Immediate

12. What level of decontamination includes Detailed Troop Decontamination (DTD)?

    1. Thorough
    2. Operational
    3. Immediate
    4. Operator's wipe down

13. What level of decontamination involves vehicle wash down?

    1. Immediate
    2. Operational
    3. Thorough
    4. Operator's wipe down

14. What person initiates immediate decontamination?

    1. Commanding officer
    2. Platoon commander
    3. Company commander
    4. The individual

15. The PRIMARY purpose of the M291 SDK decontamination kit is to decontaminate ……. ?

    1. exposed skin
    2. equipment
    3. weapons
    4. MOPP gear

16. Decontamination kit M291SDK is used to remove what type(s) of contamination?

    1. Chemical
    2. Biological
    3. Chemical and biological
    4. Radiological

17. You should initiate the skin decontamination technique within how many minutes of becoming contaminated?

    1. 1
    2. 5
    3. 10
    4. 15

18. At what temperature in degrees °F, does the solution in the M291 decontamination kit become unstable?

    1. 100
    2. 110
    3. 115
    4. 120

19. The personal wipe down technique is most effective when done within how many minutes of being contaminated?

    1. 5
    2. 10
    3. 15
    4. 20

20. Operator's wipe down is most effective when done within how many minutes after personal wipe down?

    1. 10
    2. 15
    3. 20
    4. 25

21. After Appling M100 SDS onto a chemical-contaminated surface, how much water, if any, is required for removal?

    1. None
    2. 1 pint
    3. 2 quarts
    4. 1 gallon

22. What is the primary objective of operational decontamination?

    1. Reduce the level of contamination to regenerate needed combat power.
    2. Eliminate contamination.
    3. Decontaminate the TOA.
    4. Decontaminate personnel.

23. During operational decontamination, what two operations are accomplished in conjunction with each other?

    1. Vehicle wash down and personal wipe down
    2. Operator's wipe down and personal wipe down
    3. Skin decontamination and vehicle wash down
    4. MOPP gear exchange and vehicle wash down

24. How many gallons of water can the M26's collapsible bladder hold?

    1. 1,000
    2. 2,000
    3. 3,000
    4. 4,000

25. The MOPP gear exchange site must be located how many feet upwind from the vehicle wash down site?

    1. 164
    2. 75
    3. 100
    4. 150

26. What are the two operational decontamination techniques?

    1. Vehicle wash down and MOPP gear exchange
    2. Skin decontamination and vehicle wash down
    3. Operator's wipe down and personal wipe down
    4. Vehicle wash down and personal wipe down

27. Personnel in wheeled vehicles should take what action before vehicle wash down?

1. Assist in security operations.
2. Dismount the vehicle.
3. Stay in the vehicle until all decontaminants are removed.
4. Assist the decontamination team.

28. For planning purposes, the vehicle wash-down site will process how many vehicles every 2 to 3 minutes?

1. One
2. Two
3. Three
4. Four

29. During operational decontamination how many minutes are allocated for MOPP gear exchange?

1. 10
2. 15
3. 20
4. 30

30. What action is taken before vehicle wash down to increase decontamination effectiveness of vehicles?

1. MOPP gear exchange
2. Skin decontamination
3. Personal wipe down
4. Operator’s wipe down

31. What is the range of the water pressure in psi needed to remove most gross contamination?

1. 30 to 45
2. 40 to 80
3. 50 to 120
4. 60 to 120

32. MOPP gear exchange is performed by units of what size?

1. A company or a platoon
2. A squad or a crew
3. A fire team
4. A division

33. Normally, a total of how many steps are used during MOPP gear exchange with the JSLIST?

1. Five
2. Six
3. Seven
4. Fourteen

34. A typical vehicle requires how many gallons of water during detailed equipment decontamination?

1. 300
2. 400
3. 500
4. 600

35. What is the primary purpose of the pre-decontamination staging area?

1. Segregate vehicles by checking for contamination.
2. Enable the contaminated unit to unmask.
3. Prepare the contaminated unit for MOPP gear exchange.
4. Prepare the contaminated unit for DTD.

36. In preparation for Detailed Equipment Decontamination (DED), crews should concentrate on removing mud and debris from what area of a vehicle?

1. Top of the vehicle
2. Sides of vehicle
3. Engine compartment
4. Undercarriage

37. Before DED operations, what should you do with materials on a vehicle that can absorb liquid contamination?

1. Remove and place at a collection point
2. Secure firmly to the vehicle
3. Remove and discard
4. Remove and bury

38. What groups of individuals are sent thorough the DTD first?

1. Squad leaders
2. Platoon commanders
3. Company commanders
4. Assistant vehicle drivers

39. What action is considered major in conducting Detailed Troop Decontamination (DTD)?

1. Removing contamination from vehicles and gear
2. Removing contaminated MOPP gear, including the protective mask
3. Removing contaminated MOPP gear only
4. Removing contaminated protective mask only

40. What group of individuals is responsible for setting up, operating, and closing the DTD in a thorough decontamination site?

1. Decontamination team
2. Contaminated unit
3. Contaminated platoon
4. Contaminated squad

41. A total of how many stations are included in the detailed troop decontamination?

1. 6
2. 7
3. 8
4. 9

42. What is the approximate spacing, in meters, between DTD stations?

1. 5
2. 10
3. 25
4. 50

43. What decontamination activity is conducted at DTD Station 2?

1. Overboot and hood decontamination
2. MOPP gear decontamination
3. Mask decontamination
4. Mask and gloves decontamination

44. Mask decontamination takes place at what station?

1. 1
2. 3
3. 5
4. 7

45. Overgarment removal takes place at what DTD station?

1. 1
2. 2
3. 3
4. 4

46. For radiological contamination, what station numbers is not used during DED operations?

1. 1
2. 2
3. 3
4. 4

47. Once interior decontamination is completed at DED Station 3, the driver of the vehicle proceeds to what station?

1. DTD, Station 1
2. DED, Station 2
3. DTD, Station 3
4. DED, Station 4

48. What person moves a vehicle from DED Station 3 to DED Station 4?

1. A decontamination team member
2. A crew member
3. An assistant driver
4. The POIC

49. What is the primary task of DED Station 4?

1. Apply decontaminant to a vehicle.
2. Apply STB to a vehicle.
3. Rinse HTH from a vehicle.
4. Rinse decontaminant from a vehicle.

50. The optimum setup of a M26-equipped DED decontamination platoon will allow what maximum number of vehicles per hour to be processed?

1. Five
2. Six
3. Seven
4. Eight

51. To avoid heat casualties during DED operations, you should consider what factor as top priority?

    1. Work/rest cycles
    2. Number of personnel available
    3. Weather
    4. Combat situation

52. When closing the thorough decontamination site, the decontamination team closes what site first?

    1. DTD
    2. DED
    3. Station 1
    4. Station 5

Assignment 5

Chemical, Biological, and Radiological Decontamination

Directions: Select the correct answer from the list of alternates below each question in the end of chapter assignment. Write in the answer next to the corresponding question number below. Use this answer sheet as a reference to completing the online assignment related to this assignment.

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Additional Resources and References

This chapter is intended to present thorough resources for task training. The following reference works are suggested for further study. This is optional material for continued education rather than for task training.

Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Contamination Avoidance, U.S. Navy NTTP 3-11.25

Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination, U.S. Navy NTTP 3-11.26

Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, U.S. Navy NTTP 3-11.27

Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical Reconnaissance, U.S. Navy NTTP 3-11.29

Operator’s Manual for Decontamination System, Sorbent: M100, U.S. Army TM 3-4230-236-10

Operator’s Manual for Paper, Chemical Agent Detector: M9, U.S. Army TM 3-6665-311-10

Operation Instructions Organization Maintenance, Radiac Sets AN/PDQ-1 and AN/PDQ-2, U.S. Army TM EE700-AD-MMO-010

Operator’s Manual for Chemical-Biological Mask: Field, M40A1, U.S. Army TM 3-4240-346-10

Operator’s Manual for Joint Service Lightweight Integrated Suit Technology (JSLIST) Chemical Protective Ensemble, U.S. Army TM SS200-AP-MMO-010

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Appendix I

Glossary of Common Terms

ADDRESSEE – The activity or individual to whom a message is to be delivered.

ADJUST – A command to the spotter or observer to initiate an adjustment on a designated target.

ADJUSTMENT – Process used to obtain correct line, range, and correct height of burst (if time fuzes are used) in engaging a target by observed fire.

ADMINISTRATIVE PLAN OR ORDER – A combat plan or order relating to the operation plan or order for a tactical operation that is issued as its paragraph 4. It sets forth information and instructions governing the logistical and administrative support of the operation.

ADVANCE –The forward movement of a unit toward the enemy.

ADVANCED BASE – A base located in or near an operational area whose primary mission is to support military operations.

ADVANCED PARTY – A security element organic to the advance guard that precedes and protects the support.

ALIGNMENT – The formation in a straight line of several elements.

ALTERNATE COMMAND POST – Any location designated by a commander to assume command post functions in the event the command post becomes inoperative. It may be partially or fully equipped and manned, or it may be the command post of a subordinate unit.

ALTERNATE POSITION – The position designated to serve as the primary position under certain conditions.

AMMUNITION LOT – A quantity of homogeneous ammunition, identified by a unique lot number, which is manufactured, assembled, or renovated by one producer under uniform conditions and which is expected to function in a uniform manner.

AMMUNITION SUPPLY POINT – A point at which ammunition, obtained from supporting supply points by a division or other unit, are broken down for distribution to subordinate units. Distribution points usually carry no stocks; items drawn are issued completely as soon as possible.

AMPLIFIER – A device that increases signal power.

ANGLE OF ELEVATION – The vertical angle between the line from the muzzle of a weapon to the target and the axis of the bore when the weapon is laid for range.

ANNEX – A document appended to and forming a part of a complete plan, order, or other document.

ANTENNA – An electrical conductor, or system of conductors, used to transmit or receive radio waves.

APERTURE SIGHT – A lensless sight by which the target is viewed through a hole, or aperture (as contrasted with an open sight having only a V-cut notch).

AREA DEFENSE – A form of defense oriented toward the retention of specific terrain; area defense relies mainly on deployed forces that fire to stop and repulse the attacker.

AREA OF CONCENTRATION – A limited area on which a volume of fire is placed within a limited time.

AREA OF OPERATIONS – An operational area defined by the joint force commander for land and maritime forces. Areas of operation do not typically encompass the entire operational area of the joint force commander, but should be large enough for component commanders to accomplish their missions and protect their forces. Also called AO.

AREA OF RESPONSIBILITY – The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. Also called AOR.

ARMING – As applied to explosives, weapons, and ammunition, the changing from a safe condition to a state of readiness for initiation.

ASSEMBLY – Two or more parts fastened together and not usually disassembled except for replacement.

ASSEMBLY AREA – The area where a command assembles, preparatory to making a move.

ATTACHED – A unit is attached to another when command, operational, and administrative control of the attached unit passes from its parent unit to the commander of the unit to which attachment is made.

ATTACK – A phase of offensive combat; offensive action directed against the enemy with the intent to kill, capture, or drive him from his position.

ATTACK POSITION – The most forward covered and concealed position in rear of the line of departure occupied by assault units for the minimum amount of time necessary to coordinate final details and preparations for the attack.

AUTHENTICATE – A challenge given by voice or electrical means to attest to the authenticity of a message or transmission.

AUTHENTICATION – (1) A security measure designed to protect a communications system against acceptance of a fraudulent transmission or simulation by establishing the validity of a transmission, message, or originator. (2) A means of identifying individuals and verifying their eligibility to receive specific categories of information. (3) Evidence by proper signature or seal that a document is genuine and official. (4) In personnel recovery missions, the process whereby the identity of an isolated person is confirmed.

AUTOMATIC – The self-powered action of a weapon, using recoil, gas, or blowback operation that produces a rapid and continuous burst of shots while the trigger is depressed.

AVENUE OF APPROACH – An air or ground route of an attacking force of a given size leading to its objective or to key terrain in its path. Also called AA.

AXIS OF THE BORE – An imaginary centerline of the bore of a gun.

AZIMUTH – Quantities may be expressed in positive quantities increasing in a clockwise direction, or in X, Y coordinates where south and west are negative. They may be referenced to true north or magnetic north depending on the particular weapon system used.

BANDWIDTH – The difference between the limiting frequencies of a continuous frequency band expressed in hertz (cycles per second). The term bandwidth is also loosely used to refer to the rate at which data can be transmitted over a given communications circuit. In the latter usage, bandwidth is usually expressed in either kilobits per second or megabits per second.

BARREL – A metal tube used to direct the bullet in its line of flight.

BARRIER – A coordinated series of obstacles designed or employed to channel, direct, restrict, delay, or stop the movement of an opposing force and to impose additional losses in personnel, time, and equipment on the opposing force. Barriers can exist naturally, be man-made, or a combination of both.

BASE (BASE UNIT) – The element or unit in a tactical operation around which a movement or maneuver is planned and performed.

BASE OF FIRE – One or more units that give supporting fire to an attacking unit and serve as the base around which attack operations are carried out.

BATTALION FORWARD DEFENSE AREA – Portion of a battle area defended by front-line companies; it extends to the limit of the rearward extension of lateral boundaries of the front-line companies.

BATTERY – The position of a weapon when cocked and its recoiling parts are forwarded.

BATTLE AREA – The area in which the forward forces and their reserves are located; it is described by coordinating points, flank boundaries, and sometimes a rear boundary.

BEACHHEAD – A designated area on a hostile shore or territory which, when seized and held, ensures the continuous landing of troops and material, and provides maneuvering space for subsequent projected operations into enemy territory; the physical objective of an amphibious or airborne operation.

BEARING – The horizontal angle at a given point measured clockwise from a specific datum point to a second point.

BEATEN ZONE – The area on the ground upon which the cone of fire falls.

BIOLOGICAL AGENT – A microorganism that causes disease in personnel, plants, or animals or causes the deterioration of materiel.

BLISTER AGENT – A chemical agent which injures the eyes and lungs, and burns or blisters the skin. Also called vesicant agent.

BLOOD AGENT – A chemical compound, including the cyanide group, that affects bodily functions by preventing the normal utilization of oxygen by body tissues.

BLOWBACK – (1) Escape, to the rear and under pressure, of gases formed during the firing of a weapon. Blowback may be caused by a defective breech mechanism, a ruptured cartridge case, or a faulty primer. (2) Type of weapon operation in which the force of expanding gases acting to the rear against the face of the bolt furnishes all the energy required to initiate the complete cycle of operation. A weapon which

employs this method of operation is characterized by the absence of any breech-lock or bolt-lock mechanism.

BOLT – A mechanical device for blocking the breech and holding the cartridge in the chamber during firing to prevent rearward escape of gases.

BORE SIGHTING – A process by which the axis of a gun bore and the line of a gun sight, are made parallel or are made to converge on a point.

BOUNDARIES – The battalion and company defense areas that are limited because of terrain features and avenues of approach. Company boundaries immediately forward of the Forward Line of Troops (FLOT) assign responsibility for an avenue of approach to a company, preferably the company most threatened by the avenue. Boundaries between companies extend forward of the FLOT, but stop short of the Combat Outpost Line (COPL). They extend to the rear far enough to provide sufficient area for the companies to organize their defense in depth.

BREECH – The rear end of the barrel.

BREECHBLOCK or BREECH MECHANISM – The metal block used to seal the rear end of the bore against the force of the charge; in small arms, the breech mechanism is the bolt.

BRIDGEHEAD – An area of ground taken and held in enemy territory.

BUDDY-AID – Acute medical care (first aid) provided by a non-medical service member to another person.

BULLET – The projectile of a small-arms cartridge that is discharged from a weapon toward a target.

BURST OF FIRE – A number of shots fired automatically with a single squeeze of the trigger.

BURSTING CHARGE – The force of an explosive that breaks the casing of a projectile to produce a demolition, fragmentation, or chemical action.

CACHE – A source of subsistence and supplies, typically containing items such as food, water, medical items, and/or communications equipment, packaged to prevent damage from exposure and hidden in isolated locations by such methods as burial, concealment, and/or submersion, to support isolated personnel.

CADENCE – A rhythmic rate of march at uniform step.

CALIBER – The diameter of the bore measured from land to land; usually expressed in decimal fractions of an inch.

CALL SIGN – Any combination of characters or pronounceable words, which identifies a communication facility, a command, an authority, an activity, or a unit; used primarily for establishing and maintaining communications. Also called CS.

CAM – An inclined surface that imparts a desired motion to a sliding piece. (This is a generalized small-arms definition.)

CANNIBALIZATION – The act of taking a part or parts from an unserviceable piece of equipment to make another piece of equipment serviceable.

CARTRIDGE – A small-arms round ready for firing; its components are the cartridge case, primer, propellant, and bullet.

CARTRIDGE CASE – A metal case that houses the primer and propellant and holds the bullet.

CASUALTY – Any person who is lost to the organization by having been declared dead, duty status – whereabouts unknown, missing, ill, or injured.

CASUALTY CATEGORY – A term used to specifically classify a casualty for reporting purposes based upon the casualty type and the casualty status. Casualty categories include killed in action, died of wounds received in action, and wounded in action.

CASUALTY EVACUATION – The unregulated movement of casualties that can include movement both to and between medical treatment facilities. Also called CASEVAC.

CASUALTY STATUS – A term used to classify a casualty for reporting purposes. There are seven casualty statuses: (1) deceased; (2) duty status - whereabouts unknown; (3) missing; (4) very seriously ill or injured; (5) seriously ill or injured; (6) incapacitating illness or injury; and (7) not seriously injured.

CHAIN OF COMMAND – The succession of commanding officers from a superior to a subordinate through which command is exercised.

CHAMBER – The enlarged part of the bore at the breech of a weapon that holds the cartridge.

CHAMBERING – The process of placing a round into the chamber of a weapon after it has been fed into the weapon.

CHANNEL – An electrical path over which transmissions can be made from one station (unit) to another.

CHARGE – A part of the fire command that established the amount of propellant to be used with a shell.

CHECK POINT – (1) A predetermined point on the surface of the Earth used as a means of controlling movement, a registration target for fire adjustment, or reference for location. (2) Center of impact; a burst center. (3) Geographical location on land or water above which the position of an aircraft in flight may be determined by observation or by electrical means. (4) A place where military police check vehicular or pedestrian traffic in order to enforce circulation control measures and other laws, orders, and regulations.

CHEMICAL AGENT – Any toxic chemical intended for use in military operations.

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR DEFENSE – Efforts to protect personnel on military installations and facilities from chemical, biological, radiological, and nuclear incidents. Also called CBRN defense.

CHEMICAL DOSE – The amount of chemical agent, expressed in milligrams, that is taken or absorbed by the body.

CHEMICAL MONITORING – The continued or periodic process of determining whether or not a chemical agent is present.

CHEMICAL SURVEY – The directed effort to determine the nature and degree of chemical hazard in an area and to delineate the perimeter of the hazard area.

CHEMICAL WARFARE – All aspects of military operations involving the employment of lethal and incapacitating munitions/agents and the warning and protective measures associated with such offensive operations. Since riot control agents and herbicides

are not considered to be chemical warfare agents, those two items will be referred to separately or under the broader term “chemical,” which will be used to include all types of chemical munitions/agents collectively. Also called CW.

CHEMICAL WEAPON – Together or separately, (1) a toxic chemical and its precursors, except when intended for a purpose not prohibited under the Chemical Weapons Convention; (2) a munition or device, specifically designed to cause death or other harm through toxic properties of those chemicals specified in (1) above, which would be released as a result of the employment of such munition or device; (3) any equipment specifically designed for use directly in connection with the employment of munitions or devices specified in (2) above.

CHLORINATION – Treatment of water with the addition of chlorine either as a gas or liquid, or in the form of hypochlorite, usually for the purpose of disinfection, oxidation, etc.

CIRCUIT – A communications link between two or more points.

CIVIC ACTION – The use of military forces on projects that contribute to the economic development of the local population. The projects concern education, training, public works, agriculture, transportation, communications, health, sanitation, and others.

CLEAR – (1) To approve or authorize, or to obtain approval or authorization for: a. a person or persons with regard to their actions, movements, duties, etc.; b. an object or group of objects, as equipment or supplies, with regard to quality, quantity, purpose, movement, disposition, etc.; and c. a request, with regard to correctness of form, validity, etc. (2) To give one or more aircraft a clearance. (3) To give a person a security clearance. (4) To fly over an obstacle without touching it. (5) To pass a designated point, line, or object. The end of a column must pass the designated feature before the latter is cleared. (6) a. To operate a gun so as to unload it or make certain no ammunition remains; and b. to free a gun of stoppages. (7) To clear an engine; to open the throttle of an idling engine to free it from carbon. (8) To clear the air to gain either temporary or permanent air superiority or control in a given sector.

CLIP – A device that holds cartridges so they can be loaded into a weapon.

CLOSE AIR SUPPORT – Air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces. Also called CAS.

CLOSE COMBAT – Hand-to-hand fighting with weapons, such as bayonets, hand grenades, service rifles, or pistols.

COCKING – The phase of operation that pertains to the locking of the hammer or firing assembly, slide assembly, or bolt group of a weapon in a fixed (or held) position under spring tension and with all parts in position.

COLUMN – A formation in which the elements are placed one behind the other; a section or platoon is in column when its squads are in column and abreast.

COMBAT ORDER – An order issued by a commander for a combat operation specifying time and date of execution.

COMBAT OUTPOST – A security element for a battalion defensive position located approximately 915 to 2,300 meters forward of the main line of resistance; its primary purpose is to engage the enemy.

COMBAT PATROL – A patrol whose primary mission is to engage actively in combat with the enemy and whose secondary mission is to gain information about the enemy and the terrain.

COMBAT PLAN – A plan issued for a combat operation that may be effective immediately for planning purposes or for specified preparatory action. It is not put into execution until directed by the commander in a separate order of execution or until certain specified conditions are determined to exist. When its execution is directed, a combat plan becomes, in effect, a combat order.

COMBAT SERVICE SUPPORT – The essential capabilities, functions, activities, and tasks necessary to sustain all elements of operating forces in theater at all levels of war. Within the national and theater logistic systems, it includes but is not limited to that support rendered by service forces in ensuring the aspects of supply, maintenance, transportation, health services, and other services required by aviation and ground combat troops to permit those units to accomplish their missions in combat. Combat service support encompasses those activities at all levels of war that produce sustainment to all operating forces on the battlefield. Also called CSS.

COMBAT SERVICE SUPPORT ELEMENT – The core element of a Marine Air-Ground Task Force (MAGTF) that is task-organized to provide the combat service support necessary to accomplish the MAGTF mission. The combat service support element varies in size from a small detachment to one or more force service support groups. It provides supply, maintenance, transportation, general engineering, health services, and a variety of other services to the MAGTF. The combat service support element itself is not a formal command. Also called CSSE.

COMMAND AND CONTROL – The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. Also called C2.

COMMAND ELEMENT – The core element of a Marine air-ground task force that is the headquarters. The command element is composed of the commander, general or executive and special staff sections, headquarters section, and requisite communications support, intelligence, and reconnaissance forces necessary to accomplish the mission. The command element provides command and control, intelligence, and other support essential for effective planning and execution of operations by the other elements of the Marine air-ground task force. The command element varies in size and composition. Also called CE.

COMMAND POST – The location of a unit's headquarters from which the commander and the staff operate. Also called CP.

COMMUNICATIONS CENTER – An agency that is responsible for the receipt, transmission, and delivery of messages.

COMMUNICATIONS NETWORK – A system consisting of a number of designated stations connected with one another by any means of communications.

COMMUNICATIONS SECURITY – The protection resulting from all measures designed to deny unauthorized persons information of value that might be derived from the possession and study of telecommunications, or to mislead unauthorized persons in

their interpretation of the results of such possession and study. Also called COMSEC.

CONCEALMENT – The protection from observation only.

CONCEPT OF FIRES – A verbal or graphic statement that clearly and concisely expresses how lethal and nonlethal fires will be synchronized and integrated to support the commander's operational objectives.

CONTAMINATION – (1) The deposit, absorption, or adsorption of radioactive material, or of biological or chemical agents on or by structures, areas, personnel, or objects. (2) Food and/or water made unfit for consumption by humans or animals because of the presence of environmental chemicals, radioactive elements, bacteria or organisms, the byproduct of the growth of bacteria or organisms, the decomposing material (to include the food substance itself), or waste in the food or water.

CONTAMINATION AVOIDANCE – Individual and/or unit measures taken to reduce the effects of chemical, biological, radiological, and nuclear hazards.

CONTINGENCY – A situation requiring military operations in response to natural disasters, terrorists, subversives, or as otherwise directed by appropriate authority to protect U.S. interests.

CONTINGENCY OPERATION – A military operation that is either designated by the Secretary of Defense as a contingency operation or becomes a contingency operation as a matter of law (Title 10, United States Code, Section 101[a][13]). It is a military operation that: a. is designated by the Secretary of Defense as an operation in which members of the Armed Forces are or may become involved in military actions, operations, or hostilities against an enemy of the United States or against an opposing force; or b. is created by definition of law. Under Title 10, United States Code, Section 101 (a)(13)(B), a contingency operation exists if a military operation results in the (1) call-up to (or retention on) active duty of members of the uniformed services under certain enumerated statutes (Title 10, United States Code, Sections 688, 12301[a], 12302, 12304, 12305, 12406, or 331-335); and (2) the call-up to (or retention on) active duty of members of the uniformed services under other (non-enumerated) statutes during war or national emergency declared by the President or Congress.

CONTROL – (1) Authority that may be less than full command exercised by a commander over part of the activities of subordinate or other organizations. (2) In mapping, charting, and photogrammetry, a collective term for a system of marks or objects on the Earth or on a map or a photograph, whose positions or elevations (or both) have been or will be determined. (3) Physical or psychological pressures exerted with the intent to assure that an agent or group will respond as directed. (4) An indicator governing the distribution and use of documents, information, or material. Such indicators are the subject of intelligence community agreement and are specifically defined in appropriate regulations.

CONVOY – (1) A number of merchant ships and/or naval auxiliaries usually escorted by warships and/or aircraft—or a single merchant ship or naval auxiliary under surface escort—assembled and organized for the purpose of passage together. (2) A group of vehicles organized for the purpose of control and orderly movement with or without escort protection that moves over the same route at the same time and under one commander.

COORDINATES – Linear or angular quantities which designate the position that a point occupies in a given reference frame or system. Also used as a general term to designate the particular kind of reference frame or system such as plane rectangular coordinates or spherical coordinates.

COORDINATING POINT – Designated point at which, in all types of combat, adjacent units/formations must make contact for purposes of control and coordination.

COOK OFF – A cook off is a functioning of any or all of the explosive components of a cartridge or shell caused by a weapon that has become very hot from continuous firing.

COUNTERATTACK – An attack by part or all of a defending force against an enemy attacking force. The specific purpose of the attack is to regain ground lost or to cut off or destroy enemy advance units. The general objective of the attack is to deny friendly territory to the enemy.

COUNTER RECOIL – The return of a breech mechanism to battery position after it has reached recoil limit. In small-arms weapons, it is usually accomplished by the release of compressed springs.

COVERING FIRE – (1) Fire used to protect troops when they are within range of enemy small arms. (2) In amphibious usage, fire delivered prior to the landing to cover preparatory operations such as underwater demolition or mine countermeasures.

COVER – Any object that gives protection from enemy fire.

CRITICAL TERRAIN – The possession of which is vital to the accomplishment of the mission.

CRYSTAL – A natural substance, such as quartz or tourmaline that is used to control the frequency of radio transmitters.

CYCLIC RATE OF FIRE – The theoretical number of rounds a weapon can fire in one minute, disregarding the limits of overheating and the capacity of the magazine.

CYLINDER – The chamber in which the piston moves in gas-operated weapons.

DATE-TIME GROUP – The date and time that identifies when a message is prepared for transmission. The date-time group is expressed in six digits followed by a zone suffix; the first pair of digits denotes the date; the second pair the hours; and the third pair the minutes. Also called DTG.

D-DAY – The day on which an operation commences or is to commence.

DEAD SPACE – The area within the maximum range of a weapon that cannot be covered by fire from a particular position because of intervening obstacles or because of the nature of the ground.

DEBARKATION – The unloading of troops, equipment, or supplies from a ship or aircraft.

DECONTAMINATION – The process of making any person, object, or area safe by absorbing, destroying, neutralizing, making harmless, or removing chemical or biological agents, or by removing radioactive material clinging to or around it.

DECONTAMINATION STATION – A building or location suitably equipped and organized where personnel and materiel are cleansed of chemical, biological, or radiological contaminants.

DEFENSE IN DEPTH – The siting of mutually supporting defense positions designed to absorb and progressively weaken attack, prevent initial observations of the whole position by the enemy, and to allow the commander to maneuver the reserve.

DEFENSIVE POSITION – A portion of a defense area physically occupied by troops and weapons.

DEFILADE – (1) Protection from hostile observation and fire provided by an obstacle such as a hill, ridge, or bank. (2) A vertical distance by which a position is concealed from enemy observation. (3) To shield from enemy fire or observation by using natural or artificial obstacles.

DEFILE – A narrow place or space, such as a mountain pass, a ford, or a bridge, that restricts the advance of a force on a wide front or its movement to the sides.

DEFLECTIONS – The setting on the scale of a gun sight to place the line of fire in the direction desired; the horizontal clockwise angle between the axis of the bore and the line of sighting.

DELAYING ACTION – A form of defensive action used to slow up the enemy's advance (without becoming decisively engaged) to gain time.

DEPLOYMENT – (1) In naval usage, the change from a cruising approach or contact disposition to a disposition for battle. (2) The movement of forces within operational areas. (3) The positioning of forces into a formation for battle. (4) The relocation of forces and materiel to desired operational areas. Deployment encompasses all activities from origin or home station through destination, specifically including intra-continental United States, intertheater, and intratheater movement legs, staging, and holding areas.

DEPTH – The distance from front to rear of an element, formation, or position.

DETAINEE – A term used to refer to any person captured or otherwise detained by an armed force.

DIRECT FIRE – Fire delivered by a weapon sighted directly at the target.

DIRECT SUPPORT – The support given directly to a specific force in response to its request for assistance.

DISPERSION – The spreading of troops and materiel over a wide area to avoid offering the enemy a concentrated target; a scattered pattern of hits of bombs dropped under identical conditions or of shots fired from the same gun with the same firing data.

DISPLACEMENT – The movement of supporting weapons or elements from one position to another.

DISTANCE – Space between elements in the direction of depth. Between individuals, it is the space between your chest and the person to your front.

DOCTRINE – Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application.

DOUBLE ACTION – An action of depressing the trigger that cocks the hammer and then releases it to fire a weapon. Both occur on one pull of the trigger.

DOUBLE TIME – Cadence at 180 steps (36 inches in length) per minute.

DUMP – An area used for the temporary storage and disbursing of military supplies.

ECHELON – (1) A subdivision of a headquarters, such as forward echelon or rear echelon; a separate level of command. (2) A fraction of a command in the direction of depth to which a principal combat mission is assigned, such as attack echelon, support echelon, or reserve echelon. (3) A formation in which the elements are placed one behind another, extending beyond and unmasking one another wholly or in part.

EJECTION – The process of expelling the empty cartridge case from a weapon through the use of an ejector.

EJECTOR – The part that expels the empty cartridge case from the receiver of a weapon; it may be fixed, spring-loaded, or movable.

ELEMENT – An individual squad, section, platoon, company, or another unit that is part of a larger unit.

EMBARKATION – The loading of troops, equipment, or supplies into a ship or aircraft.

EMERGENCY OPERATIONS CENTER – The physical location at which the coordination of information and resources to support domestic incident management activities normally takes place. An emergency operations center may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. Emergency operations centers may be organized by major functional disciplines (e.g., fire, law enforcement, and medical services), by jurisdiction (e.g., Federal, state, regional, county, city, tribal), or by some combination thereof. Also called EOC.

EMPLACEMENT – A prepared position from which a weapon executes its fire mission.

ENFILADE FIRE – Fire delivered so the long axis of the beaten zone coincides with the long axis of the target.

ENVELOPMENT – An attack made on one or both of the enemy's flanks or rear; usually accompanied by an attack on his front.

EROSION – The wearing away of the inner surface of a gun barrel as a result of mechanical wear and the chemical action of powder gases.

EVACUATION – The process of moving casualties from a battlefield and subsequently moving them along the chain of evacuation, as necessary; the clearance of personnel or material, or both, from a given locality.

EVASION AND ESCAPE – The procedures and operations whereby military personnel and other selected individuals are enabled to emerge from an enemy-held or hostile area to areas under friendly control. Also called E&E.

EXPEDITIONARY FORCE – An armed force organized to accomplish a specific objective in a foreign country.

EXPLOITATION – The last phase of offensive combat that follows the reorganization of the attacking unit on the objective. In this phase of combat, the attacking unit may be directed to continue the attack, to pursue the enemy, or to mop up.

EXPLOSIVE ORDNANCE DISPOSAL – The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance. It may also include explosive ordnance which has become hazardous by damage or deterioration. Also called EOD.

EXTRACTION – The phase of operation that deals with the removal of a weapon's empty cartridge case from the chamber of an extracting device before ejection.

EXTRACTOR – The part that withdraws the empty cartridge case from the chamber of a weapon.

FEEDING – The mechanical positioning of an individual round for subsequent insertion into the chamber of a weapon during the cycle or operation.

FIELD FORTIFICATION – Entrenchments, emplacements, and obstacles constructed in the field to increase the natural defensive strength of the terrain.

FIELD OF FIRE – The area that a weapon or group of weapons covers effectively with fire.

FIELD STRIPPING – Removal of the groups from a weapon; does not include disassembly of groups.

FILE – A single column of men or vehicles, one behind the other.

FINAL PROTECTIVE FIRE – An immediately available prearranged barrier of fire designed to impede enemy movement across defensive lines or areas.

FINAL PROTECTIVE LINE – A line along which interlocking bands of grazing fire are placed to stop enemy assaults. The line is placed at a predetermined distance from all available weapons fixed in direction and elevation that are capable of delivery under conditions of visibility.

FIRE AND MANEUVER – The close coordination of the movement of a unit with its own fire or the fire of supporting weapons. This coordination enables a portion of the unit to move forward, while the remaining portion covers the forward movement by fire.

FIRE CONTROL – All operations connected with the preparation and application of fire to a target.

FIRE DIRECTION CENTER – The element of a command post, consisting of gunnery and communication personnel and equipment, by means of which the commander exercises fire direction and fire control.

FIRE MISSION – A target assigned to a unit or personnel manning a certain weapon or weapons with instructions as to the time and method of firing and placing fire on the target.

FIRE UNIT – A unit whose fire is under the immediate and effective control of one leader.

FIRING MECHANISM – The parts of a weapon that move together to cause the cartridge primer to be struck when the trigger is depressed.

FIRING POSITIONS – Defensive positions from which fire missions are carried out; they are designated primary, alternate, or supplemental.

FIXED FIRE – Fire delivered on a point target.

FLANK – (1) The right or left extremity of a unit. (2) The element on the extreme right or left of the line. (3) A direction at right angles to the direction a unit is facing.

FLANK GUARD – A security detachment that protects the flank of a body of troops on the march.

FLANKING FIRE – Fire delivered at right angles to the enemy flank.

FLAT TRAJECTORY – A trajectory having little or no curvature.

FORCE MULTIPLIER – A capability that, when added to and employed by a combat force, significantly increases the combat potential of that force and thus enhances the probability of successful mission accomplishment.

FORCE PROTECTION – Preventive measures taken to mitigate hostile actions against Department of Defense personnel (to include family members), resources, facilities, and critical information. Force protection does not include actions to defeat the enemy or protect against accidents, weather, or disease. Also called FP.

FORCE PROTECTION CONDITION – A Chairman of the Joint Chiefs of Staff-approved standard for identification of and recommended responses to terrorist threats against U.S. personnel and facilities. Also called FPCON.

FORMATION – Arrangement of the elements of a unit in line, in column, or in any other prescribed manner.

FORWARD AREA – An area in proximity to combat.

FORWARD EDGE OF THE BATTLE AREA – The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the maneuver of units. Also called FEBA.

FORWARD LINE OF TROOPS – A line that indicates the most forward positions of friendly forces in any kind of military operation at a specific time. The forward line of own troops normally identifies the forward location of covering and screening forces. The forward line of own troops may be at, beyond, or short of the forward edge of the battle area. An enemy forward line of own troops indicates the forward-most position of hostile forces. Also called FLOT.

FORWARD OPERATING BASE – An airfield used to support tactical operations without establishing full support facilities. The base may be used for an extended time period. Support by a main operating base will be required to provide backup support for a forward operating base. Also called FOB.

FRAGMENTARY ORDER – An abbreviated form of an operation order issued as needed after an operation order to change or modify that order or to execute a branch or sequel to that order. Also called FRAGORD or FRAGO.

FREQUENCY – The band on which a unit is to operate its radio communications.

FRONT – (1) The line of contact of two opposing forces. (2) The length of space of an element or formation measured from one flank to the other. (3) The direction of the enemy.

FRONTAL FIRE – Fire delivered perpendicular to the enemy (across his front).

FUZE – A device for setting off an explosive charge.

GAS-OPERATED – The small-arms principle by which gas pressure from a fired cartridge activates the operating parts of a weapon using a piston and cylinder arrangement.

GAS PORT – A small hole drilled in the barrel to allow the expanding gases to strike the piston in the cylinder of a gas-operated weapon; sometimes called a vent.

GENERAL SUPPORT – The support given to a force as a whole and not to any particular subdivision thereof.

GLOBAL POSITIONING SYSTEM – A satellite-based radio navigation system operated by the Department of Defense to provide all military, civil, and commercial users with precise positioning, navigation, and timing. Also called GPS.

GO NO-GO – The condition or state of operability of a component or system: “go,” functioning properly; or “no-go,” not functioning properly. Alternatively, a critical point at which a decision to proceed or not must be made.

GRAZING FIRE – Fire from a weapon in which the trajectory does not rise higher than the height of a man standing.

GRENADE SUMP – A circular hole large enough to accept the largest known enemy grenade; it slopes downward under the fire step in the fighting hole. Hand grenades thrown into the fighting hole are exploded in this sump; their fragmentation is restricted to the unoccupied end of the fighting hole.

GRID – (1) Two sets of parallel lines intersecting at right angles and forming squares; the grid is superimposed on maps, charts, and other similar representations of the Earth’s surface in an accurate and consistent manner in order to permit identification of ground locations with respect to other locations and the computation of direction and distance to other points. (2) A term used in giving the location of a geographic point by grid coordinates.

GRID COORDINATES – Coordinates of a grid coordinate system to which numbers and letters are assigned for use in designating a point on a gridded map, photograph, or chart.

GROOVES – The depressed areas between the lands (raised surfaces) in the bore; the cutaway portion of the rifling into which the jacket or rotating band of a bullet fits to impart rotation to the bullet in its line of flight.

GROUND ZERO – The point on the ground or directly above at which a nuclear weapon has exploded.

GROUP – Two or more parts or assemblies that either function together in a gun or are so closely related to one another that they should be considered as a unit.

HAMMER – A lever that is swung around by spring pressure to strike the firing pin of a weapon.

HANG FIRE – A delay in the functioning of a propelling charge explosive train at the time of firing. In most cases the delay, though unpredictable, ranges from a split second to several minutes.

HEAD – The leading element of a column.

HEADSPACE – In small-arms weapons, the distance between the face of the bolt and the base of the cartridge when it is fully chambered and the bolt is locked.

HELICOPTER LANDING ZONE – A specified ground area for landing assault helicopters to embark or disembark troops and/or cargo. A landing zone may contain one or more landing sites. Also called HLZ.

HOST NATION – A nation which receives the forces and/or supplies of allied nations and/or NATO organizations to be located on, to operate in, or to transit through its territory. Also called HN.

HOST-NATION SUPPORT – Civil and/or military assistance rendered by a nation to foreign forces within its territory during peacetime, crises or emergencies, or war based on agreements mutually concluded between nations. Also called HNS.

H-HOUR – The hour an attack is to be launched, an assault wave is to land, or a movement is to begin.

IMMEDIATE DECONTAMINATION – Decontamination carried out by individuals immediately upon becoming contaminated to save lives, minimize casualties, and limit the spread of contamination. This may include decontamination of some personal clothing and/or equipment. Also called emergency decontamination.

IMMEDIATE MESSAGE – A category of precedence reserved for messages relating to situations that gravely affect the security of national and multinational forces or populace and that requires immediate delivery to the addressee(s).

IMPROVISED EXPLOSIVE DEVICE – A device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals and designed to destroy, incapacitate, harass, or distract. It may incorporate military stores, but is normally devised from nonmilitary components. Also called an IED.

INDIRECT FIRE – Fire delivered at a target that cannot be seen from the gun position.

INDIVIDUAL PROTECTIVE EQUIPMENT – In chemical, biological, radiological, or nuclear operations, the personal clothing and equipment required to protect an individual from chemical, biological, and radiological hazards and some nuclear hazards. Also called IPE.

INFILTRATE – To pass troops in relatively small numbers through an opening in the enemy's position or his field of fire or through territory occupied by other troops or organizations.

INITIAL POINT – A place at which various subdivisions of a command are required to arrive at the proper time to join a marching column.

INSURGENCY – Subversive political activity, civil rebellion, revolt, or insurrection designed to weaken and overthrow a duly constituted authority by its own people.

INSURRECTION – A rising up against an established authority by its own people.

INTERFERENCE – Natural or man-made radiation of electrical energy that causes difficulty in reception of radio signals.

INTERVAL – The lateral space between elements on the same line.

IRREGULAR FORCES – Armed individuals or groups who are not members of the regular armed forces, police, or other internal security forces.

ISOLATED PERSONNEL REPORT – A Department of Defense Form (DD 1833) containing information designed to facilitate the identification and authentication of an isolated person by a recovery force. Also called ISOPREP.

JAMMING – Deliberate interference intended to prevent reception of radio signals in a specific frequency band.

KEY TERRAIN – The possession of which could prove decisive in combat.

LANDING ZONE – Any specified zone used for the landing of aircraft. Also called LZ.

LAW OF WAR – That part of international law that regulates the conduct of armed hostilities. Also called the law of armed conflict.

LEACH FIELD – Also known as a drainage field, is a network of perforated pipes that are laid in underground gravel-filled trenches to dissipate the effluent from a water-based collection and storage/treatment or (semi-) centralized treatment technology.

LEAF SIGHT – A type of metallic sight in which the aperture is raised to operating position by being swung upward on a hinged leaf.

LIMITING POINT – The point along a line of resistance where the responsibility of one unit stops and that of another begins. Limiting points are placed on the boundaries between companies to indicate specific localities on the ground where the battalion command wishes the company commanders to coordinate their defense.

LINE – A formation in which the elements are abreast, except that a section or platoon is in line one behind the other when its squads are in line.

LINE OF DEPARTURE – A line designated to coordinate the departure of attack elements.

LISTENING POST – A one- or two-man post located forward of the battle position for the purpose of listening for enemy activity.

LOADING – (1) The manual procedure of inserting a magazine, clip, belt, or single round into a weapon or its feeding mechanism and the subsequent action for feeding, chambering, or cocking. (2) The physical placing of personnel, equipment, or supplies aboard their carriers.

LOCAL SECURITY – A security element, independent of any outpost, established by a commander to protect his unit against surprise and to ensure its readiness for action.

LOT – Specifically, a quantity of materiel all of which was manufactured under identical conditions and assigned an identifying lot number.

MACHINE GUN – An automatic, rapid-fire weapon that is fired from a mount.

MAGAZINE – A device that stores and supplies ammunition and feeds the ammunition by means of its own spring and follower.

MAIN ATTACK – The part of an attack where the commander concentrates the greater portion of offensive power.

MAIN LINE OF RESISTANCE – An imaginary line along the forward edge of the battle position designed to coordinate the fires of all units and supporting weapons.

MALFUNCTION – The failure of a weapon to function satisfactorily.

MARK – Call for fire on a specified location to orient the spotter or observer or to indicate targets.

MASK – A natural or artificial obstruction that gives shelter from or interferes with observation or fire.

MAXIMUM EFFECTIVE RANGE – The maximum distance at which a weapon may be expected to be accurate and achieve the desired effect.

MEANS OF SIGNAL COMMUNICATION – The means by which a message is conveyed from one person or place to another.

MESSAGE – Any thought or idea expressed in brief form or in plain or secret language; prepared in a form suitable for transmission by any means of communication.

MISSION – The specific task or duty assigned to an individual, weapon, or unit.

MISSION-ORIENTATED PROTECTIVE POSTURE – A flexible system of protection against chemical, biological, radiological, and nuclear contamination. This posture requires personnel to wear only that protective clothing and equipment (mission-oriented protective posture gear) appropriate to the threat level, work rate imposed by the mission, temperature, and humidity. Also called MOPP.

MOUNT – The stand on which a weapon is secured to hold it in position for rapid fire. A mount is either fixed (immovable) or flexible (movable). A flexible mount permits the weapon to move in azimuth and elevation.

MUZZLE – The front or forward end of the barrel; also called the mouth of the barrel.

MUZZLE VELOCITY – The speed at which a bullet travels when it leaves the muzzle of the barrel.

NAVAL LANDING PARTY – A force of naval personnel organized from a ship's complement for the conduct of ground-force operations ashore.

NERVE AGENT – A potentially lethal chemical agent which interferes with the transmission of nerve impulses.

NONPERSISTANT AGENT – A chemical agent that when released dissipates and/or loses its ability to cause casualties after 10 to 15 minutes.

OBJECTIVE – (1) The clearly defined, decisive, and attainable goal toward which every operation is directed. (2) The specific target of the action taken (for example, a definite terrain feature, the seizure or holding of which is essential to the commander's plan, or, an enemy force or capability without regard to terrain features).

OBLIQUE FIRE – Fire delivered from a direction that is diagonal to the long axis of the target; or fire delivered on an enemy from a direction that is between his front and flank.

OBSERVATION POST – A vantage point from which enemy activity in front of the FLOT is observed. Also called OP.

OBSTACLE – Any barrier—natural or artificial—that stops or impedes the movement of a unit.

OPERATION PLAN OR ORDER – A combat plan or order dealing with tactical operations and setting forth the mission of the unit; it deals with the commander's decision, plan of action, and such details as to the method of execution as will ensure coordinated action by the whole command. Also called OPLAN and OPORD.

OPTICAL SIGHT – A sight having lenses as contrasted with one having an aperture or open sight.

ORGANIC – Assigned to and forming an essential part of a military organization.

ORIGINATOR – The command by whose authority a message is sent.

OUTGUARD – The principal security element of a combat outpost.

OUTPOST – A stationary body of troops placed at some distance from the main body while at a halt or in a defensive position. These troops protect the main body from surprise, observation, or annoyance by enemy ground forces.

OUTPOST LINE OF RESISTANCE – A line passing through the forward edge of the outpost positions and designed to coordinate the fires of the elements of the outpost and its supporting fires.

OVERHEAD FIRE – Fire delivered over the heads of friendly troops.

OVERLAY – A transparent or translucent medium upon which special military information has been plotted at the same scale of a map, photograph, or other graphic.

PACE – The length of a full step in quick time; 30 inches.

PATROL – A detachment sent out by a larger unit for the purpose of gathering information or carrying out a destructive, harassing, mop-up, or security mission.

PERSISTENCY – In biological or chemical warfare, the characteristic of an agent which pertains to the duration of its effectiveness under determined conditions after its dispersal.

PERSISTENT AGENT – A chemical agent that, when released, remains able to cause casualties for more than 24 hours to several days or weeks.

PERSONAL PROTECTIVE EQUIPMENT – The equipment provided to shield or isolate a person from the chemical, physical, and thermal hazards that can be encountered at a hazardous materials incident. Personal protective equipment includes both personal protective clothing and respiratory protection. Also called PPE.

PENETRATION – An attack that puts the main attacking force through the enemy's principal defensive position.

PHASE LINE – A line utilized for control and coordination of military operations, usually an easily identified feature in the operational area.

PLUNGING FIRE – Fire that strikes the ground at a sharp angle.

POINT – The security element that forms the leading element of an advance guard or the rear element of an advance guard or the rear element of the rear guard.

POINT OF DEPARTURE – The point on the line of departure at which an attacking force in column crosses.

PORT OF DEBARKATION – The geographic point at which cargo or personnel are discharged. This may be a seaport or aerial port of debarkation; for unit requirements; it may or may not coincide with the destination. Also called POD.

PORT OF EMBARKATION – The geographic point in a routing scheme from which cargo or personnel depart. This may be a seaport or aerial port from which personnel and equipment flow to a port of debarkation; for unit and non-unit requirements, it may or may not coincide with the origin. Also called POE.

POINT OF ORIGIN – In distribution operations, the beginning point of a deployment, redeployment, or movement where forces or materiel are located.

POLITICAL WARFARE – Aggressive use of political means to achieve national objectives.

POSITION – The location of a gun, unit, or individual from which fire can be delivered upon a given target.

POST – The prescribed limits of a sentry's responsibility.

PREARRANGED FIRE – Fire that is formally planned and executed against targets or target areas of known location. Such fire is usually planned well in advance and is executed at a predetermined time or during a predetermined period of time.

PRINCIPAL DIRECTION OF FIRE – A specific direction within the sector of fire of a flat-trajectory weapon, which is designated as its primary fire mission. Within a rifle platoon, automatic weapons are assigned a principal direction of fire. Units are not assigned principal directions of fire nor can a weapon be assigned more than one principal direction of fire. Also called PDF.

PROBABLE LINE OF DEPLOYMENT– The location on the ground where the commander of a force plans to complete final deployment before moving out with squads as skirmishers.

PROPAGANDA – Any information, ideas, doctrines, or special appeals spread to influence the opinions, emotions, attitudes, or behavior of any specified group to benefit the sponsor, either directly or indirectly.

PROPELLING CHARGE – An explosive that throws the projectile from a gun.

PROTECTIVE FIRE – Fire delivered by supporting weapons and directed against the enemy for the purpose of hindering his fire or movement against friendly attacking units.

QUICK TIME – Cadence at 120 steps (12, 15, or 30 inches in length) per minute.

RADIO CHANNEL – A band of adjacent frequencies having sufficient width to permit its use for radio communications.

RAID – An operation, usually small scale, involving a swift penetration of hostile territory to secure information, confuse the enemy, or destroy his installations. The operation ends with a planned withdrawal upon completion of the assigned mission.

RANK – A line of men or vehicles placed side by side; officer's grade or position.

REAR – The direction away from the enemy.

REAR AREA – The area in the rear of the combat and forward areas.

REAR GUARD – The security element that follows and protects the rear of a marching force.

REBELLION – Organized, armed, open resistance to the authority or government in power.

RECONNAISSANCE PATROL – A patrol whose mission is to gain information about the enemy and the terrain.

REGISTRATION – The adjustment of fire to determine firing corrections.

RELAY – A transmission forwarded through an intermediate station.

RELEASE POINT – A point at which a higher command releases control of a unit to its commander.

RELIEF OF FRONT-LINE UNITS – A rearrangement of units in which the rear unit moves forward to the battle position and occupies the defensive positions there; at the same time the forward unit in the battle position relinquishes these positions and moves to the rear.

REPEAT – A command or request to fire again the same number of rounds with the same method of fire.

RESERVE – An element of the battalion or higher unit held initially under the control of the commander as a maneuvering element to influence future action.

RESERVE AREA – The area that extends from the rear of the forward defense area to the rear of the battle area. The Reserve Force is located in the reserve area.

RETIREMENT – An operation in which a force withdraws without enemy pressure to avoid combat under the existing situation.

REVERSE SLOPE – Any slope that descends away from the enemy.

REVOLT – A casting off of allegiance or a refusal to submit to established authority.

REVOLUTION – A rebellion that succeeds in overthrowing an old government and establishing a new one.

RIOT CONTROL AGENT – Any chemical, not listed in a schedule of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, which can produce sensory irritation or disabling physical effects rapidly in humans, which disappear within a short time following termination of exposure. Also called RCA.

ROADBLOCK – A barrier or obstacle to block or limit the movement of hostile vehicles along a road.

ROUTE MARCH – The advance in column on roads.

RULES OF ENGAGEMENT – Directives issued by competent military authority that delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE.

SCREEN FIRE – A curtain of smoke that protects a force from enemy ground observation.

SEARCHING FIRE – Fire distributed in depth by successive changes in elevation of a weapon.

SECTION – A military unit that is smaller than a platoon and larger than a squad; the basic tactical unit in the weapons platoon of the rifle company.

SECTOR – A clearly defined area that a given unit protects or covers with fire.

SECTOR OF FIRE – A section of terrain designated by boundaries that is assigned to a unit or to a weapon to cover by fire.

SECURITY – Measures taken by a command to protect itself from espionage, observation, sabotage, annoyance, or surprise.

SECURITY AREA – The area forward of the FLOT assigned to a battalion or company. A battalion's security area extends to whatever distance security forces, uncontrolled by the battalion, are employed. A company's security area extends 400 to 500 yards

(maximum effective range of small-arms fire) to the most forward extension of the company's lateral boundary.

SHOCK ACTION – Actual hand-to-hand combat between opposing troops; an offensive movement by fast-moving forces in which they tend to overrun the enemy by the force of their own momentum.

SHORT – A spotting or an observation used by a spotter or an observer to indicate that a burst fell short of the target in relation to a line perpendicular to the spotting line.

SITUATION REPORT – A report giving the situation in the area of a reporting unit or formation. Also called SITREP.

SKETCH – A hasty, pictorial drawing showing only desired map features and objects in relative position; usually for a specific use.

SKIRMISHERS – A line of troops in extended order during a tactical exercise or attack.

SNAP– In commands or signals, the quality that inspires immediate response.

SPOT REPORT – A concise narrative report of essential information covering events or conditions that may have an immediate and significant effect on current planning and operations that is afforded the most expeditious means of transmission consistent with requisite security. Also called SPOTREP.

STANDARD OPERATING PROCEDURE – A set of instructions covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness. The procedure is applicable unless ordered otherwise. Also called SOP.

STATIC – Any electrical disturbance caused by atmospheric conditions. Interferes with radio communications.

STEP – The distance from heel to heel between the feet of a marching man; normally 30 inches.

SUPPLEMENTARY POSITION – An extra position other than the designated primary or alternate position.

SUPPLY POINT – A point where supplies are issued (for example, depot, railhead, truck head, airhead, or navigation-head).

SUPPORT – (1) The action of a force that aids, protects, complements, or sustains another force according to a directive requiring such actions. (2) A unit that helps another unit in battle. (3) The reserve of a rifle company or platoon in the attack or defense; an element of a command that assists, protects, or supplies other forces in combat.

SUPPORTING FIRE – Fire delivered by weapons of supporting units to assist or protect a unit in combat.

SUPPORTING WEAPONS – Weapons other than those with which a rifle unit is normally equipped.

SUPPRESSION – Temporary or transient degradation by an opposing force of the performance of a weapons system below the level needed to fulfill its mission objectives.

SUPPRESSIVE FIRE – Fires on or about a weapons system to degrade its performance below the level needed to fulfill its mission objectives, during the conduct of the fire mission.

SURVIVABILITY – Concept which includes all aspects of protecting personnel, weapons, and supplies while simultaneously deceiving the enemy. Survivability tactics include building a good defense; employing frequent movement; using concealment, deception, and camouflage; and constructing fighting and protective positions for both individuals and equipment.

TABLE OF ALLOWANCE – An equipment allowance document that prescribes basic allowances of organizational equipment, and provides the control to develop, revise, or change equipment authorization inventory data. Also called TOA.

TERRAIN – An area of ground, considered as to its extent and natural features, in relation to its use in a particular operation.

TERRAIN ANALYSIS – The collection, analysis, evaluation, and interpretation of geographic information on the natural and man-made features of the terrain, combined with other relevant factors, to predict the effect of the terrain on military operations.

THEATER – The geographical area for which a commander of a geographic combatant command has been assigned responsibility.

THEATER OF OPERATIONS – An operational area defined by the geographic combatant commander for the conduct or support of specific military operations. Multiple theaters of operations normally will be geographically separate and focused on different missions. Theaters of operations are usually of significant size, allowing for operations in depth and over extended periods of time. Also called TO.

TOPOGRAPHICAL CREST – The highest point on elevated terrain.

TRAJECTORY – The path described by a projectile in flight.

TRAVERSING FIRE – Fire distributed in width by successive changes in direction of a weapon.

UNDERGROUND – A civilian organization that supports the resistance movement through covert (secret) actions. Such actions include intelligence collection, subversion, sabotage, terror, assassination, and dissemination of propaganda in areas denied to the guerrilla force.

UNIT – Any military force having a prescribed organization.

UNIT MOVEMENT CONTROL CENTER – A temporary organization activated by major subordinate commands and subordinate units during deployment to control and manage marshalling and movement. Also called UMCC.

UNIT OF FIRE – A unit of measure for ammunition supply. It represents a specific number of rounds of ammunition per weapon.

WARNING ORDER – (1) A preliminary notice of an order or action that is to follow. (2) A planning directive that initiates the development and evaluation of military courses of action by a supported commander and requests that the supported commander submit a commander's estimate. (3) A planning directive that describes the situation; allocates forces, and resources; establishes command relationships; provides other

initial planning guidance; and initiates subordinate unit mission planning. Also called WARNORD.

WEDGE FORMATION – A tactical formation in the form of a *V* with the point toward the enemy; a formation with elements in echelon to the right and left rear. Also called a V-formation.

WITHDRAWAL – A movement whereby a force disengages from an enemy force according to the will of the commander.

ZONE OF ACTION – A geographical area within which a military unit is to act, and for which it is responsible.

ZONE OF FIRE – An area into which a particular unit delivers, or is prepared to deliver, fire.

Appendix II

Acronyms

AAA	Arrival and Assembly Area
AACG	Arrival Airfield Control Group
ABFC	Advance Base Functional Component
AC	Active Component
ACB	Amphibious Construction Battalion
ACE	Aviation Combat Element (MAGTF)
ACL	Allowable Cabin Load
ACOC	Alternate Command/Combat Operations Center
ACR	Allowance Change Request
ADAL	Authorized Dental Allowance List
ADCON	Administrative Control
ADDRAC	**A**lert, **D**irection, target **D**escription, **R**ange, target **A**ssignment, and fire **C**ontrol
ADR	Airfield Damage Repair
ADSW	Active Duty for Special Work
ADT	Active Duty for Training
ADVON	Advanced Echelon
ALCON	All Concerned
AMAL	Authorized Medical Allowance List
AMC	Air Mobility Command
AMMO	Ammunition
AO	Administration Officer
AO	Area of Operations
AOR	Area Of Responsibility
APOD	Aerial Port Of Debarkation
APOE	Aerial Port Of Embarkation

APL	Assistant Patrol Leader
AR	Automatic Rifleman
ASAP	As Soon As Possible
ASP	Ammunition Supply Point
ASR	Alternate Supply Route
AT	Antitank
AT	Annual Training
AT/FP	Antiterrorism/Force Protection
AVGAS	Aviation Gasoline
BAMCIS	**B**egin planning, **A**rrange for reconnaissance, **M**ake reconnaissance, **C**omplete the plan, **I**ssue the order, and **S**upervise
BAS	Basic Aid Station
BDA	Battle Damage Assessment
BDR	Battle Damage Repair
BFT	Blue Force Tracking/Tracker
BN	Battalion
BTB	Better Than Best
BU	Builder
BUB	Battle Update Brief
C2	Command and Control
C3	Command, Control, and Communications
CA	Civil Affairs
CALMS	Computer-Aided Load Manifesting System
CAM	Chemical Agent Monitor
CAS	Close Air Support
CASEVAC	Casualty Evacuation
CASREP	Casualty Report
CASREQ	Close Air Support Request
CB	Construction Battalion (SEABEE)

CBR	Chemical, Biological, Radiological
CBRN	Chemical, Biological, Radiological and Nuclear
CCI	Controlled Cryptographic Item
CCIR	Commander's Critical Information Requirement
CDD	Construction Diving Detachments
CDM	Chemical Downwind Message
CDO	Command Duty Officer
CDR	Commander
CE	Construction Electrician
CE	Command Element (MAGTF)
CEB	Combat Engineer Battalion (USMC)
CEC	Civil Engineer Corps
CEOI	Communications-Electronics Operating Instructions
CESE	Civil Engineer Support Equipment
CLP	Cleaning, Lubricant, Petroleum
CM	Construction Mechanic
CMDCM	Command Master Chief
CNO	Chief of Naval Operations
CO	Commanding Officer
COA	Course Of Action
COC	Command/Combat Operations Center
COMSEC	Communications Security
CONOPS	Concept of Operations
CONUS	Continental United States
COSAL	Consolidated Shipboard/Shorebased Allowance List
COTS	**C**ommercial **O**ff-**T**he-**S**helf equipment/material
CP	Command Post
CPX	Command Post Exercise
CS	Combat Support

CST	Convoy Security Team
DACG	Departure Airfield Control Group
DAT	Damage Assessment Team
DFAC	Dining Facility
DFT	Deployment For Training
DIRLAUTH	Direct Liaison Authorized
DOD	Department Of Defense
DOR	Date Of Rank
DRAW-D	Defend, Reinforce, Attack, Withdraw, Delay
DTD	Detailed Troop Decontamination
DTG	Date Time Group
DV	Diver
EA	Engineering Aid
EAF	Expeditionary Airfield
ECP	Entry Control Point
ECU	Environmental Control Unit
EDVR	Enlisted Distribution Verification Report
EEFI	Essential Elements of Friendly Information
EKIA	Enemy Killed In Action
ELCAS (M)	Elevated Causeway System (Modular)
EMP	Electromagnetic Pulse
ENDEX	Exercise Termination
EO	Equipment Operator
EOD	Explosive Ordinance Disposal
EPW	Enemy Prisoner of War
ESB	Engineer Support Battalion (USMC)
ETA	Estimated Time of Arrival
FEBA	Forward Edge of the Battle Area
FIE	Fly In Echelon

FLOT	Forward Line of Own Troops
FM	Field Manual (Army)
FMF	Fleet Marine Force
FO	Forward Observer
FOB	Forward Operating Base
FOUO	For Official Use Only
FP	Force Protection
FPCON	Force Protection Condition
FPF	Final Protective Fire
FPL	Final Protective Line
FRAGO/FRAGORD	Fragmentary Order
FSSG	Field Service Support Group (USMC) (Now MLG)
FTX	Field Training Exercise
FYSA	For Your Situational Awareness
GCE	Ground Combat Element (MAGTF)
GP	General Purpose
GPH	Gallons Per Hour
GPS	Global Positioning System
GRG	Gridded Reference Graphic
GVW	Gross Vehicle Weight
GWOT	Global War On Terror
HAS	Higher Adjacent Supporting
HAZMAT	Hazardous Material
HE	High Explosive
HEAT	High Explosive Antitank
HEDP	High Explosive Dual Purpose
HEI	High Explosive-Incendiary
HLZ	Helicopter Landing Zone
HM/HW	Hazardous Material/Hazardous Waste

HMMWV	High Mobility Multipurpose Wheeled Vehicle
HN	Host Nation
HQ	Headquarters
HTH	High Test Hypochlorite (Bleach)
HUMINT	Human Intelligence
IAW	In Accordance With
ID	Identification
IDC	Independent Duty Corpsman
IED	Improvised Explosive Device
ILLUM	Illumination
IR	Infrared
ISAF	International Security Assistance Force
ISB	Intermediate Staging Base
IV	Intravenous
JARB	Joint Acquisition Review Board
JFUB	Joint Facilities Utilization Board
JLOTS	Joint Logistics Over The Shore
JOC	Joint Operations Center
JOOD	Junior Officer Of the Day
JSOTF	Joint Special Operations Task Force
JTF	Joint Task Force
KIA	Killed In Action
KOCOA	**K**ey terrain, **O**bservation and fields of fire, **C**over and concealment, **O**bstacles, and **A**venues of approach
LCE	Logistics Combat Element (MAGTF)
LCU	Landing Craft, Utility
LOGREP	Logistics Report
LOGREQ	Logistics Requirements
LOTS	Logistics Over The Shore
LP	Listening Post

LSA	Logistics Support Area
LZ	Landing Zone
MAGTF	Marine Air-Ground Task Force
MCDP	Marine Corps Doctrine Publication
MCPON	Master Chief Petty Officer of the Navy
MCRP	Marine Corps Reference Publication
MCWP	Marine Corps Warfighting Publication
MEB	Marine Expeditionary Brigade
MADCAP	Medical Civic Action Program
MEDEVAC	Medical Evacuation
MEF	Marine Expeditionary Force
METL	Mission-Essential Task List
METT-T	**M**ission, **E**nemy, **T**errain and weather, **T**roops and support available, and **T**ime available
MEU	Marine Expeditionary Unit
MEU(SOC)	Marine Expeditionary Unit (Special Operations Capable)
MGB	Medium Girder Bridge
MHE	Material Handling Equipment
MIA	Missing In Action
MILVAN	Military Van (Container)
MLG	Marine Logistics Group
MNF	Multinational Force
MOA	Memorandum Of Agreement
MOCC	Mount Out Control Center
MOGAS	Motor Gasoline
MOOTW	Military Operations Other Than War
MOPP	Mission-Orientated Protective Posture
MOS	Military Occupational Specialty
MOU	Memorandum Of Understanding
MOUT	Military Operations on Urbanized Terrain

MP	Military Police
MPF	Maritime Pre-positioning Force
MPS	Maritime Pre-positioning Ship
MPSRON	Maritime Pre-positioning Ship Squadron
MRE	Meal, Ready-to-Eat
MSC	Military Sealift Command
MSDS	Material Safety Data Sheet
MSR	Main Supply Route
MWD	Military Working Dog
MWSS	Marine Wing Support Squadron (USMC)
NAAK	Nerve Agent Antidote Kit
NATO	North Atlantic Treaty Organization
NAVFAC	Naval Facilities Engineering Command
NAVFACENGCOM	Naval Facilities Engineering Command
NBC	Nuclear, Biological, and Chemical
NCF	Naval Construction Force
NCHB	Navy Cargo-Handling Battalion
NCO	Noncommissioned Officer
NCOIC	Noncommissioned Officer In Charge
NCR	Naval Construction Regiment
NECC	Navy Expeditionary Combat Command
NEO	Noncombatant Evacuation Operation
NFELC	Naval Facilities Expeditionary Logistics Center
NFESC	Naval Facilities Engineering Service Center
NIPRNET	Nonsecure Internet Protocol Router Network
NMCB	Naval Mobile Construction Battalion
NOD	Night Observation Device
NOK	Next Of Kin
NSE	Naval Support Element

NSN	National Stock Number
NSW	Naval Special Warfare
NVG	Night Vision Goggles
1NCD	First Naval Construction Division
OBFS	Offshore Bulk Fuel System
OD	Olive Drab
OEF	Operation ENDURING FREEDOM
OEM	Original Equipment Manufacturer
OIC	Officer In Charge
OICC	Officer In Charge of Construction
OIF	Operation IRAQI FREEDOM
OJT	On-the-Job Training
OOD	Officer Of the Day
OP	Observation Post
OPCON	Operational Control
OPDS	Offshore Petroleum Distribution System
OPLAN	Operational Plan
OPORD	Operational Order
OPREP	Operational Report
OPS	Operations
OPSEC	Operational Security
OPTAR	Operating Target
ORM	Operational Risk Management
ORP	Objective Rally Point
PAO	Public Affairs Officer
PAX	Passengers
PB4T	Planning Board for Training
PDF	Principle Direction of Fire
PERSTAT	Personnel Status Report

PHIBCB	Amphibious Construction Battalion
PL	Phase Line
PLGR	Precision Lightweight GPS Receiver
PLT	Platoon
POD	Port of Debarkation
POE	Port Of Embarkation
POE	Projected Operational Environment
POL	Petroleum, Oils, and Lubricants
POOW	Petty Officer Of the Watch
POS	Position
POW	Prisoner Of War
PPE	Personal Protective Equipment
PPM	Parts Per Million
Prime BEEF	Prime Base Engineer Emergency Force (USAF)
PYRO	Pyrotechnic
QDR	Quality Deficiency Report
QRF	Quick Response Force
R1	Rifleman number one
R2	Rifleman number two
RC	Reserve Component
RCT	Regimental Combat Team
RDD	Required Delivery Date
RED HORSE	Rapid Engineers Deployable Heavy Operations Repair Squadron, Engineers (USAF)
Recon	Reconnaissance
RFF	Request For Forces
RFI	Request For Information
ROC	Required Operational Capabilities
ROE	Rules Of Engagement
ROICC	Resident Officer In Charge of Construction

RORO	Roll-On, Roll-Off
RPM	Rounds Per Minute
RRR	Rapid Runway Repair (Replaced by ADR)
RSO	Range Safety Officer
R/T	Receiver-Transmitter
RT	Rough Terrain
RTB	Return To Base
S1	Administration Officer
S2	Intelligence Officer
S3	Operations Officer
S4	Supply Officer
S6	Communication Officer
S7	Training Officer
SA	Situational Awareness
SAFE	Security, Automatic weapons, Fields of fire, Entrenchment
SALUTE	Size, Activity, Location, Uniform, Time, Equipment
SAR	Search and Rescue
SATCOM	Satellite Communications
SAW	Squad Automatic Weapon
SEA	South East Asia
SEA	Senior Enlisted Advisor
SEABEE	Navy Construction Engineer
SECNAV	Secretary of the Navy
SECNAVINST	Secretary of the Navy Instruction
SELRES	Selected Reserve
SF	Standard Form
SF	Special Forces
SIGINT	Signals Intelligence
SIGSEC	Signal Security

SINCGARS	Single-Channel Ground and Airborne Radio System
SIPRNET	SECRET Internet Protocol Router Network
SITREP	Situational Report
SJA	Staff Judge Advocate
SME	Subject Matter Expert
SMEAC	Situation, Mission, Execution, Administration, and Command and signal
SN	Serial Number
SOF	Special Operations Forces
SOFA	Status Of Forces Agreement
SOP	Standard Operating Procedure
SORTS	Status of Resources and Training System
SPECWAR	Special Warfare
SPOD	Seaport Of Debarkation
SPOE	Seaport of Embarkation
SPOTREP	Spot Report
SRG	Seabee Readiness Group
STANAG	Standardization Agreement (NATO)
STB	Super Tropical Bleach
STU	Secure Telephone Unit
SW	Steelworker
SWBD	Switchboard
TACON	Tactical Control
TBD	To Be Determined
TDN	Tactical Data Network
TM	Technical Manual
TOA	Table Of Allowance
TOC	Tactical Operations Center
TPFDD	Time-Phased Force and Deployment Data
TPI	Two-Person Integrity

TRICON	Triple Container
TTP	Tactics, Techniques, and Procedures
UAV	Unmanned Aerial Vehicle
UCMJ	Uniform Code of Military Justice
UCT	Underwater Construction Team
UIC	Unit Identification Code
UMCC	Unit Movement Control Center
UN	United Nations
UT	Utilitiesman
USACE	United States Army Corps of Engineers
UXO	Unexploded Explosive Ordnance
VBIED	Vehicle-Borne Improvised Explosive Device
VTOL	Vertical Takeoff and Landing
WARNORD	Warning Order
WIA	Wounded In Action
WMD	Weapons of Mass Destruction
XO	Executive Officer

Appendix III

Work/Rest Table

Table III-1 — Work/Rest Cycles and Water Replacement Guidelines

Heat Category	WBGT Index (°F) [1, 2]	Light (Easy) Work		Moderate Work		Hard (Heavy) Work	
		Work/Rest (minutes) [4,5]	Water Intake (qt/hr) [3]	Work/Rest (minutes) [4,5]	Water Intake (qt/hr)[3]	Work/Rest (minutes)	Water Intake (qt/hr)
1	78–81.9	No limit	½	No limit	¾	40/20	¾
2 (Green)	82–84.9	No limit	½	50/10	¾	30/30	1
3 (Yellow)	85–87.9	No limit	¾	40/20	¾	30/30	1
4 (Red)	88–89.9	No limit	¾	30/30	¾	20/40	1
5 (Black)	More than 90	50/10	1	20/40	1	10/50	1

NOTE:

1. Wearing all Mission-Oriented Protective Posture (MOPP) overgarments (MOPP4) adds 10°F to the Wet Bulb Globe Temperature (WBGT) index.
2. If wearing body armor, add 5°F to WBGT in humid climates.
3. Hourly fluid intake should not exceed 1¼ quarts, and daily fluid intake should not exceed 12 liters.
4. Rest means minimal physical activity (sitting or standing), accomplished in the shade if possible. The information pertains to acclimated service personnel.
5. The work/rest time and fluid replacement volumes will sustain performance and hydration for at least 4 hours of work in the specified heat category. Individual water needs will vary ±¼ qt/hr.

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