ATP 3-11.74

CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR PLATOONS

APRIL 2021

Headquarters, Department of the Army

Foreword

As the Chemical Corps enters its second century of service in the United States Army, it must adapt to new threats and overcome 15 years of atrophy of chemical, biological, radiological, and nuclear (CBRN) skills within the Army that were attributed to operations in counterinsurgency. Throughout that time, the Chemical Corps approached the CBRN problem as it had for the past 100 years—avoid, protect, and decontaminate. These three insular capability areas provided a linear approach to detect existing hazards and offered a bypass of CBRN obstacles to enable the safe passage of forces. The approach to the CBRN program remained slow to change, discounting new forms of battle being exercised and conducted by major regional players (Russia, China, Iran, and North Korea). The proliferation of new technologies, to include weapons of mass destruction (WMD) capabilities and materials, will remain a constant during the next 100 years. The Chemical Corps, in conjunction with the Army and joint force, must adapt and prepare for CBRN usage throughout the range of military operations.

The Chemical Corps exists to enable movement and maneuver to conduct large-scale ground combat operations in a CBRN environment. Friendly forces must retain freedom of action and be capable of employing the full breadth of capabilities within complex battlefield conditions, including CBRN environments. The latest addition of FM 3-11 (*Chemical, Biological, Radiological, and Nuclear Operations)* outlines the core functions of Assess, Protect, and Mitigation with the integrating function of Hazard Awareness and Understanding to defeat pacing threats and near-peer adversaries in a contested CBRN environment. ATP 3-11.74 CBRN Platoons is a complementary publication that addresses tactical operations from a CBRN platoon perspective in support of decisive action.

To support large-scale ground combat operations, the Army CBRN Regiment's platoons must be agile and adaptive, capable of employing their full capabilities to enable the Army to win in a complex CBRN environment. It is essential that U.S. CBRN platoons maintain operational readiness and CBRN mastery while supporting freedom of action for maneuver units. CBRN platoons must be integrated throughout tactical formations as a critical enabler to maintain overmatch in contested CBRN environments where adversaries will leverage weapons of mass destruction to establish and maintain a position of relative advantage. ATP 3-11.74 provides a thorough doctrinal approach for CBRN platoons at the tactical level of war to provide options for maneuver commanders. Most importantly, it provides CBRN company and platoon leadership doctrinal guidance to employ offensive and proactive CBRN capabilities to maintain force overmatch against our adversaries.

Our CBRN platoons deserve the very best in agile and adaptive leadership that can support the friendly scheme of maneuver within the complex rigors of CBRN environments. ATP 3-11.74 CBRN Platoons provides CBRN platoon leaders and NCO leadership a doctrinal guideline to assess, protect, and mitigate CBRN threats while ensuring survivability in large-scale ground combat.

DARYL O HOOD
BRIGADIER GENERAL
CBRN COMMANDANT

This publication is available at the Army Publishing Directorate site (http://www.armypubs.army.mil), and the Central Army Registry site (https://atiam.train.army.mil/catalog/dashboard).

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Chemical, Biological, Radiological, and Nuclear Platoons

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Preface

ATP 3-11.74 provides fundamental tactics, techniques, and procedures (TTP) for planning, preparing, and executing platoon operations within chemical, biological, radiological, and nuclear (CBRN) platoon formations. It incorporates current doctrine for large-scale combat operations and provides the doctrinal tools to execute platoon missions.

ATP 3-11.74 provides CBRN platoon leaders and platoon sergeants with a doctrinal reference to assist them in successfully accomplishing any assigned mission. Although focused on the platoon level, this ATP also applies to CBRN detachments and CBRNE response teams (CRT). These units are smaller than a CBRN platoon but the level of their operations are similar to the CBRN platoon. The officers and noncommissioned officers in charge of these elements should refer to the equivalent platoon leader and platoon sergeant responsibilities in this manual.

This publication is designed for use at the tactical level. It applies to active and reserve components and supports command staffs and platoon leadership performing assigned missions and tasks.

Commanders, staffs, and subordinates ensure that their decisions and actions comply with applicable United States, international, and in some cases host-nation laws and regulations. Commanders at all levels ensure that their Soldiers operate in accordance with the law of war and the rules of engagement. (See FM 6-27.)

ATP 3-11.74 uses joint terms where applicable. Selected joint and Army terms and definitions appear in both the glossary and the text. Terms and definitions for which this publication is the proponent publication are bold faced in the text and are marked with an asterisk (*) in the glossary. For other definitions shown in the text, the term is italicized and the number of the proponent publication follows the definition.

ATP 3-11.74 applies to the Active Army, Army National Guard/Army National Guard of the United States, and the Army Reserve unless otherwise stated.

The proponent of ATP 3-11.74 is the United States Army Chemical, Biological, Radiological, and Nuclear School. The preparing agency is the Fielded Force Integration Directorate, Doctrine Division, Maneuver Support Center of Excellence (MSCoE). Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms)* to Commander, FFID, Doctrine Division, MSCoE, ATTN: ATZT-FFD, 14000 MSCoE Loop, Suite 270, Fort Leonard Wood, MO 65473-8929; by e-mail to usarmy.leonardwood.mscoe.mbx.cbrndoc@mail.mil; or submit an electronic DA Form 2028.

Introduction

ATP 3-11.74, CBRN platoons is designed to provide the CBRN platoon leader and platoon sergeant with a readily accessible reference manual aimed at the fundamental and core tasks of CBRN platoon operations.

This publication is to be used as a companion to training and evaluation outlines found on the Army Training Network at https://atn.army.mil/ATNPortalUI/task/PlatoonTaskViewer.

This manual is organized into eight chapters and eight appendixes to provide the necessary tools and information for platoon leaders. A brief description of each chapter and appendix is provided below:

- Chapter 1 describes the role of the CBRN platoon, the roles and responsibilities of platoon leadership and the application of the core principles of assess, protect, and mitigate. It explains the potential impacts of CBRN hazards on the operational environment.
- Chapter 2 describes the principles of mission command and how they are applied at the platoon level. It details the troop leading procedures, considerations for command and support relationships, common types of briefs and reports, and techniques for effective communication.
- Chapter 3 focuses on selected battled drills and their associated techniques and performance steps. It also identifies movement techniques, force protection considerations, coordination for fire support, and types of patrols.
- Chapter 4 addresses sustainment emphasizing platoon maintenance, resupply, and medical support.
- Chapter 5 covers the fundamentals of reconnaissance and surveillance (R&S) focusing on the various types and forms of R&S techniques to include unmanned ground vehicles (UGV) and unmanned aerial systems (UAS).
- Chapter 6 describes the principles and different types of contamination mitigation. It also focuses on decontamination site planning and the planning considerations associated with the different types of contamination mitigation missions.
- Chapter 7 explains the process, and associated planning considerations for conducting CBRN site assessment. It also details the various types of sensitive and hazardous sites and their unique approaches to executing site assessment
- Chapter 8 covers how to conduct sensitive site exploitation and methods for CBRN sample collection and management. It also covers the organizational structure of a tactical site exploitation team and their responsibilities.
- Appendix A provides information for mounted CBRN reconnaissance and surveillance platoon operations. It provides performance steps for locating, surveying, and surveilling CBRN hazards during mounted CBRN reconnaissance and surveillance operations
- Appendix B describes planning considerations for conducting dismounted CBRN reconnaissance and surveillance platoon operations. It provides performance steps for surveying and sampling CBRN hazards during dismounted CBRN reconnaissance platoon operations
- Appendix C explains the capabilities, limitations, and planning considerations associated with hazard assessment platoon operations. It provides performance steps for executing CBRN sensitive site exploitation, aerial CBRN reconnaissance, and toxic industrial chemical reconnaissance missions.
- Appendix D explains the capabilities, limitations, and planning considerations for heavy decontamination platoon operations. It provides performance steps for thorough, operational, technical, aircraft, and terrain decontamination missions.
- Appendix E explains the capabilities, limitations, and planning considerations for chemical, biological, radiological, nuclear, and explosive (CBRNE) response team operations. It provides performance steps for conducting hazard assessment, confined space entry, establishing a personnel decontamination site, and conducting a transload mission.

- Appendix F explains the capabilities, limitations, and planning considerations for special operations CBRN detachments. It provides performance steps for conducting helicopter insertions, waterborne insertions, airborne insertions, escort missions, implementing CBRN protective measures, and casualty recovery in a hot zone.
- Appendix G explains the capabilities, limitations, and planning considerations for BIDS platoon operations. It provides performance steps for identifying biological surveillance sites, conducting biological surveillance, and preparing a biological sample for transport.

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Chapter 1
Role of the CBRN Platoon

The role of the CBRN platoon is to enable and protect supported forces in executing their assigned missions. In large-scale combat operations, CBRN platoons enable the lethality of supported maneuver and special operations forces. There are several types of CBRN platoons, but all platoons execute the core CBRN functions to assess CBRN threats and hazards, to protect the force from these hazards, and to mitigate CBRN hazards. This chapter describes the CBRN platoon role in executing the core CBRN functions, provides an overview of the operational environment (OE), and discusses the duties and responsibilities of key leaders within the platoon.

SECTION I – ASSESS

1-1. Through the assess function, CBRN platoons provide input for staff estimates, locate hazards, and improve hazard awareness and understanding. The execution of reconnaissance and surveillance (R&S) provides supported unit commanders with information, time and space to adjust to the changing situation, and the ability to react to opportunities and allows for transition to future operations. For example, a CBRN R&S platoon provides the commander with an early warning of enemy CBRN activities and enough time and space to react, preserving freedom of maneuver.

1-2. CBRN platoons execute tasks of the assess function to determine threat CBRN capabilities and environmental hazards to provide commanders with situational understanding of CBRN threats and hazards. CBRN platoons make the following contributions to the intelligence preparation of the battlefield (IPB) process:

- Provide CBRN tactical and operational advice and planning recommendations on intelligence, surveillance, and reconnaissance operations through advanced technical instruments and subject matter expertise.
- Integrate with maneuver forces to collect information on CBRN threats and hazards through CBRN R&S.
- Detect, locate, report, and mark hazards to identify the extent of contamination.

SECTION II – PROTECT

1-3. Through tasks of the protect function, CBRN platoons assist maneuver forces in managing the effects of CBRN hazards on personnel, material, and terrain. CBRN platoons contribute by—

- Protecting personnel, equipment, and facilities from CBRN hazards, including toxic industrial materials (TIM) effects, through active and passive measures in the OE.
- Locating, identifying, mitigating, and/or transporting CBRN hazards.

SECTION III – MITIGATE

1-4. CBRN platoons contribute to the mitigate function by providing the expertise and capability to reduce or neutralize the CBRN hazard. CBRN platoons contribute by—

- Providing scalable contamination mitigation support in response to CBRN incidents by maintaining or improving supported units' combat power.
- Supporting countering weapons of mass destruction (CWMD) operations to include defeat, disablement, and/or disposal.

SECTION IV – OPERATIONAL ENVIRONMENT

1-5. The *operational environment* is a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0). Leaders analyze the OE through the operational variables of political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT) and mission variables of mission, enemy, terrain and weather, troops, support available, time available, and civil considerations (METT-TC) to provide an understanding that helps identify current and potential hazards and threats.

1-6. Each area of operations (AO) will have its own unique considerations for potential CBRN threats, either through WMD programs or through hazards to industrial facilities originating from collateral damage. CBRN platoon leaders must understand the potential for CBRN threats or hazards with respect to their specific platoon missions. CBRN threats include CBRN weapons, WMD programs, and industrial facilities that can produce CBRN hazards.

CHEMICAL HAZARDS

1-7. The types of chemical hazards that are of concern to military operations have expanded beyond traditional chemical warfare agents and now include toxic industrial chemicals and nontraditional agents. Although prohibited by the Chemical Weapons Convention, adversaries can potentially employ these hazards to limit the friendly scheme of maneuver. Platoon leaders must understand the employment of platoon capabilities against the existing threat to enable the efforts of maneuver forces.

BIOLOGICAL HAZARDS

1-8. Biological agents may be employed as bacterial agents, viral agents, or toxins that cause disease in personnel, animals, and plants. Although prohibited by the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and Their Destruction (usually referred to as the Biological Weapons Convention), biological hazards can provide advantages to adversaries who employ them. These advantages include clandestine employment, difficulty with detection, and communicability. Platoon leaders must understand platoon capabilities and limitations with regard to biological hazards.

RADIOLOGICAL HAZARDS

1-9. Radiological hazards include any ionizing radiation (such as electromagnetic or particulate radiation) that is capable of producing ions that cause damage, injury, or destruction. Understanding radiological hazards in the OE, including nuclear and radiological weapon development programs and damaged industrial equipment, aids the platoon leader in planning operations in this environment.

NUCLEAR HAZARDS

1-10. Nuclear hazards are produced by the energy released from a nuclear weapon. When detonated, a typical nuclear weapon releases its energy through blast, thermal radiation, nuclear radiation (alpha and beta particles, gamma rays, and neutrons), and electromagnetic pulse. More information on nuclear operations can be found in JP 3-72.

UNIQUE ENVIRONMENT CONSIDERATIONS

1-11. There are several unique environments with specific considerations for CBRN operations. These include cold weather, desert, urban, jungle, and subterranean.

COLD-WEATHER OPERATIONS

1-12. Considerations for cold-weather operations include the following:

- Poor health (such as common colds) can increase susceptibility to biological agents.
- Vectors generally do not survive colder conditions.
- It is difficult to aerosolize live (wet) biological agents; however, dry spores and other dry agents do well.
- Chemical agents may freeze so that they do not present a vapor hazard unless they are moved inside a structure or other area where temperatures are warmer.
- Detectors may not detect chemical or biological agents in extreme cold weather conditions.
- Decontamination systems that use water may be difficult to operate and maintain.
- Weathering may not be an alternative to decontamination.
- Personnel and equipment should be checked for contamination if/when moved indoors or temperatures increase.
- More information can be found in ATP 3-90.97.

DESERT OPERATIONS

1-13. Considerations for desert operations include the following:

- High temperatures, low humidity, and high ultraviolet radiation render live (wet) aerosolized biological agents ineffective.
- Chemical and biological attacks are more likely at night since weather conditions are more favorable.
- Weathering may be an alternative to decontamination.
- More information can be found in FM 90-3.

URBAN OPERATIONS

1-14. Considerations for urban operations include the following:

- Buildings provide protection from chemical and biological hazards.
- Heating, ventilation, and air conditioning systems may provide some protection but may also increase persistency of chemical and biological agents and could be vulnerable to sabotage.
- An increased likelihood of covert sabotage of food and water supplies exists.
- Buildings provide shielding from nuclear effects.
- More information can be found in ATP 3-06.

JUNGLE OPERATIONS

1-15. Considerations for jungle operations include the following:

- The OE creates conditions favorable for the employment of live (wet) pathogen aerosols and wet toxin aerosols.
- Low wind speeds limit downwind hazards.
- Large numbers of rodents and vectors require controls to protect against natural endemic diseases and intentional use by an adversary to spread a biological aerosol.
- More information can be found in ATP 3-90.98.

SUBTERRANEAN ENVIRONMENTS

1-16. Considerations for subterranean environments include the following:

- They may house state-sponsored military structures for CBRN munition storage and production.
- A lack of oxygen or poor air quality may require self-contained breathing apparatuses (SCBAs).
- Stratification of hazardous vapors may occur.
- A limited line of sight will impact effective communications.

- Conditions can change rapidly.
- More information can be found in ATP 3-21.51.

SECTION V – KEY PERSONNEL

1-17. All leaders must be prepared, in case of absence, to assume the duties of the next higher leader and take the initiative to accomplish the mission. Understanding the responsibilities of key personnel within the platoon ensures unity of effort in supporting mission accomplishment. Duties and responsibilities as outlined below serve as a guideline for CBRN platoons; however, there are unique tasks associated with various CBRN platoons. Clear task, purpose, and commander's intent allow each platoon to use disciplined initiative to meet their responsibilities.

COMMON RESPONSIBILITIES

1-18. The following common responsibilities apply to all platoon leaders, regardless of position. Platoon leaders must—

- Understand the capabilities and limitations of personnel and equipment organic and attached to the platoon.
- Understand the mission, capabilities, and limitations of the supported unit.
- Supervise or assist in unit security, including the tasks of selection, construction, and occupation of firing positions and observation posts.
- Actively participate in the military decision-making process, including rehearsals.
- Conduct coaching, teaching, mentoring, and counseling to develop junior leaders.

PLATOON LEADER

1-19. The platoon leader is responsible for all that the platoon does or fails to do, including tactical employment, training, administration, personnel management, and logistics. Successful platoon leaders handle this responsibility by planning, making timely decisions, issuing orders, assigning tasks, and supervising platoon activities.

1-20. The platoon leader must understand the commander's intent two levels up, allowing the platoon leader to exercise disciplined initiative to accomplish the mission in the absence of orders. Platoon leaders ensure that key tasks and information requirements are understood by all subordinates. They backbrief the commander on their plan to accomplish the mission and allot time for squad leaders to plan their scheme of maneuver.

1-21. Assessing and planning are continuous functions of the platoon leader. Assessing the proficiency and effectiveness of training and planning is needed to maintain readiness through personnel turnover and resource constraints. FM 7-0 is an essential resource for more information on battle-focused training.

1-22. During planning, CBRN platoon leaders assist supported commanders in understanding the capabilities of the CBRN platoon and how their CBRN platoons can enable the supported unit's mission. Platoon leaders use parallel planning to issue operation orders (OPORDs), fragmentary orders (FRAGORDs), and warning orders (WARNORDs). They direct and assist the platoon sergeant in planning and executing sustainment operations.

1-23. Platoon leaders conduct troop-leading procedures (TLP) and identify the need for support from other elements, synchronize efforts, and request support in a timely manner. They coordinate with adjacent units and understand those units' missions. Prior to execution, they perform precombat inspections (PCIs) according to their platoon standard operating procedures (SOPs). During execution, platoon leaders position themselves where they can influence the most critical tasks. They use standardized report formats to keep the commander informed and provide guidance to squad leaders to accomplish the mission. Additionally, they collect DA Form 5517s (*Standard Range Card*) from the section and prepare a platoon sector sketch. They direct the development and refinement of the platoon preexecution tasks and make adjustments when required. CBRN platoon leaders must remember that platoon sergeants have vast experience and can recommend solutions.

PLATOON SERGEANT

1-24. The platoon sergeant is the senior noncommissioned officer in the platoon and second in the succession of command. The platoon sergeant provides help and expertise and advises the platoon leader. The platoon sergeants assist platoon leaders by sharing their experience and professional judgement. They form professional and personal bonds with their platoon leaders based on mutual trust and common goals.

1-25. Platoon sergeants lead the platoon in the platoon leader's absence and supervise platoon sustainment tasks, including administration, logistics, and maintenance. Platoon sergeants are critical to training, educating, and developing individuals, crews, teams, and squads. Platoon sergeants—

- Identify individual, crew, and squad tasks that support the platoon collective mission-essential tasks.
- Plan, prepare, and execute training.
- Assess training and conduct after action reviews (AARs) to exchange feedback on platoon/squad/individual proficiency.
- Professionally develop Soldiers and assist in the professional development of the platoon leader.

1-26. The platoon sergeant assists the platoon leader with the development of paragraph 4 (sustainment) of the OPORD. Platoon sergeants understand the commander's intent two levels up.

1-27. The platoon sergeant's primary focus is on directing sustainment activities. The platoon sergeant receives requests from the squad leaders for equipment and supplies, including rations and water (Class I), personal protective equipment (PPE) (Class II), fuel (Class III), ammunition (Class V), medical material (Class VIII), and repair parts (Class IX). Platoon sergeants conduct coordination directly with the first sergeant or executive officer, using standardized report formats for all classes of supply. They develop the scheme of support overlay and distribute it to the platoon.

1-28. Platoon sergeants supervise and direct all medical support, including combat lifesaver personnel and aid and litter teams. They develop and supervise the platoon casualty collection plan and all medical evacuation (MEDEVAC) and casualty evacuation (CASEVAC) plans. They confirm and recommend locations of the casualty collection point (CCP), logistic points, and the maintenance collection point and template these on the scheme of support overlay. The platoon sergeant delegates responsibility to squad leaders to confirm or deny the suitability of all CCPs, logistics, and maintenance points templated on the scheme of support overlay. Additionally, platoon sergeants maintain platoon status of personnel, weapons, and equipment and submit standardized reports to the commander or first sergeant. They ensure that ammunition, supplies, and loads are evenly distributed. They monitor the morale, discipline, and health of the platoon and ensure that the platoon adheres to the platoon leader's timeline.

1-29. The platoon sergeant enforces compliance with platoon and higher-chain-of-command SOPs. The platoon sergeant conducts precombat checks (PCC) and is responsible for the security plan during all operations. The platoon sergeant enforces net discipline amongst the platoon and distributes priorities of work during all phases of operations.

SQUAD LEADER

1-30. Squad leaders are responsible for the combat readiness and tactical employment of their squads. They supervise the health, welfare, and training of Soldiers and the maintenance of vehicles, equipment, and weapons. They help the platoon leader plan squad employment and make relevant recommendations during planning and execution. They prepare a squad sector sketch and a DA Form 5517 (*Standard Range Card*).

1-31. Squad leaders maintain status of personnel, weapons, and equipment and submit standardized reports to the platoon leader or platoon sergeant. They ensure that ammunition, supplies, and loads are evenly distributed. Squad leaders direct maintenance of squad weapons and equipment and perform PCC.

TEAM LEADER

1-32. The team leader assists squad leaders by providing direct oversight and supervision of their teams. Team leaders are the first link in the chain of command and are responsible for the combat readiness and tactical employment of their teams; the health, welfare, and training of Soldiers; and the maintenance of equipment and weapons. Team leaders interpret the platoon leader's intent and guidance and apply that interpretation to directed actions for Soldiers. Team leaders inform the squad leader of preparation status by personally checking the readiness of equipment. For example, they check the levels of vehicle fluids, canteens, and packed rucksacks according to tactical SOPs. The team leader verifies the status of sensitive item and ammunition and prepares the team for PCC and PCI.

1-33. Team leaders delegate tasks to subordinates and supervise subordinate actions. They inform and provide recommendations to the squad leader. They prepare their team for missions and provide direct supervision to ensure all tasks are executed to standard. They prepare a range card for the squad leader.

Chapter 2
Command and Control

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 (JP 1). This chapter describes the implementation of command and control through tools of TLP, planning, graphic control measures, orders, briefings, and communication.

SECTION I – PLATOON MISSION COMMAND

2-1. *Mission command* is the Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation (ADP 6-0).

2-2. CBRN platoon leaders lead in a manner consistent with the following mission command principles:

- Competence.
- Trust.
- Shared understanding.
- Commander's intent.
- Mission orders.
- Initiative.
- Risk acceptance.

2-3. Tactically and technically competent platoon leaders and platoon sergeants are the basis of effective platoon level mission command. Leaders within CBRN platoons must be technically competent in their jobs and those of their subordinates.

2-4. The CBRN platoon leader is responsible for all that the platoon does or fails to do, has authority over all subordinates, and leads Soldiers by personal example. This centralized authority enables him to maintain unit discipline and unity and to act decisively. Platoon leaders knows their Soldiers and how to tactically employ the platoon, its weapons, and its systems. CBRN platoon leaders must place additional emphasis on developing the discipline, competence, trust, and fitness of their platoon to overcome the challenges of elevated protective postures and often degraded communications during operations in hazardous environments. The platoon leader must be prepared to exercise initiative within the company commander's intent and without specific guidance for every situation. Relying on the expertise of the platoon sergeant, the platoon leader regularly consults the company commander on all platoon matters.

2-5. The CBRN platoon leader works to develop and maintain situational understanding. This is a product of four elements. First, the platoon leader attempts to know what is present in the terms of METT-TC. Second, the platoon leader knows what is required for mission accomplishment. Third, the platoon leader determines the critical actions and events required to move the unit from the present to the desired end state. Finally, the platoon leader assesses the risk throughout the process.

RISK MANAGEMENT

2-6. *Risk management* (RM) is the process to identifying and assessing hazards arising from operational factors and making decisions that balance risk cost with mission benefits (JP 3-0). RM is an invaluable tool that provides a standardized process to identify hazards and react to changes within the OE.

2-7. The five steps of RM follow a logical sequence that correlates with the operations process activities (see table 2-1, page 2-3). Steps 1 and 2 of RM have the greatest emphasis on the planning activity. Step 3

begins during the planning activity and continues throughout the preparation activity. Step 4 occurs during the preparation and execution activities, with some continued emphasis on the planning activity. Step 5 occurs during execution activity, with some continued emphasis on the planning activity. The assessment activity of the operations process is continuous. Activities and steps can overlap or be revisited during any operation. For additional information on RM, see ATP 5-19.

CONDUCT RISK MANAGEMENT

2-8. RM typically occurs at the company level and above. However, given the propensity of CBRN platoons to operate independently of the company, it is important that platoon leaders understand how to assess and mitigate risk. The platoon leader can apply the same process that a company commander uses to fulfill responsibilities for conducting RM throughout the operations process by—

- Ensuring that organizational elements are able to perform duties to standard to minimize human error, materiel failure, and environmental effects.
- Ensuring that training assessments consider protection requirements.
- Verifying implementation of long-term, near-term, and short-term controls to improve force protection.
- Ensuring that individuals have the RM training required for their positions and responsibilities.

Note: See the United States Army Combat Readiness/Safety Center website for a list of RM and safety training resources: <https://safety.army.mil/TRAINING-COURSES/Online-Training.>

- Ensuring that subordinates integrate RM into the planning, preparation, execution, and assessment phases of all operations by—
  - Continually evaluating the competence of subordinates and their organizations to make an informed assessment of the degree of trust that leaders should have in their subordinates' ability to execute mission orders in a decentralized fashion at acceptable levels of risk.
  - Fostering a climate that encourages initiative, requires leaders to accept risk, and underwrites the good-faith mistakes of subordinates in training.
  - Allowing subordinates the greatest freedom of action commensurate with the level of acceptable risk in a particular situation.
  - Delegating the management of certain risks to trusted subordinate commanders, who in turn, develop appropriate mitigation measures.
- Establishing the overall risk tolerance within the command.
- Establishing the risk tolerance for each mission—if not already set by the higher command.
- Making risk decisions by approving DD Form 2977 *(Deliberate Risk Assessment Worksheet)* for tasks or missions.
- Selecting, monitoring, and enforcing the implementation of controls for hazards that are likely to result in a loss of combat power.

2-9. To apply the principles of RM, platoon leaders must—

- Integrate RM into all phases of missions and operations.
- Make risk decisions at the appropriate level.
- Accept no unnecessary risk.
- Apply RM cyclically and continuously.

2-10. The platoon leader and subordinates can utilize the five steps of RM. The five steps are described in table 2-1.

Table 2-1. Steps of risk management

Step 1–Identify operational hazards or any condition with the potential to cause injury, illness, or death to personnel or; damage to or loss of equipment/property using the variables of mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC).
Note: When identifying hazards, the platoon leader must consider the moral and ethical risks for each course of action and propose control measures.
• Mission: identify the hazards associated with the complexity of plans and orders. • Enemy: identify enemy presence or capabilities that pose hazards and risks to operations. • Terrain and weather: For terrain: use the factors of observation and fields of fire, avenues of approach, key and decisive terrain, obstacles, and cover and concealment to identify and assess hazards affecting operations. For weather: identify common hazards such as cold, ice, snow, rain, fog, heat, humidity, wind, dust, visibility, and illumination. These can be key to the CBRN platoon leader. Terrain and weather have a large impact on threat hazards, as well as an impact on Soldiers in elevated protective posture. • Troops and support available: For troops available: identify training, staffing, morale, and physical and emotional health. For support available: identify equipment maintenance and condition and the availability of supplies and services.
• Time available: identify the requirements for planning and preparation to develop and implement controls. • Civil considerations: identify risks that pose a threat to the civilian populace and noncombatants in an operational area.
Step 2–Utilize the risk assessment matrix (DD Form 2977 *[Deliberate Risk Assessment Worksheet])* to consider hazards in terms of probability and severity in order to determine risk levels.
• Probability is the likelihood that an event will occur; it is assessed as: Likely (A), Occasional (B), Seldom (C), or Unlikely (D). • Severity (in the context of RM) refers to the expected consequences of an event in terms of injury, property damage, or other mission-impairing factors; it is assessed as: Catastrophic (I), Critical (II), Moderate (III), or Negligible (IV).
• Risk level is a score (based on criteria in the risk assessment matrix) that reflects the odds (probability) of something going wrong and the effect (severity) of the incident when it occurs. Using the risk assessment matrix, platoon leaders apply three substeps in step 2: ▪ Substep 1: Estimate the probability of a harmful event/occurrence from a hazard. ▪ Substep 2: Estimate the expected severity of an event/occurrence. ▪ Substep 3: Determine the level of risk for the estimated probability and severity. The risk level for each identified hazard can expressed as: Extremely High (EH), High (H), Medium (M), or Low (L).
Step 3–Develop controls and make risk decisions using two substeps: • Substep 1 ▪ Develop controls that eliminate the hazard or reduce the risk from a harmful occurrence, typically falling into one of three categories: educational controls, based on the knowledge and skills of units, organizations, or individuals; physical controls, in the form of barriers, guards, or signs to warn that hazards exist; and hazard elimination controls, or positive actions to prevent exposure through substantial reduction or total elimination of the hazard. ▪ Evaluate proposed controls against the effectiveness criteria, which include— o Feasibility: Does the unit possess the capability to implement the control? o Acceptability: Does the benefit gained by implementing the control justify the cost in resources and time? o Suitability: Will the control remove the hazard or reduce the residual risk to an acceptable level (as determined by the responsible individual)? o Support: Are the personnel, equipment, supplies, and facilities necessary to implement the control adequate and available?
Note*:* The assessment of acceptability is largely subjective. Past experience, the commander's guidance, and other external restrictions influence the assessment.

Table 2-1. Steps of risk management (continued)

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Explicitness: Does the control clearly specify who, what, where, when, why, and how each control will be used?
Standards: Are the guidance and procedures for implementing the control clear, practical, and specific?
Training: Do personnel possess adequate knowledge and skills to implement the control?
Leadership: Are Army leaders ready, willing, and able to enforce the standards necessary to implement the control?
The individual: Are individual personnel self-disciplined and capable of implementing the control?

Identify potential controls using data sources such as—

Personal experience.
AARs.
Accident data from automated RM systems.
SOPs.
Regulations.
Previous RM work-sheets for similar operations/events.

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Substep 2–The platoon leader uses RM to evaluate hazards, mitigate risks, weigh the costs versus benefits of an action, and make a sound and informed risk decision based on the established risk tolerance and the potential gain.

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Step 4–Implement controls during the preparation and execution activities of the operations process by—

Determining who will manage and implement controls.
Publishing controls in plans and orders.
Ensuring that controls are included in briefings and rehearsals.
Ensuring that controls are integrated into training.

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Step 5–Supervise and evaluate the controls to ensure that they are implemented and performed to standard. This is accomplished using the following two substeps:

Substep 1–Supervise direct subordinates to ensure they understand how, when, and where to implement controls by—

Monitoring controls.
Verifying implementation.
Ensuring that controls remain in place.
Maintaining situational understanding.
Instilling discipline to avoid complacency.

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Substep 2–Evaluate all phases and activities of operations, including after action reviews (AARs) and other assessments at the end of an operation, supporting the following goals:

Determining if risk levels changed during operations.
Adapting to changes in the situation.
Monitoring the effectiveness of controls through a feedback system that includes—

Briefings.
Lessons learned.
Reports.
Benchmarking.

Making corrections to control implementation.
Improving the application of RM principles in current and future operations.

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Legend:
AAR after action review
METT-TC mission, enemy, terrain and weather, troops, support available, time available, and civil considerations
RM risk management
SOP standard operating procedure
</td></tr>
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SECTION II – TROOP LEADING PROCEDURES

2-11. TLP provide small-unit leaders a framework for planning and preparing for operations. (Refer to FM 6-0 for more information). TLP begin when the leader receives a mission and continue throughout the operations process (plan, prepare, execute, and assess). Figure 2-1 illustrates the operations process. TLP are a sequence of actions that assist leaders in effectively and efficiently using available time to issue orders and execute tactical operations.

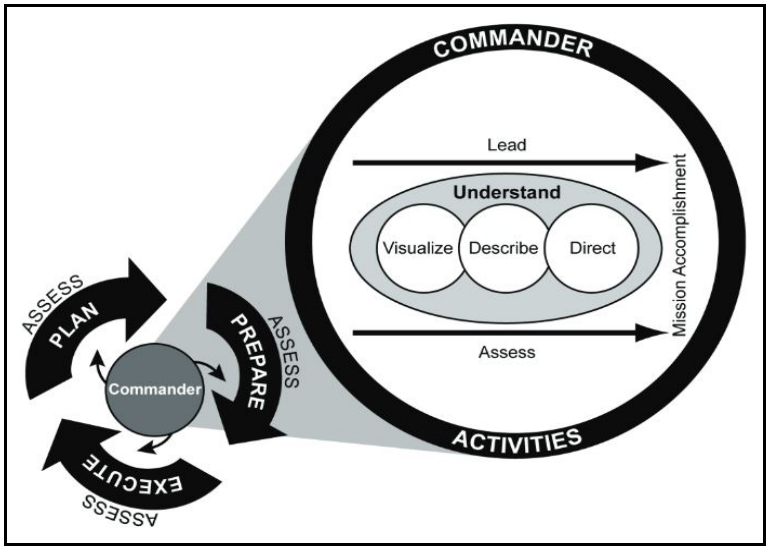


Figure 2-1. The operations process

2-12. TLP are the platoon leader's most effective mission preparation tool. Even if the platoon leader does not have a complete plan, issuing guidance early allows more time for rehearsals, which are essential to any successful operation. The eight steps in TLP are—

- **Step 1.** Receive the mission.
- **Step 2.** Issue the WARNORD.
- **Step 3**. Make a tentative plan.
- **Step 4.** Initiate movement.
- **Step 5.** Conduct reconnaissance.
- **Step 6.** Complete the plan.
- **Step 7.** Issue the order.
- **Step 8.** Supervise and refine.

STEP 1. RECEIVE THE MISSION

2-13. The platoon leader receives the mission from the commander or supported unit. It is the platoon leader's responsibility to have a complete understanding of the mission and commander's intent, including implied tasks that are not explicitly stated. The platoon leader should ask questions when necessary and develop requests for information to gain as much information as possible. Requests for information may not be answered in a timely manner or may not be answered at all, in which case, the platoon leader will operate from assumptions.

2-14. If the situation allows, the platoon leader should be accompanied by the platoon sergeant and section or squad leader when the mission is received. The presence of multiple platoon representatives at the briefing may save time and assist with subordinate leader understanding without the dilution of information. Upon receipt of the mission, the platoon leader must—

- Understand the enemy, friendly, and civilian situation.
- Understand the commander's intent, tasks (key, specific, implied), and desired end state.

- Understand how the platoon plan fits into the higher headquarters plan.
- Know about any attached or supported units and how to coordinate with them.
- Copy all common graphics available, including those involving graphic control measures, scheme of maneuver, support, fires, information collection, air, and enemy situation. A member of the platoon should copy graphics so that the platoon leader has more time to understand and plan the mission.
- Copy the planning and execution timeline. Pay close attention to critical times specified by the higher headquarters.

2-15. The platoon leader conducts a confirmation briefing usually within 20 minutes of receiving the order or as time demands, so that the commander knows that the platoon leader understands the mission, commander's intent, commander's critical information requirements (CCIRs), and the purpose of conducting the mission. The commander may require a confirmation briefing immediately following giving the order. Platoon leaders highlight any shortfalls that they have identified on their initial assessment of the mission. If platoon leaders identify shortfalls, they generate possible solutions to present to the commander.

2-16. The confirmation briefing does not hinder the issuance of the WARNORD to the platoon. The platoon sergeant may issue the WARNORD if the platoon leader is conducting a confirmation briefing.

2-17. While the platoon leader is receiving the mission from the commanding officer, the rest of the platoon members execute tasks to prepare for the mission. Regardless of the platoon mission, completing the required tasks allows increased planning time.

2-18. The platoon sergeant alerts the platoon that the platoon leader is receiving a mission, gathers supply requests from subordinate leaders, and consolidates the sensitive items report (SENITREP). Additionally, the platoon sergeant creates or updates the battle roster, maintains accountability of weapons and equipment, and supervises the cross-loading of supplies.

2-19. Section/squad/team leaders consolidate supply requests, perform PCCs of equipment, submit the SENITREP, improve camouflage, and supervise equipment maintenance. Additionally, the rehearse platoon or company SOP battle drills or tasks that generally do not change and are common to all operations (such as CASEVAC and react to indirect fire). Rehearsals during the rest of the planning process generally center on actions on the objective and critical points in the operation or on the entirety of the operation.

2-20. Dismounts and drivers conduct preventive maintenance checks and services (PMCS) of individual equipment and vehicles; improve individual, equipment, and vehicle camouflage; inventory all equipment and Class I, II, III, V, VIII, and IX supplies; and inform their respective leaders when tasks have been completed.

STEP 2. ISSUE A WARNING ORDER

2-21. A WARNORD is a preliminary notice of an order or action to follow. Though less detailed than a complete OPORD, a WARNORD aids in parallel planning. After the leaders receive new missions and assess the time available for planning, preparing, and executing the mission, they immediately issue WARNORDs to their subordinates. By issuing the initial WARNORDs, they enable subordinates to begin their own planning and preparation (parallel planning) while the leaders begin to develop the OPORDs. When leaders obtain more information, they issue updated WARNORDs.

2-22. The platoon leaders, with the help of platoon sergeants, finish their initial assessment of the situation and available time. They do not wait for more information; they issue the best and most detailed WARNORD possible. The more time that subordinates have to prepare and conduct rehearsals, the better.

2-23. The platoon leader issues the first WARNORD within 30 minutes of the completion of receiving the mission, or as time demands. The minimum information required for a WARNORD is—

- **Situation**.
  - Area of interest.
  - AO.
  - Enemy forces.

  - Toxic hazards.
  - Friendly forces.
  - Interagency, intergovernmental, and nongovernmental organizations.
  - Civil considerations.
  - Attachments and detachments.
- **Mission**.
- **Execution**.
  - Initial commander's intent.
  - Concept of operations.
  - Tasks to subordinate units.
  - Coordinating instructions.
- **Sustainment**.
- **Command Signal**.

2-24. Platoon leaders also add the following to a WARNORD:

- Any directed changes to the task organization.
- Key tasks and desired end state of the mission.
- Specified tasks to subordinates.
- CCIRs.
- A copy of all common graphics available, including those that involve graphic control measures, schemes of maneuver, support, fires, information collection, air, and enemy situation.
- Time and location for rehearsals.
- Refined platoon timeline.
- Time and place of the OPORD brief.

2-25. It is helpful to have a member of each squad designated to copy graphics, allowing leaders more time to plan. The platoon leader issues additional WARNORDs as more information becomes available.

STEP 3. MAKE A TENTATIVE PLAN

2-26. Platoon leaders analyze the mission to gain a better understanding of the situation. Every attempt should be made to obtain any analysis done by higher headquarters and staff before platoon leaders start their own analyses. Regardless of whether higher-level products are available, platoon leaders begin mission analysis using the mission variables of METT-TC. No other useful planning concerning execution proceeds without conducting mission analysis.

2-27. Mission analysis must always be completed prior to initiating movement. Subordinates cannot make simple, flexible plans if they do not understand the enemy. Also, all analysis is subject to change as more intelligence becomes available. Terrain and enemy analyses are constantly updated before, during, and after operations.

2-28. METT-TC analysis provides a way to understand the aspects of the mission and how operations may be affected. It may help to think of METT-TC as a synchronized (sync) matrix throughout operations. Sync matrices (see table 2-2, page 2-8) help the leader understand that they must accomplish their mission in time and with proper terrain analysis.

Table 2-2. Example of a hasty sync matrix

Time	*0900*	*0930*	*1000*	*1030*	*1100*	*1130*	*1200*	*1230*	*1300*
Enemy	Attacking city courthouse				Withdrawal		Consolidate of the vicinity of Hill 431		
Civilians	Running in all directions from courthouse						Medical services in AO		
Higher Headquarters Mission	Phase II: Defense of AO Strike								
Platoon Mission	Phase III: Area Security of City Courthouse					Phase IV: Area Reconnaissance of Hill 431			
Attachments/2x AH-64		En route from BSA		Provincial center		Hill 431	Return to BSA		
Legend: AO area of operations BSA brigade support area									

2-29. METT-TC analysis does not need to occur in a particular order. The order follows the preference of the leader and their experience in analyzing a mission. Some leaders may analyze in the order of terrain, weather, enemy, civil considerations, time, mission and, finally, troops and support available. For the sake of simplicity, descriptions are presented in the order of the standard acronym, METT-TC.

MISSION

2-30. A mission consists of a task and purpose that clearly indicates the action to be taken and reason for the action. In common usage, especially when applied to lower military units, a mission is a duty or task assigned to an individual or unit. The mission is always the primary focus of the leader, and the most basic question is: "What have I been told to do, and why?"

Example mission statement

1/63 Chemical Company conducts CBRN site assessment not later than 281700(Z) AUG 2019 at grid location 375652 to confirm or deny the presence of CBRN hazards.

2-31. Leaders at every echelon must understand the mission, intent, and operational concept one and two levels higher. This understanding makes it possible to exercise disciplined initiative. Leaders capture their understanding of what their units are to accomplish in their revised mission statements. They fully analyze their assigned mission as directed from—

- Higher headquarters (two levels up) mission, intent, and concept.
- Immediate higher headquarters (one level up) mission, intent, and concept.
- Unit purpose.
- Constraints.
- Specified, implied, and essential tasks.
- Restated mission.

ENEMY

2-32. Another mission variable to consider is the enemy. Leaders analyze the enemy's dispositions, compositions, strengths, doctrine, equipment, capabilities, vulnerabilities, and probable courses of action (COAs). The line between enemy combatants and civilian noncombatants is sometimes unclear. This requires the leader to understand the laws of war, the rules of engagement, and the local situation.

2-33. Platoon leaders must understand the enemy's objective and size of formations in their AO down to the squad and team level. Breaking the enemy formations down gives subordinate leaders a better understanding of enemy capabilities and how to address these capabilities in the friendly plan. Successful

enemy analysis allows the platoon leader to visualize when and where to anticipate contact and what form of contact to expect. This allows the CBRN platoon leader to create a plan that synchronizes assets at the time and place of expected contact.

2-34. Analysis of the enemy answers the question, "What is the enemy doing, and why?" Leaders also answer the questions—

- What is the composition and strength of the enemy force?
- What are the capabilities of assigned weapons and other systems? What are the CBRN capabilities?
- What is the location of current and probable enemy positions?

TERRAIN AND WEATHER

2-35. Leaders must thoroughly know and understand how the terrain and weather affect the enemy employment of CBRN hazards in their AO. Overlooking minute details or operating under false assumptions on seemingly unpassable terrain or effects of weather involving streams, fords, and narrow defiles during planning has historically led to disaster. Inadequate reconnaissance and security involving terrain often leads to confusion, misunderstanding of the concept of operation, misplacement of assets, improper tactical dispersion and lack of situational understanding.

Terrain

2-36. When analyzing terrain, leaders consider man-made features and effects on natural terrain features and climate. Leaders also consider the effects of man-made features and natural terrain, in conjunction with the weather, on friendly and enemy operations. In general, terrain and weather do not favor one side over the other unless one side is better prepared to operate in the environment or is more familiar with it. Analysis of terrain answers the question: What is the effect of terrain on the operation? Leaders analyze terrain using the categories of obstacles, avenues of approach, key terrain, observation and fields of fire, and cover and concealment (OAKOC).

2-37. Military aspects of OAKOC terrain categories are used to analyze the ground. The sequence of analysis can vary. Leaders determine the effects of each aspect of terrain on both friendly and enemy forces. These effects translate directly into conclusions applying to friendly or enemy COAs. Terrain and weather are the most important aspects. Output includes at least the following:

- Template of enemy forces and essential weapon systems.
- Position of own assets.
- Understanding of time and space relationships of events, leading to thorough contingency plans.
- Echelon and identification of enemy observation and indirect fires.
- Selection of movement techniques and formations, including a determination of when to transition to tactical maneuver.

Weather

2-38. The five military aspects of weather are visibility, winds, precipitation, cloud cover, and temperature and humidity. As with terrain, it is important to determine how weather affects the mission. Thoroughly understanding the impact of weather on CBRN hazards in favor of the enemy (for example, wind moving toward friendly positions) or in favor of friendly forces (for example, rain or strong winds dissipating CBRN hazards) is vital. Explaining the wind direction and effects on targets or the use of aviation or unmanned aircraft systems helps subordinates understand why weather analysis matters. Gaining general understanding of weather patterns before deployment into an area aids leaders in planning and understanding time requirements during operations. Table 2-3, page 2-10, provides an example matrix of weather effects.

Table 2-3. Example effects of a weather matrix

	Data			*Effects and who they favor*		
Visibility	10 miles			0 percent illumination causes dismounted movement to slow, and Soldiers make more noise because it is difficult to see.		
Wind	Blowing from north to south at 4 miles per hour			Wind will carry CB agents toward friendly forces		
Precipitation	10 percent chance of rain			Rain will wash CB vapors from air but could cause hazards from runoff		
Cloud Cover	No cloud cover			Neither		
Temperature	10 to 37ºF			Inversion conditions will favors employment of CB agents		
Humidity	NA			NA		
Light Data						
Solar/Lunar Data	BMNT 0657	Sun Rise 0749	Moon Rise 0729	Sunset 1949	EENT 2042	Moonset 1909

Legend:
BMNT begin morning nautical twilight
CB chemical/biological
EEMT end of evening nautical
F Fahrenheit
NA not applicable

TROOPS AND SUPPORT AVAILABLE

2-39. Leaders study their task organization to determine the number, type, capabilities, and condition of available friendly troops and other support. Analysis of troops follows the same logic as analysis of the enemy, identifying capabilities, vulnerabilities, and strengths. Leaders should know the disposition, composition, strength, and capabilities of their forces one and two levels down. This information can be maintained in a checkbook style matrix for use during COA development. Leaders maintain an understanding of subordinate readiness, including the status of maintenance, training, strengths and weaknesses, and logistics. Analysis of troops and support answers the question: What assets are available to accomplish the mission? Leaders also answer these questions:

- What are the strengths and weaknesses of subordinate leaders?
- What is the supply status of ammunition, water, fuel (if required), consumables, decontaminants, and other necessary items?
- What is the present physical condition of Soldiers?
- What is the condition of equipment?
- What is the unit training status and experience relative to the mission?
- What additional Soldiers or units will be accompanying the unit?
- What additional assets are required to accomplish the mission?

2-40. Perhaps the most critical aspect of mission analysis is determining the combat potential of one's own force. The platoon leader must realistically and unemotionally determine all available resources and limitations based on the level of training or recent missions. This includes troops who are either attached to, or in direct support of, the unit. It also includes the full array of assets supporting the unit.

TIME AVAILABLE

2-41. Another mission variable of METT-TC is time available. The leader must observe how much time is available and be aware of the time and space aspects of preparing, moving, fighting, and sustaining. Leaders must see their own tasks and enemy actions in relation to time. Most importantly, as events occur, they must adjust the time available and assess its impact on what must be accomplished. Finally, they must

update previous timelines for their subordinates, listing all events that affect higher headquarters, the organization, and subordinate elements that may help to answer the following questions concerning time:

- How does my mission fit into the higher headquarters?
- What times did my commander tell me to have my tasks accomplished?
- What critical times must I have to meet to facilitate the higher headquarters CCIR?
- What does the enemy timeline look like?
- How long will it take for me to move from my current location to being set on the line of departure (LD)?
- How long will I allow myself to plan to facilitate maximum time for rehearsals?

2-42. During all phases, leaders consider critical times, unusable time, the time that it takes to accomplish activities, the time that it takes to move, priorities of work, and the tempo of operations. Other critical conditions to consider include weather data and events such as higher headquarters tasks and required rehearsals. Leader prioritization of events and sequencing of activities are implied in the analysis of time.

CIVIL CONSIDERATIONS

2-43. Civil considerations include the influences of man-made infrastructure, civilian institutions, and activities of civilian leaders, populations, and organizations within an AO with regard to the conduct of military operations. Civil considerations generally focus on the immediate impact of civilians on operations in progress. Civil considerations of the environment can either help or hinder friendly or enemy forces; the difference lies in which leader has taken time to learn the situation and its possible effects on the operation. Analysis of civil considerations answers three critical questions:

- How do civil considerations affect the operation?
- How does the operation affect civilians?
- How do our forces build national will in our AO?

2-44. Higher headquarters provides the leader with civil considerations affecting the mission at the next echelon. Higher headquarters may use the following memory aide (ASCOPE) to analyze and describe these civil considerations are: areas, structures, capabilities, organization, people, and events. (Refer to ATP 2-01.3 for more information.)

STEP 4. INITIATE MOVEMENT

2-45. Leaders initiate the movement necessary to continue mission preparation or to posture the unit to execute the mission. This step can be executed throughout the sequence of the TLP. It can include movement to a target, decontamination site, observation post, or new AO or the movement of guides or quartering parties.

2-46. If the platoon is to initiate movement during the planning process, the initial timeline issued during the WARNORD must reflect that movement. It may be beneficial to have the platoon sergeant control movement during the planning process so that the platoon leader has more time to plan. Section leaders can assist in planning the movement as well.

STEP 5. CONDUCT RECONNAISSANCE

2-47. Leaders should weigh the advantages and disadvantages of physically reconnoitering versus remotely reconnoitering using maps or imagery. CBRN leaders can also employ organic unmanned ground vehicles/unmanned aircraft systems assets to aid in reconnaissance. They realistically consider the dangers of physically reconnoitering, and time required to conduct such reconnaissance. If time and the tactical situation permit, leaders should visually reconnoiter. Factors include the understanding of METT-TC, security, speed, surprise, and support of commander guidance.

2-48. If possible, platoon leaders should include their squad leaders in the reconnaissance. This allows subordinates to observe the terrain and enemy and to gain insight into the platoon leader's concept of operations.

2-49. Leader reconnaissance might include moving to the attack position or LD; reconnaissance of an AO, an exploitation site, positions for point surveillance, or a decontamination site. If possible, leaders should select vantage points with the best possible views of the site. Units can conduct other reconnaissance operations such as surveillance, patrols (to determine enemy locations), and observation to gain additional information.

STEP 6. COMPLETE THE PLAN

2-50. During this step, leaders expand their selected (or refined) COA into a complete OPORD. They prepare overlays, refine actions on-site, complete sustainment and mission command requirements, and update the tentative plan based on the latest reconnaissance or information. They prepare briefing sites and materials that might be needed to present the OPORD directly to their subordinates.

2-51. Using the five-paragraph OPORD format (figure 2-2) helps leaders explain all aspects of the operation: terrain, enemy, higher and adjacent friendly units, unit mission, execution, support, and mission command. The format also serves as a checklist to ensure that all relevant details of the operation are covered. It also provides subordinates with a smooth flow of information from beginning to end.

STEP 7. ISSUE THE ORDER

2-52. The OPORD precisely and concisely explains both the platoon leader's intent and concept of how they expect the unit to accomplish the mission. The order does not contain unnecessary information. The OPORD is delivered quickly and in a manner allowing subordinates to concentrate on understanding the leader's vision—not just copying verbatim what the platoon leader says. The platoon leader must adequately prepare and confidently and quickly deliver the OPORD to build and sustain confidence in subordinates.

2-53. When issuing the OPORD, the platoon leader must ensure that subordinates understand and share the vision of what must be done and when and how it must be done. They must understand how all the platoon elements work together to accomplish the mission. They must also understand how the platoon mission supports the intentions of the immediate higher commander. When the platoon leader has finished issuing the order, subordinate leaders should leave with a clear understanding of what is expected of their elements. The platoon leader is responsible for ensuring that subordinates understand.

2-54. In many respects, it is even more important that the platoon leader issue the order in a manner instilling subordinates with confidence in the plan and a commitment to do their best to achieve it. Whenever possible, the platoon leader must issue the order in person, using a terrain model, map, or graphics. The platoon leader must look into the eyes of subordinate leaders to ensure that each one understands the mission and what their element must achieve.

2-55. Complete the order with a confirmation briefing. At a minimum, each subordinate leader should be able to backbrief concerning the unit mission and intent, the immediate higher commander's intent, their own tasks and purpose, and the time the unit OPORD will be issued. Each subordinate should confirm an understanding of the commander's vision and how the mission will be accomplished with respect to the decisive point. This confirmation briefing provides an opportunity to highlight issues or concerns.

2-56. The five-paragraph OPORD format helps the platoon leader present all aspects of the operation, from the terrain to the enemy, including the unit's own actions, from highest to lowest. The format helps the platoon leader decide what relevant details to include and provides subordinates with a smooth flow of information from beginning to end. At the same time, the platoon leader must ensure that the order is not only clear and complete, but also as brief as possible. If the platoon leader has already adequately addressed an item in a previous WARNORD, the platoon leader can simply state "No change," or provide necessary updates. The platoon leader is free to brief the OPORD in the most effective manner that most effectively conveys information to subordinates.

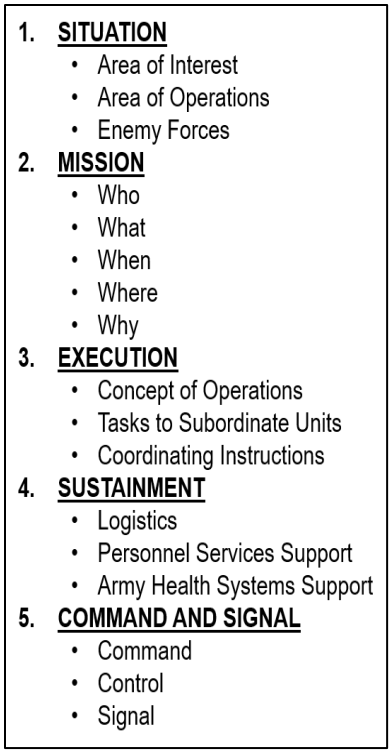


Figure 2-2. OPORD format

STEP 8. SUPERVISE AND REFINE

2-57. This final step of the TLP is crucial. After issuing the OPORD, the platoon leader and subordinate leaders must ensure that the required activities and tasks are completed in a timely manner prior to mission execution. Supervision is the primary responsibility of all leaders. Both officers and noncommissioned officers (NCOs) must check everything required for mission accomplishment. This includes, but is not limited to—

- Conducting numerous briefings on all aspects of the platoon and subordinate unit operations.
- Ensuring that the second in command in each element is prepared to execute in the leader's absence.
- Listening to subordinates' OPORDs.
- Observing rehearsals of subordinate units.
- Checking load plans to ensure that Soldiers carry only what is necessary for the mission or what the OPORD specified.
- Checking the status and serviceability of weapons.
- Checking the maintenance of all required equipment.
- Ensuring that local security is maintained.

REHEARSALS

2-58. Rehearsals are practice sessions conducted to prepare units for an upcoming operation or event. They ensure thorough preparation, coordination, and understanding of the commander's plan and intent. Leaders should never underestimate the value of rehearsals.

2-59. Rehearsals require that leaders and, when time permits, other platoon Soldiers perform required tasks, ideally under conditions as close as possible to those expected for the actual operation. At their best, rehearsals are interactive; participants maneuver their actual vehicles or use vehicle models or simulations while verbalizing their element actions. Every rehearsal allows subordinates to practice the actions called

for in their individual schemes of maneuver. The leader uses well-planned, efficiently run rehearsals to accomplish the following:

- Reinforce training and increase proficiency in critical tasks.
- Reveal weaknesses or problems in the plan, leading to more refinement of the plan or the development of additional branch plans.
- Integrate the actions of subordinate elements.
- Confirm coordination requirements between the platoon and adjacent units.
- Improve each Soldier's understanding of the concept of the operation, the direct fire plan, anticipated contingencies, and possible actions and reactions for various situations that may arise during the operation.
- Ensure that those who are second in command are prepared to execute in the leaders' absence.

2-60. Leaders may use several types of rehearsals, which include—

- Backbriefings.
- Combined arms rehearsals.
- Support rehearsals.
- Battle drills or SOP rehearsals.

BACKBRIEFINGS

2-61. A backbriefing is a briefing by subordinates to the commander to review how the subordinates intend to accomplish their mission. Subordinates normally perform backbriefings throughout preparation. These briefings allow commanders to clarify their intent early in subordinate planning. Commanders use the backbriefing to identify problems in the concept of the operation.

COMBINED ARMS REHEARSALS

2-62. A combined arms rehearsal is a rehearsal in which subordinate units synchronize their plans with each other. A maneuver unit headquarters normally executes a combined arms rehearsal after subordinate units issue their OPORD. This rehearsal type ensures that subordinate commanders' plans achieve the higher commander's intent.

SUPPORT REHEARSALS

2-63. This rehearsal supports the operation so that units can accomplish their missions. These rehearsals involve coordination and procedure drills for aviation, fires, engineer support, decontamination, or CASEVAC. Support rehearsals and combined arms rehearsals complement preparations for the operation. Units may separately conduct rehearsals and combine them into full dress rehearsals.

BATTLE DRILL OR STANDARD OPERATING PROCEDURE REHEARSAL

2-64. A battle drill or SOP rehearsal ensures that all participants understand a technique or a specific set of procedures. Throughout preparation, units and staffs rehearse battle drills and SOPs. These rehearsals do not require a completed order from higher headquarters. Leaders place priority on those drills or actions that they anticipate occurring during the operation. All echelons use these rehearsal types; however, they are most commonly used for platoons, squads, and sections.

METHODS OF REHEARSALS

2-65. Rehearsals should follow the crawl-walk-run training methodology whenever possible. This prepares the platoons and subordinate elements for increasingly difficult conditions. (Refer to FM 6-0 for more information.) Units can conduct these rehearsals if mission variables permit—

- Full-dress rehearsal.
- Reduced-force rehearsal.
- Terrain model rehearsal.

- Digital terrain model rehearsal.
- Sketch map rehearsal.
- Map rehearsal.

FULL-DRESS REHEARSAL

2-66. A full-dress rehearsal produces the most detailed understanding of the operation. It includes every participating Soldier and system. Leaders provide rehearsal for subordinates on terrain similar to that of the AO, initially under good light conditions and then with limited visibility. Small-unit actions are repeated until executed to standard. Full-dress rehearsals help Soldiers clearly understand what commanders expect. It helps them gain confidence in their ability to accomplish the mission. Supporting elements, such as aviation crews, meet and rehearse with Soldiers to synchronize the operation.

REDUCED-FORCE REHEARSAL

2-67. Circumstances may prohibit a rehearsal that includes all members of the unit. A reduced-force rehearsal involves only key leaders of the organization and subordinate units. It normally requires fewer resources than a full-dress rehearsal. Terrain requirements, however, mirror those of a full-dress rehearsal. The commander first decides the appropriate level of leader involvement; then, selected leaders rehearse while traversing actual or similar terrain. Commanders often use a reduced-force rehearsal to prepare key leaders for a full-dress rehearsal. Reduced-force rehearsals may require developing a rehearsal plan that mirrors the actual plan but fits the rehearsal terrain.

TERRAIN MODEL REHEARSAL

2-68. The terrain model rehearsal is the most popular rehearsal technique. It takes less time and fewer resources than a full-dress or reduced-force rehearsal. An accurately constructed terrain model helps subordinate leaders visualize the commander's intent and concept of the operation. When possible, commanders place the terrain model where it overlooks the actual terrain of the AO. However, if the situation requires more security, they place the terrain model on a reverse slope within walking distance of a point overlooking the AO. The model orientation coincides with the terrain. The size of the terrain model can vary from small (using markers to represent units) to large (on which the participants can walk). A large model helps reinforce the participants' perception of unit positions on the terrain.

DIGITAL TERRAIN MODEL REHEARSAL

2-69. With today's digital capabilities, users can construct terrain models in virtual space. Units place high-resolution imagery over elevation data, thereby, creating fly-through or walk-through capabilities. Holographic imagery produces views in three dimensions. The model often hot-links graphics, detailed information and unmanned aircraft systems and ground imagery to key points, providing accurate insight to the plan. Digital terrain models reduce operational security risk because they do not make use of real terrain. The unit geospatial engineers or imagery analysts can assist in digital model creation. Detailed models exist for many world cities.

SKETCH MAP REHEARSAL

2-70. Commanders can use the sketch map rehearsal technique almost anywhere, day or night. The procedures are similar to a terrain model rehearsal, except the commander uses a sketch map in place of a terrain model. Large sketches ensure that all participants can see as they walk through the execution of the operation. Participants move markers on the sketch to represent unit locations and maneuvers. Sketch map rehearsals take less time than terrain-model rehearsals but more time than map rehearsals. Due to the nature of CBRN operations and the fact that they often involve potential CBRN hazards, sketch map rehearsals are frequently used. Site sketches from previous reconnaissance can be used to rehearse actions of assessment or exploitation teams on-site.

MAP REHEARSAL

2-71. A map rehearsal is similar to a sketch map rehearsal, except that the commander uses a map and operation overlay of the same scale used to plan the operation. Map rehearsals consume the most time, but are the easiest to set up since they require only maps and graphics for current operations. Units adjust map rehearsal operation overlays to the echelon conducting the rehearsal. Therefore, it is difficult for multiechelon rehearsals to make use of this technique. This rehearsal can present operational security risks if the area around the rehearsal site is not secured. This technique requires the least terrain of all types of rehearsals. A good site is one that participants can easily find, yet it stays concealed from the enemy. An optimal location overlooks the terrain where the unit will execute the operation.

PRECOMBAT CHECKS AND INSPECTIONS

2-72. PCCs and PCIs are critical to mission success. These checks and inspections are leader tasks and cannot be delegated below the team level. They ensure that the Soldier is prepared to execute the required individual and collective tasks supporting the mission. Checks and inspections are part of the TLPs that protect against shortfalls that endanger Soldiers' lives and jeopardize the execution of a mission.

PRECOMBAT CHECKS

2-73. PCCs are conducted by unit leaders to ensure that the unit can perform its combat mission. The PCC can be either formal or informal, depending on the current operation. The leader must ensure that all mission-essential equipment is present and fully operational. PCCs ensure that the unit has all necessary weapon systems, communications equipment, CBRN protective gear, vehicles, CBRN sensors, consumables, and manuals and any other equipment that is authorized.

2-74. Each vehicle commander should conduct a PCC, with each squad leader conducting spot checks, prior to each mission. The platoon sergeant should supervise the overall precombat preparation of the platoon. Each squad leader should report the status of their squad to the platoon sergeant in sufficient time to allow for any necessary corrective action to be taken.

PRECOMBAT INSPECTIONS

2-75. PCIs, which are more detailed and formal than PCCs, are normally conducted prior to deployment. One way to ensure that PCCs and PCIs are complete and thorough is with full-dress rehearsals. These rehearsals, which are run at combat speed with communication and full battle equipment, allow leaders to envision minute details as they will occur in the AO. If the operation is to be conducted at night, Soldiers should also conduct full-dress rehearsals at night. PCCs and PCIs should include backbriefings on the mission, the task and purpose of the mission, and how the Soldiers' roles fit into the scheme of maneuver. The Soldiers should know the latest intelligence updates and rules of engagement and be versed in medical and casualty evacuation procedures and sustainment requirements.

SECTION III – PLANNING CONSIDERATIONS

2-76. Planning is the process whereby the small-unit leader translates visualization into a specific COA for preparation and execution, focusing on the expected results. Planning to determine the relationship among METT-TC variables begins with the analysis and assessment of the conditions in the OE, with particular emphasis on the enemy. It involves understanding and framing the problem and envisioning the set of conditions representing the desired end state. Based on the higher commander's guidance, the platoon leader's planning includes formulating one or more suitable COAs to accomplish the mission. Planning continues as necessary during preparation and execution. The platoon leader relies on intuitive decision making and direct contact with subordinate leaders to integrate activities when circumstances are not suited for TLP.

2-77. Leaders follow the "one-third/two-thirds" rule to allocate time available for planning and preparation. Leaders use no more than one-third of usable, available planning time. They leave the

remaining two-thirds for their subordinates and for overseeing preparations. CBRN leaders must apply prioritization, focus, and efficiency to meet this goal.

2-78. Time management is essential to mission success. If the CBRN platoon has 9 hours available prior to the start of mission, the platoon leader and platoon sergeant should allow themselves a total of 3 hours to develop their plan, allocate resources, and attend briefings. They should allocate the remaining 6 hours to section and squad leaders. The platoon leader and platoon sergeant should encourage their section leadership to utilize the same planning process, thus, allowing the team level leadership to initiate all equipment checks, maintenance, mission preparation, and rehearsal time.

SECTION IV – COMMAND AND SUPPORT RELATIONSHIPS

2-79. Command relationships define superior and subordinate relationships between units and leaders. Specifying a chain of command unifies efforts and allows leaders the ability to employ subordinate forces with maximum flexibility. CBRN platoons supporting a maneuver element must provide the supported unit with expertise on CBRN operations. The command hierarchy creates command relationships that establish a degree of control for the unit commander by allowing for the formation of trust and an understanding of the capacity of support required.

COMMAND RELATIONSHIPS

2-80. Command relationships rely heavily on reverse mentorship. Whether individual or collective, reverse mentorship offers the primary leader the chance to learn what the secondary has to offer. Similarly, CBRN platoons supporting a maneuver element must provide the maneuver element with expertise on CBRN operations. Types of command relationships are described in table 2-4, page 2-18, and include—

- **Organic.** The CBRN platoon is assigned to—and forms an essential part of—the military organization. Organic units are listed in the higher unit's table of organization and equipment or modified table of organization and equipment.
- **Assigned.** The CBRN platoon remains subordinate to a higher headquarters for an extended period of time, typically for years.
- **Attached.** The CBRN platoon is temporarily subordinate to the gaining headquarters, and the period may be lengthy—often for months or years.
- **Operational control.** This authority allows the gaining commander to task-organize and direct forces. The parent unit retains responsibility for training, maintenance, resupply, and unit level reporting.
- **Tactical control.** This authority allows the gaining commander to direct but not to task-organize forces. The parent unit retains responsibility for training, maintenance, resupply, and unit level reporting.

Table 2-4. Command relationships

If relationship is—	Then inherent responsibilities include—					
	Have command relation-ship with—	***May be task-organized by—***	***Unless modified, ADCON responsibility goes through—***	***Establish/ maintain communications with—***	***Have priorities established by—***	***Can impose on gained unit further command or support relationship of—***
Organic	All organic forces organized with the HQ	Organic HQ	Army HQ specified in organizing document	N/A	Organic HQ	Attached, OPCON, TACON, GS, GSR, R, DS
Assigned	Gaining unit	Gaining HQ	Gaining Army HQ	As required by OPCON	ASCC or Service-assigned HQ	As required by OPCON HQ
Attached	Gaining unit	Gaining unit	Gaining Army HQ	Unit to which attached	Gaining unit	Attached, OPCON, TACON, GS, GSR, R, DS
OPCON	Gaining unit	Parent unit and gaining unit; gaining unit may pass OPCON to lower HQ1	Parent unit	As required by gaining unit and parent unit	Gaining unit	OPCON, TACON, GS, GSR, R, DS
TACON	Gaining unit	Parent unit	Parent unit	As required by gaining unit and parent unit	Gaining unit	TACON, GS, GSR, R, DS

Legend:

ADCON	administrative control	HQ	headquarters
ASCC	Army service component command	OPCON	operational control
DS	direct support	R	reinforcing
GS	general support	TACON	tactical control
GSR	general support–reinforcing		

SUPPORT RELATIONSHIPS

2-81. Supporting and supported units share specific relationships and responsibilities. For example, the assigning headquarters retains logistic support responsibility and the authority to reorganize or reassign all or part of a supporting force. Although support relationships do not usually occur at the platoon level, it is important to understand how they affect the type of support provided or received. (Refer to ADP 3-0 for further information.) The three types of support relationships are—

- **Direct support.** The CBRN platoon provides support to the commander (such as a brigade combat team commander). The platoon is under the command of the supported unit, and is required to report directly to that unit and provide any requested support.
- **Reinforcing support.** In this type of support relationship, a force supports another like unit. For example, a hazard assessment platoon (HAP) may support another HAP. As a secondary mission, it remains responsive for direct support requests.
- **General support**. The CBRN platoon can provide general support to the unit as a whole or to any particular subunit.

SECTION V – ORDERS, BRIEFINGS, AND REPORTS

2-82. Orders, briefings, and reports are tools that the platoon leader uses to communicate information to the platoon, higher headquarters, and supported and adjacent units. Standardized formats for essential orders and reports speed the ability to communicate important information.

ORDERS

2-83. At the platoon level, it is essential for leaders to understand the commander's intent and the purpose of the operation. The commander provides platoon leaders with freedom of action and direction to allow subordinates to execute and accomplish stated objectives. The platoon leader receives the specified tasks and the information collection plan in OPORDs, FRAGORDs, or WARNORDs.

2-84. An OPORD is a directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation. Commanders issue OPORDs to direct the execution of long-term operations and discrete short-term operations within the framework of a long-range OPORD. An example of the proper naming convention for an OPORD is "OPORD 3411 (OPERATION DESERT DRAGON) (UNCLASSIFIED)."

2-85. A FRAGORD is an abbreviated form of an OPORD issued, as needed, after an OPORD to change or modify the original order or to execute a branch or sequel to that order (JP 5-0). FRAGORDs include all five OPORD paragraph headings and differ from OPORDs only in the degree of detail provided. An example of the proper naming convention for a FRAGORD is "FRAGORD 11 to OPORD 3411 (OPERATION DESERT DRAGON) (UNCLASSIFIED)." If a FRAGORD contains an entire annex, then an example of the proper naming convention for the annex would be "Annex A (Task Organization) to FRAGORD 12 to OPORD 3411 (OPERATION DESERT DRAGON) (UNCLASSIFIED)."

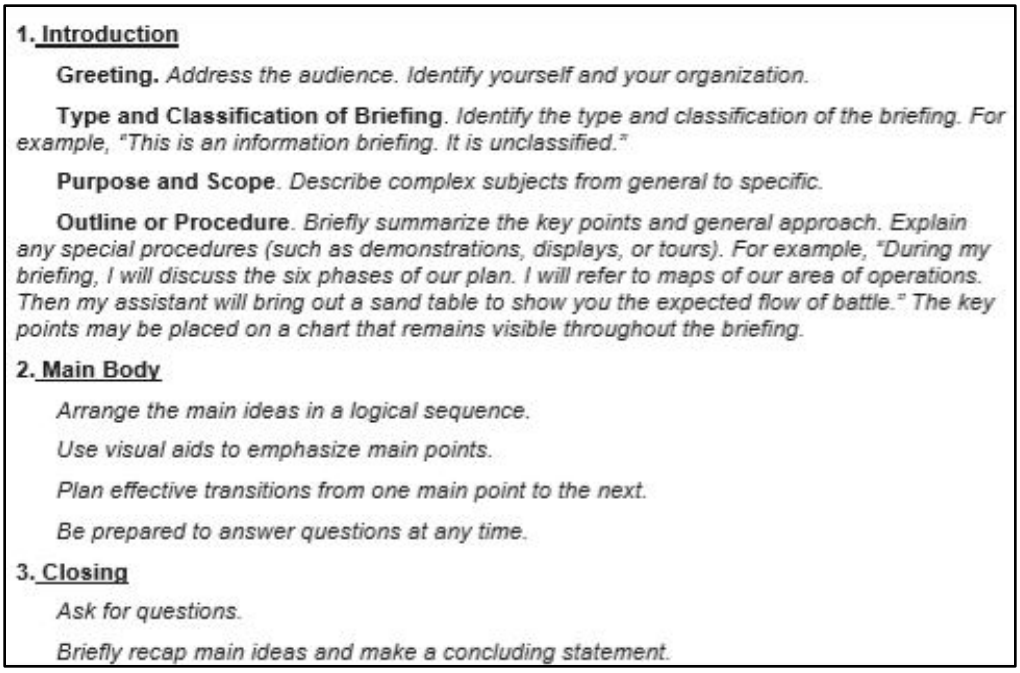
2-86. A WARNORD is a preliminary notice of an order or action that is to follow (JP 5-0). WARNORDs follow the five-paragraph format of OPORDS and help subordinate units and staffs prepare for new missions by describing the situation, providing initial planning guidance, and directing preparation activities. An example of the proper naming convention for WARNORD number 8 is "WARNORD #8."

BRIEFINGS

2-87. The Army uses four types of briefings: information, decision, mission, and staff. Each of these types is described in the following paragraphs.

INFORMATION BRIEFING

2-88. An information briefing presents facts in a form that the audience can easily understand. It does not include conclusions or recommendations, nor does it result in decisions. The main parts of an information briefing are the introduction, main body, and closing (see figure 2-3, page 2-20).


1. Introduction

Greeting. *Address the audience. Identify yourself and your organization.*

Type and Classification of Briefing. *Identify the type and classification of the briefing. For example, "This is an information briefing. It is unclassified."*

Purpose and Scope. *Describe complex subjects from general to specific.*

Outline or Procedure. *Briefly summarize the key points and general approach. Explain any special procedures (such as demonstrations, displays, or tours). For example, "During my briefing, I will discuss the six phases of our plan. I will refer to maps of our area of operations. Then my assistant will bring out a sand table to show you the expected flow of battle." The key points may be placed on a chart that remains visible throughout the briefing.*

2. Main Body

Arrange the main ideas in a logical sequence.

Use visual aids to emphasize main points.

Plan effective transitions from one main point to the next.

Be prepared to answer questions at any time.

3. Closing

Ask for questions.

Briefly recap main ideas and make a concluding statement.

Figure 2-3. Information briefing format example

2-89. Examples of appropriate topics for information briefings include but are not limited to—

- High-priority information requiring immediate attention.
- Information such as complicated plans, systems, statistics, charts, or other items that require detailed explanations.
- Information requiring elaboration and explanation.

DECISION BRIEFINGS

2-90. A decision briefing leads to the answer to a question or a decision on a COA. The briefer presents recommended solutions from the analysis or study of a problem. Decision briefings vary in formality and level of detail, depending on the commander's or decision maker's knowledge of the subject.

2-91. When the decision maker is familiar with the subject, the following elements are included in the decision paper: problem statement, essential background information, impacts, and recommended solution. In addition, briefers must be prepared to present assumptions, facts, alternative solutions, reasons for recommendations, and an explanation of any additional coordination required. If the decision maker is unfamiliar with the problem, the briefing format adheres to the decision briefing format (see figure 2-4). Decision briefings include all facts and assumptions relevant to the problem, a discussion of alternatives, analysis-based conclusions, and an explanation of any coordination required.

1. Introduction

Greeting. *Address the decisionmaker. Identify yourself and your organization. "This is a decision briefing."*

Type and Classification of Briefing. *Identify the type and classification of the briefing. For example, "This is a decision briefing. It is unclassified."*

Problem Statement. *State the problem.*

Recommendation. *State the recommendation.*

2. Main Body

Facts. *Provide an objective presentation of both positive and negative facts bearing upon the problem.*

Assumptions. *Identify necessary assumptions made to bridge any gaps in factual data.*

Solutions. *Discuss the various options that can solve the problem.*

Analysis. *List the screening and evaluation criteria by which the briefer will evaluate how to solve the problem. Discuss relative advantages and disadvantages for each course of action.*

Comparison. *Show how the courses of action compare against each other.*

Conclusion. *Describe why the recommended solution is best.*

3. Closing

Ask for questions.

Briefly recap main ideas and restate the recommendation.

If no decision is provided upon conclusion of the decision briefing, request a decision. "Sir/Ma'am, what is your decision?" The briefer ensures all participants clearly understand the decision and asks for clarification if necessary.

Figure 2-4. Decision briefing format example

2-92. The briefer clearly states, and precisely words, a recommendation presented during decision briefings to prevent ambiguity and to easily translate the recommendation into a decision statement. If the decision requires an implementation document, briefers present that document for the decision maker to sign at the time of the briefing. If the chief of staff or executive officer is absent, the briefer informs the secretary of the general staff—or designated authority—of the decision upon conclusion of the briefing.

MISSION BRIEFINGS

2-93. Mission briefings are information briefings that occur during operations or training. Briefers may be commanders, staff members, or special representatives.

2-94. Mission briefings serve to convey critical mission information that is not provided in the plan or order to individuals or small units. Mission briefings—

- Issuing or enforcing an order.
- Provide more detailed instructions or requirements.
- Instill a general appreciation for the mission.
- Are used to review key points for an operation.
- Ensure that participants know the mission objective, their contribution to the operation, problems they may encounter, and ways to overcome those problems.

REPORTS

2-95. Spot reports (SPOTREPs); situation reports (SITREPs); size, activity, location, unit, time, and equipment (SALUTE) reports; and CBRN reports are used as appropriate, to report incidents or enemy activity. Platoons involved in site assessments or exploitation must tailor reports to the audience receiving

them. While technical information is necessary to be sent to technical reachback, focusing on information that answers CCIRs is important for reports to higher headquarters.

2-96. The platoon provides higher headquarters with accurate and detailed reports using standardized report formats. The platoon leader analyzes the reports to make recommendations to the supported unit in relation to priority information requirements (PIRs) and CCIRs. Platoon leaders should be familiar with any unit-specific reporting requirements that may be specified in the supported unit SOPs. There are a number of types of key reports that every platoon leader must be familiar with, including—

- SALUTE (see table 2-5).

Table 2-5. SALUTE report

Size: Enemy strength, size, or number
Activity: Enemy activity description, including direction and speed (if moving)
Location: UTM or six-digit grid coordinate with MGRS grid zone designator
Unit: Enemy nationality, unit designator, name, or type
Time: DTG of activity
Equipment: Major enemy equipment
Legend: DTG date time group MGRS military grid reference system UTM universal transverse Mercator

- SENITREP (see table 2-6).

Table 2-6. SENITREP

Line 1 Date and time	DTG
Line 2 Unit	Unit making report
Line 3 Status	UNIT GREEN to denote report with no discrepancy; if unit is green, skip to line 10. When discrepancy is noted, report UNIT RED and continue report
Line 4 Losing unit	Unit making loss report
Line 5 Item	Item lost by serial number
Line 6 DTG of loss	DTG of loss
Line 7 Details	Circumstances of loss
Line 8 Action taken	Actions taken to recover the item
Line 9 Narrative	Free text for additional information required for report clarification
Line 10 Authentication	Report authentication
Legend: DTG date time group	

- SITREP (see table 2-7).

Table 2-7. Situation report

Line 1 Date and time	DTG
Line 2 Unit	Unit making report
Line 3 Reported unit	Unit identification code of the reported unit
Line 4 Home location	UTM or six-digit grid coordinate with MGRS grid zone designator for home location of the reported unit
Line 5 Present location	UTM or six-digit grid coordinate with MGRS grid zone designator for the present location of the reported unit
Line 6 Activity	Brief description of reported unit's current activity
Line 7 Effective	Commander's evaluation of the reported unit's combat effectiveness
Line 8 One situation disposition/status	Summary updating changes to reports of, or previously unreported, major combatant and support force locations; significant mission readiness degradation on units, current deployments, or proposed deployments; changes in task force designations; organization of CHOP; and projected requirements for additional forces
Line 9 Situation overview	Brief overall assessment of the situation to include circumstances or conditions that increase or materially detract from the capability and readiness of forces assigned or under operational control of the command or Service
Line 10 Operations	Brief description and results of offensive and defensive operations carried out by major combatant elements during the period of the report; information on allied forces operations; summary of plans for combat operations during the next 24-hours, including objectives and probable enemy reaction; deviations or variations from previously reported intentions or plans
Line 11 Intelligence/ reconnaissance	Brief overview of the situation, including operations, threat characteristics, capabilities, and threat changes; reference: any significant SPIREPs or INTREPs submitted in the previous 24 hours
Line 12 Logistics	Significant deficiencies affecting support for planned operations or problem areas beyond the commander's or Service's capability to overcome or alleviate in a timely manner
Line 13 Communications /connectivity	Significant outages, traffic volume, incompatibilities, and quantitative equipment deficiencies; assessment of the mission impact caused by communication outages and degradations
Line 14 Personnel	Factors affecting readiness of forces or units, mobilization status, daily battle casualties aggregated by Service, and impact of all casualties sustained (battle, nonbattle, critical skills, and key personnel) upon the command's mission capability.
Line 15 POL/MIL/DIP events	Events not reported by OPREP 3 PINNACLE that could result in U.S., local, and international public reaction; results or decisions of key allied or other foreign government meetings; civil unrest indications of civil defense measures contemplated or implemented; large-scale military exercises; events emphasizing interests of key segments of the society
Line 16 Commander's evaluation	Summary of key points from lines 9–15, highlighting areas requiring JCS and NCA actions or decisions; COOP implementation intentions on execution
Line 17 Narrative	Free text for additional information required for report clarification
Line 18 Authentication	Report authentication

Legend:

CHOP	change of operational control procedure
COOP	continuity of operations
DTG	date time group
INTREP	intelligence report
JCS	joint chiefs of staff
MGRS	military grid reference system
NCA	national command authority
OPREP	operational report
SPIREP	significant spot intelligence reports
UTM	universal transverse mercator

- Personnel and logistics reports (see table 2-8).

Table 2-8. Logistics supply request

Line 1 Date and time	DTG
Line 2 Unit	Unit making report
Line 3 Class I	Number of meals or water required before the next scheduled resupply
Line 4 Class III	Type and amount of POL required before the next resupply
Line 5 Class IV	Type and amount of construction material required before the next resupply
Line 6 Class V	Type and amount of ammunition required before the next resupply
Line 7 Maintenance	Number and quantity by line; number of parts and/or equipment required before the next resupply
Line 8 Medical	Number and type of medical equipment or medical support required before the next resupply
Line 9 Other	Number and type of supplies not listed above and required before the next resupply
Line 10 Resupply location	UTM or six-digit grid coordinate with grid zone designator for location of resupply requested
Line 11 Supply status	Status of unit: RED, AMBER, GREEN
Line 12 Narrative	Free text for additional information required for report clarification
Line 13 Authentication	Report authentication
Legend:	
DTG	date time group
POL	petroleum, oils, and lubricants
UTM	universal transverse mercator

- Unexploded ordnance (GTA 09-12-001).
- CBRN reports. (GTA 03-06-008).
- MEDEVAC request (see table 2-9).

Table 2-9. Medical evacuation request

Line 1: Location. Line 2: Radio frequency and call sign. Line 3: Patient category of precedence: Urgent, Priority, Routine. Line 4: Special equipment and emergency medical supplies. Line 5: Number and type of casualties. Line 6: Security of pickup site. Line 7: Signaling and site marking. Line 8: Patient nationality and status. Line 9: CBRN contamination area.

SUSTAINMENT REPORTING

2-97. The resupply of the platoon and the reporting of its status should be according to unit SOP; however, this should not limit the platoon from requesting supplies, as needed. The platoon sergeant submits these reports by voice or digital communications based on the time line in the unit SOP or immediately following enemy contact or a major loss of supplies.

SECTION VI - GRAPHIC CONTROL MEASURES

2-98. Commanders establish control measures to allow decentralized execution. For more information about control measures and their meanings, see FM 1-02.2. Figure 2-5 shows several graphic control measures that platoon leaders should be familiar with. Common graphic control measures for CBRN platoon missions include—

- Assembly area.
- Lines: phase line, battle handover line/reconnaissance handover line.
- Points: checkpoint, linkup point, decontamination point, start point, release point, traffic control point.
- Coordination point.
- Objective.
- Named area of interest.
- Observation post.
- Passage of lines.
- CBRN event or contaminated area.

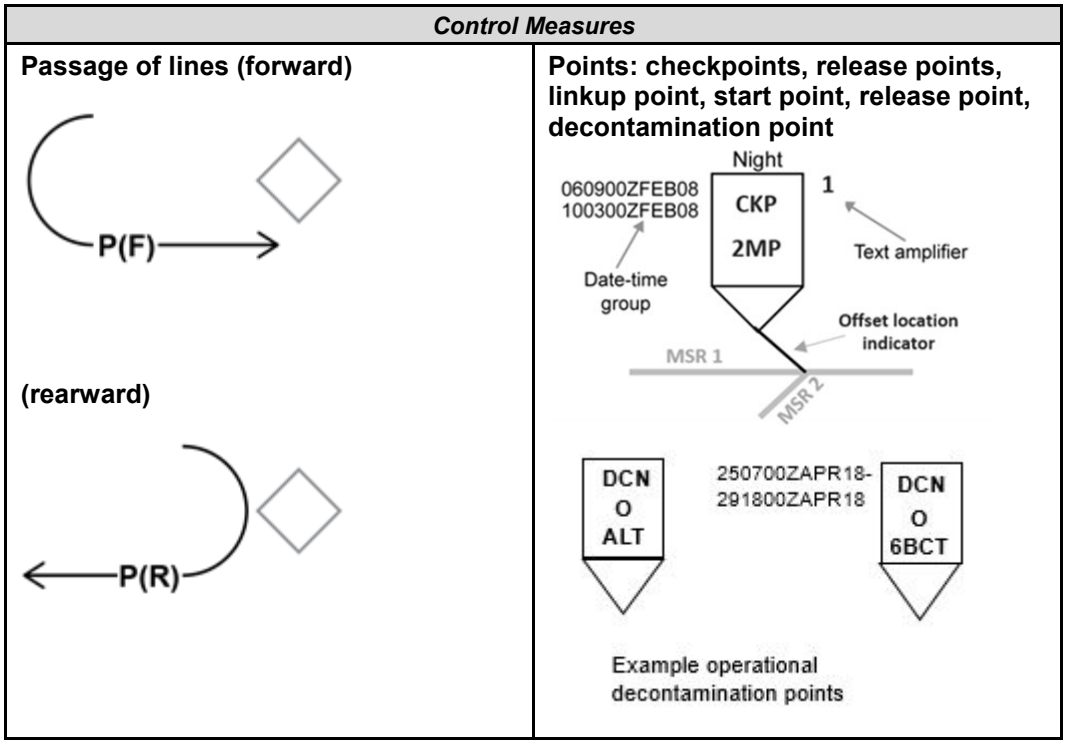
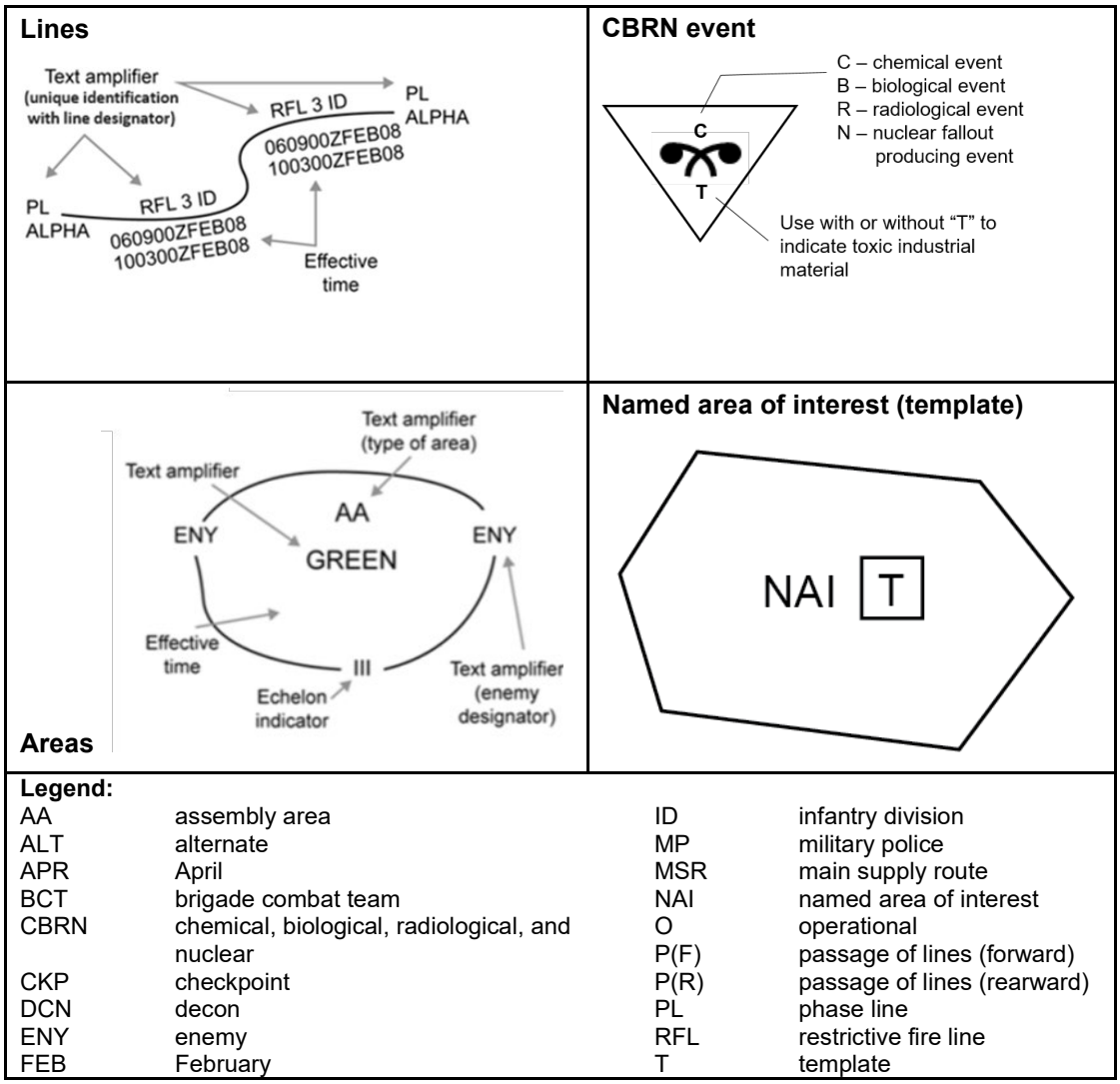


Figure 2-5.Graphic control measures



Legend:

AA	assembly area	ID	infantry division
ALT	alternate	MP	military police
APR	April	MSR	main supply route
BCT	brigade combat team	NAI	named area of interest
CBRN	chemical, biological, radiological, and nuclear	O	operational
		P(F)	passage of lines (forward)
CKP	checkpoint	P(R)	passage of lines (rearward)
DCN	decon	PL	phase line
ENY	enemy	RFL	restrictive fire line
FEB	February	T	template

Figure 2-5. Graphic control measures (continued)

SECTION VII – COMMUNICATIONS

2-99. Effective communications are an essential component for CBRN platoon operations. A CBRN platoon must be able to relay information to the supported command. Because of the extended frontages and distances with which some CBRN platoons may operate, platoons must rely heavily on effective communications techniques. These techniques depend upon the means of communications (such as visual signals, radio, and digital systems) and the proper procedures for use. A CBRN platoon must effectively apply operational terms; radiotelephone procedures; and digital tactics, techniques, and procedures (TTP).

2-100. The platoon leader and platoon sergeant are responsible for ensuring that their Soldiers understand and adhere to the following guidelines, which can contribute to more effective and secure tactical communications. The equipment issued for CBRN platoons may not be compatible with that of supported units, and that difference will present communication challenges that require face-to-face coordination with the supported unit. CBRN platoons may be required to rely on the supported unit's communications infrastructure to transmit data and sensitive information to higher headquarters and functional commands when it exceeds the platoon's organic capability. These challenges should be addressed during mission coordination prior to linkup so that actions on mission are not impeded.

2-101. Each Soldier must be able to use and maintain all communication systems. In particular, they must understand the capabilities and limitations. CBRN Soldiers must understand how to troubleshoot communications equipment whenever they suspect it is not functioning properly. It is also important for them to be able to recognize the differences between malfunctions and jamming or interference.

2-102. All messages sent within or from the platoon must be short and informative. The longer the message, the greater the opportunity for enemy elements to use electronic means to determine the platoon location. Message length can be controlled in the following ways:

- Write down the message and then eliminate all unnecessary words from the message before sending the message.
- Read the message as it is written when sending it.
- Use brevity codes and pro-words, such as "WILCO" meaning, "will comply," reducing the need to explain the tactical picture in detail.
- Break long messages into several parts and send separately.

SECTION VIII – INTEGRATION WITH SUPPORTED UNIT

2-103. There are a number of scenarios in which a CBRN platoon is detached from its parent company and attached to a larger formation in support of a specific operation. How well the platoon is integrated into the overall scheme of maneuver will impact how successfully the CBRN platoon will function.

2-104. The platoon leader must ensure that the supported commander is fully aware of the CBRN capabilities being integrated and must advise the commander on how best to utilize them. A supported maneuver commander may not completely understand the entire range of CBRN platoon capability to assess and mitigate CBRN hazards or realize how the resulting information is integrated into the overall decision-making process.

LINKUP

2-105. A CBRN platoon conducts a linkup to either consolidate forces or to coordinate with a supported unit. Successful linkups depend upon detailed planning and coordination.

SITE SELECTION

2-106. When two units are conducting a linkup, primary and alternate linkup points are designated by the higher headquarters. When the CBRN platoon is conducting an internal linkup, the platoon leader designates the primary and alternate linkup points. Linkup points should be easy to find at night, have cover and concealment, be identifiable by terrain feature, and offer access and escape routes.

RECOGNITION SIGNALS

2-107. Far and near recognition signals are required to keep friendly forces from firing on each other. Radios can be used as far recognition signals, and code word(s) can be used to keep transmissions short. Code words may be developed for indicating the position of the force in relation to the site, occupation status of the site, or state of security of the site. Visual and oral recognition signals are planned and coordinated before departing friendly lines. The following types of signals are used:

- **Signs and countersigns.** Signs and countersigns can consist of a challenge and password or a number combination. For far recognition signals, a sign or countersign could also be an exchange of signals using filtered flashlights, chemical lights, infrared lights, or VS-17 panels.
- **Linkup sites.** Linkup site signals are placed at the exact location of the linkup point. Examples are stones placed in a prearranged pattern, markings on trees, and arrangements of wood and tree limbs. The first force arriving at the linkup site places the sign and then assumes a covered and concealed position to observe it. The next force to arrive at the site identifies the signal and initiates the far recognition signal.

EXECUTION

2-108. Linkups may occur between two forces traveling on different routes or when one forward force has already established a linkup site and is awaiting the arrival of another force. Linkups are normally executed by squads or teams from a larger force.

- Execution of a linkup in which the two forces are trailing begins once the platoons move toward the linkup site. If necessary, platoons can use code words to report their locations. Phase lines and checkpoints are used to control movement.
  - The platoon that establishes the linkup site occupies a rally point nearby.
  - A squad moves to pinpoint the linkup site and secure it.
  - This squad marks the linkup site using the previously coordinated recognition signal and positions itself to observe the site.
  - The moving platoon establishes a rally point close to the linkup site and then sends a squad forward to pinpoint the linkup site.
  - The squad spots the recognition signal and initiates the far recognition signal, which is answered by the squad that is observing the linkup site.
  - The linkup site squad then moves toward the squad that is answering the signal and exchanges near recognition signals.
  - The stationary squad initiates the signal.
  - Once these squads coordinate, the squad arriving at the linkup site returns to the rally point and guides the platoon to the linkup site.
  - The squad that is establishing the linkup then guides the platoon to the rally point.
  - The platoon leader then integrates the platoon into the perimeter.
- At linkups in which one platoon is moving, the—
  - Leaders of both platoons coordinate with their respective higher headquarters for the linkup location, call signs, frequencies, codes words, far and near signals, and control measures.
  - Stationary platoon establishes a rally point and sends a squad to secure and mark the linkup point.
  - Moving platoon moves toward the linkup point and establishes a rally point.

Chapter 3

Platoon Operations

In order to win in battle, a platoon must be able to move effectively and react to threats throughout the battlefield. This chapter focuses on basic movement techniques and battle drills that are fundamental to platoon operations.

SECTION I – BATTLE DRILLS

3-1. Battle drills are the standard procedures that help the platoon take immediate action. Rehearsing mounted and dismounted battle drills and SOPs ensures that all participants understand a technique or specific set of procedures. Because of the unique nature of the CBRN platoon mission, consideration must be taken to the condition that battle drills are rehearsed (such as increased protective posture) to ensure proficiency.

3-2. Each CBRN platoon should develop crew drills that are similar to battle drills but are specific to its mission, such as decontamination drills or movement drills for reconnaissance. The basis for these drills can be taken from the United States Army CBRN School CBRN Platoon Leaders Guide and training outlines available on the Army Training Network or Central Army Registry.

3-3. Battle drills are initiated on a cue—such as an enemy action or leader order—and are a trained response. They require minimal leader orders and are vital to success in combat and critical to the preservation of life. Standard battle drills require that platoons—

- React to contact (visual, improvised explosive device, direct fire).
- React to indirect fire.
- Break contact.
- React to an ambush—near.
- Evacuate a casualty (dismounted and mounted).
- Dismount a wheeled vehicle while under direct fire.
- React to a vehicle rollover.
- Enter and clear a room.

REACT TO CONTACT

3-4. Platoons react to contact when they receive direct fire from an enemy individual or crew-served weapons. Vehicles move out of the engagement zone. Table 3-1, page 3-2, shows the steps of reacting to contact.

Table 3-1. React to contact

1. The element in contact immediately returns well-aimed fire on known enemy position(s).
2. Soldiers and vehicles assume the nearest covered and concealed position. Mounted Soldiers dismount the vehicle, provide local security, and add suppressive fire against the enemy position.
3. Element leaders control Soldiers fire by using standard fire commands (initial and supplemental) containing the following components— a. Alert. b. Weapon or ammunition (optional). c. Description of target. d. Direction. e. Range. f. Method of fire (manipulation, rate of fire). g. Control (optional). h. Execution. i. Termination.
4. Soldiers and vehicle commanders maintain contact (visual or oral) with the leader, other Soldiers, and vehicles on their left and right.
5. Soldiers maintain contact with their team leaders and report the location of enemy positions
6. Leaders check the status of their personnel.
7. The team/squad leaders maintain contact with the squad/platoon leader.
8. The squad/platoon leader— a. Moves up to the team/squad leader in contact and links up with its leader. This is to assess the situation and to determine the next plan of action. The platoon leader should make sure that they have good communication with the radio operator and the squad leader of the nearest squad. The squad leader of the trailing squad moves to the front of their lead team. The platoon sergeant also moves forward and links up with the platoon leader, ready to assume control of the base-of-fire element. b. Determines whether or not the squad/platoon must move out of the engagement area. c. Determines whether or not suppressive fires can be gained and maintained with the element already in contact (based on the volume and accuracy of enemy fire against the element in contact). d. Assesses the following elements of the situation— • The location of the enemy position and obstacles. • The size of the enemy force. (The number of enemy automatic weapons, the presence of any vehicles, and the use of indirect fire are indicators of the enemy's strength.) • Vulnerable flanks. • Covered and concealed flanking routes to the enemy position. e. Determines the next course of action (such as, fire and movement, assault, breach, knock-out bunker, entrance/clearance of a building or trench). f. Reports the situation to the company commander and begins maneuver. g. Calls for and adjusts indirect fire (mortars or artillery). (Squad leaders relay requests through the platoon leader.)
9. Leaders relay all commands and signals from the platoon chain of command.

REACT TO INDIRECT FIRE

3-5. Reaction to indirect fire is conducted by either mounted or dismounted troops to avoid indirect fire. Table 3-2 shows the steps of reacting to indirect fire.

Table 3-2. React to indirect fire

1. Dismounted. Unit personnel take the following actions: a. Any Soldier announces INCOMING. b. Soldiers immediately assume the prone position or move to immediate available cover during initial impacts. c. The leader orders the unit to move to a rally point by giving a direction and distance. d. Soldiers rapidly move to the direction and distance of the designated rally point after the impacts. e. Unit leaders report the contact to higher headquarters
2. Mounted. Unit personnel take the following actions: a. Any Soldier announces INCOMING. b. Vehicle commanders repeat the alert over the radio. c. Leaders give the direction and linkup location over the radio. d. Soldiers close all hatches—if applicable to the vehicle type—and gunners stay below turret shields or enter the vehicle. e. Drivers rapidly move out of the impact area in the direction ordered by the leader. f. Unit leaders report the contact to higher headquarters.

BREAK CONTACT

3-6. Contact is broken when a determination is made to break contact with the enemy following direct fire contact. Table 3-3 shows the steps for breaking contact.

Table 3-3. Break contact

1. The unit leader directs an element to suppress the enemy.
2. The unit leader directs the vehicles to support the disengagement of the dismounted element. If the vehicles cannot support the disengagement of the dismounted element, the platoon leader directs one squad or team to provide suppressing fire to support the disengagement of the remainder of the element.
3. The unit leader orders a distance and direction, terrain feature, or last rally point of the movement of the element in contact.
4. The unit leader employs indirect fire to suppress enemy position(s).
5. The bounding element moves to occupy the overwatch position, employs smoke (using M203, grenade launchers, indirect fire, or other options) to screen movement. If necessary, it employs fragmentation and concussion grenades to facilitate breaking contact.
6. The base-of-fire element continues to suppress the enemy.
7. The moving element occupies its overwatch position and engages enemy position(s).
8. The unit leader directs the base-of-fire element to move to its next covered and concealed position. Based on the terrain and the volume and accuracy of the enemy's fire, the moving element may need to use fire and movement techniques.
9. The unit continues to bound away from the enemy until— a. It breaks contact. (The unit must continue to suppress the enemy as it breaks contact.) b. It passes through a higher-level support-by-fire position. c. Its elements are in the assigned positions to conduct the next mission. ***Note*:** For a mounted element, the platoon leader directs the vehicles to move to a rally point and link up with the dismounted element.
10. The leader should consider changing the unit's direction of movement once contact is broken. This reduces the ability of the enemy to place effective indirect fire on the unit.
11. Elements and Soldiers that become disrupted stay together and move to the last designated rally point.
12. Unit leaders account for Soldiers, report the situation to higher leadership, reorganize as necessary, and continue the mission.

REACT TO AN AMBUSH—NEAR

3-7. Reaction to an ambush—near is initiated in response to enemy-initiated contact with direct fire within range of hand grenades and all or part of the unit is receiving accurate direct fire. Table 3-4 shows the steps for reacting to an ambush—near.

Table 3-4. React to an ambush—near

1. Dismounted units take the following actions: a. Soldiers in the kill zone execute on of the following actions: (1) Return fire immediately. If cover is not available, immediately—without order or signal—assault through the kill zone. (2) Return fire immediately. If cover is not available—without order or signal—occupy the nearest covered position and throw smoke grenades. b. Soldiers in the kill zone assault through the ambush using fire and movement. c. Soldiers not in the kill zone identify the enemy location, place “well-aimed” suppressive fire on the enemy position, and shift fire as Soldiers assault the objective. d. Soldiers assault through and destroy the enemy position. e. The unit leader reports the contact to higher headquarters.
2. Mounted units take the following actions: a. Vehicle gunners in the kill zone immediately return fire and deploy vehicle smoke while moving out of the kill zone. b. Soldiers in disabled vehicles in the kill zone immediately obscure themselves from the enemy with smoke, dismount if possible, seek covered positions, and return fire. c. Vehicle gunners and Soldiers outside of the kill zone identify the enemy positions, place "well-aimed" suppressive fire on the enemy, and shift fire as Soldiers assault the objective. d. The unit leader calls for and adjusts indirect fire and requests close air support according to METT-TC. e. Soldiers in the kill zone assault through the ambush and destroy the enemy. f. The unit leader reports the contact to higher headquarters.
Legend: METT-TC mission, enemy, terrain and weather, troops, support available, time available, and civil considerations

EVACUATE A CASUALTY (DISMOUNTED AND MOUNTED)

3-8. When combat begins and casualties occur, the platoon must first provide care to those who have been wounded in action (WIA). To do so, platoon members administer first aid (self-aid and buddy aid), enhanced first aid (by the combat lifesaver), and emergency medical treatment (EMT) (by the platoon combat medic).

3-9. The platoon sergeant and squad leaders arrange for evacuation of WIAs to the company CCP. The company sets up the CCP in a covered and concealed location to the rear of the platoons. Separate collection points and evacuation vehicles should be established for CBRN-contaminated casualties. At the company CCP, the senior medic triages all casualties, provides EMT, and coordinates the evacuation of patients requiring additional treatment to the servicing medical treatment facility (MTF) at the battalion aid station (BAS).

3-10. Before casualties are evacuated to the company CCP or beyond, decontamination of gross CBRN contamination (if present) is conducted. Leaders (platoon leader/ platoon sergeant/squad leader) remove all key operational items and equipment, including maps, position location devices, and laser pointers. Procedures for handling the weapons and ammunition of platoon members who are WIA are documented in the unit SOP.

3-11. When air ambulance evacuation is not necessary—or is not available—the following options for transporting WIAs are available to senior combat medic:

- Senior combat medics can coordinate transportation of the casualties to the BAS. They turn the WIAs over to the medical team at the BAS, obtain any needed medical supplies, and return to the supported company location.
- If available, ambulances can be used to evacuate casualties. Ambulances can be task-organized as needed. The supporting ambulance evacuates WIAs to the BAS and then returns to the company location.

3-12. Soldiers evacuated to the MTF in the BSA receive medical treatment. Afterward, they are returned to duty or are evacuated for further treatment. Responsibility for further evacuation from the BAS is the mission of the brigade support medical company ground ambulance or supporting air ambulance crews,

3-13. Evacuate a casualty (dismounted or mounted) is essential for expediting the movement of casualties to receive medical care. Casualty evacuation is often the first step in a process used to move a wounded Soldier from the point of becoming wounded into a multifaceted Army health system. Casualty evacuation can be accomplished by different transportation platforms. Soldiers must be trained and must practice these methods, which include manual carries, litter evacuation, and the use of nonmedical vehicles. Table 3-5 shows the steps evacuating casualties.

Table 3-5. Evacuating casualties

1. The platoon gains and maintains situational understanding using available communications equipment, maps, intelligence summaries, situation reports, and other available information sources.
2. The platoon sergeant plans for tactical evacuation of casualties from the battlefield and— a. Receives the location of the company CCP. b. Identifies the location of the air ambulance pickup site, if required. c. Identifies the location of the vehicle pickup site. d. Identifies the use of standard or nonstandard vehicles. e. Identifies the primary and alternate routes for evacuation back to the company CCP.
3. The platoon sergeant prepares to evacuate casualties by— a. Identifying all casualties requiring evacuation and reporting the following information to higher echelons: (1) Identification of casualties requiring medical evacuation. (2) Identification of all casualties requiring casualty evacuation. b. Checking each casualty for a DA Form 1156 (*Casualty Feeder Card)* and a DD Form 1380 (*Tactical Combat Casualty Care [TCCC] Card).* c. Disseminating the following evacuation information to unit personnel: (1) Verification that all drivers know the primary and alternate routes. (2) Identification of any combat lifesavers who will travel with casualties. d. Selecting the landing site, which provides sufficient space and terrain for helicopter hover, landing, and takeoff (if available). ***Note*:** Air evacuation should only be used if the casualty's injuries require air evacuation, the tactical situation permits, and all other medical evacuation assets are unavailable.
4. The platoon prepares casualties for evacuation by— a. Continuing to provide first aid. b. Removing and safeguarding all equipment and issue items according to unit SOP. c. Preparing litters for use.
5. The medic or combat lifesaver continues to provide tactical field care until casualties are evacuated or returned to duty.
6. The platoon sergeant monitors casualty evacuation procedures and ensures that all casualties are evacuated by— a. Directing the evacuation of casualties, with the recommendation of the medic, based on medical priorities. b. Directing the casualty evacuation to the company CCP as soon as the situation allows. c. Consolidating and forwarding the platoon casualty reports. d. Supervising the loading of all casualties onto all vehicles.

Table 3-5. Evacuating casualties (continued)

7. The platoon conducts CASEVAC or MEDEVAC of all platoon casualties by— a. Using manual carries: (1) Selecting an appropriate way to carry the casualty—one-man or two-man carry (2) Evacuating the casualty without causing further injury. b. Using litter carries: (1) Using available litter or constructing an improvised litter from available material, as required. (2) Securing the casualty to the litter. (3) Evacuating the casualty without causing further injury. c. Using vehicles: (1) Using available litter or constructing an improvised litter from available material, as required. (2) Securing the casualty to the litter. (3) Loading casualties onto the vehicle according to the unit SOP. (4) Securing casualties in the vehicle. (5) Evacuating the casualty without causing further injury. d. Requesting MEDEVAC using the nine-line MEDEVAC request, if necessary. ***Note*:** Air evacuation should only be used if the casualty's injuries require air evacuation, the tactical situation permits, and all other MEDEVAC assets are unavailable. (1) Determining and sending the grid coordinates for the pickup site. (2) Obtaining and sending the radio frequency, call sign, and suffix. (3) Obtaining and sending the number of patients and precedence. (4) Determining and sending the type of special equipment required. (5) Determining and sending the number and type (litter or ambulatory) of patients. (6) Determining the security of the pickup site. (7) Determining and sending how the pickup site will be marked. (8) Determining and sending the patient's nationality and status. (9) Obtaining and sending CBRN contamination information—only if any CBRN exists.
8. The platoon sergeant supervises the aeromedical evacuation as follows: a. Maintains communication with the helicopter. b. Supervises the security and clearance of the landing site according to the unit SOP. c. Supervises removal of all dangerous objects that are likely to be blown about by the arrival of the aircraft. d. Ensures that the landing zone is appropriately marked (light sets, smoke) according to the SOP, if required.
9. The platoon evacuates casualties using air ambulances: a. Secures the casualty to the litter. b. Employs proper carrying and loading techniques. c. Loads casualties in the sequence directed by the air crew. d. Evacuates casualties without causing further injury.
10. The platoon evacuates KIA casualties separate from WIA casualties as follows: a. The platoon does not transport KIA casualties in the same vehicle as WIA casualties. b. The platoon sergeant turns KIA casualties over to the unit first sergeant.
11. The medic assesses the evacuation of casualties to include— a. Submitting requests for medical resupply, as required. b. Assisting combat lifesavers in resupplying combat lifesaver bags.
12. The platoon sergeant assesses operations for providing tactical evacuation as follows: a. Continues to improve the medical support plan as the situation changes. b. Reports the status of casualties and continues operations as directed.
13. The platoon leader reports the status and continues operations according to the OPORD and direction from higher headquarters.

Table 3-5. Evacuating casualties (continued)

Legend:	
CASEVAC	casualty evacuation
CBRN	chemical, biological, radiological, and nuclear
CCP	casualty collection point
KIA	killed in action
MEDEVAC	medical evacuation
OPORD	operations order
SOP	standard operating procedure
WIA	wounded in action

DISMOUNT A WHEELED VEHICLE WHILE UNDER DIRECT FIRE

3-14. A wheeled vehicle under direct fire is dismounted when the platoon receives intense fire as part of a threat ambush and is forced to stop. Table 3-6 shows the steps to dismount a vehicle while under direct fire.

Table 3-6. Dismount a vehicle while under direct fire

1. Dismount the vehicle while under enemy—attack driver side. a. The driver will— (1) Stop the vehicle and leave the vehicle running. (2) Unfasten the seat belt. (3) Shout to the assistant driver for a weapon and secure the weapon. (4) Place the weapon on fire and place suppressive fire on the enemy position while the assistant driver dismounts the vehicle. (5) Maintain communication with the assistant driver using voice communication or hand and arm signals. b. The assistant driver will— (1) Immediately provide the driver with a weapon. (2) Throw smoke grenade to mask the position. (3) Secure the weapon, open the door, and immediately dismount vehicle while at port arms. (4) Use the appropriate maneuver techniques to reach to the front or rear of the vehicle. (5) Assume a good firing position. (6) Place the weapon on fire and place suppressive fire on the enemy position. (7) Communicate to the driver once the assistant driver is in position: DISMOUNT; I'VE GOT YOU COVERED. (8) Continue to place suppressive fire on the enemy position while the driver dismounts the vehicle. (9) Maintain communication with the driver using voice communication or hand and arm signals. c. The driver will— (1) Shout to the assistant driver: COVER ME. (2) Maintain a low profile and exit the vehicle from the assistant driver side. (3) Dismount the vehicle and use the appropriate maneuver techniques to reach the front or rear of the vehicle. (4) Assume a good firing position, place the weapon on fire, and place suppressive fire on the enemy position. (5) Maintain communication with the assistant driver using voice communication or hand and arm signals.
2. Dismount the vehicle while under enemy attack—assistant driver side. a. The assistant driver will— (1) Place suppressive fire on the enemy position while the driver dismounts the vehicle and assumes a good firing position. (2) Shout to the driver once they communicate that they are in position: COVER ME. (3) Maintain a low profile and exit the vehicle from the driver side. (4) Use the appropriate movement techniques to move to the front or rear of the vehicle. (5) Assume a good firing position to the front or rear of the vehicle. (6) Place the weapon on fire and place suppressive fire on the enemy position.

Table 3-6. Dismount a vehicle while under direct fire (continued)

(7) Maintain communication with the driver using voice communication or hand and arm signals. b. The driver will— (1) Stop the vehicle and leave the vehicle running. (2) Unfasten the seat belt. (3) Secure the weapon, open the door, and immediately dismount vehicle while at port arms. (4) Use the appropriate maneuver techniques to reach the front or rear of the vehicle (5) Assume a good firing position to the front or rear of vehicle. (6) Place the weapon on fire and place suppressive fire on the enemy position. (7) Communicate to the assistant driver once they are in position: DISMOUNT; I'VE GOT YOU COVERED. (8) Maintain communication with the assistant driver using voice communication or hand and arm signals.
3. Dismount a vehicle while under enemy attack—both sides. a. The driver will— (1) Stop the vehicle and leave the vehicle running. (2) Unfasten the seat belt. (3) Secure the weapon, open the door while maintaining a low profile, and immediately dismount the vehicle at port arms. (4) Drop to the ground and roll left or right while placing the weapon in the pocket of the firing shoulder; assume a good prone firing position. (5) Place the weapon on fire and place suppressive fire on the enemy position. (6) Maintain communication with the assistant driver using voice communication or hand and arm signals. b. The assistant driver will— (1) Secure the weapon, open the door while maintaining a low profile, and immediately dismount the vehicle at port arms. (2) Drop to the ground and roll left or right while placing the weapon in the pocket of the firing shoulder; assume a good prone firing position. (3) Place the weapon on fire and place suppressive fire on the enemy position. (4) Maintain communication with the driver using voice communication or hand and arm signals.

REACT TO A VEHICLE ROLLOVER

3-15. Reaction to a vehicle rollover is important whether in training or in combat. Given the high center of gravity of the various types of combat vehicles and the increased likelihood of a vehicle rollover, understanding how to properly react will help save lives. Table 3-7 shows the steps for reacting to a vehicle rollover.

Table 3-7. React to a vehicle rollover

1. A team member yells ROLLOVER, ROLLOVER, ROLLOVER.
2. The driver performs the following rollover procedures: a. Repeats ROLLOVER, ROLLOVER, ROLLOVER while releasing the accelerator. b. Shuts down the engine (if time permits). ***Note:*** If in an ASV, the driver pulls the engine stop T-handle. c. Extends arms on the steering wheel without locking elbows and tucks chin to chest to brace for impact.
3. The gunner performs the following rollover procedures: a. Repeats ROLLOVER, ROLLOVER, ROLLOVER. b. Drops down from the hatch into the vehicle. c. Braces against the seat or holds onto a stationary object and tucks chin to chest to brace for impact. ***Note:*** If in an ASV, the gunner grabs onto the M36 night scope without locking elbows, tucks chin to chest, and braces for impact.

Table 3-7. React to a vehicle rollover (continued)

4. The team leader performs the following rollover procedures: a. Repeats ROLLOVER, ROLLOVER, ROLLOVER. b. Pulls the gunner down from the hatch and holds on to the gunner while placing their feet firmly on the floor and tucking their chin to chest to brace for impact. ***Note:*** If in an ASV, the team leader grasps the front bar with arms extended without locking elbows, tucks chin to chest, and braces for impact.
5. The passengers performs the following rollover procedures: a. Repeat ROLLOVER, ROLLOVER, ROLLOVER. b. Pull the gunner down from the hatch and hold onto him while placing their feet firmly on the floor and tucking their chins to chest to brace for impact. Leader Statement: It is the team leader's responsibility to ensure that sensitive items are removed and that each Soldier is evacuated.
6. The team evacuates the vehicle: a. Shuts down the engine. ***Note***: If this step was not conducted during the rollover, it should be conducted now. b. Checks for injuries. ***Note:*** The type of injury determines whether to evacuate the Soldier or provide care inside the vehicle. If the rollover caused vehicle to be submerged in water, all Soldiers are to be evacuated. c. Exits the vehicle with sensitive items. ***Note:*** The area should be visually cleared of possible threats and security should immediately be established. d. Checks the serviceability of all weapons. e. Accounts for personnel and sensitive items. f. Sends reports to squad leader.
Legend: ASV: armored security vehicle

ENTER AND CLEAR A ROOM

3-16. Table 3-8 shows the steps for entering and clearing a room.

Table 3-8. Enter and clear a room

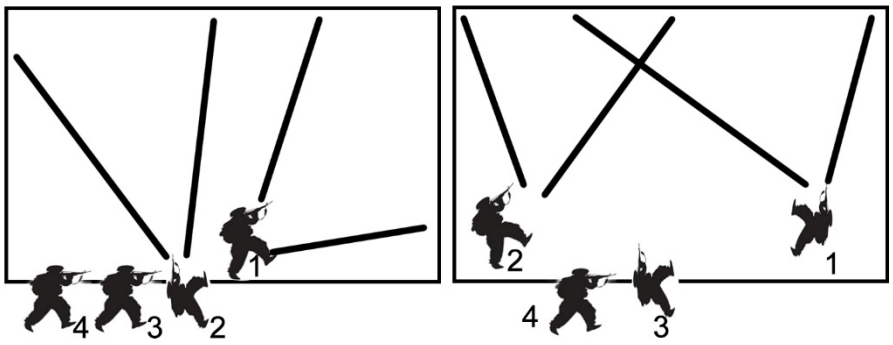
1. The unit leader occupies a position to best control the security and clearing teams. a. The unit leader directs a clearing team to secure corridors or hallways outside the room with appropriate firepower. b. The team leader (normally, the Number 2 Soldier) takes a position to best control the clearing team outside of the room. c. The unit leader gives the signal to clear the room.
2. The clearing team enters and clears the room. a. The first two Soldiers enter the room almost simultaneously. 

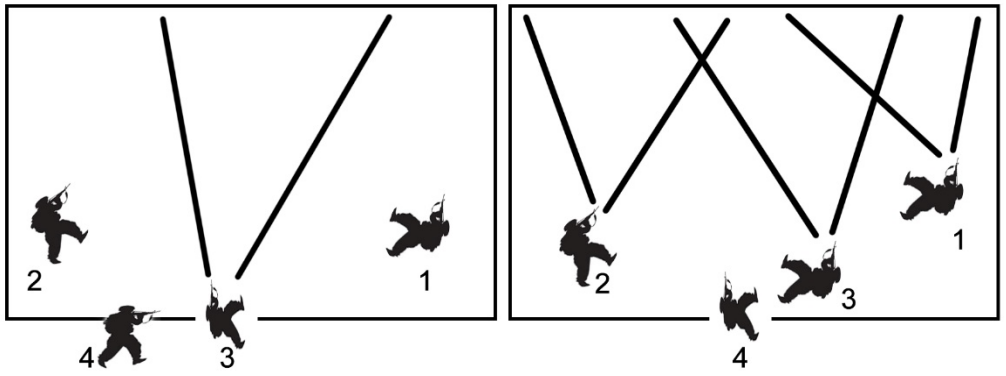
Table 3-8. Enter and clear a room (continued)

b. The first Soldier enters the room, moves left or right—along the path of least resistance—to one of two front corners, and assumes a position of domination, facing into the room. During movement, the Soldier scans the sector and eliminates all immediate threats.

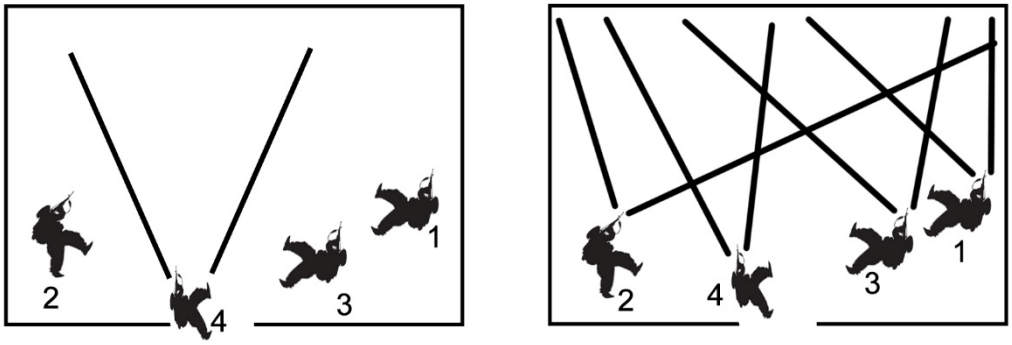
c. The second Soldier (normally, the team leader) enters the room immediately after the first Soldier and moves in the opposite direction of the first Soldier to a point of domination. During movement, the Soldier eliminates all immediate threats in the sector.

Note: During high-intensity combat, Soldiers can use a grenade and will enter immediately after the grenade detonates. Both Soldiers enter, firing aimed bursts into their sectors, and engage all threats or hostile targets that cover their entry. If the first or second Soldier discovers that the room is small or is a short room (such as a closet or bathroom), they announce, SHORT ROOM or SHORT. The clearing team leader informs the third and fourth Soldiers whether to stay outside the room or whether to enter.

d. The third Soldier moves in the opposite direction of the second Soldier while scanning and clearing the sector and assuming the point of domination.



e. The fourth Soldier moves in the opposite direction of the third Soldier, to a position dominating the sector.



f. All Soldiers engage enemy combatants with precision-aimed fire and identify noncombatants to avoid collateral damage.

***Note*:** If necessary—or on order—number 1 and 2 Soldiers of the clearing team may move deeper into the room while overwatched by the other team members.

g. The clearing team leader announces to the unit leader when the room is CLEAR.

3. The team leader marks the entry point according to the unit SOP using the following steps:

a. Makes a quick assessment of the room and any threat.

b. Determines if the unit has the firepower necessary to continue clearing the assigned sector.

c. Reports to the higher unit leader the first room is CLEAR.

d. Requests needed sustainment to continue clearing their sector.

e. Marks the entry point.

4. The unit consolidates and reorganizes, as needed.

Legend:
SOP standard operating procedure

SECTION II – MOVEMENT TECHNIQUES

3-17. Movement techniques are not fixed formations, but rather refer to the use of terrain and distance to place Soldiers, teams, and squads into a position of advantage during movement. There are three movement techniques: traveling; traveling overwatch; and bounding overwatch. Factors to consider for each technique include control, dispersion, speed, and security.

3-18. The selection of a movement technique is based on the likelihood of enemy contact and the necessity for speed. Movement techniques provide a standard method of movement, but the CBRN R&S element must use common sense in employing these techniques as they perform their missions and encounter different situations. The following rules apply to military personnel on foot and/or to vehicle crews using terrain for protection:

- Do not create a silhouette against the skyline.
- Cross open areas quickly.
- Do not move directly forward from a concealed firing position.
- Avoid possible kill zones because it is easier to cross difficult terrain than to fight an adversary on unfavorable terms.
- Avoid large, open areas—especially when they are dominated by high ground or by terrain that can cover and conceal an adversary.
- Use active countermeasures such as smoke or direct/indirect fire to obscure or suppress suspected adversary positions.

3-19. The platoon leader determines and directs the movement technique used by the platoon. The platoon leader/platoon sergeant should coordinate movement with the supported unit and/or AO commander. While moving, leaders typically separate their units into two groups: a security element and main body. In most scenarios, CBRN squads and platoons are not large enough to separate these forces into separate security forces and main body forces. However, they can accomplish these functions by employing movement techniques. A movement technique is the manner in which a platoon traverses terrain.

3-20. As the probability of enemy contact increases, the platoon leader adjusts the movement technique to provide greater security. The trail unit's ability to provide mutual support to the lead elements an essential factor to consider. Soldiers must be able to see their team leader; the squad leader must be able to see the team leader; and the platoon leader must be able to see the squad leader.

TRAVELING

3-21. Platoons often use the traveling technique when contact is unlikely and speed is a necessity (see figure 3-1, page 3-12). When using the traveling technique, all unit elements move continuously. In continuous movement, all Soldiers travel at a moderate rate of speed, with all personnel alert. During traveling, formations are not altered except when affected by terrain.

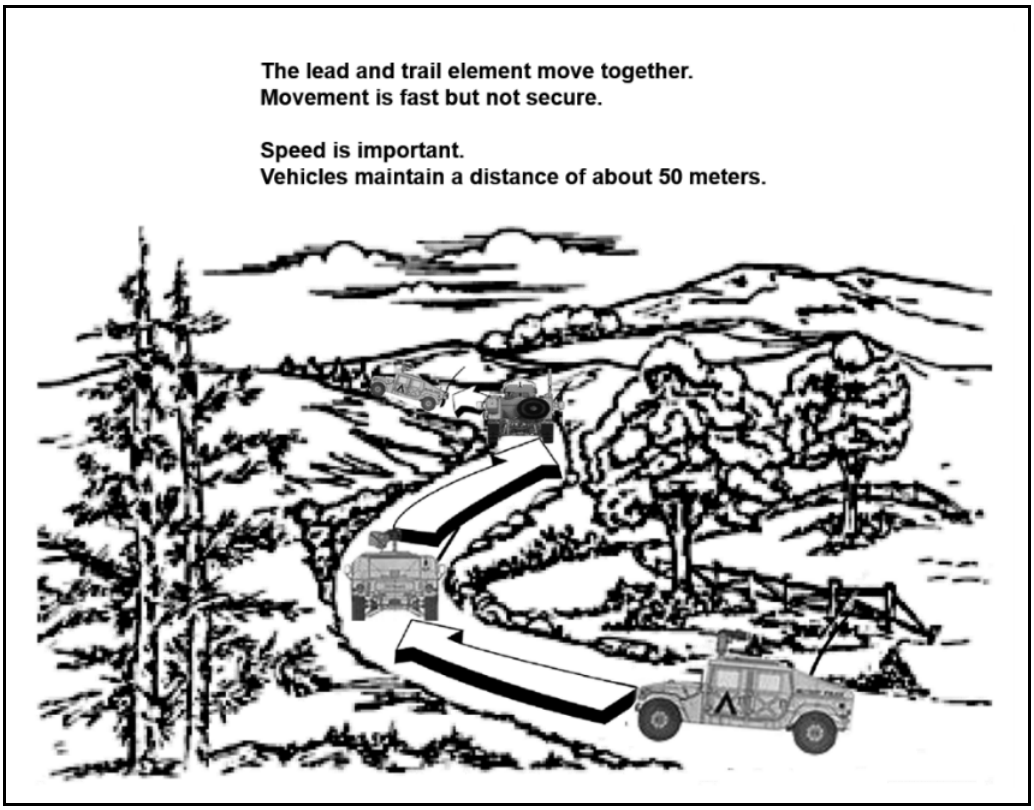


Figure 3-1. Traveling

TRAVELING OVERWATCH

3-22. Traveling overwatch is an extended form of traveling in which the lead element moves continuously, but trailing elements move at varying speeds—sometimes pausing to overwatch the movement of the lead element (see figure 3-2). Traveling overwatch is conducted when enemy contact is possible, but not expected. Caution is justified but speed is desirable.

3-23. The trail element maintains dispersion based on its ability to provide immediate suppressive fire in support of the lead element. The intent is to maintain depth, provide flexibility, and sustain movement in case the lead element is engaged. The trailing elements cue their movement to the terrain, overwatching from a position where they can support the lead element. Trailing elements overwatch from positions and at distances that do not prevent them from firing or moving to support the lead element. The idea is to put enough distance between the lead units and trail units so that if the lead unit comes into contact, the trail units will be out of contact but have the ability to maneuver on the enemy.

3-24. Traveling overwatch requires that the leader control the subordinates' spacing to ensure mutual support. This involves a constant process of concentrating (closing it up) and dispersion (spreading it out). The primary factor is mutual support, with its two critical variables being weapon ranges and terrain. Infantry squad and platoon weapon range limitations dictate that units should not be separated by more than 300 meters. In compartmentalized terrain, the distance is shorter; but in open terrain, it is greater.

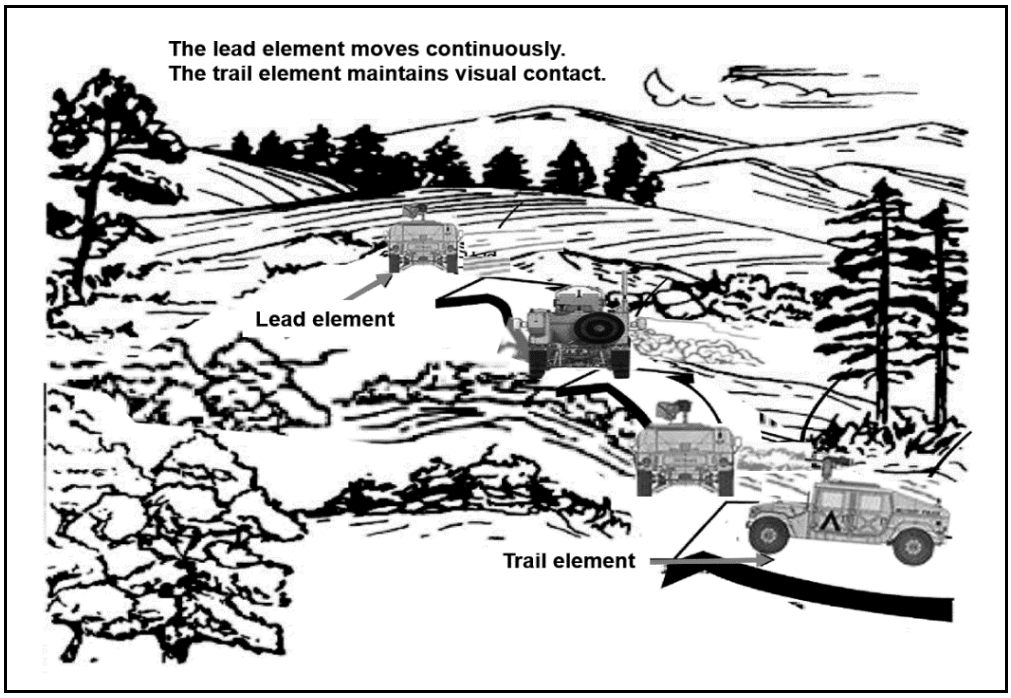


Figure 3-2. Traveling overwatch

BOUNDING OVERWATCH

3-25. Bounding overwatch is similar to fire and movement, in which one unit overwatches the movement of another (see figure 3-3, page 3-14). The difference is that there is no actual enemy contact. Bounding overwatch is used when the leader expects contact. The key to this technique is the proper use of terrain.

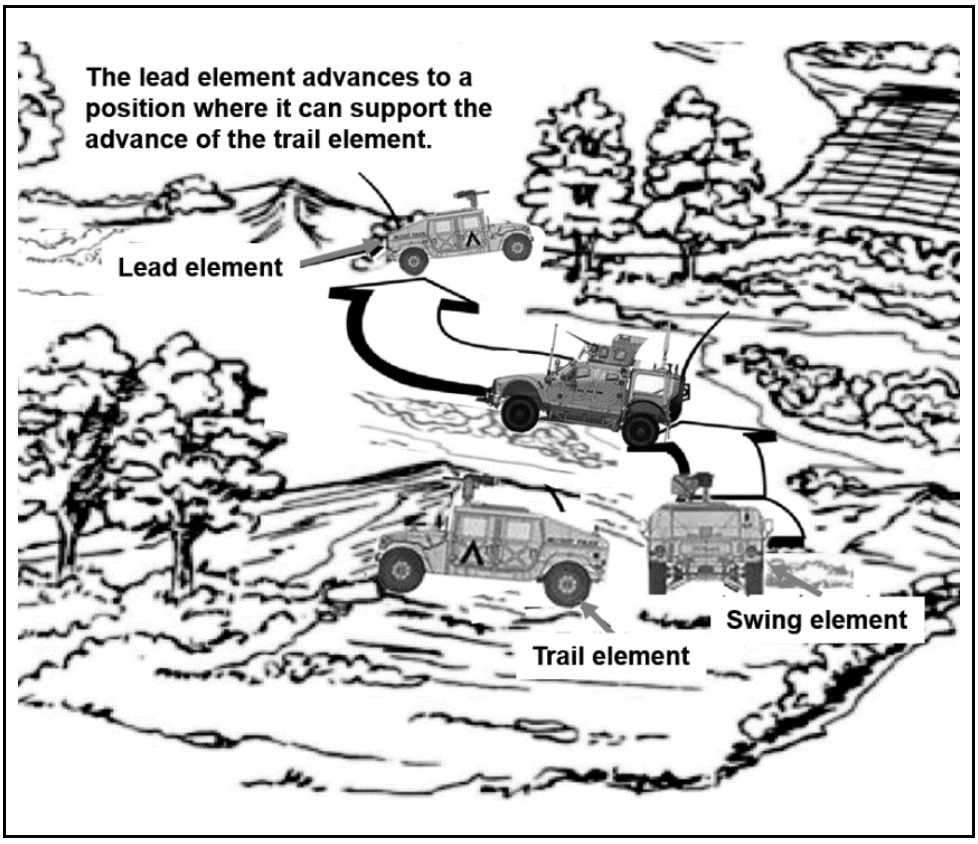


Figure 3-3. Bounding overwatch

3-26. Other mounted movement formations include line, vee, echelon (left or right), column, staggered column, and wedge. These formations are depicted in figure 3-4.

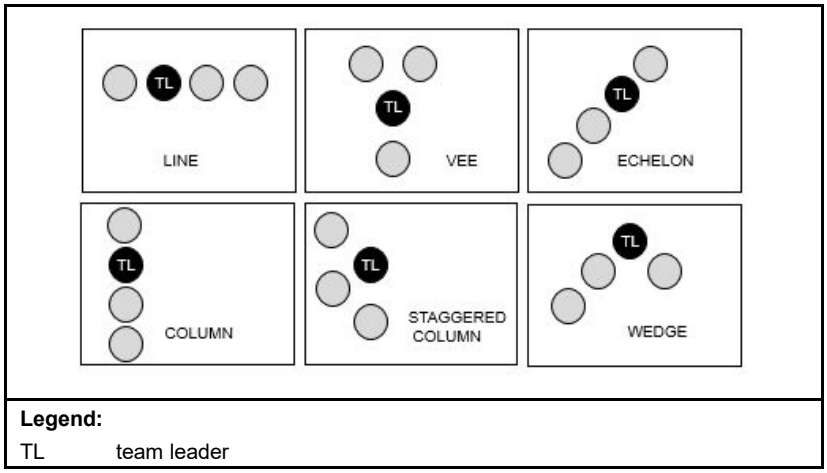


Figure 3-4. Movement formations

3-27. Formations for the halt—such as the coil and herringbone—provide more security. The coil formation (figure 3-5) provides 360-degree security and observation when a CBRN R&S element is stationary. It is useful when performing tactical refueling and resupply and when issuing element orders. The herringbone formation (figure 3-6) is used to disperse the mounted CBRN R&S element when it is traveling in a column formation. The herringbone may be used during air attacks, when the element must stop during movement, or when personnel must dismount to conduct other CBRN reconnaissance tasks.

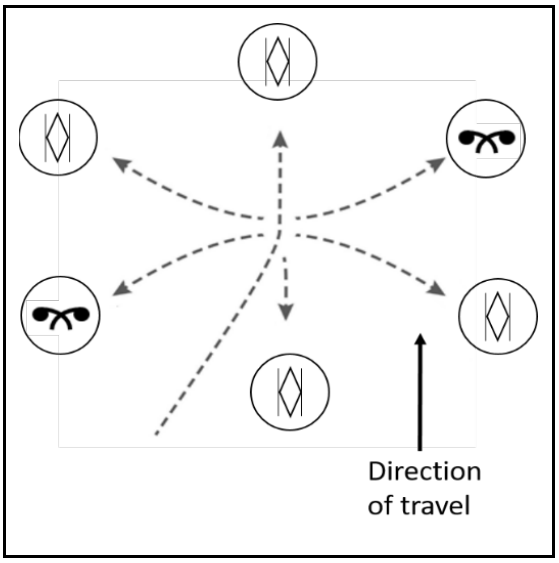


Figure 3-5. Coil formation at the halt

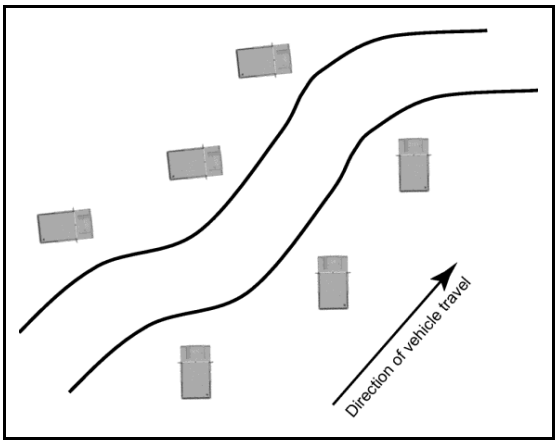


Figure 3-6. Herringbone formation at the halt

SECTION III – FORCE PROTECTION

3-28. *Force protection* is preventive measures taken to mitigate hostile actions against Department of Defense personnel (to include family members), resources, facilities, and critical information (JP 3-0). Platoon leaders must understand and provide the commander with an understanding of the force protection measures provided through platoon capabilities and the force protection requirement when the platoon executes its missions. There are five characteristics of protection. Protection is—

- **Comprehensive.** Protection is an all-inclusive use of complementary and reinforcing protection tasks and systems available to commanders and incorporated into the plan to preserve the force. Force health protection, explosive ordnance disposal (EOD) support, RM, and operations security are protection tasks that are critical for integration during CBRN-related missions.
- **Integrated.** Protection is unified with other activities, systems, efforts, and capabilities associated with the conduct of land operations. Integration must occur vertically and horizontally with unified action partners throughout the operations process. The integration of CBRN platoon capabilities supports force protection, providing assessment capabilities to better understand the impact that CBRN hazards could have on operations.
- **Layered.** Protection capabilities are deliberately sequenced across multiple domains to eliminate, mitigate, or assume the risk of threat effects.

- **Redundant.** Protection efforts for identified critical vulnerabilities require dedicated primary and alternate protection capabilities.
- **Enduring.** Protection is a continuous activity. Commanders and leaders preserve combat power and reduce the risk of loss, damage, or injury to their formations.

SECTION IV – FIRE SUPPORT

3-29. *Fire support* is fires that directly support land, maritime, amphibious, space, cyberspace, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives (JP 3-09). The effectiveness of fire support as determined by the observer, who accurately locates targets, understands which targets to attack, and effectively communicates to the fire support unit.

CALL FOR FIRE

3-30. A call for fire (CFF) is a request for indirect fire containing the data necessary for obtaining the required fire on a target. A CFF is a concise message prepared by the observer. It contains all of the information that the fire direction center (FDC) needs to determine the method of attack. A CCF is a request for fire, not an order.

3-31. The observer transmits the CFF digitally or by voice, with the key factor based on which method will best provide immediately responsive and accurate fire in every circumstance. Another important factor to consider is the ability of all interested parties to monitor digital communications traffic.

3-32. Voice calls for fire are used when—

- Digital communications between the observer and the FDC or fires cell have been lost. The unit SOP or tactical situation dictate the number of attempts made to digitally reach the subscriber before trying voice.
- Immediate suppression or immediate smoke is required and the mission has not been preloaded into the digital device.
- There is a request for fire on planned targets and the data has not been preloaded into the digital device.
- The intensity of the conflict prevents the use of digital systems.
- Calls for fire are received from untrained observers.

3-33. Quickly send the voice CFF, but make sure that it is clear enough that it can be understood, recorded, and read back without error by the FDC recorder. The observer should tell the radio operator that a target has been identified so that the radio operator can start the CFF while the target location is being determined.

SIX ELEMENTS OF THE CALL FOR FIRE

3-34. Regardless of the method used for target location, the CFF normally consists of six elements sent in three transmissions, with a break and read-back after each transmission. The information for each transmission should be sent as it is determined, rather than waiting until a complete CFF has been prepared. The elements are organized in the following sequence:

- Observer identification.
- WARNORD.
- Target location.
- Target description.
- Method of engagement.
- Method of fire and control.

OBSERVER IDENTIFICATION

3-35. This element lets the FDC know who is calling for fire. Call signs from the signal operating instructions are used.

WARNING ORDER

3-36. The WARNORD clears the radio network for the fire mission. The WARNORD consists of the type of mission, the size of the element to fire for effect, and the method of target location.

TYPES OF MISSION

3-37. The WARNORD begins with one of the following mission types:

- **Adjust fire**. When the observer believes that the situation requires an adjusting round (because of a questionable target location or lack of registration corrections), the observer announces ADJUST FIRE.
- **Fire for effect**. The observer should always strive for first-round fire for effect. The accuracy required to fire for effect depends on the accuracy of the target location and the ammunition chosen. When the observer is certain that the target location is accurate and that the first volley should have the desired effect on the target with little or no adjustment required, the observer announces FIRE FOR EFFECT.
- **Suppress**. To quickly bring fire on a target that is not active, the observer announces SUPPRESS (followed by the target number). Suppression missions involve firing on planned targets, and designate a length of time to continue firing (duration). It is associated with the CFF.
- **Immediate suppression or immediate smoke**. When engaging a planned target or target of opportunity that has taken friendly maneuver or elements under fire, the observer announces IMMEDIATE SUPPRESSION or IMMEDIATE SMOKE (followed by the target location). When conducting an immediate mission, the CFF is sent in one transmission.

Size of the Element to Fire for Effect

3-38. The observer may request the size of the element, or unit, to fire for effect—for example, a battalion. For unsecure communication devices, this is usually done by announcing the last letter in the battalion FDC call sign. For example, T6H24 is announced HOTEL. The observer should never refer to a battery or other unit by unit designation, but should refer to it by call sign over on open radio net. For example, the Alpha Battery call sign is THUNDER. Secure communication devices allow units to use plain language call signs to designate the unit to fire for effect. For example, the Alpha Battery call sign is THUNDER.

3-39. Although the observer may request a size of element to fire for effect, the fire direction center makes the ultimate decision based on the attack guidance received, Joint Munitions Effectiveness Manuals Weaponeering System solution, and the rules of engagement that are in effect.

Method of Target Location

3-40. Methods of target location include grid, laser grid, polar plot, laser polar, and shift from a known point. When utilizing precision targeting devices, target location error must be transmitted in the target location portion of the CFF request.

3-41. Grid. For the grid method of target location, the observer sends the most accurate target location possible. When calling for fire on a map-spotted target location, the minimum acceptable standard is a six-digit grid. When greater accuracy is required, a minimum eight- or ten-digit grid location should be sent for registration or other points. Altitude is included immediately after the grid. The observer-target direction is sent after the entire initial CFF since the FDC does not need the direction in order to locate the target. Grid is the standard method of target location; and when used, it is not announced in the WARNORD.

3-42. Laser grid. A laser grid mission is equivalent to a grid mission with the following exceptions:

- The target grid is sent to a greater level of precision (eight- or ten-digit grid, depending on observer or observation post location error).
- In an adjust fire mission, corrections are sent to the burst location in the form of a grid. The observer announces LASER GRID; for example, FIRE FOR EFFECT, LASER GRID, OVER. After the read-back by the FDC, the forward observer announces the grid and altitude as normal, followed by the TLE, if known—for example, GRID ND1234567890, ALTITUDE 390 M HAE, TLE 2.9, OVER.

Note: A mission is not a laser grid mission just because the observer used a laser to determine the initial target location. If the observer plans to send normal left, right, add, or drop corrections, the mission is a normal grid mission. The mission is a laser grid mission only when the method for subsequent corrections are laser burst corrections.

3-43. Polar plot. In a polar plot mission, the word "polar" in the WARNORD alerts the FDC that the target will be located with respect to the observer's position; therefore, the FDC must know the observer's location. The observer sends the direction and distance. A vertical shift tells the FDC how far, in meters, the target is located above or below the observer's location. Vertical shift may also be described by a vertical angle, in mils, relative to the observer's location. The observer announces POLAR—for example, ADJUST FIRE POLAR, OVER.

3-44. Laser plot. A laser polar mission differs from a polar mission in that laser data sent is to the nearest 1 mil (instead of the normal 10 mils) for vertical angle and the nearest 10 meters for distance. The observer announces LASER POLAR—for example, ADJUST FIRE, LASER POLAR, OVER.

- Shift from a known point. In a shift from a known point mission, the target is located in relation to a preexisting known point or recorded target. In the WARNORD, the point or target from which to shift is identified. (The observer and the FDC must know the location of the point or recorded target.)
- The observer then sends the observer-target direction. The preferred unit of measure for a shift is in mils; however, the FDC can accept degrees or cardinal directions—whichever the observer specifies. Next, the following corrections are sent:
  - Lateral shift in meters (or how far to the left or right the target is) from the known point.
  - Range shift (or how much farther [ADD] or closer [DROP] the target is in relation to the known point, to the nearest 100 meters).
  - Vertical shift (or how much the altitude of the target is above [UP] or below [DOWN] the altitude of the known point, expressed to the nearest 5 meters). Vertical shift is only significant if it is greater than or equal to 35 meters. The observer announces SHIFT, followed by the designation of the known point or by the target number. For example, ADJUST FIRE, SHIFT KNOWN POINT 1, OVER.

TARGET DESCRIPTION

3-45. The FDC selects the correct ammunition for different types of targets. Therefore, the observer must describe the target in enough detail that the FDC can determine the amount and type of ammunition to use. The observer should be brief but accurate. The description should contain the following:

- What the target is composed of (troops, equipment, supply depot, trucks).
- What the target is doing (occupying an assembly area, digging in,).
- The number of elements in the target (squad, platoon, three trucks, six tanks).

- The relative degree of protection based on location (in the open, in foxholes, in bunkers with overhead protection).
- The target size and shape. For a rectangular target, the length, width, and the attitude (in meters) should be provided—for example, 400 BY 300, ATTITUDE 2800. For a circular target, the radius should be provided—for example, RADIUS 200. For a linear target, the length and attitude should be provided.

Note: In the Advanced Field Artillery Tactical Data System, the requirements for linear targets are the center grid, distance from the center point, and attitude. It is the responsibility of the FDC to ensure that the data obtained from the observer is entered correctly.

METHOD OF ENGAGEMENT

3-46. The observer may indicate how to attack the target; the method of engagement element consists of type of adjustment, trajectory, ammunition, and distribution. Danger close and Mark are included, as appropriate.

3-47. Two types of adjustment may be employed—area and precision. Unless precision is specified, area fire is used The following considerations should be taken into account when determining the type of adjustment to be employed:

- Use area fire to attack an area target. Since many area targets are mobile, the adjustment should be as quickly as possible (consistent with accuracy) to keep the target from escaping. A well-defined point at or near the center of the area to be attacked should be selected and used as an aiming point. This point is called the adjusting point during adjust-fire missions. To achieve surprise, fire should be adjusted on an auxiliary adjusting point; and after adjustment is completed, the fire should be shifted for effect to the target. Observers normally conduct adjustment on an area target with one adjusting weapon.
- Precision fire should be conducted with one weapon on a point target to obtain registration corrections or to destroy the target. When the mission involves registration, the FDC initiates the mission with a message to the observer. If the intent is to destroy the target, the observer announces DESTRUCTION.

3-48. Danger close is included in the method of engagement when the target is (or rounds will impact) within 600 meters of any friendly troops for mortars and artillery or 750 meters for 5-inch naval guns and Tomahawk Land Attack Missiles. Danger close and risk estimate distances are different in meaning; reference to risk estimate distances can be found in ATP 3-09.32.

3-49. Mark is included in the method of engagement to indicate that the observer will call for rounds for either of the following reasons:

- To orient himself in the zone of observation.
- To delineate targets to ground troops, aircraft, or other observers.

3-50. The trajectory is the path traced by the center of gravity of the projectile from the origin to the level point. The two paths are—

- Low-angle. Standard without request.
- High-angle. High-angle fire is the delivery of fire at elevations greater than the elevation of the maximum range of the charge. Range decreases as the angle of elevation increases (TC 3-09.81). Mortars fire only at high-angles.

3-51. An observer can request a specific munition; however, the FDC makes the final determination based upon METT-TC. The following projectile types are available for request:

- HE—high explosive, hexachloroethane zinc.
- WP—white phosphorous.
- RP—red phosphorous (mortars only).
- ILLUM—illumination.

- DPICM—dual-purpose improved conventional munition, antipersonnel improved conventional munition.
- Smoke.
- SCATMINE—scatterable mines.
- EXCALIBUR—precision guided munition.
- GMLRS—guided multiple launch rocket system.

3-52. Fuze quick is the fuze normally used during the adjustment phase. If the observer desires fuze quick or if a projectile that has only one fuze is requested, fuze is not indicated. Illumination, improved conventional munitions, and smoke projectiles are fuzed with time fuzes; therefore, when the observer requests these, they do not announce TIME. Fuze types are as follows:

- PD—point detonating.
- VT—variable time.
- MT—mechanical time.
- ET—electronic time.
- MTSQ—mechanical time super quick.
- DELAY.
- MOF—multioption fuze (mortars only).

3-53. The observer states the volume of fire in rounds per howitzer desired in the fire for effect. For example, THREE ROUNDS indicates that the observer desires that the unit fire three volleys in effect.

METHOD OF FIRE AND CONTROL

3-54. The method of fire and control element indicates the desired manner of attacking the target, whether the observer wants to control the time or delivery of fire, and whether the target can be observed. The methods of control of "at my command" and "time on target" are especially useful in massing fires. "At my command" and "time on target" missions achieve surprise and maximize the effects of the initial volley on a target. When used by the observer, these methods of control can reduce the sporadic engagement of the target, or the "popcorn effect," which can result from rounds fired when ready.

METHOD OF FIRE

3-55. In area fire, the observer conducts adjustment with one howitzer or with the center gun of a mortar platoon or section. If the observer determines that more than one gun is necessary for adjustment, they can request TWO GUNS IN ADJUST or PLATOON, BATTERY RIGHT (LEFT). (Adjusting at extreme distances may be easier with two guns firing.) The normal interval fired by a platoon or battery right (left) is 5 seconds. If different intervals are desired, the observer must so specify.

METHOD OF CONTROL

3-56. Methods of control consist of—

- FIRE WHEN READY.
- AT MY COMMAND. If the observer wishes to control the time of delivery of fire, they include AT MY COMMAND in the method of control. When the artillery/mortars are ready to fire, the FDC announces PLATOON (or BATTERY or BATTALION) IS READY, OVER. (Call signs are used.) The observer announces FIRE when ready to fire. This only applies to adjusting rounds and the first volley of a fire for effect. AT MY COMMAND remains in effect throughout the mission until the observer announces CANCEL AT MY COMMAND, OVER. The observer can further specify AT MY COMMAND with additional instructions. BY ROUND AT MY COMMAND controls every round in adjustment and every volley in the fire for effect phase.
- CANNOT OBSERVE. This method indicates that the observer cannot see the target (because of vegetation, terrain, weather, the intensity of the conflict, or smoke).

- TIME ON TARGET. The observer may tell the FDC when the rounds are to impact by requesting TIME ON TARGET, 0859, OVER. The observer must ensure that their time and the FDC time are synchronized prior to the mission.
- TIME TO TARGET. The observer may tell the FDC when the rounds are to impact by requesting TIME TO TARGET (so many) MINUTES AND SECONDS, OVER, STANDBY, HACK, OVER. This expresses the time the observer can expect rounds to hit the target. Time to target is expressed in minutes and seconds after delivery of the "hack" statement.
- COORDINATED ILLUMINATION. This method is used to inform the FDC that the observer will attack targets with fire under illumination. The objective is for the HE rounds to impact during the period of best illumination. The observer can accomplish this by using normal AT MY COMMAND procedures, directing an interval (in seconds) between illumination and HE projectiles, or by identifying the period of best illumination and allowing the FDC to compute when to fire the HE. The command ILLUMINATION MARK is used to tell the FDC when the illumination round provides the best visibility on the target.
- In CONTINUOUS ILLUMINATION. In this method of control, the unit fires illumination projectiles at specified time intervals to provide uninterrupted lighting on the target or specified area. The observer may specify the time interval (in seconds). If the observer does not provide a time interval, the FDC determines the interval by the burning time of the illumination ammunition in use. If any other interval is required, the desired interval is indicated in seconds.
- CEASE LOADING. The command CEASE LOADING is used during the firing of two or more rounds to indicate the suspension of the loading rounds into the gun(s). The gun sections may fire any rounds that have already been loaded.
- CHECK FIRE. CHECK FIRING can be used to cause an immediate halt in firing. This command is used only when necessary to immediately stop firing (for example, for safety reasons), as it may place cannons out of action until any rammed or loaded rounds can be fired or cleared from the tubes.
- CONTINUOUS FIRE. In field artillery, mortars, and naval surface fire support, CONTINUOUS FIRE refers to loading and firing as rapidly as possible (consistent with accuracy) within the prescribed rate of fire for the equipment. Firing continues until suspended by the command CEASE LOADING or CHECK FIRING.
- REPEAT. This method can be used during adjustment or fire for effect missions. During adjustment, REPEAT means firing another round(s) with the last data and adjusting for any change in ammunition, if necessary. The command REPEAT is not sent in the initial CFF. During fire for effect, REPEAT means fire the same number of rounds using the same method of fire for effect as was last fired. If the unit is firing four rounds in effect, requesting REPEAT will result in an additional four volleys. The observer may request changes in the number of guns, the previous corrections, the interval, or the ammunition—for example, RIGHT 200 REPEAT.
- SPLASH. SPLASH is sent at the observer's request. The FDC announces SPLASH to the observer 5 seconds prior to the impact of the round. The FDC must send SPLASH to aerial observers. They must also send SPLASH during high-angle fire missions.
- DO NOT LOAD. This method allows the section to prepare ammunition and lay on the target without loading a projectile. When the command, CANCEL DO NOT LOAD is given, the section automatically loads and fires the weapon (except for during an AT MY COMMAND mission).
- DURATION. The observer normally uses DURATION for suppression and smoke missions. DURATION tells the FDC the total time to engage a target.

Note: GTA 17-02-015 and figure 3-7, page 3-22, provide additional information for understanding the procedures for CFF.

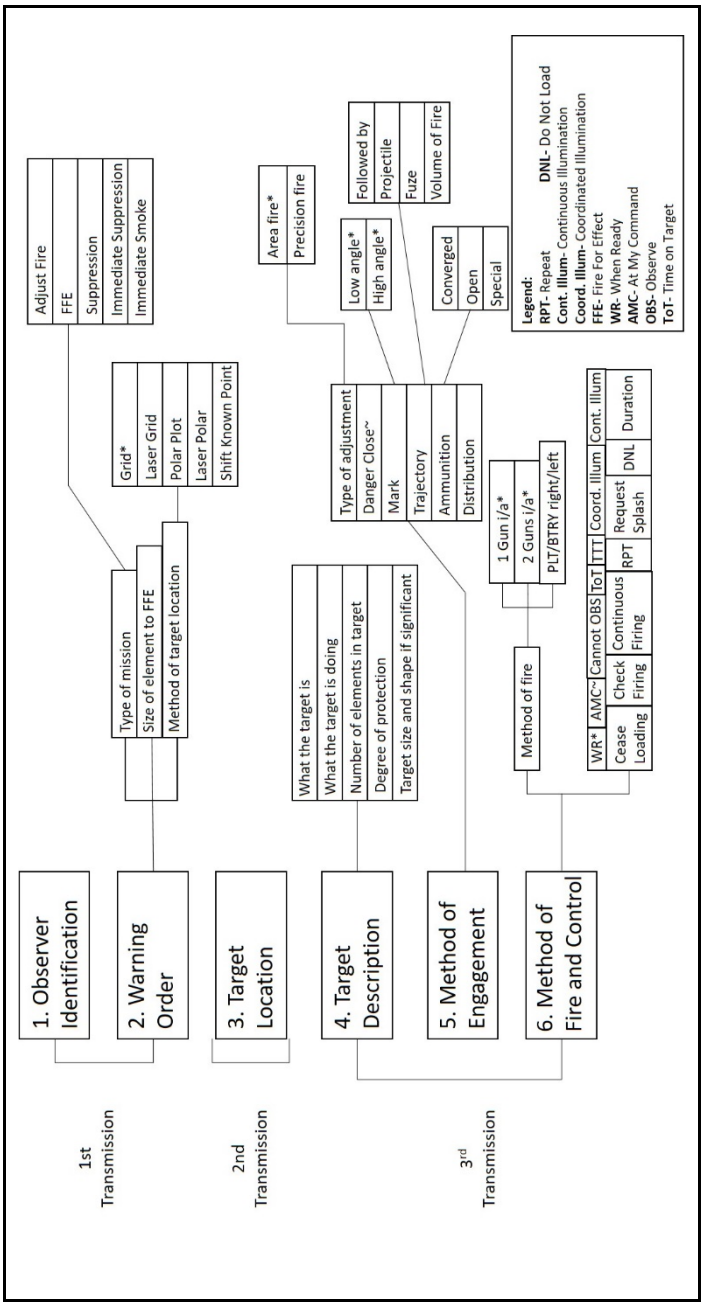


Figure 3-7. Call for fire flowchart

SECTION V – PATROLS

3-57. A patrol is a detachment that is sent out by a larger unit and operates semi-independently to conduct a specific mission and return to the main body upon completion. The leader of any patrol, regardless of the type or the tactical task assigned, has an inherent responsibility to prepare and plan for possible enemy contact while on the mission. Patrols are always assigned a tactical mission. On returning to the main body, the patrol leader reports to the commander and describes the actions, observations, and condition of the patrol.

3-58. Leaders plan and prepare for patrols using TLP. They must identify required actions on the objective, plan backward to the departure from friendly lines, and then plan forward to the reentry of friendly lines.

3-59. The patrol leader receives the OPORD in the battalion or company command post (CP), where communications are good and vital personnel are available for coordination. Because patrols act semi-independently, move beyond the supporting range of the parent unit, and often operate forward of friendly units, coordination must be thorough and detailed.

3-60. Patrol leaders may routinely coordinate directly with elements of the battalion staff directly. Unit leaders should develop tactical SOPs with detailed checklists to preclude omitting items that are vital to mission accomplishment.

3-61. Items coordinated between the leader and battalion staff, company commander, or intelligence support team include—

- Changes or updates in the enemy situation.
- Best use of terrain for routes, rally points, and patrol bases.
- Light and weather data.
- Changes in the friendly situation.
- The attachment of Soldiers with special skills or equipment (engineers, sniper teams, military working dog teams, forward observers, or interpreters).
- Use and location of landing or pickup zones.
- Departure and reentry of friendly lines.
- Direct and indirect fire support on the objective and along the planned routes, including alternate routes.
- Rehearsal areas and times. The terrain for rehearsal should be similar to that of the objective, to include buildings and fortifications. Coordination for rehearsals includes security of the area and the use of blanks, pyrotechnics, and live ammunition.
- Special equipment and ammunition requirements.
- Transportation support, including transportation to and from rehearsal sites.
- Signal plan, call sign frequencies, code words, pyrotechnics, and challenge and password.

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Chapter 4
Sustainment

Sustainment is the provision of the logistics, personnel services, and Army health protection necessary to maintain operations until mission accomplishment (ADP 4-0). Sustainment is accomplished through the coordination, integration, synchronization, and distribution of available resources to ensure that each unit is provided with the resources required to accomplish its mission. For Army forces at the macroscopic level, sustainment is transitioned from the strategic level to the tactical level. For the CBRN platoon at the microscopic level, sustainment is the sum of all tasks, systems, and activities that provide the support and services necessary to ensure freedom of action, the extension of operational reach, and the prolonged endurance of the element in whole (platoon) or in part (squad and/or team) until its assigned mission is successfully completed. In the CBRN platoon, the platoon leader is ultimately responsible for sustainment and the platoon sergeant ensures that the platoon has been properly prepared for the assigned mission. Based on the command and support relationships in place, the platoon leader and platoon sergeant work closely with their supported unit staff and/or assigned unit leadership (company commander, executive officer, and supply sergeant) to ensure that they receive the required support for the platoon's assigned operations.

SECTION I – FUNDAMENTALS OF SUSTAINMENT

4-1. Sustainment consists of three major elements: logistics, personnel services, and health service support. Information about health service support is provided in the medical support section, paragraph 4-9, page 4-3.

LOGISTICS

4-2. Logistics refers to the planning and execution of movement and support of forces. It includes those aspects of military operations that deal with design and development; acquisition, storage, movement, distribution, maintenance, and disposition of materiel; acquisition or construction, maintenance, operation, and disposition of facilities; and acquisition or furnishing of services.

PERSONNEL SERVICES

4-3. Personnel services include sustainment functions used to man and fund the force, maintain Soldier and Family readiness, promote the moral and ethical values of the Nation, and enable the fighting qualities of the Army. Personnel services provide economic power at the operational and tactical levels and the planning and coordination efforts that sustain personnel.

CLASSES OF SUPPLY

4-4. The platoon sergeant obtains supplies and delivers them to the platoon. The platoon leader establishes priorities for delivery/distribution; however, combat demands that Class I, III, V, and IX supplies and equipment take priority because they are the most critical to successful operations. In general, the classes of supply include—

- **Class I.** Subsistence, including health and welfare items (rations, water, ice).

***Note*:** Each vehicle generally contains a 3–5 day supply of rations and a minimum of 10 gallons of water.

- **Class II.** Clothing, individual equipment, mission-oriented protective posture (MOPP) suits, tentage, tool sets, administrative items, and housekeeping supplies and equipment. This class includes items of equipment prescribed in authorization/allowance tables (excluding major items) and items of supply (excluding repair parts).
- **Class III.** POL, including bulk and packaged fuels, lubricating oils and lubricants, petroleum specialty products; as well as solid fuels, coal, and related products.

***Note*:** Each vehicle generally contains engine and transmission oil and hydraulic fluid for replenishment during maintenance resulting from routine use. The amount retained varies based on vehicle type.

- **Class IV.** Construction and engineering materials, such as pickets, sandbags, and concertina wire.
- **Class V.** Ammunition and mines, including fuses, detonators, pyrotechnics, explosives, and other associated items.
- **Class VI.** Personal-demand items that are normally sold through the Exchange System (possibly including candy, soaps, cameras, and film).
- **Class VII.** Major end items, such as vehicles and mobile machine shops.
- **Class VIII.** Medical supplies provided through the battalion medical platoon (including medical-specific repair parts).
- **Class IX.** Repair parts and documents required for equipment maintenance operations.
- **Class X.** Materials to support nonmilitary programs that are not included in Class I through Class IX, such as agricultural and economic development programs.
- **Miscellaneous.** Anything that does not fall into one of the existing classes of supply.

SECTION II – SUSTAINMENT PLANNING

4-5. During mission analysis at the CBRN platoon level, the platoon leader determines exactly which supplies they have on hand and then estimates support requirements to accomplish the assigned mission. The sum of this information provides the basis for the platoon sustainment plan and is used to identify support requirements for the assigned operation. To maximize the efficiency of sustainment and resupply activities and resources, the platoon sustainment plan is tailored to the assigned operation.

4-6. During sustainment planning, the platoon leader must consider operational questions regarding:

- Types of support and command relationships.
  - Who will provide all classes of supplies?
  - Who will provide medical support?
- Sustainment/resupply asset capabilities and capacities.
- Are operations sustainable?
  - What are the consumption rates for unit-specific supplies?
  - What are the consumption rates for mission-specific supplies?
- Threat capabilities, activities, and intentions (for example, the potential for engaging in combat operations and encountering CBRN hazards).
- Impacts of terrain and weather (for example, impacts on maneuverability/trafficability).
- Time and location of support and sustainment.
- Requirements.
- Risk.
- Resupply techniques/methods.

- Consumption rates of mission-specific or unit-specific supplies.
- Sustainment support requirements specific to platoon capabilities (for example, the nuclear, biological, and chemical reconnaissance vehicle [NBCRV] field service representatives, 94F with F6 additional skill identifier).

4-7. Critical factors that platoon sustainment planners must consider include—

- The logistical supportability and sustainability of the proposed plan (including whether materials are available and resupply capability and capacity are sufficient).
- Commander's priorities for support.
- The plan for continuous support.
- Major tactical contingencies, such as exploitation, pursuit, and withdrawal.
- Coordination of operational areas such as the locations of decontamination sites.
- The amount of materiel uploaded on platoon vehicles. Existing assets should be used to carry specific mission needs, and items that can be brought forward later should be offloaded. Pre-positioned stocks and terrain around these stocks must be earmarked for the user unit. The maneuver enhancement brigade is the focal point for resolving conflicts in unit/base positions.
- Preplanned or preconfigured logistics packages (LOGPACs) of essential items. For missions in which material sustainment requirements exceed the existing asset transport capability, the platoon should consider tailoring the LOGPAC to obtain the required items.
- Coordination of direct delivery from the sustainment unit of the critical asset to the user unit. When high rates of ammunition or POL consumption are expected, direct delivery from the sustainment to the user unit should be coordinated.
- Rapid resupply plans. Coordination with sustainment forces for dedicated transportation assets for a specific period of time should be conducted to support the operation.
- Forward positioning of essential supplies, such as ammunition and POL.

4-8. Army pre-positioned stocks (APS) are essential in facilitating strategic and operational reach. Medical APS are managed for the Office of the Surgeon General by the United States Army Medical Material Agency, and subsistence items are managed for the Army by the Defense Logistics Agency. The pre-positioning of stocks in-theater provides the capability to rapidly supply and resupply forces until lines of communication are established.

SECTION III – PLATOON RESUPPLY OPERATIONS

4-9. The platoon leader has overall responsibility for platoon sustainment. The platoon leader is specifically responsible for platoon sustainment planning. The platoon leader must consider resupply of the platoon during the planning phase. Any supporting unit must understand what is required by the CBRN platoon for mission accomplishment. This requires detailed coordination with the supporting logistics unit. Because of the unique nature of the supplies required to support CBRN operations, it is critical to have supplies on-hand to support the 72-hour (or as appropriate) mission cycle. Section III, chapter 6 contains a number of planning tables used to determine consumption rates for decontamination missions.

4-10. The platoon sergeant is the main sustainment operator of the platoon. The platoon sergeant executes the platoon logistical plan based on the platoon and/or company SOP. The platoon sergeant is responsible for reporting the sustainment needs of platoon personnel and, upon receipt, the distribution of supply items to meet the needs of the platoon. If necessary, the platoon conducts resupply during the mission. After the completion of each mission, the platoon leader informs the supported unit of the platoon status. The format of this report is specified in the unit SOP.

4-11. The squad leader is the squad sustainment operator. The squad leader is responsible for reporting the sustainment needs of squad personnel and, upon receipt, the distribution of supply items to meet the needs of squad personnel. The platoon sergeant receives and consolidates squad leader sustainment needs, including Class VIII supplies for combat lifesavers. The platoon sergeant monitors the consumption of Class III and V during the mission.

4-12. The team leader is the team's sustainment operator. The team leader is responsible for reporting sustainment needs that are unique to the team's mission (such as the use of specialized equipment) and, upon receipt, the distributing of supply items to meet the needs of team personnel.

4-13. Individual Soldiers are responsible for reporting their sustainment needs to their assigned squad leader or team leader.

4-14. The combat medic provides EMT for sick, injured, or wounded platoon personnel. The combat medic is responsible for reporting sustainment needs to the leadership of the supported unit/unit of attachment (platoon leader/platoon sergeant/squad leader).

4-15. The combat lifesaver is a nonmedical Soldier trained to provide advanced first aid and lifesaving procedures beyond the level of self-aid or buddy aid. The combat lifesaver is responsible for reporting sustainment needs to the assigned squad leader.

CLASSIFICATION OF RESUPPLY OPERATIONS

4-16. Resupply operations fall into one of three classifications: routine, emergency, or prestock. The platoon and/or company SOP specify cues and procedures for each method. The platoon rehearses resupply operations during platoon training exercises. The actual method selected for resupply in the field depends on the METT-TC mission variables.

ROUTINE

4-17. Routine resupply operations cover items in Classes I, III, V, and IX; mail; and other items requested by the platoon. When possible, the platoon should conduct daily routine resupply—ideally, during periods of limited visibility. The platoon leader should refuel at every opportunity available based on METT-TC mission variables.

4-18. The LOGPAC technique offers a simple, efficient way to accomplish routine resupply operations. A centrally organized resupply convoy, the key feature of LOGPAC, originates at the battalion trains. The convoy carries all items needed to sustain the platoon for a specific period (usually 24 hours) or until the next scheduled LOGPAC. The battalion SOP specifies the exact composition and march order of the LOGPAC.

4-19. As directed by the commander or executive officer, the first sergeant establishes the company resupply point. The first sergeant uses either the service station or tailgate method (see paragraph 4-24) and briefs each LOGPAC driver about which method to use. When the resupply point is ready, the first sergeant informs the commander. The company commander then directs each platoon or element to conduct resupply based on the tactical situation.

EMERGENCY

4-20. Occasionally (normally during combat operations), the platoon has such an urgent need for resupply that it cannot wait for a routine LOGPAC. Emergency resupply can involve CBRN equipment as well as Classes III, V, VIII, and water.

PRESTOCK

4-21. In defensive operations, the platoon often needs prestocked supplies, also known as pre-positioned or cached resupply. The platoon normally only pre-positions Class IV and V items but can also pre-position Class III supplies.

4-22. All levels must carefully plan and execute prestock operations. All leaders, down to the levels of vehicle commanders and squad leaders, must know the exact locations of prestock sites. They verify these locations during reconnaissance or rehearsals. The platoon takes steps to ensure the survivability of the prestocked supplies, including selecting covered and concealed positions and digging-in the prestock positions. The platoon leader must have a removal and destruction plan to prevent the enemy from capturing pre-positioned supplies.

4-23. During offensive operations, the platoon can pre-position supplies on trucks or vehicles well forward on the battlefield. This works well if the platoon expects to use a large volume of fire, with corresponding ammunition requirements, during a fast-moving operation.

METHODS OF RESUPPLY

4-24. The CBRN platoon conducts resupply activities using either the service station or tailgate method.

- **Service station method.** With the service station method, platoon vehicles move out of position individually or in small groups (squad or team) to a centrally located resupply point, where resupply activities occur. Resupply vehicles remain stationary while platoon vehicles rotate through resupply vehicle positions with one-way flow of traffic throughout the resupply point. Service station resupply is conducted with resupply vehicles positioned in side-by-side locations (either to the left or right of vehicles undergoing resupply) or alternating locations (left, right, left, right sides of vehicles undergoing resupply). Upon completion of resupply activities, platoon vehicles move to a designated holding area where precombat inspections are performed before moving back into position or moving to new positions. Typically, the service station method is performed in environments where enemy contact is possible.
- **Tailgate method.** The tailgate method of resupply requires significantly more time than the service station method. As a result, it is typically performed when enemy contact is unlikely. Platoon vehicles remain stationary in positions or back out of positions a short distance to allow vehicles carrying Class III and Class V supplies to reach them. Resupply vehicles rotate through platoon vehicle positions until all vehicles have been resupplied.

4-25. Specific information and procedures pertaining to each method of resupply are documented in the platoon, company, and/or supported unit SOP and rehearsed in training.

4-26. The actual resupply method selected will depend on METT-TC and the command and support relationship between the supported unit and the CBRN platoon.

SECTION IV – MAINTENANCE

4-27. Maintenance refers to the sum of all actions taken to retain materiel (vehicles and equipment) in a serviceable condition or to restore it to serviceability. In the CBRN platoon, proper maintenance keeps assigned vehicles, equipment, and other materials in serviceable condition. It is a continuous process, starting with preventive measures taken by each platoon member and continuing with repair and recovery efforts by higher-level maintenance personnel.

RESPONSIBILITIES

4-28. The platoon leader and platoon sergeant share responsibility for ensuring that maintenance services of assigned vehicles and equipment are performed as scheduled. Maintenance services include inspecting, testing, servicing, repairing, requisitioning, recovering, and evacuating vehicles and equipment. Scheduled maintenance services should be included in training and mission planning to forecast capabilities and eliminate conflicts.

4-29. The individual Soldier performs a key role in ensuring that assigned equipment is maintained and operational by conducting PMCS as directed/scheduled. Likewise, the vehicle driver performs a key role in ensuring that their assigned vehicle is maintained and operational by conducting PMCS.

4-30. The platoon leader and platoon sergeant should establish a shared understanding with maintenance personnel to establish requirements specific to CBRN platoon capabilities (NBCRV, M26, BIDS). The platoon leader and platoon sergeant should know what activities provide what type(s) of maintenance support to the CBRN platoon or element (squad or team). Platoon leaders should know and understand command and maintenance relationships, including the—

- Command relationship between an organic unit of assignment and the CBRN platoon or element (squad or team).
- Command relationship between the supported unit and the CBRN platoon or element (squad or team).
- Maintenance support relationship between organic units responsible for maintenance functions and the CBRN platoon or element (squad or team).
- Maintenance support relationship between the supported unit and the CBRN platoon or element (squad or team).

TWO-LEVEL MAINTENANCE CONCEPT

4-31. The CBRN platoon follows the Army's Two-Level Maintenance Concept, which includes field and sustainment maintenance:

- **Field maintenance.** Field maintenance refers to the repair and return of material to the user, generally characterized by "on (or near) system" maintenance, often utilizing line replaceable unit; component replacement; and battle damage assessment, repair, and recovery. Field maintenance is focused on returning a system to an operational status. Field maintenance is not limited to remove and replace, but also provides adjustment, alignment, and fault/failure diagnoses. Field maintenance also includes battlefield damage and repair tasks performed by the crew or support personnel to maintain the system in an operational state.
- **Sustainment maintenance.** Sustainment maintenance is generally characterized as "off system" and "repair rear." The goal of sustainment maintenance is to perform commodity-oriented repairs on all supported items to one standard that provides a consistent and measurable level of reliability. Off-system maintenance consists of overhaul and remanufacturing activities designed to return components, modules, assemblies, and end items to the supply system or to units, resulting in extended or improved operational life expectancies.

BATTLE DAMAGE ASSESSMENT AND REPAIR

4-32. When applicable, the platoon leader will address damaged vehicles and equipment using battle damage assessment and repair (BDAR) in the logistics section of the OPORD. This section provides the crews and maintainers with a clear understanding of when, and at what risk level, they may perform BDAR. BDAR makes use of emergency expedient repairs to return the system to full or partial mission-capable status. Under combat conditions, personnel may perform BDAR on fueled or armed systems. The platoon leader may also waive other precautions. All operations must be conducted as safely as possible. See ATP 4-31 for more details about BDAR procedures.

MAINTENANCE COLLECTION POINT OPERATIONS

4-33. When applicable, the platoon leader monitors the status of damaged vehicles and equipment undergoing maintenance collection point (MCP) operations. When a vehicle or piece of equipment cannot be quickly fixed on-site, it is moved to the servicing MCP, where it is repaired by the servicing forward support company. When not involved in on-site actions, the field maintenance team can assist with operations in the MCP. Vehicles that cannot be repaired within the established timelines—or that would overload the MCP capability—are moved to the field trains.

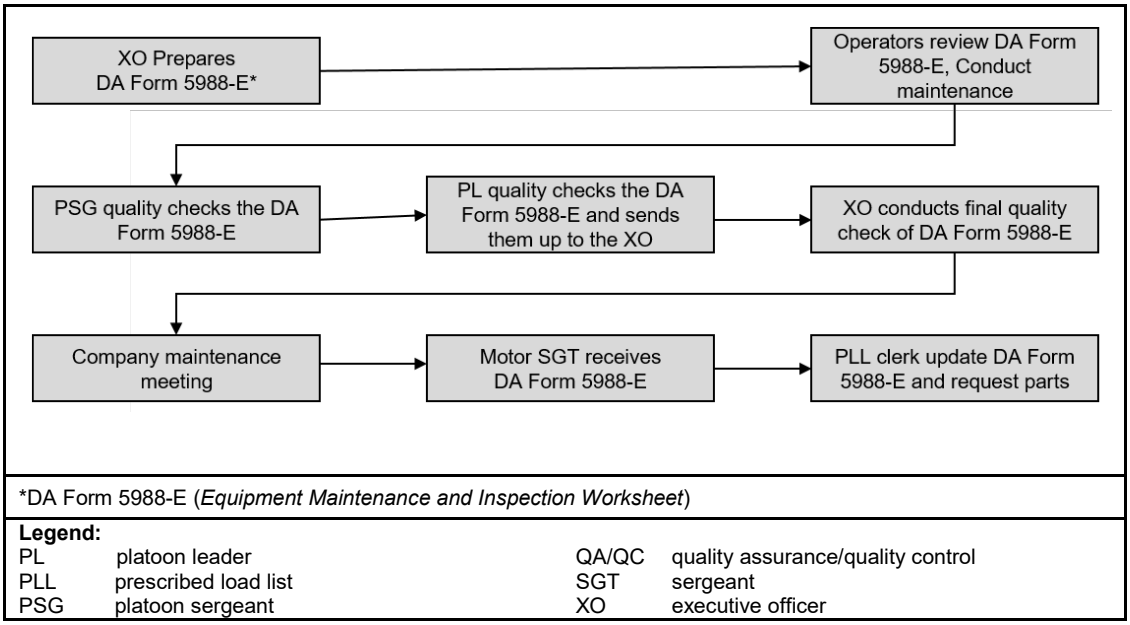
4-34. Understanding the systems used to catalog all property and maintenance is an important aspect of a platoon leader's responsibilities.

DEPARTMENT OF THE ARMY FORM 5988-E

4-35. A DA Form 2404 (*Equipment Inspection and Maintenance Worksheet)*, can be used if it is not possible to generate a DA Form 5988-E (*Equipment Maintenance and Inspection Worksheet).* Processing the DA Form 5988-E is a weekly battle rhythm that enables the platoon to conduct command maintenance. The DA Form 5988-E is updated every week and changes based on the faults of the previous week.

4-36. The DA Form 5988-E is the cornerstone of the platoon maintenance program. If faults are not making it onto the DA Form 5988-E, it is the equivalent of an operator skipping PMCS. Every operator should be able to read the form and understand what each item means. Operators are responsibly for noticing that a part is ready to be installed, or that the mileage service window is approaching. When conducting PMCS, operators complete the first four columns and ask a mechanic to enter the corrective action and initial the fault, indicating to the clerks that the identified part must be ordered.

4-37. Once the operator finishes the PMCS, they submit the DA Form 5988-E to the supervisor, who signs the top indicating that everything is correct. None of the meticulously annotated faults and inspections are any good unless they get to the proper authority to be corrected. Figure 4-1 depicts how DA Form 5988-E should be navigated through the company, eventually making their way to the prescribed load list clerks.



*DA Form 5988-E (*Equipment Maintenance and Inspection Worksheet*)

Legend:

PL	platoon leader	QA/QC	quality assurance/quality control
PLL	prescribed load list	SGT	sergeant
PSG	platoon sergeant	XO	executive officer

Figure 4-1. Example flow of the DA Form 5988-E

SAFETY-OF-USE MESSAGES AND MODIFICATION WORK ORDERS

4-38. Occasionally, the Army puts out a message indicating that a piece of equipment has a manufacturing flaw or is in need of an upgrade. This is released as a safety-of-use message or modification work order, which is accompanied by a timeline for finishing the safety check or modification and instructions on what to do if affected. These requirements are usually ordered through the brigade or battalion maintenance sections and reported weekly. The Joint Acquisition CBRN Knowledge System (https://jacks.jpeocbd.army.mil/Default.aspx) provides a useful source for these messages and other equipment-related information.

DISPATCH

4-39. Dispatching is another battle rhythm. A dispatch (DA Form 5987-E [*Motor Equipment Dispatch*) is required for any piece of rolling stock that leaves the motor pool. The purpose is to ensure that the vehicle is fully mission-capable and that the company leadership authorizes equipment use outside of the motor

pool. Any vehicle outside of the motor pool without a dispatch is exposed to unnecessary risk. If a vehicle gets into an accident or breaks down without a dispatch, the operator is blamed for not clearing removal with the command team or having it quality checked by the mechanics. The dispatching system is in place to protect Soldiers from assuming more risk than needed. Table 4-1 describes the steps of the dispatching process. There are many types of dispatches, each with its own purpose:

- A standard company dispatch covers on-post training. It is good for 7 days before it expires. The company commander has the ability to extend the dispatch 24 hours after the expiration date.
- An extended dispatch is typically good for up to 2 weeks. It requires a memorandum from the battalion commander. This memorandum can also include additions, such as off-post travel.
- An alert dispatch is good for as long as needed to accomplish the mission. It is used for the mass movement of equipment, such as during deployments; combat training center rotations; or short-suspense high-priority missions. An alert dispatch involves some assumed risk by the commander, as the commander acknowledges that the equipment is bypassing the standard dispatching checks and balances.
- A manual dispatch (DA Form 5987-E) can be used if the maintenance team does not have access to a Combat Service Support (CSS) Very Small Aperture Terminal (VSAT) or the Global Combat Support System–Army (GCSS-A) is down. It requires the use of a DD Form 1970 (*Motor Equipment Utilization Record)* and includes the same information as a standard dispatch. Signatures from a prescribed load list clerk and commander/executive officer are required in order to be valid.
- A road test dispatch is used for the initial and final road test of equipment that goes in for repairs and services. The road test dispatch is usually a 24-hour dispatch and a mechanic is usually the vehicle commander. These dispatches are limited to on-post. Other restrictions may apply, depending on the battalion SOP.

Table 4-1. Dispatching process

1) Operator receives the equipment record folder with all the forms needed from the PLL clerk and conducts PMCS on vehicle, ensuring that it is fully mission-capable.
2) Operator submits completed DA Form 5988-E (*Equipment Maintenance and Inspection Worksheet)* to the supervisor.
3) Supervisor completes top portion of DA Form 5988-E and gets a mechanic.
4) Mechanic inspects vehicle with operator and fills out mechanics portion.
5) Operator takes the equipment record folder with all the forms needed to PLL for dispatching.
6) Clerk sends dispatch to commander/executive officer for approval via GCSS-A.
7) Commander/executive officer prints dispatch and gives to operator.

Legend:	
DA	Department of the Army
GCSS-A	global combat support system–Army
PLL	prescribed load list clerk
PMCS	preventive maintenance checks and services

FEDERAL LOGISTICS DATABASE

4-40. The Federal Logistics Database (FEDLOG) is a useful logistics tool that can be used to look up characteristics of any government-issued item. Every piece of equipment with a national stock number or part number can be found in FEDLOG. Search criteria national item identification number, part number, item name, federal supply classification, cage code, manufacturer name, source of supply, or an item name. The search can be narrowed by military branch, and filters can be applied to acquire the desired results. FEDLOG is incredibly useful for inventorying and ordering parts. FEDLOG changes as national stock numbers are added and removed from the Army supply system, so it should be updated every quarter.

4-41. Once FEDLOG is installed on a computer, any of the categories can be chosen to view other codes and what they mean. The most important ones include the class of supply, expendable/durable/nonexpendable, and recoverability code. Class II requests will go through supply. Class IX requests will go through the field maintenance team. Nonexpendables/durables require adjustment

documents (financial liability investigation of property loss/statements of charges), and expendables usually do not. The recoverability code dictates whether the broken piece of equipment must be turned in or if it can be disposed of at the unit level. This affects the standard pricing lines. A recoverability code of "Z" does not require that the unit turn in the broken piece of equipment. Any other recoverability code requires that the unit give the broken piece to the field maintenance team so that it can receive a credit value. If the item is not available to turn in, then an adjustment document may be needed—even if the item is a Class IX expendable item.

SECTION V – MEDICAL SUPPORT

4-42. The Army health system (AHS) mission includes both health service support (HSS) and force health protection (FHP). The HSS mission is part of the sustainment warfighting function. The FHP mission falls under the protection warfighting function. HSS encompasses all support and services performed, provided, and arranged by Army medical units to promote, improve, conserve, or restore the mental and physical well-being of Army personnel and—as directed—other Services, agencies, and organizations. FHP includes the establishment and sustainment of a healthy and fit force and maintenance of health promotion and nutrition programs, identification of the health threat in all occupational and environmental settings (in deployed and garrison settings), development and implementation of preventive medicine measures to reduce exposure to health hazards and mitigation of the effects of the adverse impact of health threats to military personnel.

HEALTH SERVICE SUPPORT

4-43. Casualty care. Casualty care encompasses a number of Army medical functions including—

- **Organic and area medical support.** The medical treatment function encompasses Roles 1 and 2 medical treatment support. Role 1 medical treatment is provided by the combat medic, physician, physician assistant, or health care specialist in the BAS/Role 1 medical treatment facility. Role 2 medical care provides greater resuscitative capability than is available at the Role 1 level and is rendered by the brigade support medical companies or by the area support medical companies, which are echelons above brigade assets. These roles of care are provided by organic assets or on an area support basis from supporting medical companies or detachments. The area support function encompasses emergency medical treatment, advanced trauma management, routine sick call, emergency dental care, preventive medicine, and combat and operational stress control support. Many Role 1 and Role 2 medical treatment facilities can operate in a CBRN environment using specially designed collective protection equipment. See ATP 4-02.3 and ATP 4-02.5 for additional information on organic and area medical support and a full description of the roles of medical care.
- **Hospitalization.** The Army's hospitalization capability consists of Role 3 combat support hospitals or hospital centers purposely positioned to provide support in the AO. In Role 3, the combat support hospital and hospital center expand the support provided in Role 2 and are staffed and equipped to provide care including resuscitation, initial wound surgery, damage control surgery, and postoperative treatment for all categories of patients. Hospitalization capabilities deploy as modules or multiple individual capabilities that provide incrementally increased medical services in a progressively more robust AO. The hospitalization capability in the AO offers essential care in order to return the patient to duty (within the theater patient movement policy) and/or stabilize the patient to ensure that they can tolerate evacuation to a definitive care facility outside the AO. (This support is key to early identification and treatment of mild traumatic brain injuries). Role 3 medical treatment facilities can operate in a CBRN environment using specially designed collective protection equipment.
- **Behavioral health/neuropsychiatric treatment.** The primary focus of behavioral health/neuropsychiatric treatment is to screen and evaluate Soldiers with maladaptive behaviors. The purpose is to provide diagnosis, treatment, and disposition for Soldiers with behavioral/neuropsychiatric health-related issues. During CBRN operations, Soldiers may experience stress, fear, or anxiety from the CBRN threat or MOPP.
- **Clinical laboratory services.** Clinical laboratory services provide basic support within the theater, including hematology, urinalysis, microbiology, and serology procedures. Role 2 area

support medical companies and brigade support medical companies receive, maintain, and transfuse blood products. The combat support hospital—or hospital center—performs procedures in hematology, urinalysis, microbiology, and serology in support of clinical activities. Role 2 and 3 medical treatment facilities also provide blood-banking services. Role 3 clinical laboratories have testing capability for certain biological and chemical agents (for example, human or animal serum, blood, tissue, and bodily fluids) in clinical specimens.

- **Treatment of CBRN patients.** Health service support operations in a CBRN environment are complex. Medical personnel may be required to treat in large numbers of CBRN injured and contaminated casualties. Medical treatment must be provided in protected environments, and protective clothing must be worn. Movement of CBRN casualties can spread contamination to clean areas. All casualties are decontaminated as far forward as the situation permits, and they must be decontaminated before they are admitted into a clean medical treatment facility. The admission of one contaminated casualty into a clean medical treatment facility contaminates the facility, thereby reducing treatment capabilities in that facility. See ATP 4-02.7 for general information and patient decontamination, ATP 4-02.83 for information about treatment of radiological and nuclear casualties, ATP 4-02.84 for information about treatment of biological warfare agents, and ATP 4-02.85 information about for treatment of chemical warfare agents and conventional military chemical injuries.
- **Medical evacuation.** Medical evacuation provides en route medical care and emergency medical intervention. En route medical care enhances the Soldier's prognosis, reduces long-term disability, and provides a vital linkage between the roles of care necessary to sustain the patient during transport. In a CBRN-contaminated environment, ground evacuation should be used to prevent the spread of a contamination by wind generated from rotary or fixed-wing aircraft during takeoff and landing. A patient may be evacuated in a chemical patient protective wrap if they are treated in a collectively protected medical treatment facility and require evacuation to a higher role of care through a chemically contaminated area but cannot wear individual protective equipment (IPE) due to injuries. See ATP 4-02.2 for additional information.
- **Medical logistics.** Medical logistics encompasses the planning and execution of all Class VIII supply support, including medical materiel procurement and distribution, medical equipment maintenance and repair, blood management, optical fabrication and repair, and the centralized management of patient movement items. It also includes contracting support, medical hazardous waste management and disposal, and production and distribution of medical gases. The system is anticipatory, with select units capable of operating in a split-based mode. The Army Office of the Surgeon General sustains the initial issue inventory of consumable medical CBRN defense materiel (such as antidote treatment–nerve agent, auto-injector [ATNAA]; convulsant antidote, nerve agent, [CANA] auto-injector; and pyridostigmine bromide) for all Army forces, including military working dogs that deploy in support of operations. These countermeasures provide the individual Soldier with the capability to administer self-aid, buddy aid, or combat lifesaver support for injuries resulting from CBRN warfare agents. Medical logistics personnel must also plan for the inspection of CBRN-contaminated Class VIII supplies and decontamination, if needed. See ATP 4-02.1 for additional information.

FORCE HEALTH PROTECTION

4-44. FHP. FHP includes the preventive aspect of preventive medicine (medical and occupational and environmental health [OEH] surveillance, potable water inspection, pest management, food facility inspection, and control of medical and nonmedical waste), dental services, veterinary services (food protection, veterinary public health, and Role 1–3 veterinary care for military and DOD contract working dogs), combat operational stress control and neuropsychiatric care, and medical laboratory services (field confirmatory and theater validation). Preventive medicine, veterinary services, and medical laboratory services units collect and analyze environmental samples of air, soil, water, food, plants, and insects for various hazards. CBRN elements must share information with preventive medicine, veterinary services, and medical laboratory units to enable leaders to fully evaluate the area of responsibility (AOR) based on all environmental surveillance and sample analysis data.

4-45. Preventive medicine. Preventive medicine units conduct OEH surveillance and environmental sample management to document risks and exposures to various hazards (including CBRN hazards) and advise leaders on those risks, perform analysis of water sources to determine safety and potability and make recommendations if water sources are contaminated, and advise on the disposal of hazardous materials based on DOD or host nation law. Preventive medicine units also share the responsibility with HSS personnel for documenting Soldiers' suspected or confirmed CBRN hazard exposure by using the initial field account survey or the incident report survey as a starting point for the investigation. If there is a large number of dead insects or rodents in an area, preventive medicine units should be consulted to determine if the cause of death could be from a CBRN hazard.

4-46. Veterinary services. The U.S Army Veterinary Corps provides veterinary service support to all DOD components, organizations, and agencies. Veterinary personnel inspect and approve commercial food production facilities to ensure that they meet the U.S. standards for DOD procurement. They also monitor food from its procurement until the food is issued to the consumer. Throughout the AO, all logistics and food service personnel must take precautions to protect food and water from CBRN contamination. Veterinary services personnel advise on food decontamination operations and should inspect food prior to Soldier consumption. If there is a large number of dead animals in an area, veterinary services should be consulted to determine if the cause of death could be from a CBRN hazard, the environment (a lack of water or extreme heat or cold), or endemic disease. The veterinary service support team performs presumptive microbiological and chemical laboratory analysis of food and bottled water, and the food procurement and laboratory team performs field confirmatory microbiological and presumptive chemical laboratory analysis of food and bottled water. The veterinary service support team provides Role 1 and 2 veterinary medical care to military and DOD contracted working dogs, while the veterinary medical and surgical team provides Role 3 veterinary medical care. Both of these teams provide treatment to military and DOD contracted working dogs exposed to CBRN hazards and advise on the decontamination of these dogs since the working dog teams may not be co-located with veterinary teams or may be out on missions when they are exposed to CBRN hazards.

4-47. Combat operational stress control. CBRN threats, regardless of origin, present significant combat and operational stress/psychological effects to Soldiers. The symptoms and physical signs caused by excessive stress (such as sweating and feeling anxious) are similar to some signs of true CBRN agent injury. Pseudo-symptoms may be experienced by those who believe that they have been exposed or those who are simply overwhelmed by the operational stressors resulting from CBRN use. Therefore, far-forward combat and operations stress triage is essential in preventing over evacuation and loss of the individual to the unit. The key to addressing stress during CBRN operations is resiliency training in preparation for actual engagements. Prior to deployment, leaders must develop a CBRN training program that will build confidence in equipment and unit capabilities. See ATP 4-02.7 for more information on combat operational stress reaction and recommended leadership actions in a CBRN environment.

4-48. Medical laboratory services. The area medical laboratory provides field confirmatory and theater validation analysis of samples of air, soil, water, food, plants, and insects for environmental, occupational, endemic disease, and CBRN threats. In certain circumstances, these units may analyze human or animal clinical specimens such serum, blood, tissue, and other body fluids for the same threats. CBRN units may coordinate with the area medical laboratory for theater validation analysis of their samples to obtain results faster than if they had sent those samples out of theater.

HEALTH SURVEILLANCE

4-49. According to DODD 6490.02E, using technologies, practices, and procedures in a consistent manner, comprehensive, continuous, and consistent health surveillance shall be conducted to implement early intervention and control strategies. Health surveillance includes medical surveillance and OEH surveillance.

- *Medical surveillance* is the ongoing, systematic collection, analysis, and interpretation of data derived from instances of medical care or medical evaluation, and the reporting of population-based information for characterizing and countering threats to a population's health, well-being, and performance (JP 4-02).

- *Occupational and environmental health surveillance* is the regular or repeated collection, analysis, archiving, interpretation, and dissemination of occupational and environmental health-related data for monitoring the health of, or potential health hazard impact on, a population and individual personnel, and for intervening in a timely manner to prevent, treat, or control the occurrence of disease or injury when determined necessary (DODD 6490.02E).

4-50. CBRN elements must integrate with the medical community, sharing information on CBRN and TIM hazards that have been identified in the environment or that CBRN elements were or may have been exposed to so that the exposure can be documented in the Soldiers' medical records. Sharing information on CBRN threats and hazards facilitates early medical intervention and potentially prevents the negative acute, latent, and chronic physical effects of any hazardous materials exposures. Even if such exposures cannot be mitigated, they can at least be appropriately documented if detected as required by DODI 6490.03 and DODD 6490.02E.

MITIGATION OF MEDICAL RISKS

4-51. At the platoon level, the mitigation of medical risks is important to protect the force and minimize casualties in a hazardous CBRN environment. Risks included provide an example of mitigation measures that can be taken. Mitigating the effects of CBRN hazards requires close coordination between CBRN and medical subject matter experts (SMEs).

4-52. Foreign material (uniforms, IPE, PPE, debris, shrapnel) represents the most likely source of risk of residual agent. Mitigation of this risk involves immediate individual decontamination with a skin decontamination kit. MOPP gear is exchanged. If the Soldier requires medical treatment, the patient decontamination process in which the patient's garments are completely removed should be used; this reduces most of the contamination. The patients' skin is decontaminated using reactive skin decontamination lotion, chlorine solution, and/or an absorbing decontamination material. Cross-contamination is reduced by medics decontaminating their own contaminated garments and equipment during the cut-out process. Additionally, the patient is placed on a clean surface away, from the vapor hazard, after the skin is decontaminated. See ATP 4-02.7 for information about conducting patient decontamination.

4-53. Another risk is vapor off-gassing from foreign material buried in the wounds of patients brought into the medical facility. This risk is generally low. However, any foreign material (such as imbedded shrapnel) excised from the casualty should be removed utilizing a no-touch technique and the instrument and material should be placed, then sealed in a container containing 5 percent chlorine solution or other decontamination solution according to ATP 3-11.32 and TM 3-11.91.

4-54. Off-gassing wounds and wound cavities can be sources of risk of secondary exposure to medical personnel. The risk of off-gassing from most agents in wounds is low. However, thickened agents in wounds can be a contact hazard. Liquid agents can temporarily sequester in hollow portions of embedded shrapnel that can off-gas or evaporate to produce an inhalational hazard.

4-55. Thickened agents such as mustard agent can persist in a wound, causing risk of secondary exposure to medical personnel. Any large quantities of thickened agent in the wound should be irrigated or physically removed if possible. If the agent cannot be removed from the wound, it does not present a vapor hazard—only a contact hazard. Normal no-touch surgical techniques/IPE should protect against the contact hazard. It is recommended that medical personnel use IPE gloves or use at least 3 layers of nitrile medical gloves. This will allow them to remove the first layer of nitrile gloves once they are sure there is no residual contamination.

FIRST AID

4-56. The first medical care that a Soldier receives is provided by combat medics, who are assisted by self-aid, buddy aid, and combat lifesavers. First aid continues at the BAS, with treatment from the physician and physician assistant.

- **Combat lifesaver.** With input from squad leaders, the platoon leader/platoon sergeant identifies one Soldier per squad to perform responsibilities as a combat lifesaver. The combat lifesaver is a nonmedical Soldier trained to perform enhanced first aid and lifesaving procedures beyond the

level of self-aid or buddy aid. Although not a medical provider, the combat lifesaver is a recipient or consumer of medical materiel. The combat lifesaver assigned to a CBRN platoon with organic medical support receives normal resupply through the medical platoon. Combat lifesavers assigned to units without organic medical support are resupplied by the medical element providing area medical support. The combat medic can provide emergency resupply to the combat lifesaver. This type of resupply should not be practiced on a routine basis, as it presents logistical problems for the combat medic. The combat medic may not carry all of the exact medical items that are carried by the combat lifesaver.

- **Battalion medical platoon.** There is a medical platoon organic to each combat battalion. The platoon is organized with a headquarters section, a treatment squad (two treatment teams), an ambulance squad, and a combat medic section. The BAS is under the tactical control of the battalion S-4 and is deployed near battalion combat trains. To reduce ambulance turnaround time, the BAS may split and place its treatment teams as close to company teams as tactically feasible. The battalion S-4 closely coordinates locations of the medical elements with the battalion operations staff officer and supported companies. This is to ensure that the locations are known by maneuvering forces commanders. Coordination ensures that these elements are not placed in the way of friendly maneuvering forces, in lines of fire, or in areas subject to be overrun by rapidly advancing enemy forces. Treatment teams situated close to a company team that is in contact must be prepared to withdraw to preplanned, alternate positions on short notice.
- **MEDEVAC.** Evacuation of injured Soldiers is categorized into two types. MEDEVAC is the use of ground or air ambulances to evacuate a patient from the point of injury to a medical treatment facility while providing care en route. CASEVAC is the use of nonmedical vehicles or other means of patient movement without providing care, en route.

4-57. Medical support is a critical aspect of many CBRN operations. CBRN platoons work closely with medical personnel for advice and support regarding exposures and respiratory and ocular protection and during operations such as CBRN site exploitation, which require medics to be on-site. Medical support is required during thorough decontamination to check for CBRN casualties after removal of IPE.

4-58. Based on intelligence or known threats, each Soldier is issued the relevant medical chemical, biological, radiological, and nuclear defense materiel. See table 4-2, adapted from United States Army Medical Materiel Agency SB 8-75-S7.

Table 4-2. Initial issue medical CBRN defense material

Nomenclature	*Basis of Issue per Soldier*
Antidote treatment–nerve agent, auto-injector	3 each
Convulsant antidote, nerve agent, (CANA) auto-injector	1 each
Doxycycline, 100-milligrams tablets OR Ciprofloxacin, 500-milligrams tablets	15 days of supply OR bottle of 30 tablets
Pyridostigmine bromide tablets, 30-milligrams ***Note*:** Not issued unless expressly authorized by the Office of the Surgeon General.	42 tablets
Potassium iodide tablets ***Note*:** Not issued unless expressly authorized by the Office of the Surgeon General.	14 tablets/1 strip
Reactive skin decontamination lotion	1 pouch of 3 packets
Individual Soldier's guide to medical CBRN defense material	1 each
Legend: CANA convulsant antidote, nerve agent, auto-injector CBRN chemical, biological, radiological, and nuclear	

4-59. The signs and symptoms experienced after nerve agent exposure determine which auto-injectors can be given to a Soldier and how many. See table 4-3, page 4-14, for more information. Fourth-generation

agent and opioid exposures are accompanied by very similar signs and symptoms and should be considered if nerve agent treatment does not reverse or diminish signs and symptoms as expected after auto-injector use.

Table 4-3. Nerve agent exposure, signs and symptoms, and medical countermeasures

Severity	*Signs and Symptoms*	*Treatment*
Mild	Unexplained runny nose Unexplained sudden headache Sudden drooling Difficulty in seeing (dimness of vision and pinpoint pupils) Tightness in the chest or difficulty in breathing Wheezing and coughing Localized sweating and muscular twitching in the area of the contaminated skin Stomach cramps Nausea, with or without vomiting Increased heart rate followed by decreased heart rate	Self-aid 1–Antidote treatment–nerve agent, auto-injector
Severe	Confused behavior Increased wheezing and increased dyspnea (difficulty in breathing) Temporary cessation of breathing Severely pinpointed pupils Red eyes with tearing Vomiting Severe muscular twitching and general weakness Involuntary urination and defecation Convulsions Unconsciousness Respiratory failure Increased or decreased heart rate	Buddy aid 3–Antidote treatment–nerve agent, auto-injector 1–Convulsant antidote, nerve agent (CANA), auto-injector ***Note*:** Casualties with severe symptoms may be able to provide self-aid and must receive prompt buddy aid, combat lifesaver aid, and follow-on medical treatment if they are to survive.
Legend: CANA convulsant antidote, nerve agent, auto-injector		

Chapter 5
Reconnaissance and Surveillance

This chapter describes the fundamentals of reconnaissance and surveillance. *Reconnaissance* is a mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or adversary, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area (JP 2-0).

SECTION I – FUNDAMENTALS OF RECONNAISSANCE AND SURVEILLANCE

5-1. The purpose of CBRN R&S is to provide detailed, timely, and accurate information to help commander's decisions or to answer CCIRs. As information is collected from multiple CBRN R&S sources, it is analyzed for intelligence that supports answering the CCIRs concerning CBRN impacts to the commander's scheme of maneuver.

5-2. Surveillance is often used in conjunction with reconnaissance as a passive measure to collect information. *Surveillance* is the systematic observation of aerospace, cyberspace, surface, or subsurface areas, places, persons, or things by visual, aural, electronic, photographic, or other means (JP 3-0). These areas are typically identified and named as areas of interest during the IPB. The surveillance task is conducted in rear areas, along main supply routes, and road networks.

5-3. Wherever possible, sensors and observation devices are used to detect hazards from standoff distances. A standoff detection alerts reconnaissance leaders to gather further detail on a specific location, potentially involving autonomous or semiautonomous unmanned systems to further investigate the hazard or anomaly. These systems can be launched from modular payloads that are capable of being integrated with CBRN R&S units. If greater fidelity of information or sampling operations is required, CBRN R&S units provide information about assessment, characterization, and exploitation of hazards directly to CBRN staffs. When conducting reconnaissance or surveillance, it is important for the CBRN platoon to practice signature reduction to the greatest extent possible by implementing communications and operational security, transmitting only when/where necessary and according to higher deception plans.

5-4. The principles of reconnaissance include—

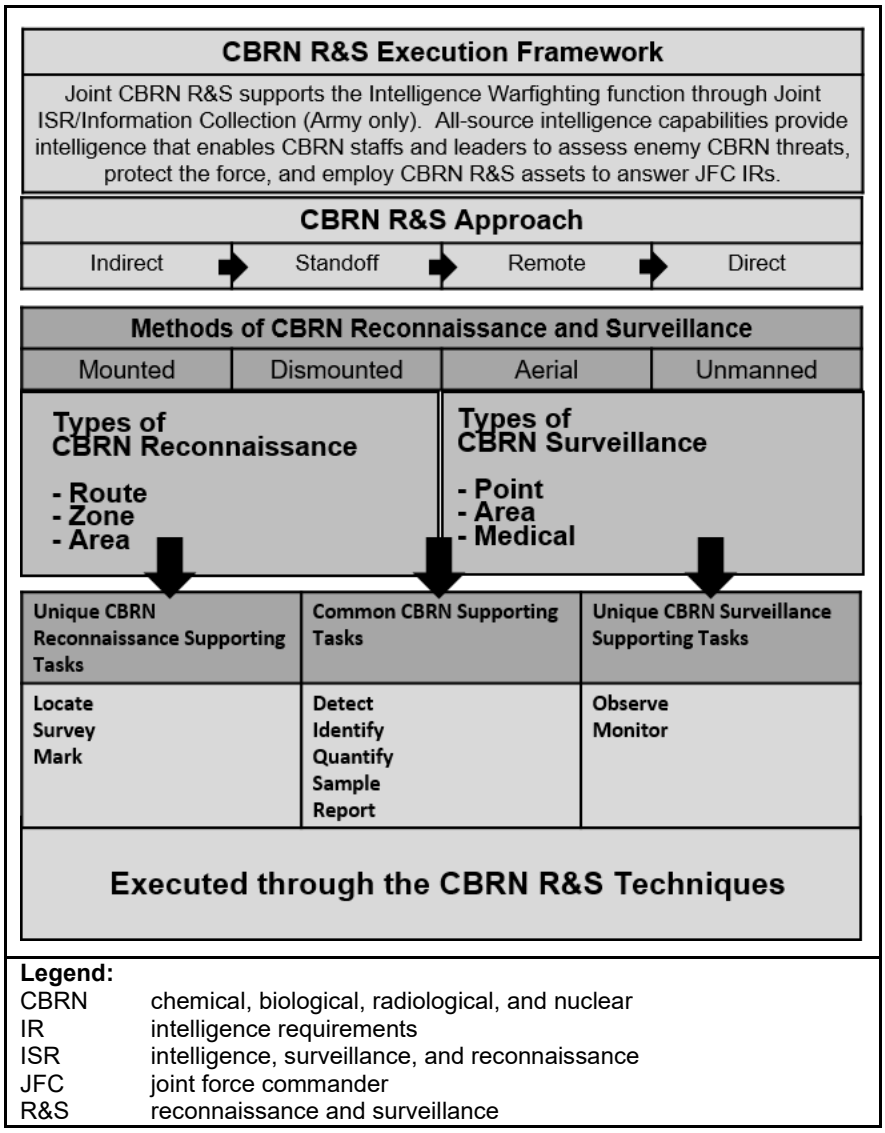
- Ensuring continuous CBRN reconnaissance.
- Not keeping reconnaissance assets in reserve.
- Orienting on the reconnaissance objective
- Rapidly and accurately reporting information.
- Retaining freedom of action.
- Gaining and maintaining CBRN hazard understanding.
- Rapidly developing the situation.
- Integrating with and enabling maneuver.

SECTION II – TYPES AND FORMS OF RECONNAISSANCE AND SURVEILLANCE

5-5. The three types of CBRN reconnaissance are route, zone, and area. This section describes each type and the unique tasks of CBRN reconnaissance—locate, survey, and mark. The CBRN surveillance tasks are monitor and observe.

5-6. CBRN R&S is executed with a progressive approach to maximize the usage of all available information collection assets, to minimize the risk to forces, and to create a greater certainty of a CBRN hazard presence. The tiers (indirect, standoff, remote, and direct) do not need to be executed sequentially, although they are designed to economize CBRN R&S capabilities and place them where increased CBRN threats are likely. The types of surveillance are point, area, and medical. See figure 5-1 for the CBRN R&S execution framework.

5-7. Monitoring CBRN hazards is described as checking the environment for the presence of CBRN hazards. When monitoring for CBRN hazards, periodic or continuous techniques are used. Observing CBRN hazards is described as using visual means to watch a specific location or unit for the presence of a CBRN hazard using visual means. More information on CBRN R&S can be found in ATP 3-11.37.



Legend:

CBRN	chemical, biological, radiological, and nuclear
IR	intelligence requirements
ISR	intelligence, surveillance, and reconnaissance
JFC	joint force commander
R&S	reconnaissance and surveillance

Figure 5-1. CBRN R&S execution framework

ROUTE RECONNAISSANCE

5-8. *Route reconnaissance* is a type of reconnaissance operation used to obtain detailed information of a specified route and all of the terrain from which the enemy could influence movement along that route (ADP 3-90). It is a type of reconnaissance that focuses along a specific line of communications, logistics, and

travel (a road, railway, or cross-country mobility corridor). CBRN route reconnaissance identifies CBRN usage or hazards on a route and provides new or updated information on route conditions, such as obstacles and bridge classifications and adversary and civilian activity. The commander normally assigns a route reconnaissance mission when they want to use a specific route for friendly movement or when information collection assets determine possible CBRN usage along a line of communication.

5-9. When the commander's joint intelligence preparation of the operational environment/IPB indicates that there is a high likelihood of contamination along the route, a unit (particularly a CBRN R&S element) is assigned the specific mission to conduct a CBRN route reconnaissance. Once contamination is detected, the R&S element has the following options:

- Conduct a CBRN survey to determine the extent of contamination.
- Locate and mark all clear bypass routes. (This does not require determining the entire extent of contamination.)
- Report and mark all CBRN hazards along the route.

5-10. The following critical tasks are conducted during a route reconnaissance:

- Reconnoiter terrain along the route.
- Locate and mark the nearside and farside of the contamination on the route.
- Report all information.

5-11. Typical CBRN reconnaissance procedures include—

- Locating, surveying, and reporting contamination that can influence movement along the route.
- Reconnoitering terrain that the adversary can use to dominate movement along the route, such as choke points and ambush sites within the CBRN hazard area.
- Reconnoitering built-up areas, contaminated areas, and lateral routes along the route.
- Locating any fords, crossing sites, or bypasses for existing and reinforcing obstacles (including built-up areas) along the route that can be used to avoid or bypass the CBRN hazard.
- Identifying obstacles in the execution of CBRN route reconnaissance.
- Reporting and marking CBRN hazards along the route.
- Conducting a CBRN survey to define the boundaries of the contamination.
- Reporting information according to the communication plan in place when initiating the CBRN route reconnaissance mission, including providing a sketch and a CBRN 4 report.
- Marking the contaminated area.
- Requesting decontamination support, if necessary.

ZONE RECONNAISSANCE

5-12. *Zone reconnaissance* is a type of reconnaissance operation that involves a directed effort to obtain detailed information on all routes, obstacles, terrain, and enemy forces in a zone defined by boundaries (ADP 3-90). CBRN-contaminated areas should be considered obstacles. The commander assigns a zone reconnaissance mission when they need additional information about a zone before committing other forces to the zone. Zone reconnaissance is appropriate when the enemy situation is vague, the existing knowledge of the terrain is limited, or combat operations have altered the terrain. See ADP 3-90 for more information on zone reconnaissance.

5-13. A zone reconnaissance is a deliberate, time-consuming process that requires a substantial commitment of resources. A zone reconnaissance may include several route or area reconnaissance missions assigned to subordinate units. A zone reconnaissance normally starts from a line of departure and is conducted over an extended distance. It requires all executing ground elements to be employed abreast. However, when the reconnaissance objective is the enemy force, the commander may forgo a detailed reconnaissance of the zone and focus assets on those in the named area of interest (NAI) that would reveal enemy dispositions and intentions. A reconnaissance unit cannot disregard terrain when focusing on the enemy. However, it minimizes its terrain reconnaissance to that which may influence an NAI, such as CBRN reconnaissance.

5-14. Previous reports or intelligence may indicate a high probability of past CBRN attacks within the zone. Once contamination is detected, the R&S element has the following options:

- Conduct a CBRN survey to define the boundaries of the contamination.
- Locate and mark clean bypass routes around the contaminated area within the zone.
- Terminate the mission and move to the coordinated decontamination point.

5-15. Unless specifically directed by the commander, critical tasks must be accomplished during a zone reconnaissance. Based on the time available and the commander's intent, the commander may direct the reconnaissance toward specific information requirements only. The following critical tasks are conducted during a zone reconnaissance:

- Reconnoiter the terrain within the zone for CBRN contamination.
- Locate previously reported CBRN attack areas and determine if a hazard still exists.
- Locate contamination within the zone.
- Verify the location of commercial TIM facilities.
- Report all information.
- Mark contaminated areas.
- Locate routes to bypass contamination.

5-16. The typical zone reconnaissance procedures include—

- Locating all previously reported CBRN attack areas and determining if a hazard still exists.
- Reconnoitering all the terrain within the zone for contamination.
- Locating any fords, crossing sites, or bypasses for existing and reinforcing obstacles (including built-up areas) within the zone to avoid or bypass CBRN hazards.
- Identifying and reporting all enemy CBRN delivery and storage capabilities within the zone.
- Identifying all obstacles in the execution of CBRN zone reconnaissance.
- Reporting and marking all CBRN hazards within the zone.
- Locating and marking bypass routes for other forces if contamination is encountered.
- Conducting a CBRN survey to define the boundaries of the contamination.
- Reporting information according to the communication plan in place when initiating the CBRN zone reconnaissance mission, including providing a sketch and photographs, if available, and a CBRN 4 report.
- Marking contaminated areas.
- Requesting decontamination support, if necessary.

AREA RECONNAISSANCE

5-17. *Area reconnaissance* is a type of reconnaissance operation that focuses on obtaining detailed information about the terrain or enemy activity within a prescribed area (ADP 3-90). This area may include a town, a ridgeline, woods, an airhead, or any other critical operational feature. The area may consist of a single point, such as a bridge or an installation. The primary difference between an area reconnaissance and a zone reconnaissance is that with area reconnaissance, units move first to the designated area in which the area reconnaissance is to occur, whereas, with a zone reconnaissance, the units start from a line of departure. Areas are normally smaller than zones and, therefore, are not usually contiguous to other friendly areas targeted for reconnaissance. Because the area is smaller, it takes less time to complete an area reconnaissance than a zone reconnaissance.

5-18. Examples of area reconnaissance missions assigned to CBRN R&S elements include reconnaissance of—

- Sites where WMD are being manufactured, filled, or stored or precursors and components of WMD are manufactured or stored.
- Contaminated areas, whether contaminated intentionally, accidentally, or through collateral damage.
- Fixed sites (seaports, airfields, land component operations) during fixed-site operations.

5-19. If contamination is detected, the CBRN R&S element performs a survey to define the boundaries of the contamination. If the CBRN R&S asset is supporting an offensive or defensive operation in the close or deep areas, the hazard area is located and marked and the site is reported. Sufficient information is provided to pass the site to another unit. If there is no contamination detected, the unit requests to terminate the mission.

5-20. The following critical tasks are conducted during an area reconnaissance:

- Locate and mark CBRN hazards within the area.
- Conduct a site survey, if required.
- Conduct sampling operations, if required.
- Locate bypass routes around identified contaminated areas.
- Report all information to higher and adjacent units.

AERIAL CBRN RECONNAISSANCE

5-21. Aerial reconnaissance operations are conducted during radiological surveys of large areas, such as dense urban environments, where a nuclear strike has occurred. Aerial R&S operations cover a larger area than ground mounted and dismounted operations and in a shorter period. Aerial R&S provides added protection for military personnel by expanding the distance and limiting the time of exposure necessary to take readings that can be converted into actual ground readings using an air-ground correlation factor (AGCF). There are two methods for obtaining the AGCF when high dose rates do not permit normal monitoring procedures—direct determination and determination using standardized tables. Direct determination is the preferred method and is accomplished as follows:

- An aerial dose rate is taken at a given location and height during the survey.
- The aircraft lands, and a ground dose rate is obtained at the same area.
- The AGCF is obtained by dividing the ground dose rate by the aerial dose rate.
- New data must be obtained when the height changes 15 meters or more or when the ground foliage or surface conditions vary significantly.

5-22. Direct communication between the CBRN element leader and the pilot during the mission is an important planning consideration. All information concerning the mission (survey height, ground speed, routes, and checkpoints) is obtained from the joint CBRN staff. When conducting an aerial reconnaissance mission the element leader uses the DD Form 3038 (*Nuclear Data Sheet Route or Course Leg Technique)*.

ROUTE

5-23. In the route form of aerial reconnaissance, the aircraft flies between two checkpoints, following the route of a predominant terrain feature (such as a road, riverbank, or railroad track) that connects the two checkpoints. The aircraft lands only to obtain the AGCF data needed by the CBRN control center.

5-24. The element leader determines the appropriate level of protection and obtains the operational exposure guidance, represented as the turn-back dose or turn-back dose rate. Any contamination detected along the route is reported to the higher headquarters.

COURSE LEG

5-25. In the course leg form of aerial reconnaissance, the aircraft flies a straight line between two checkpoints—for example, from Point A (top of hill) to Point B (top of another hill). The aircraft lands only to obtain the AGCF data. The following procedures are used to conduct the course leg form:

- The pilot maintains (as nearly as possible) a constant height above ground, a constant ground speed, and a straight flight direction between the starting and ending checkpoints of each course leg.
- The pilot flies the aircraft on the proper course over the starting checkpoint and on a straight path to the ending checkpoint. Shortly before reaching the starting checkpoint, the pilot alerts the monitor and gives the monitor the height above ground.

- The monitor records the time and height above ground. The monitor then rechecks and zeros the radiation detection, indication, and computation (RADIAC) meter before each course leg to ensure proper operation.
- The pilot gives the command MARK when the aircraft is directly over the starting checkpoint. The monitor reads the survey meter, records the dose rate, and begins timing based on preselected time intervals.
- The monitor reads the survey meter and records the dose rate at each preselected time interval—for example, every 10 seconds.
- The pilot alerts the monitor again when the aircraft approaches the ending checkpoint. The pilot then gives the command MARK when the aircraft is directly over the ending checkpoint.
- The monitor reads and records the final dose rate.

PRESELECTED DOSE RATE

5-26. With the preselected dose rate form of aerial reconnaissance, the monitor looks for a given dose rate designated by the control center team. When using a radiological preselected dose rate form of aerial reconnaissance, the element must be given a turn-back dose and turn-back dose rate. Results of preselected dose rate reconnaissance may be reported in various ways. A survey data sheet, such as DA Form 1971-2 *(Chemical Data Sheet-Monitoring or Survey)* or DD Form 3038, can be filled out and turned in to the tasking headquarters at the end of the mission, or the data can be sent via a CBRN 4 report. The following procedures are used to conduct preselected dose rate:

- The pilot maintains (as nearly as possible) a constant height above ground, a constant ground speed, and a straight flight direction between the starting and ending checkpoints of each route.
- The pilot flies the aircraft on the proper route over the starting checkpoint and on a path to the ending checkpoint. Shortly before reaching the starting checkpoint, the pilot alerts the monitor and gives the monitor the height above ground.
- The monitor records the time and height above ground. The monitor then rechecks and zeros the RADIAC meter before each route to ensure proper operation.
- The monitor constantly monitors the survey meter while it is moving along its designated route. Under no circumstances should the element continue farther into a contaminated area if it reaches its turn-back dose or turn-back dose rate.
- Upon encountering a reading of 1 centigray and/or its designated dose rate, the monitor records the dose rate and area.
- The pilot alerts the monitor again when the aircraft approaches the ending checkpoint. The pilot then gives the command MARK when the aircraft is directly over the ending checkpoint.
- The monitor reads and records the final dose rate.

5-27. The joint CBRN staff relies on reports to construct and update contamination overlays, including the common operating picture. The CBRN element must accurately record aerial radiological data as it may be used as evidence of violations of treaties and agreements. Examples of DD Form 3038 and DD Form 3039 (*Nuclear Data Sheet – Monitoring or Point Technique*) can be found in TM 3-11.32.

SECTION III – RECONNAISSANCE AND SURVEILLANCE PLANNING

5-28. Considerations for planning and preparing for CBRN R&S are based on the mission, as defined by the OPORD prepared by the requesting unit. Missions, taskings, priorities, and support relationships are coordinated and established by commanders.

5-29. As a minimum, the following actions should be considered in planning and preparing CBRN R&S operations:

- Continuously coordinating with the company command team or higher headquarters if detached.
- Assessing the time and distance factors for conducting CBRN R&S operations.
- Focusing the mission execution on providing timely notification or critical information to support tactical decisions.

- Planning for resupply activities to sustain CBRN R&S operations.
- Planning for fire support requirements.
- Planning for security.
- Determining the rules of engagement.
- Coordinating for medical treatment, the location of medical units with environmental sample laboratories, and the documentation of suspected or known CBRN hazard exposures.

5-30. The senior CBRN officer at each level of command is a key player in the assignment, employment, and planning process for CBRN reconnaissance assets. Subordinate CBRN company commanders are also critical links in the overall planning process for CBRN reconnaissance operations. The senior CBRN staff officer is responsible for ensuring that subordinate CBRN company commanders are kept informed of the current and future CBRN reconnaissance requirements. The planning process includes considerations for METT-TC and TLP.

MISSION

5-31. The mission of the supported unit is the first consideration in planning for CBRN reconnaissance. The key questions are: What type of mission is required? What assets are required to perform the mission? The following situations illustrate METT-TC considerations:

- Given a mission to conduct a zone reconnaissance with multiple CBRN reconnaissance elements available, the preferred method is to divide the zone into equal sectors and assign each CBRN reconnaissance element a specific sector of responsibility. The CBRN reconnaissance unit conducts this as a mounted mission.
- Given a mission to conduct a CBRN survey of a small town with limited reconnaissance elements available, the preferred method is to use dismounted techniques. A security force should protect the CBRN reconnaissance element during the mission.
- Given a mission to conduct an area reconnaissance of a bridge within a friendly area, the CBRN reconnaissance team conducts a mounted mission using one squad. Given a mission to conduct a CBRN route reconnaissance of the main supply route with multiple points along the route, the CBRN reconnaissance team conducts a mounted mission, using the entire CBRN reconnaissance platoon.

ENEMY

5-32. The assistant chief of staff, intelligence (G-2)/battalion or brigade intelligence staff officer (S-2) provides current information for the IPB, which contains information about the terrain, weather, enemy capabilities, and the location of the enemy. The location of the enemy may restrict the freedom of movement for CBRN reconnaissance elements, which may increase the time required to conduct CBRN reconnaissance missions.

TERRAIN

5-33. Terrain may dictate whether mounted or dismounted reconnaissance techniques are used. Mounted operations are best suited for open, trafficable areas. Dismounted operations are best suited for urban, jungle, or restricted terrain.

TIME

5-34. The time available and the time required to complete a mission also dictate the extent and size of an area that may be successfully reconnoitered. Available time also restricts the number of sampling points and the number of samples that can be taken during a reconnaissance, survey, or sampling mission. Time is also a key factor for planning movements.

5-35. The objective used in planning for CBRN reconnaissance operations is to facilitate contamination avoidance, preserve combat power, and orient on the enemy CBRN threat. The enemy CBRN threat encompasses those areas where the enemy will most likely employ CBRN weapons against U.S. forces. When planning for CBRN reconnaissance operations, the following questions must be answered:

- What do we want CBRN reconnaissance to do? CBRN reconnaissance must support contamination avoidance. CBRN reconnaissance must preserve combat power by providing early warning, locating contamination, and identifying clear routes to bypass contaminated areas provide freedom of movement for friendly forces and assist the commander in seeing the full spectrum of the battlefield. CBRN reconnaissance elements are never held in reserve; each CBRN reconnaissance element is positioned to be responsive to the supported unit.
- Where do we perform CBRN reconnaissance? CBRN reconnaissance is conducted within brigade, division, and corps areas. This includes the CBRN reconnaissance of main supply routes and support for rear area operations. The primary goal of CBRN reconnaissance is to provide freedom of maneuver by determining the presence or absence of CBRN contamination within a supported unit AO.
- When do we perform CBRN reconnaissance? U.S. forces conduct CBRN reconnaissance when the enemy employs CBRN weapons or participates in a suspected CBRN attack within a United States. AO. Information on the presence or absence of contamination is important in order for the commander to determine unit movement times and make other tactical decisions.

SECTION IV – UNMANNED GROUND VEHICLES/UNMANNED AIRCRAFT SYSTEMS EMPLOYMENT

5-36. Unmanned ground vehicles (UGV) and unmanned aircraft systems (UAS) expand the ability of the CBRN platoon to gather critical information related to CBRN threats and hazards while eliminating or reducing exposure to those hazards. This capability requires unique considerations when preparing for employment.

CONCEPT OF OPERATIONS

5-37. The United States Army Chemical Corps is modernizing the force through the use of UGV and UAS. Ground robots can be classified as either small or large UGV, and the UGV is based on the unit utilizing the UGV. UGV may be used for dismounted reconnaissance and serve as initial entry into buildings.

UNMANNED GROUND VEHICLES

5-38. UGV may be used to conduct an investigation pattern of suspected CBRN targets. Based on METT-TC and operator experience, guiding to an object may be difficult and may require the assistance of a dedicated "spotter." The spotter assists the operator in directing the UGV to the CBRN objective while the operator continually scans the area leading up to the objective, looking for indicators such as trip wires, initiation devices, and other hazards. The following procedures should be used:

- Conduct a 360-degree scan outward around the target.
- Investigate the target that will confirm or deny the presence of hazards.
- Conduct a 360-degree scan inward.
- Place markers to assist follow-up investigations if the site is difficult to locate.
- Scan directly across the route the UGV will travel upon its return to the start point.

5-39. A UGV serves as a robotic wingman to the mounted R&S platform by being equipped with duplicate standoff and point CBRN sensors as the NBCRV. The UGV is controlled by operators within the NBCRV or operates semiautomatously (via leader/follower or waypoints) to further examine known threats. It works in conjunction with the sensor suite on the NBCRV to triangulate the location and movement of hazards. The NBCRV is generally used to perform assigned missions as a single entity, with its associated UGV in a manned-unmanned team formation for redundancy and efficiency purposes.

UNMANNED AERIAL SYSTEMS

5-40. UAS are providing remotely operated aircraft controlled by a ground operator. UAS may be capable of live video images, compass headings, location information, sensor payload, target acquisition, and a one-station remote viewing terminal. UAS are tools that commanders could employ to gather mission-critical information about the OA and reduce the tactical risk to forces.

5-41. The integration of UAS in to reconnaissance missions increases the information-gathering capability. These systems can provide a flexible, low-risk means for gaining information in a speedy and efficient manner.

5-42. The UAS is outfitted with interchangeable payloads to further investigate suspected areas of contamination. The UAS has the capability to provide visual intelligence, surveillance, and reconnaissance through its onboard cameras or additional camera payloads. It can also serve as a radio retransition for other robotic platforms.

ROBOT

5-43. Man-transportable robotic systems have specific terrain capabilities and limitations including—

- Robots are capable of climbing 45-degree slopes, with the robot as perpendicular to the slope as possible and continuously moving to the top of the slope.
- To climb a steeper slope, the two-stage arm and the deployable mast must be positioned to reduce the center of gravity. The deployable mast must be lowered over the robot, and the two-stage arm must be extended forward.
- The robot is capable of traversing 43-degree slopes. When traversing steeply angled slopes, the robot should be positioned so that the fiber optic mast (or audio tower) is on the uphill side of the robot to reduce the possibility that the robot will tip over.
- The robot can travel through mud, sand, and snow that is 2 inches deep or less.
- The robot can be driven through water that is no more than 6 inches deep. The two-stage arm must be positioned to ensure that the gripper camera is not submerged during movement through water.
- The robot is capable of traveling over rubble/debris that has an average diameter of 8 inches and is closely packed. Before driving over large rubble/debris, the two-stage arm and the deployable mast must be positioned to reduce the center of gravity.

5-44. The robot can successfully climb stairs with an angle less than or equal to 43 degrees. Stairs should always be ascended facing forward and descended facing backward. The robot is not stable enough to travel down stairs facing forward (with the gripper facing the front). The roll stop feature should be turned on when ascending or descending stairs. The deployable mast must be positioned all the way forward when ascending or descending stairs. The two-stage arm must be fully extended when going up and down stairs. A counterweight should be positioned on the robot (usually in the area of the battery) to move the center of gravity forward to prevent the robot from flipping backward. This is especially important when climbing very steep stairs. Avoid sudden stops when going down stairs. If possible, the robot should travel down the complete flight without stopping to avoid flipping.

COMMAND AND CONTROL

5-45. The UGV/UAS capability enables the platoon leader to achieve timelier situational awareness and understanding the ability to conduct reconnaissance farther in front of the maneuver forces.

5-46. The standoff created by the unmanned systems allows units to implement contamination avoidance, provide warning, and provide information to support the CCIR while preventing the exposure of Soldiers and equipment to the hazard.

5-47. During surveillance operations, operators use standoff methods to provide early warning, tracking and, in some cases, identification of a CBRN hazard. The standoff distance allows leaders to make decisions about movement and maneuver. Operators use the standoff method to assist in locating and confirming the presence of a CBRN hazard.

PLANNING CONSIDERATIONS

5-48. The observer controller for the UGV is most effective when there is a clear line of sight between the controller and the UGV. Communications are maximized if antennas are elevated as much as possible. The highest available point on the terrain should always be sought for the controller. A hill overlooking the operation is ideal. The UGV can be operated at its maximum range for a line of sight in an uncluttered landscape. The presence of buildings or trees reduces the operating range because these objects attenuate and scatter the radio frequency signals. Solid barriers such as hills and concrete obstacles should be avoided. Metal obstructions—which scatter signals—have the greatest impact on signals and also should be avoided.

5-49. Considerations for UAS employment include the elevation of surrounding terrain on line of sight and the radio link between the ground control station and objective. Any hindrances to the launch and recovery must be considered during mission planning.

Chapter 6
Contamination Mitigation

Contamination mitigation involves the ability to plan, prepare for, and respond to CBRN threats and hazards. This chapter focuses on tasks associated with controlling and mitigating the effects of CBRN contamination.

SECTION I – FUNDAMENTALS OF CONTAMINATION MITIGATION

6-1. The objective of contamination mitigation is to minimize the effects and consequences of CBRN hazards on operations and populations by preventing the spread of contamination or recontamination. Contamination mitigation includes the planning for contamination and the actions taken to prepare for, respond to, and recover from contamination by CBRN threats and hazards, including TIMs. It encompasses two activities—contamination control and decontamination.

CONTAMINATION CONTROL

6-2. Contamination control includes activities employed to avoid contamination, control exposure, and contain contamination. Preventative activities include providing sound advice to the commander, tactical dispersion, and determining environmental and medical baselines. Activities performed during an incident include implementing warning and reporting, predicting hazards, and documenting exposure. After an incident, contamination control activities include reconnoitering of potential contamination, bypassing contamination, controlling run-off, and marking hazard areas. All of these measures are taken to control the number of personnel and amount of equipment exposed to contamination, thereby reducing potential documentation requirements.

DECONTAMINATION

6-3. *Decontamination* is the process of making any person, object, or area safe by destroying, neutralizing, making harmless, or absorbing and removing chemical or biological agents or by removing radioactive material clinging to or around it (JP 3-11). Because decontamination can be time- and resource-intensive, measures that are more passive must be considered. Weathering of equipment and materials so that the hazard is removed by exposure to natural elements can be considered when equipment or terrain is not mission-critical. It is important to consider that the hazard may not be completely reduced and the risk of hazardous vapor off-gassing may still exist.

6-4. Depending on the resources and time available, there are four levels of decontamination—immediate, operational, thorough, and clearance which are described in table 6-1, page 6-2. The risk that the hazard poses to personnel is reduced with increased levels.

Table 6-1. The four levels of decontamination

Level	*Purpose*	*Tasks*	*Best Start Time**	*Performed by*
Immediate	Saves lives Stops agent from penetrating Limits agent spread	Skin decontamination	Before 1 minute	Individual
		Personal wipe down	Within 15 minutes	Individual or crew
		Operator spray down		
		Spot decontamination		
Operational	Allows continuation of operations in a contaminated environment Limits agent spread	MOPP gear exchange**	Within 6 hours	Contaminated unit
		Vehicle wash down		Organic battalion crew or decontamination PLT (-).
Thorough	Provides probability of long-term MOPP reduction	DED/DAD	When mission allows reconstitution	Decontamination PLT
		DTD		Contaminated unit
Clearance	Allows unrestricted transportation, maintenance, employment, and disposal	Dispose of and replace contaminated items, contaminated surface/component replacement	When mission allows reconstitution	Supporting strategic resources
*The techniques become increasingly less effective the longer they are delayed. **Performance degradation, equipment limitation, and health risk assessment need to be considered with exceeding 6 hours.				
Legend: DAD detailed aircraft decontamination DED detailed equipment decontamination DTD detailed troop decontamination MOPP mission-oriented protective posture PLT platoon				

SECTION II – DECONTAMINATION

6-5. Decontamination is critical for mitigating the spread and transfer of contamination as well as reducing the risk of exposure for personnel. Decontamination tasks include decontaminating individuals, casualties, equipment, facilities, and terrain. The following principles of decontamination should be considered:

- **Speed**. Personnel should conduct decontamination operations as soon as possible. Direct exposure to some CBRN hazards could be fatal within minutes. The sooner equipment is decontaminated, the less likely the agent is to be absorbed or spread to other surfaces.
- **Need**. Personnel should decontaminate only what is necessary. Limited resources are available, and they should only be expended when needed.
- **Priority**. Personnel should decontaminate the most essential items first. If contact occurs, then skin should be decontaminated first. Once wearing protective equipment, personnel should begin decontamination operations on clothing, equipment, and vehicles.
- **Area**. Personnel should perform decontamination as far forward as possible. This limits the spread of contamination to other areas and reduces the time that forces spend in burdensome protective gear.

6-6. Decontamination may be accomplished by several different methods including neutralization, physical removal, weathering, absorption, encapsulation, and disinfection.

DECONTAMINATION SITE PLANNING

6-7. When enemy forces are capable of conducting CBRN attacks or there is a potential need to conduct decontamination, higher headquarters may direct CBRN elements to conduct planning, reconnaissance, and selection of potential decontamination sites. Site selection is done by the controlling headquarters. Sites may

be designated in the OPORD or selected based on the current METT-TC. The following factors should be considered when selecting a decontamination site:

- Direction of prevailing wind.
- Availability of water supply.
- Slope of terrain.
- Security of site (overhead concealment, cover)
- Maximization of use of existing facilities.
- Trafficability.
- Accessibility. The site must be accessible to the largest vehicle in the contaminated element.
- Size. The site bust be large enough to handle all of the decontamination stations and runoff or trash produced from operations.
- Length of time the site is expected to be occupied or perform decontamination operations for maneuver forces.

6-8. Potential sites are surveyed by CBRN elements. The platoon leader briefs the reconnaissance team after receiving an OPORD to conduct decontamination site selection from higher headquarters. The reconnaissance team should identify primary and alternate decontamination sites as well as one or more linkup points to support each decontamination site.

6-9. Reconnaissance teams plan the execution of the mission by implementing TLPs. The reconnaissance leader directs the use of detection devices to be used to ensure that the area is free of contamination during the site reconnaissance.

6-10. In addition to the selection of sites, platoon leaders coordinate with headquarters for security of decontamination sites and with engineer support elements for sumps and water runoff after selecting primary and alternate sites. See figure 6-1 depicts a though decontamination site.

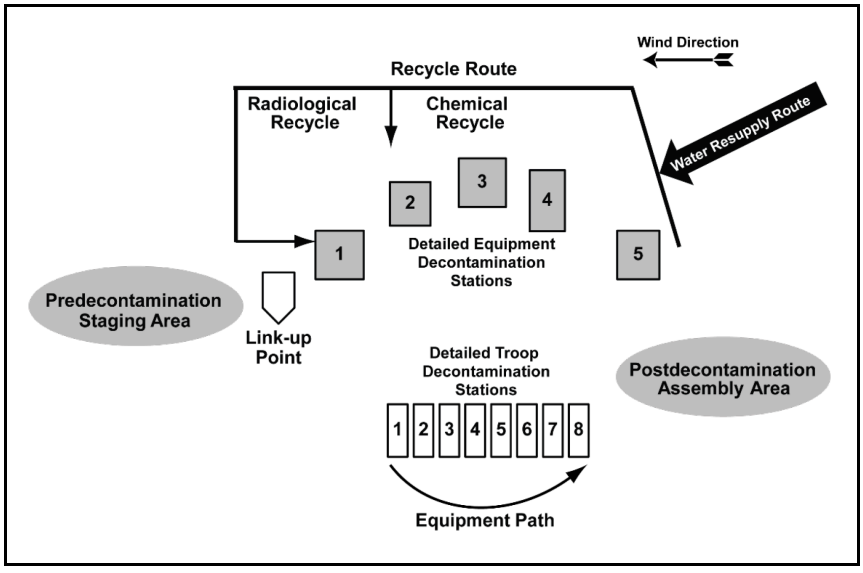


Figure 6-1. A thorough decontamination site

DECONTAMINANTS

6-11. Information on the effectiveness of several standard, nonstandard, and natural decontaminants on various substances, is available and is provided in tables 6-2 through 6-4, pages 6-4 through 6-9.

STANDARD DECONTAMINANTS

6-12. A list of standard decontaminants and descriptions of their effectiveness against specified agents are provided in table 6-2.

Table 6-2. Standard decontaminants

Calcium Hypochlorite	
Agent	Chemical: • G-agents. • V-agents. • Lewisite. • Mustards. Biological (including bacterial spores)
Use	• Use for a rapid reaction (within 5 minutes) with mustards and Lewisite. • Allow a 15-minute contact time for biological agents. • Use as a dry mix or slurry. • Use a 0.05 percent solution on skin and a 5 percent solution on equipment.
Cautions/Safety	• Produces an exothermic reaction with VX and HD; can create flames or melt personnel protective equipment on contact. • Creates toxic vapor and burns skin. • Requires a minimum requirement of a protective mask and rubber gloves as protective equipment needed when handling.
Corrosive Effects	• Corrodes to metal parts. • Destroys clothing.
Preparation	Chemical decontamination: • Mix 5 pounds of calcium hypochlorite to 4 gallons of water (10 percent solution). Biological decontamination: • Mix 1 pound of calcium hypochlorite to 4 gallons of water (2 percent solution). PDDE: • Mix a slurry of 1 part decontaminant to 2 parts water. (A heavier slurry clogs the decontamination equipment.)
Sodium Hypochlorite ***(Also known as household bleach; the percentage of available chlorine may vary, usually 5–10 percent)***	
Agent	Chemical: • V-agents. • G-agents. • Blister agents. • Biological
Use	• Prepare for a slower reaction time for G-agents than for V- or H-agents. • Use for a rapid reaction (within 5 minutes) with blister and V-agents. • Allow a 10- to 15-minute contact time for biological agents. • Apply undiluted, with brooms, brushes, or swabs. • Use as the preferred decontaminant for ships. • Use 5:1 concentration (recommended).

Table 6-2. Standard decontaminants (continued)

Sodium Hypochlorite ***(Also known as household bleach; the percentage of available chlorine may vary, usually 5–10 percent) (continued)***	
Cautions/Safety	• Produces an exothermic reaction with VX and HD, can create flames or melt personnel protective equipment on contact. • Harms skin and clothing if undiluted. • Should be removed from skin and clothing by flushing with water. • Has a limited storage problem. • Should be stored in a cool place.
Corrosive Effects	Corrodes metals unless they are rinsed, dried, and lubricated after decontamination.
Preparation	• For chemical decontamination: No mixing is required. • For biological decontamination: A 1.25 percent chlorine-based solution should be prepared. • For skin: A 0.05 percent solution should be used; for equipment a 5 percent solution should be used. • For decontamination of cotton clothing and utensils: Prepare a 0.4 percent solution.
Mask Sanitizing Solution	
Agent	Chemical Biological
Use	• Use on a previously cleaned mask, with filter elements and canisters removed. • Place the mask face up; attach the canteen to the mask at the drinking tube. • Drain one canteen full of sanitizing solution through the mask. • Rinse the mask with two canteens full of clear water. • Immerse the mask and outserts in the sanitizing solution.
Cautions/Safety	• Although the solution concentration is low, take necessary safety precautions.
Corrosive Effects	• Corrodes to metals and fabrics. (Rinse thoroughly, and oil metal surfaces). • Slightly corrodes nonmetals. • Moderately corrodes sealants.
Preparation	For single use: • Fill a standard plastic canteen to the shoulder with water. • Add a 0.5-gram tube of calcium hypochlorite from the water purification kit. • Cover the canteen, and shake it vigorously for 30 seconds. For bulk quantities: • Prepare a 0.03 percent chlorine-based solution (approximately leveled 1/2 teaspoon of calcium hypochlorite to 1 gallon of water.

Table 6-2. Standard decontaminants (continued)

Soap and Detergents: Detergents, GP, Liquid	
Agent	All agents (physical removal only).
Use	Scrub or wipe the contaminated surface with hot, soapy water, or immerse the item in the solution.
Cautions/Safety	Casualty-producing levels of contamination may remain in the runoff water and are considered contaminated.
Corrosive Effects	None.
Preparation	• Mix 75 pounds of powdered soap in 350 gallons of water. • If powdered soap is not available, use bar laundry soap (75 pounds of soap cut into 1-inch pieces and dissolved into 350 gallons of hot water). • Use a ratio of about 1 pound of soap per gallon of water for smaller amounts of soap solution. Mix 2 pints of detergent to 450 gallons of water for PDDE.
General Purpose Decontaminant	
Agent	• Neutralizes traditional (G, V, and H) and nontraditional chemical agents as well as biological agents.
Use	• Thorough decontaminant for hardened military equipment such as tactical vehicles, crew-served and individual weapons. • Apply to contaminated surface ensuring surface remains wet with M333 for 30 minutes. • May be applied manually using field expedient applicators (mops, brooms, or brushes) or sprayed with the M12Al or M26. • Scrubbing of the decontaminant on the contaminated surface does not enhance performance of the decontaminant. • Do not run M333 solution through the M12A1 or M26 heaters. Heating the decontaminant does not provide any benefit and could result in heater failure. • M333 can be mixed with fresh, potable, brackish, or sea water and has a pot (effective) life of 6 hours.
Preparation	• Instructions are provided on M333 packaging. • M333 is a dry powder formulation available in both 5 gallon and 25 gallon kits. • One kit contains three different distinctly labeled foil pouches (1, 2, and B) each holding a different white powder. For chemical agents only 1 and 2 are combined with water. For biological all three components (1, 2, and B) are used. • Mix with water at a 1:1 ratio. 5 gallon kit is mixed with 5 gallons of water and 25 gallon kit is mixed with 25 gallons of water. • Add powder to water to avoid foaming. • Lightly stir using a mop or broom handle (or similar item) until powder is dissolved into solution. • Field expedient mixing may be used but must be free of leaks and sufficiently sized to accommodate either the 5 gallon or 25 gallon CKD as needed. • The CKD agent formulation generates 15 percent foam. The CKD biological agent formulation generates up to 30 percent foam. Ensure the container is large enough to contain the additional volume of foam.

Table 6-2. Standard decontaminants (continued)

General Purpose Decontaminant (continued)	
Cautions/Safety	• Chemicals used in the CKD can cause severe skin and eye irritation. Wear protective equipment at all times when handling the CKD. If exposed, initiate first aid and seek immediate medical attention. • Do not mix with hypochlorite solutions (such as bleach). Chemicals used in the CKD may react with beach and other chemicals.
Corrosive Effects	• When the decontaminant is mixed, the solution contains approximately 1.0 percent peracetic acid and 1.5 percent hydrogen peroxide. These are the active ingredients that neutralize chemical and biological agents. • M333 will not cause material degradation more than that which is allowable in service platforms' (for example equipment, vehicles, ships, weapons) specifications and facilities to complete mission functions. M333 will not adversely impact tactical mission capability following decontamination.
Legend: CKD chemical kit decontaminant G G-nerve agent H mustard (blister agent) HD a type of mustard agent PDDE power-driven decontaminating equipment V V-nerve agent VX nerve agent (O-Ethyl S-Diisopropylaminomethyl Methylphosphonothiolate)	

NONSTANDARD DECONTAMINANTS

6-13. A list of nonstandard decontaminants and descriptions of their effectiveness against specified agents are provided in table 6-3.

Table 6-3. Nonstandard decontaminants

2-Propanone (Acetone)	
Agent	Chemical (physical removal only)
Use	• It is effective for dissolving and flushing agents. • It is a good decontaminant for use in arctic regions. • The freezing point is -203°F (-130°C); the boiling point is 133°F (56°C) (evaporates rapidly).
Cautions/Safety and Corrosive Effects	• Is extremely flammable. • Does not neutralize agents.
Preparation	None
Acids (Sulfuric Acid, Hydrochloric Acid, and Oxalic Acid)	
Agent	Radiological (physical removal only)
Use	• Use as effective solvents for rust and mineral deposits holding radioactive material on metal surfaces. • Allow a 1-hour contact time. • Flushed with water, scrub with a water detergent solution, and flush with water again.
Cautions/Safety and Corrosive Effects	• Requires the use of respiratory protection when used in closed areas. • Can produce boiling and splattering of the solution when mixed. • Is difficult to handle and is harmful to the body—especially the eyes. • Requires immediate flushing of the area with water.
Preparation	Use a 5 percent solution of water and baking soda (sodium bicarbonate).

Table 6-3. Nonstandard decontaminants (continued)

Ammonia or Ammonium Hydroxide (Household Ammonia)	
Agent	Chemical • G-agents.
Use	• Agents are slower-acting than sodium hydroxide or potassium hydroxide. • Ammonium hydroxide is a water solution of ammonia.
Cautions/Safety and Corrosive Effects	May require the use of an SCBA or special-purpose mask.
Preparation	None
Carbon Dioxide and Ethylene Oxide Mixture (>87 percent Ethylene Oxide)	
Agent	Biological
Use	• Use interiorly (recommended). • Use in an airtight enclosure. • Allow a 12-hour contact time (doubled for each 20°F [-7°C] drop in temperature below 75°F [24°C]). • Aerate items next to the skin for 18 to 24 hours.
Cautions/Safety and Corrosive Effects	• Is nonflammable. • Blisters the skin.
Preparation	Apply 30 pounds for every 1,000 cubic feet.
Complexing Agents (Versene, Citric Acid, Sequesterene, Sodium Citrate, Tartanic Acid, Sodium Oxalate, Sodium Tartrategoxalic Acid, Othophosphoric Acid, and Similar Agent)	
Agent	Radiological (physical removal only)
Use	• Allow a 30-minute contact time, and then flush with water. • Apply as a film over the surface using a PDDE, firefighting apparatus, or a tree or garden sprayer.
Cautions/Safety and Corrosive Effects	• It does not neutralize contamination. • Runoff should be contaminated.
Preparation	Mix 3 percent to 5 percent of the agent (by weight) in water.
Detrochlorite	
Agent	Biological
Use	• Use thickened bleach on vertical surfaces. • Allow a 30-minute contact time, and then rinse with water. • Apply by means of the PDDE. • Expect a coverage of 1 gallon per 8 square yards.
Cautions/Safety and Corrosive Effects	• Mixing the wetting agent and calcium hypochlorite in a dry and undiluted state may cause an explosion. • The agent is very corrosive.
Preparation	• Mix by weight: 19.3 percent diatomaceous earth, 0.5 percent anionic wetting agent, 2.9 percent calcium hypochlorite (70 percent available chlorine), and 77.3 percent water. • Mix the wetting agent and diatomaceous earth with water before adding the calcium hypochlorite.
Dichlorimine B and Dichoramine T	
Agent	Chemical • Mustard.
Use	None
Cautions/Safety and Corrosive Effects	Keep away from clothing and other combustible materials.
Preparation	• Is not soluble in water, but is soluble in certain organic solvents (for example, dichloroethane). • Is normally mixed as a 10 percent solution in dichloroethane.

Table 6-3. Nonstandard decontaminants (continued)

Diethyl Ether	
Agent	Chemical
Use	• It is a good decontaminant for use in arctic regions. • The freezing point is -241°F (-152°C); the boiling point is 93°F (34°C).
Cautions/Safety and Corrosive Effects	Is extremely flammable. Does not neutralize agents.
Preparation	None
Disinfectant Chlorine	
Agent	Biological
Use	• Use to decontaminate utensils, mess gear, exteriors of sealed containers, and food products that can withstand soaking. • Allow a 30-minute contact time (stir occasionally). • Rinse thoroughly in potable water. • Make fresh solutions for rinsing and disinfecting utensils for every 100 individuals.
Cautions/Safety and Corrosive Effects	• Dispose of any damaged food or vegetables and any outer leaves that are bruised or torn. • Do not cut or peel fruits and vegetables before disinfecting. • Use the solution only once.
Legend: PDDE power-driven decontaminating equipment SCBA self-contained breathing apparatus	

NATURAL DECONTAMINANTS

6-14. A list of natural decontaminants and descriptions of their effectiveness against specified agents are provided in table 6-4.

Table 6-4. Natural decontaminants

Decontaminant	*Agent*	*Notes*	*Cautions/Safety*
Water	(Physical removal only) Chemical Biological Radiological	Can be used to flush contamination from surfaces. Hot, soapy water is more effective in removing agents. Boiling for 15 minutes (30 minutes at high altitude) destroys biological agents.	Water is effective in physically removing contamination, but does not neutralize it. Do not use water on Lewisite.
Seawater	(Physical removal only)	None.	None.
Steam	Chemical Biological Radiological	None.	Steam is effective in physically removing contamination, but does not neutralize it.
Absorbents (earth, sawdust, ashes, rags, and similar materials)	(Physical removal only) Chemical Biological Radiological	Can be used to physically remove gross contamination from surfaces.	The contamination is transferred from the surface to the absorbent. The absorbent becomes contaminated and should be disposed of accordingly. Sufficient contamination to produce casualties may remain on surfaces.

Table 6-4. Natural decontaminants (continued)

Decontaminant	*Agent*	*Notes*	*Cautions/Safety*
Sealants (concrete, asphalt, earth, paint, and similar materials	(Physical seal only) Chemical Biological Radiological	Can be used to physically seal in or shield contamination. Chemical: 4 inches of earth provides a good protection. Biological: burying items is an effective means of sealing off contamination. Radiological: 12 inches of earth provides good protection from fallout (3 inches reduces the dose rate by about one-half). Radiological: 1 inch of asphalt or concrete completely absorbs alpha and beta radiation. Radiological: 1/4 inch of grout shields alpha and beta radiation.	A break in the surface of the sealant exposes the contamination. Contaminated areas covered with sealants should be marked with appropriate CBRN warning signs.
Weather/Time	Biological Chemical Radiological	UV light kills most biological agents. Wind, rain, and temperatures above evaporation points tend to diffuse, dilute, and accelerate phase changes for chemical agents. Time allows radiological hazards to decay. Rain can wash away radiological particulates, but does not reduce radioactivity.	None.
Burning	Chemical Biological	N/A	Burning creates downwind hazards. It also requires that sentries be posted to keep people out of the danger area.
Legend: CBRN chemical, biological, radiological, and nuclear N/A not applicable UV ultraviolet			

PERSONNEL DECONTAMINATION

6-15. Decontamination of personnel takes several forms based on conditions (see figures 6-2 through 6-5, pages 6-11 through 6-14):

- MOPP drop.
- MOPP gear exchange.
- Detailed troop decontamination (DTD).
- Casualty decontamination. All forces (supported by CBRN personnel, if available) perform immediate decontamination measures for casualties before casualties are turned over to medical personnel.
- Mass casualty decontamination (MCD; only for continental United States-based decontamination of unprotected civilian operations per ATP 3-11.41).
- Patient decontamination. Patient decontamination is the responsibility of Role 2 or 3 medical treatment facilities and requires augmentation from other units so that medical providers can focus on treating injured Soldiers.
- Human remains decontamination. Human remains decontamination is the responsibility of mortuary affairs.

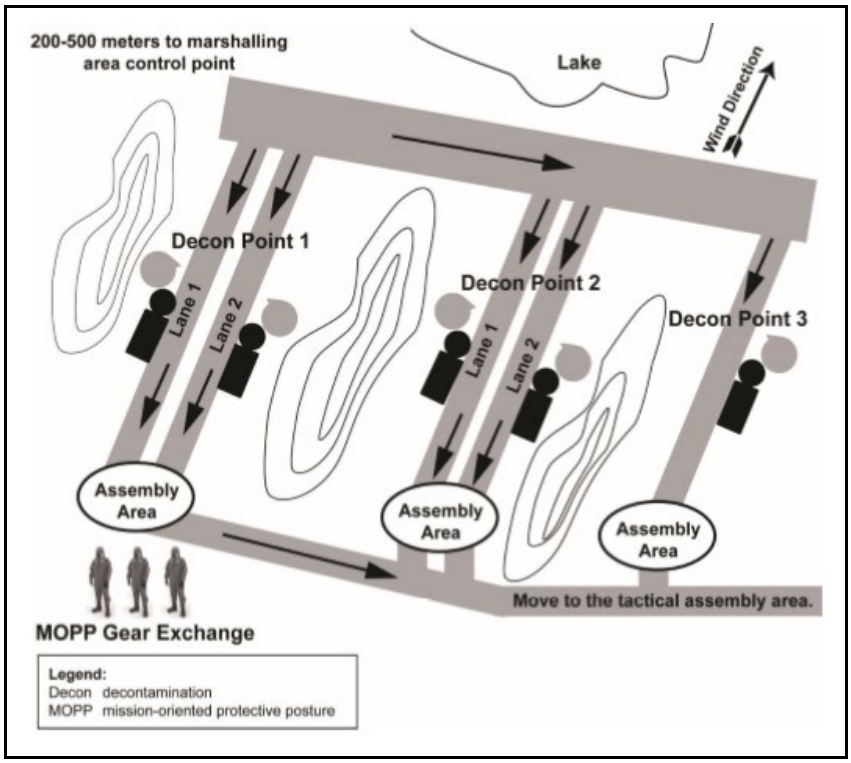


Figure 6-2. Example of an operational decontamination site layout

DETAILED TROOP DECONTAMINATION

6-16. The contaminated unit or its higher headquarters is responsible for setting up, operating, manning, and closing the DTD area at the decontamination site. The CBRN platoon leader and platoon sergeant may be required to provide advice to the contaminated unit. Figures 6-3 and 6-4 provide examples for setting up the DTD, and table 6-5 provides a recapitulation of personnel and equipment for executing the DTD.

Table 6-5. DTD personnel and equipment recapitulation

Station	*Personnel*	*Equipment and Supplies*
Station 1—individual-gear decontamination	one monitor (chemical detector or RADIAC operator); two attendants	four 30-gallon containers; two long-handled brushes; two ponchos or plastic sheets; one chemical detector; eight books of chemical agent detector paper; four chemical agent detector kits; 100 plastic trash bags; 5 percent chlorine-based decontaminant; rinse water; hot, soapy water*; dismounted RADIAC meter*; sponge*
Station 2—overboots and hood decontamination	one attendant	one cutting tool, one SDK or equipment decontamination system per person, large plastic sheet, plastic trash bags (as required), calcium hypochlorite, one shovel
Station 3—overgarment removal	one attendant	two 30-gallon containers, 100 plastic trash bags, 10 boxes of SDKs
Station 4—overboots and gloves removal	three attendants	eight 30-gallon containers, two long-handled brushes, chemical agent detector paper (as required), one immersion heater, 100 plastic trash bags, one chemical detector, engineer tape, one cutting tool, two ponchos or large plastic sheets, 5 percent chlorine-based decontaminant, hot, soapy water, cold rinse water

Table 6-5. DTD personnel and equipment recapitulation (continued)

Station	*Personnel*	*Equipment and Supplies*
Station 5—monitoring	one attendant (chemical detector or RADIAC operator) one combat medic (or combat lifesaver)	one chemical detector or dismounted RADIAC meter, first aid supplies, five books of chemical agent detector papers, one box of SDKs
Station 6—mask removal	two attendants	one chemical agent detector, engineer tape
Station 7—mask decontamination point	two attendants one monitor	one 30-gallon container, four 3-gallon containers, one chemical detector, one dismounted RADIAC meter, two sponges, one case of paper towels, one immersion heater, mask-sanitizing solution, hot, soapy water; rinse water
Station 8—reissue point	Unit CBRN NCO or supply sergeant	Mask with any required spare parts
*Denotes equipment needed for radiological contamination. ***Note:*** Assume that operational decontamination was done before thorough decontamination.		
Legend: CBRN chemical, biological, radiological, and nuclear NCO noncommissioned officer RADIAC radiation detection, indication, and computation SDK skin decontamination kit		

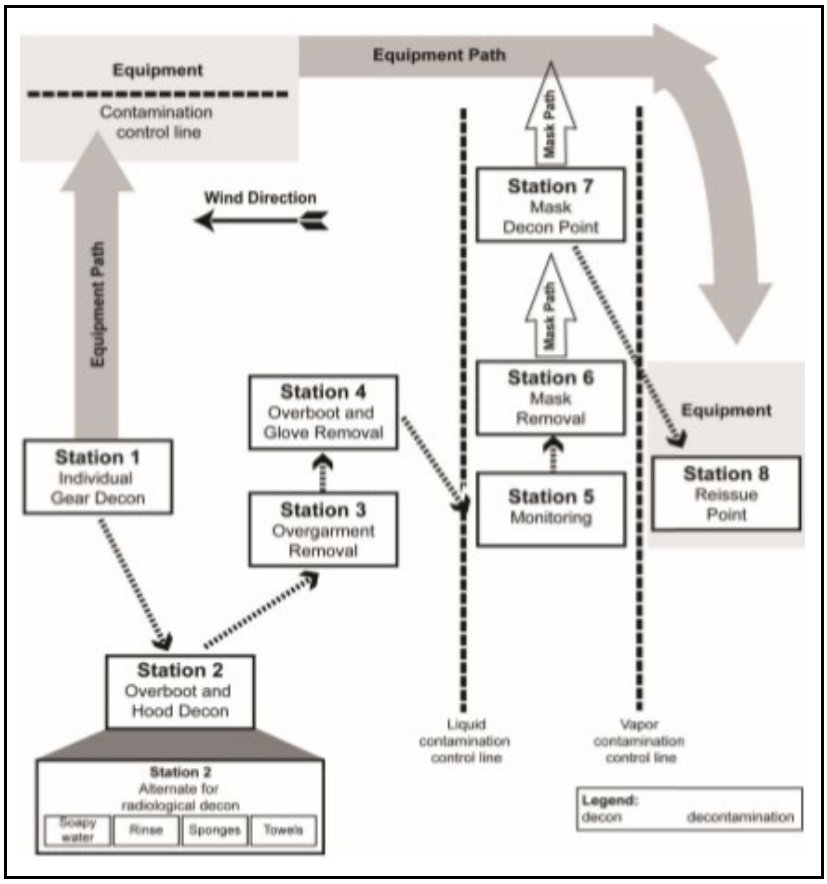


Figure 6-3. A detailed troop decontamination layout

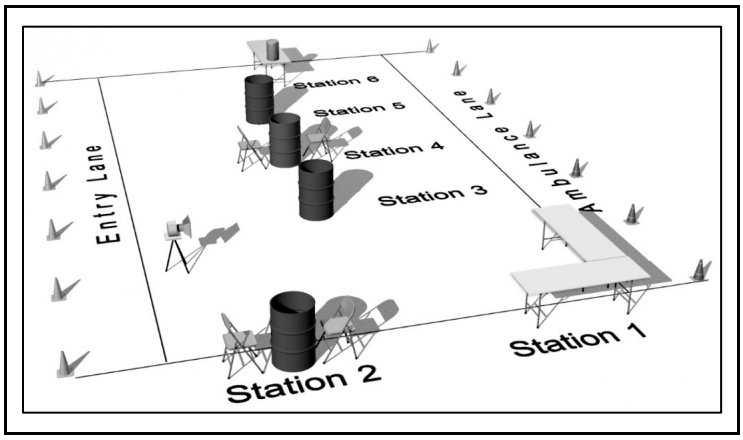


Figure 6-4. An example of personnel decontamination stations

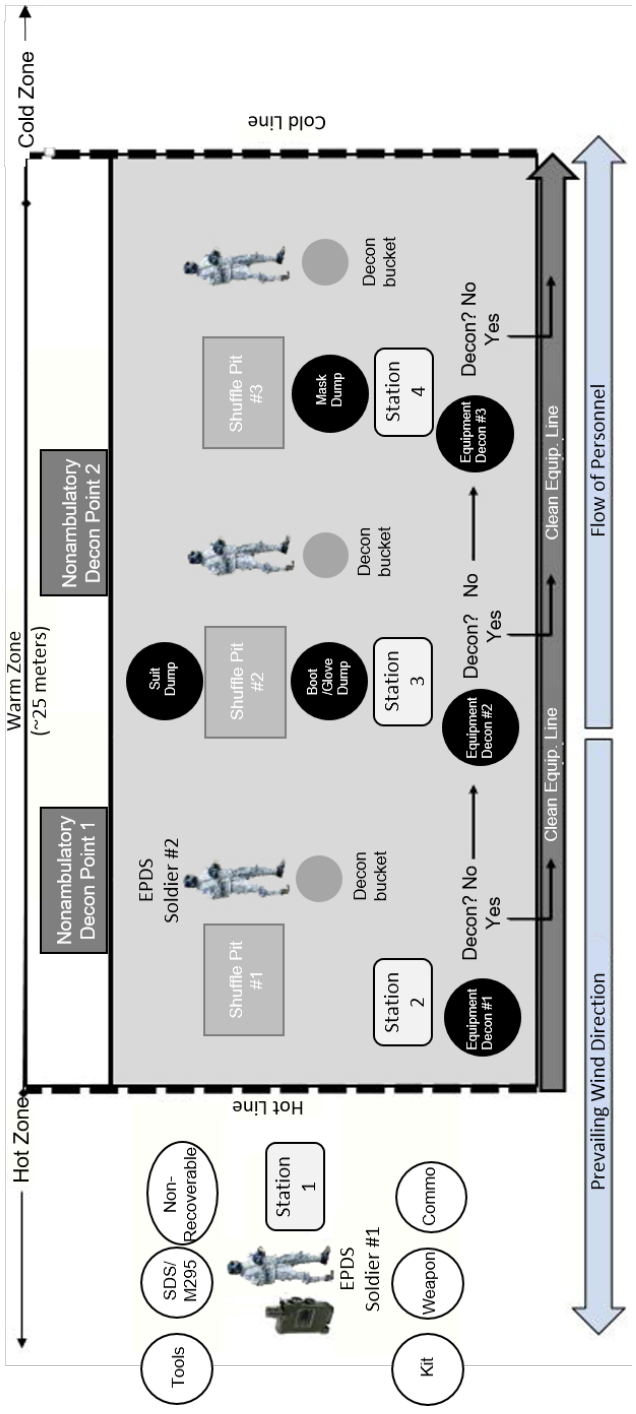
TECHNICAL DECONTAMINATION

6-17. Technical decontamination is conducted by CBRN personnel and by trained responders during operations to mitigate hazards. Technical decontamination addresses unique equipment items, such as SCBA, that CBRN personnel and responders use. Figure 6-5 provides an example of a technical decontamination.

6-18. Emergency decontamination is conducted to remove contamination from personnel to save lives, minimize casualties, and limit the spread of contamination. Emergency decontamination is typically conducted by unit personnel with organic equipment. When the emergency personnel decontamination station (EPDS) is activated, other decontamination operations stop until emergency decontamination is complete. Normal operations resume once contaminated personnel have safely processed through the EPDS and are issued replacement PPE. Basic planning considerations for conducting emergency decontamination include—

- Establishing a hotline and contamination control line.
- Establishing the EPDS with appropriate decontamination solution and litters (dirty and clean).
- Establishing decontamination procedures in unit SOPs, with decontamination occurring in the warm zone before contaminated personnel are transferred to the contamination control line and into the clean zone.
- Closing the EPDS to limit the spread of contamination.

6-19. Expedient personnel decontamination systems may be established so that CBRN personnel can decontaminate themselves in a field-expedient manner. Special operations forces use a light-weight expedient personnel decontamination system that can be used to rapidly decontaminate personnel and control the spread of liquid or solid contamination.



Legend:

commo	communication
decon	decontamination
EPDS	emergency personnel decontamination station
equip	equipment
L/U	link up
SDS	Sorbent Decontamination System

Figure 6-5. Example technical decontamination

MASS CASUALTY DECONTAMINATION

6-20. MCD may be required when a CBRN incident results in mass casualties. While these situations may occur in tactical environments, the techniques described here apply to domestic environments. MCD generally takes place in support of existing civilian-led ambulatory and nonambulatory decontamination lanes. It may include responders such as firefighters (DOD, local, state, or federal), medical personnel, logisticians, engineers, security personnel, host nation responders, or nongovernmental organizations. MCD operations may make use of expedient decontamination measures such as the use of fire hoses.

6-21. The CBRN platoon may be tasked to support MCD within a larger civil support or defense support of civil authorities OPORD. Upon receipt of a mission to support MCD the platoon leader receives and analyzes the mission, including the following aspects:

- Specific mission requirements.
- Support requirements.
- Coordination requirements (for example, coordination with the incident commander [IC], medical, engineer, and security personnel).

6-22. Upon arrival at the incident site, the CBRN platoon leader coordinates with the IC and medical personnel to determine decontamination methods, priorities, and processes. Coordination will be made for setting up in the following areas:

- Warm zone.
  - CCP (triage, stabilization, and emergency treatment) areas.
  - Clothing and personal item removal (ambulatory and nonambulatory) areas.
  - Contaminant removal and shower (ambulatory and nonambulatory) areas.
  - Monitor/transfer (ambulatory and nonambulatory) areas.
- Cold zone.
  - Redress areas for ambulatory and nonambulatory patients.
  - Patient disposition areas.
- Decontamination site.
  - Power-generation area.
  - Water supply area.
  - Command and control center.
  - Administration support area.
  - Logistics support area.
  - Resupply area.
  - Reconstitution area.
  - Rest areas.
  - Temporary morgues (one for those who are deceased before decontamination and one for those who became deceased after decontamination).

6-23. The platoon leader ensures that the MCD site (see figure 6-6, page 6-16) is established, operational, and ready to receive casualties within the IC-specified timeframe. The decontamination element conducts MCD operations according to the element SOP and IC instructions. The decontamination element continues to assess the effectiveness of the decontamination method throughout the decontamination operation. The platoon leader conducts regular casualty throughput reports to the IC according to the element SOP and IC instructions.

6-24. The platoon leader provides the IC representative with a listing of all consumable and accountable property to be left on the MCD site. The decontamination element ensures that the whole site is properly marked as “Hazardous Waste” according to the element SOP and provides the IC representative with a close-out package, as specified by the IC representative.

Note: References to IC (civilian) are used during a defense support of civil authorities' event; another leader title can be substituted.

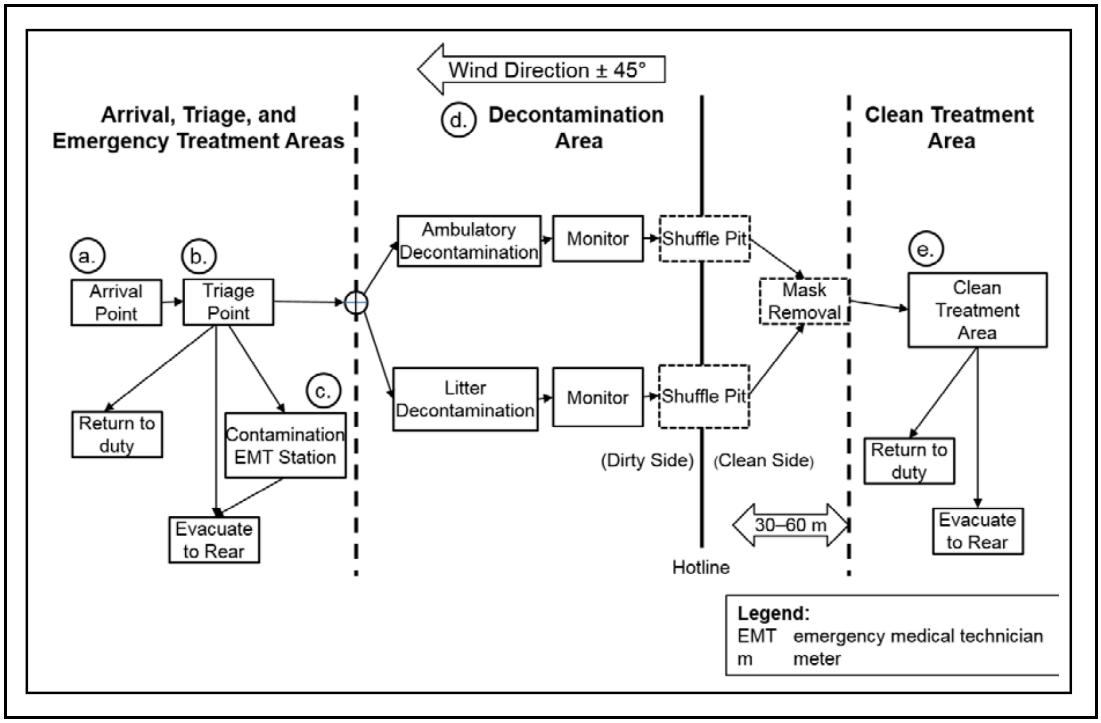


Figure 6-6. Example casualty decontamination site layout

SURFACE DECONTAMINATION

6-25. Table 6-6 provides a guide on how to decontaminate specific surfaces or materials.

Table 6-6. Decontamination procedures for specific surfaces and materials

Surface or Material	*Types of Contamination and How to Decontaminate*		
	Chemical	***Biological***	***Radiological***
Asphalt roads	Weather. Flush with water. Spray with a decontaminant slurry from the PDDE. Cover with decontaminant (pure form). When liquid contamination is visible and personnel are nearby, use a decontaminant dry mix. Cover small areas or paths across roads with 4 inches of earth.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution.	Brush or sweep. Flush with water. (This may drive some of the contamination into the surface; waste should be controlled.) Clean with a vacuum.

Table 6-6. Decontamination procedures for specific surfaces and materials (continued)

Surface or Material	*Types of Contamination and How to Decontaminate*		
	Chemical	***Biological***	***Radiological***
Roofs	Weather. Flush with water. Spray with a decontaminant slurry from the PDDE. Cover with decontaminant (pure form). When liquid contamination is visible and personnel are nearby, use a decontaminant dry mix. Cover small areas or paths across roads with 4 inches of earth.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution. • Apply detrochlorite. Leave it on for at least 30 minutes, and then flush it with water.	Brush or sweep. Flush with water (this may drive some of the contamination into the surface; waste should be controlled). Clean with a vacuum.
Brick and stone roads	Weather. Wash with soapy water, preferably hot. Spray with a decontaminant slurry from the PDDE or apply with brushes and brooms. Leave the slurry on for 24 hours, and then flush it with water. Cover small areas or paths across roads with 4 inches of earth.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. Apply 2 percent chlorine-based solution.	Brush or sweep. Flush with water (this may drive some of the contamination into the surface; waste should be controlled). Clean with a vacuum. Use abrasion (sand blasting). This provides direct and complete removal of contaminated dust; however, sand and equipment being used becomes contaminated.
Brick and stone buildings, bunkers, gun emplacements, and tank obstacles	Weather. Wash with soapy water, preferably hot. Spray with a decontaminant slurry from the PDDE or apply with brushes and brooms. Leave the slurry on for 24 hours, and then flush it with water. Use decontaminant (pure form or dry mix) around the buildings where the wastewater runs.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution. • Apply detrochlorite. Leave it on for at least 30 minutes, and then flush it with water.	Brush or sweep. Flush with water (this may drive some of the contamination into the surface; waste should be controlled). Clean with a vacuum. Use abrasion (sand blasting). This provides direct and complete removal of contaminated dust; however, sand and equipment being used becomes contaminated.
Concrete roads	Weather. Spray with a decontaminant slurry from the PDDE. Cover with a decontaminant slurry or dry mix. Cover small areas or paths across roads with 4 inches of earth. Scrape the layer of contaminated earth to the side of the road.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution.	Brush or sweep. Flush with water (this may drive some of the contamination into the surface; waste should be controlled). Clean with a vacuum. Use abrasion (sand blasting). This provides direct and complete removal of contaminated dust; however, sand and equipment being used becomes contaminated.

Table 6-6. Decontamination procedures for specific surfaces and materials (continued)

Surface or Material	*Types of Contamination and How to Decontaminate*		
	Chemical	***Biological***	***Radiological***
Earth: roads, gun emplacements, bivouac areas, pathways, and bomb craters	Weather. Spray with a slurry from the PDDE. Cover with decontaminant (pure form). When liquid contamination is visible and personnel are nearby, use decontaminant dry mix. Cover small areas or paths across roads with 4 inches of earth. Scrape the layer of contaminated earth to the side of the road.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution. • Burn.	Earthmoving (removal). Try to control contaminated dust, as equipment may become contaminated. Consider waste disposal. Sealing (with earth)—equipment may become contaminated.
Grass: fields, low vegetation, and open terrain	Weather. Burn. Spray with a decontaminant slurry from the PDDE. Cover with decontaminant (pure form or dry mix). Explode drums of decontaminant. Clear paths through the area using detonating cord or other detonating devices.	Weather (remain masked). Burn. Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution.	Earthmoving (removal). Try to control contaminated dust, as equipment may become contaminated. Consider waste disposal. Sealing (with earth)—equipment may become contaminated.
Undergrowth: tall grass, meadows, jungles, and forests	Weather. Burn (may cause a downwind vapor hazard). Spray decontaminant slurry with a PDDE. Explode drums of decontaminant. Clear a path with detonating cord, bangalore torpedoes, or demolition snakes.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution.	Earthmoving (removal). Try to control contaminated dust, as equipment may become contaminated. Consider waste disposal. Sealing (with earth)—equipment may become contaminated.
Sand: beaches and deserts	Weather. Flush with water. Spread decontaminant (pure form) or spray decontaminant slurry over the surface. Cover paths with roofing paper. Scrape off 2 to 4 inches of the contaminated top layer.	Weather (remain masked). Wet with water (helps prevent secondary aerosols, but does not decontaminate). Pour, spray, or spread oil on the surface (suppresses dust and associated reaerosolization). For critical, but limited areas— • Spray with a decontaminant slurry from the PDDE. • Apply 2 percent chlorine-based solution.	Earthmoving (removal). Try to control contaminated dust, as equipment may become contaminated. Consider waste disposal. Sealing (with earth)—equipment may become contaminated.

Table 6-6. Decontamination procedures for specific surfaces and materials (continued)

Surface or Material	Types of Contamination and How to Decontaminate		
	Chemical	***Biological***	***Radiological***
Fabrics: canvas, covers, tarpaulins, tentage, mask carriers, web gear, and clothing	Cotton. ***Note:*** Do not use for MOPP gear. Immerse in boiling, soapy water for 1 hour (1 pound of soap to 10 gallons of water) and stir. Use a 5 percent sodium carbonate solution for G-nerve agents. Immerse in boiling water for 1 hour. Launder by standard methods. Use decontaminant slurry. Weather, except for V-agents. Woolen: immerse in warm, soapy water (100ºF) for 1 hour or longer with light agitation. Dry items slowly, the fabric may shrink.	Cotton. Boil in water for 15 minutes. Immerse in a 2 percent chlorine-based solution for 30 minutes and rinse immediately. Launder (destroys or inactivates all but highly-resistant spores). Woolen: launder (fabric may shrink).	Brushing removes contamination dust, but it presents a dust hazard to personnel. Laundering is the most practical procedure; however, the fabric may shrink. Try to control waste.
Leather: boots, gloves, belts, and other nonsensitive items	Scrub with hot, soapy water and rinse. Immerse in warm, soapy water at 120°F for 4 hours and rinse. Use a 5 percent sodium carbonate solution for G-agents. Aerate.	Immerse in a 2 percent chlorine-based solution for 30 minutes, followed by a water rinse and aeration. Equipment that should not be immersed can be wiped with chlorine solution or peracetic acid.	Brush. Flush with water or soapy water.
Glass windows and other glass surfaces (except lenses)	Use an IEDK. Wash with hot, soapy water. Rinse with clear water or an organic solvent. Blot off the surface. Air. Weather.	Use an IEDK. Clean with chlorine or peracetic acid solutions.	Use an IEDK. Wash with a detergent. Flush with water. Wipe with solvents.
Glass lenses	Wash with hot, soapy water. Rinse with clear water or an organic solvent. Blot off the surface. Air. Weather.	Wipe with alcohol or chlorine solution, then remove it quickly with soap and water.	Brush or wipe (be careful not to scratch the lens). Use compressed air to blow off the contamination from the surface.
Metal (unpainted) ammunition	Wipe with soapy water. Wipe with organic solvent and dry. Aerate.	Wipe with a 2 percent chlorine-based solution. Aerate.	Brush or wipe.
Metal (unpainted) machinery	Wipe with soapy water. Wipe with organic solvent and dry. Aerate.	Weather. Clean with soapy water.	Brush or wipe. Wash with a detergent. Flush with water.
Metal (painted) vehicles, weapons, and equipment	Use IEDK to decontaminate individual gear. Weather. Wash with hot, soapy water and rinse. Spray with decontaminant slurry from the PDDE, remove it in 1 hour, and oil the surface.	Weather. Wash with a detergent. Steam clean using a detergent. Apply decontaminant slurry.	Brush or wipe. Wash. Use organic solvents, caustic agents (not on aluminum or magnesium surfaces), complexing agents (of small value on weathered surfaces), or abrasives.

Table 6-6. Decontamination procedures for specific surfaces and materials (continued)

Surface or Material	*Types of Contamination and How to Decontaminate*		
	Chemical	***Biological***	***Radiological***
Wood: buildings, vehicle bodies, boxes, crates, and similar items	Apply decontaminant slurry with the PDDE, brooms, or swabs. Let the slurry remain 12 to 24 hours then flush the surface with water. Repeat the application, and flush it again. Scrub with hot, soapy water and rinse. Weather.	Weather. Apply decontaminant slurry. Apply detrochlorite to vertical surfaces; leave it on at least 30 minutes, and then flush it with water.	Wash the interior with large amounts of water (some contamination may soak into surfaces of unpainted wood). Wipe the contamination from the surface.
Plastics (opaque): insulation, telephones, and panel boards	Aerate. Wash with hot, soapy water and rinse. Weather.	Wipe with chlorine solution or peracetic acid.	Wipe or brush. Wash with a detergent. Flush with water.
Plastics (transparent): eyepieces and airplane canopies	Aerate. Wash with hot, soapy water and rinse. Weather.	Wipe with alcohol or chlorine solution, and remove it quickly with soap and water.	Wipe or brush. Wash with a detergent. Flush with water.
Unsealed electronic equipment	Use a mild, evaporative solvent such as alcohol. Use a mild detergent and water. Rinse with distilled water. Keep the solution out of adjustable switches, connectors, and relays. Use hot-air blowers.	Use a mild, evaporative solvent such as alcohol. Use a mild detergent and water. Rinse with distilled water. Keep the solution out of adjustable switches, connectors, and relays. Use hot-air blowers.	Wipe or brush. Use hot-air blowers.
Rubber (impermeable): aprons, suits, and other items	Immerse in soapy water (just below the boiling point) for 1 hour. Do not agitate. Rinse with clear water, and hang to dry. Use a 10 percent sodium carbonate solution for G-agents, rinse and air. Apply hot, soapy water with brushes and rinse. Spray with a decontaminant slurry from the PDDE. Wash off with clear water after a few minutes.	Immerse in a 2 percent chlorine-based solution for 30 minutes, followed by a water rinse and aeration. Equipment that should not be immersed can be wiped with chlorine solution or peracetic acid.	Brush. Scrub or flush with water or soapy water.
Rubber (natural and synthetic): gloves and boots	Aerate. Spray with a 10 percent mixture of an appropriate decontaminant solution and rinse. Immerse in decontaminant slurry for 4 hours, rinse, and dry. Use an IEDK in emergencies.	Immerse in a 2 percent chlorine-based solution for 30 minutes, followed by a water rinse and aeration. Equipment that should not be immersed can be wiped with chlorine solution or peracetic acid.	Brush. Scrub or flush with water or soapy water.
Rubber: mask face pieces and other rubber articles coming in direct contact with the skin	Use an IEDK in emergencies. Wash with warm, soapy water.	Use an alcohol or peracetic acid wipe followed by aeration for 10 minutes.	Brush. Scrub or flush with water or soapy water.

Table 6-6. Decontamination procedures for specific surfaces and materials (continued)

Surface or Material	*Types of Contamination and How to Decontaminate*		
	Chemical	*Biological*	*Radiological*
Rubber: tires, hoses, mats, and insulation	Aerate. Spray with a 10 percent mixture of an appropriate decontaminant solution and rinse. Apply a decontaminant slurry. Allow the slurry to remain on the surface at least 30 minutes, and then flush with clear water (may be left on tires). Apply hot, soapy water. Weather.	Immerse in a 2 percent chlorine-based solution for 30 minutes, followed by a water rinse and aeration. Equipment that should not be immersed can be wiped with chlorine solution or peracetic acid.	Brush. Scrub or flush with water or soapy water.
Water	Use trained water purification personnel to decontaminate.	Boil small amounts for 15 minutes. (Boiling does not inactivate some toxins.) Treat with chlorine or iodine tablets. Pass water through a reverse osmosis system.	Flocculation (requires special chemicals to remove suspended matter). Ion exchange (removes radians from solution).
Mess gear, canned rations, and food (canned, bottled, or protected by impermeable container)	Immerse in boiling, soapy water for 30 minutes and rinse. Immerse in boiling water for 30 minutes. Wash in hot, soapy water. Rinse and air.	Wash in hot, soapy water, and rinse in chlorine solution. Boil in water for 15 minutes (does not kill toxins or anthrax spores). Immerse in peracetic acid solution, rinse, and aerate.	Wash with soap and water, and then rinse. Brush, and then wipe contamination from surfaces and containers.
Food (not canned or protected by impermeable container)	Do not consume food that is suspected of being contaminated with chemical agents until approved by veterinary personnel.	Boil in water for 15 minutes. Cook food thoroughly. Immerse in or spray with a 2 percent chlorine-based solution. (Food that is peeled or pared can be immersed in the solution for 30 minutes, rinsed then peel or pared and rinsed.) Contaminated vegetables such as lettuce, broccoli, and cauliflower, and unwrapped meat should not be consumed.	Wash or trim contamination from unpackaged food. Decontamination of food with fuzzy or irregular surfaces, such as peaches or broccoli, or very small food items, such as berries, should not be attempted and food should not be consumed.
Paper currency	Destroy by burning. Do not decontaminate.	Destroy by burning. Do not decontaminate.	Destroy by burning. Do not decontaminate.
Coins	Wipe with soapy water. Wipe with an organic solvent.	Aerate. Expose to UV rays. Wash with soapy water. Wipe with a 2 percent chlorine-based solution.	Brush or wipe. Wash with a detergent. Flush with water.

Legend:

G	G-nerve agent	PDDE	power-driven decontaminating equipment
HTH	high test hypochlorite		
IEDK	individual equipment decontamination kit	UV	ultraviolet
MOPP	mission-oriented protective posture	V	V- agent nerve

AIRCRAFT DECONTAMINATION

6-26. Aviation units should plan in advance for actions in contaminated environments. Essential missions—such as CASEVAC and logistics—may require the establishment of clean and dirty landing sites. Contaminated aircraft should be directed to an alternate airfield before landing. Physical removal of contamination from aircraft surfaces remains the most effective means of decontamination. Decontamination should be completed before the agent absorbs into the surface (typically within minutes from the time of contact with the agent). Neutralization with chlorine-based products corrodes the aircraft skin and metal components. Consult the appropriate aircraft maintenance publication for areas that could be damaged by the application of water. Prepare these areas for aircraft wash down as specified in the technical

manuals and technical orders. Immediate decontamination may be performed using decontamination kits or solutions as prescribed in equipment technical manuals. More information about aircraft decontamination can be found starting on paragraph D-19.

CAUTION

Most of the field-expedient decontaminants are corrosive and could cause damage to aircraft materials. Do not use steam to decontaminate an aircraft. Damage to the composite materials used in the construction of aircraft may result.

6-27. Determining the location for the decontamination depends on the mission, the space available, and the size of the aircraft being decontaminated. Table 6-7 and table 6-8 and figures 6-7 through 6-9, pages 6-23 through 6-25, provide information for planning aircraft decontamination. More information about decontaminating aircraft can be found in ATP 3-11.32.

Table 6-7. Sample aircraft sizes and recommended pad containment areas

Aircraft	*Length*	*Wingspan*	*Recommended Pad*
C-5	247’ 10’	222’ 9”	270’ x 250’
C-17	173’ 11”	170’ 9”	200’ x 200’
C-141	168’ 4”	160’	180’ x 180’
KC-135E	136’ 3”	130’ 10”	160’ x 160’
C-130	97’ 9”	132’ 7”	125’ x 160’

Table 6-8. Landing area dimensions for aircraft

Landing Pad				
Helipad or Heliport Type	*Length (feet)*	*Width (feet)*	*Shoulder Width (feet)*	*Taxi/Hover Lane Width*
Support area				
OH-6A	12	12	10	100
OH-58	12	12	10	100
AH-64	20	20	10	200
UH-1H	20	20	10	200
UH-60	20	20	10	200
CH-47	50	25	10	240
Rear area				
OH-6A	25	25	25	100
OH-58	25	25	25	100
AH-64	40	40	25	200
UH-1H	40	40	25	200
UH-60	40	40	25	200
CH-47	100	50	25	240
Close battle area				
OH-6A	12	12	N/A	75
OH-58	12	12	N/A	75
AH-64	20	20	N/A	140
UH-1H	20	20	N/A	140
UH-60	20	20	N/A	140
CH-47	50	25	N/A	180

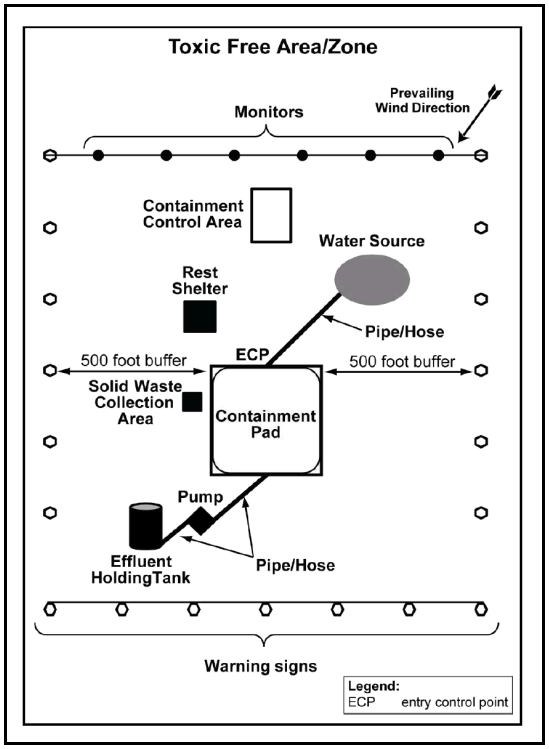


Figure 6-7. Example aircraft operational decontamination site layout

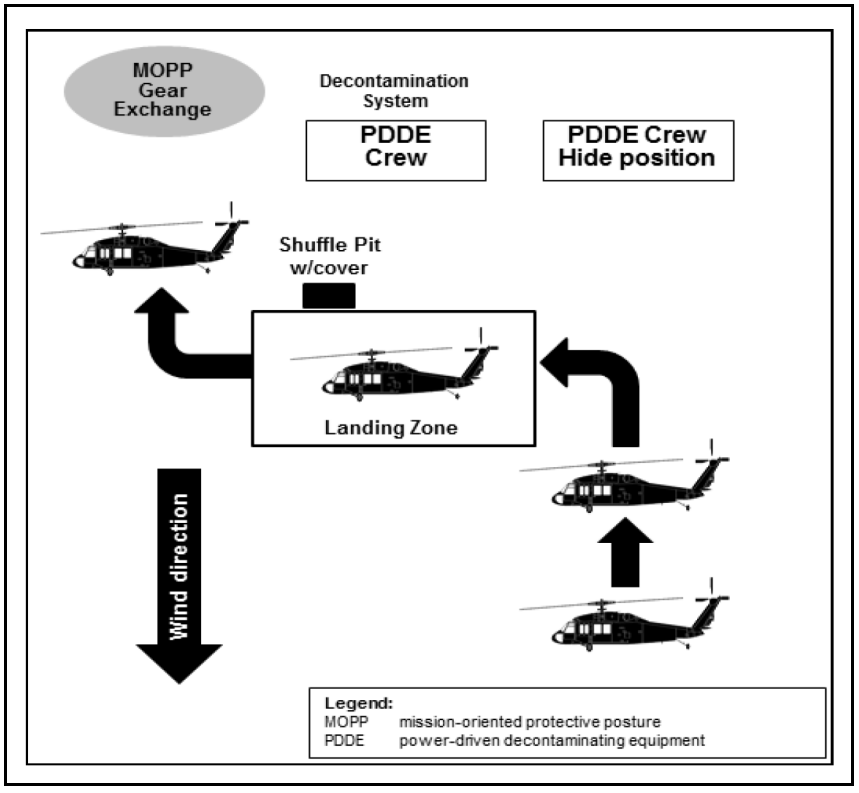


Figure 6-8. Example helicopter operational decontamination site layout

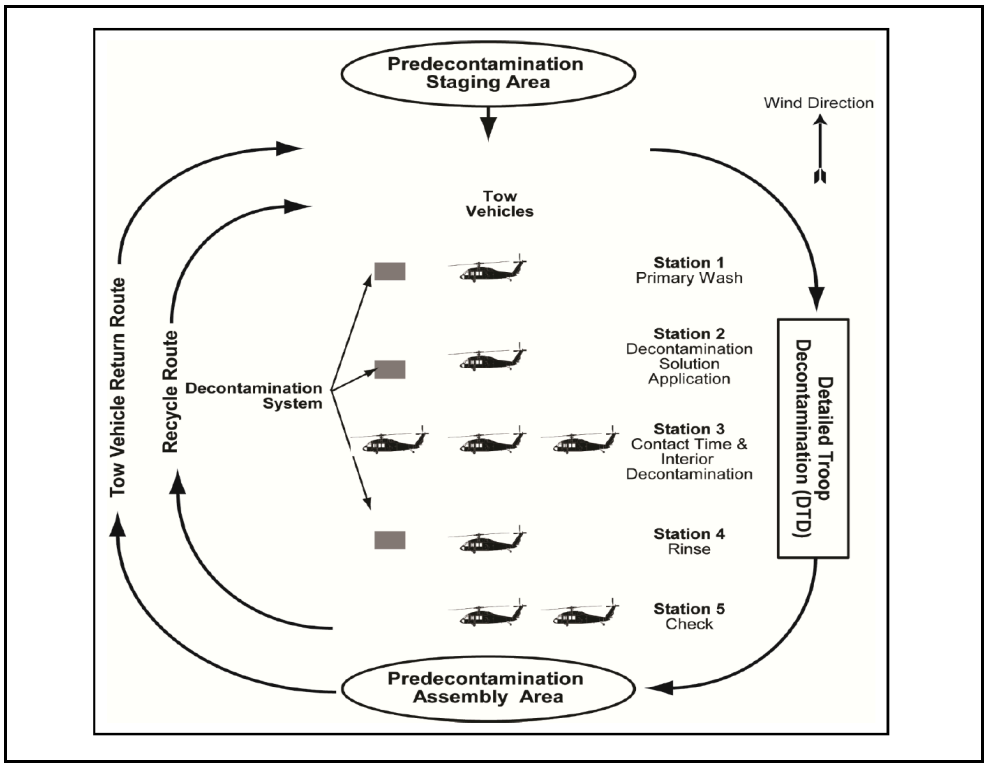


Figure 6-9. Sample layout for a detailed aircraft station

WORKLOAD PLANNING

6-28. Any CBRN platoon supported decontamination requires management of work/rest cycles for the personnel supporting operations. Table 6-9 provides recommended work/rest cycle rate for each station of a DED based on expected exertion at that station.

Table 6-9. Recommended work/rest cycles for DED

Temperatures	*Stations and Workload*				
	Station 1 Primary Wash	***Station 2 Decontaminant Application***	***Station 3 Contact Time/Interior Decontamination***	***Station 4 Rinse***	***Station 5 Check***
	Physical Exertion				
	Moderate	***Heavy***	***Moderate***	***Moderate***	***Light***
Cool (less than 68°F)	60 work 15 rest	30 work 30 rest	60 work 15 rest	60 work 15 rest	60 work 15 rest
Warm (68°–74°F)	45 work 45 rest	20 work 20 rest	45 work 45 rest	45 work 45 rest	50 work 50 rest
Hot (74°–84°F)	30 work 60 rest	15 work 30 rest	30 work 60 rest	30 work 60 rest	40 work 80 rest
Very hot (greater than 84°F)	20 work 60 rest	10 work 30 rest	20 work 60 rest	20 work 60 rest	25 work 75 rest

Table 6-9. Recommended work/rest cycles for DED (continued)

Note: When operating in temperatures above 75°F, consider the ability of the personnel to accomplish the mission. Once the personnel have reached their maximum workload for heat stress, they cannot recover quickly enough to accomplish the decontamination mission. A viable option is to postpone the decontamination operation until a cooler part of the day or evening. This should reduce the heat stress load on the personnel and increase the probability of mission success. All work times and rest times are represented in minutes.

6-29. Table 6-10 provides a guide that can be used to estimate the work intensity for a particular activity.

Table 6-10. Work intensities of military tasks

Light (Easy) Work	*Moderate Work*	*Heavy (Hard) Work*
Weapons maintenance. Walking on hard surfaces at 2.5 mph, with less than a 30-pound load. Guard duty, marksmanship training, drills and ceremonies, tower operations. Pilot ground activities. Command post activities.	Walking on loose sand at 2.5 mph with no load. Walking on hard surfaces at 3.5 mph with less than a 40-pound load. Calisthenics. Patrolling. Individual movement techniques such as low or high crawl. Avionics shop activities. Aircraft maintenance activities.	Walking on hard surfaces at 3.5 mph with more than a 40-pound load. Walking on loose sand at 2.5 mph, with any load. Armament crew functions, airfield damage repair, heavy aircraft repair.
Legend: mph — miles per hour		

SECTION III – SUSTAINMENT

6-30. Sustainment of decontamination operations requires planning for needed quantities of resources (water, decontaminant) to support the quantities of personnel and equipment that can be expected. During planning, CBRN staff create estimates based on the threat capabilities of an expected number of equipment that might be affected. Decontamination planning tables for decontaminants and water usage are described in tables 6-11 through 6-15, pages 6-26 and 6-27.

Table 6-11. Amount of decontaminant per gram of agent

Decontaminant	*GA*	*GB*	*GD*	*GF*	*VX*	*HD*	*L*
10 percent NaOH Aqueous	4.9mL	5.7mL	4.4mL	4.4mL	3.9mL	NR	NR
10 percent NaOH alcohol	4.9mL	5.7mL	4.4mL	4.4mL	1.5mL	NR	NR
10 percent aqueous $Na_2CO_3 H_2O$	8.2mL	9.6mL	NR	NR	NR	NR	NR
5 percent household bleach	50.6mL	21.3mL	16.4mL	16.6mL	50.2mL	131mL	50.4mL
10 percent aqueous STB	43.8mL	18.4mL	14.2mL	14.3mL	43.4mL	114mL	43.5mL
10 percent aqueous HTH	24.3mL	10.2mL	7.8mL	7.9mL	24.1mL	63.0mL	24.1mL
STB (solid)	4.3g	1.8g	1.4g	1.4g	4.3g	11.2g	4.3g
HTH (solid)	2.4g	1.0g	0.8g	0.8g	2.4g	6.3g	2.4g

Legend:

g	gram	L	lewisite
GA	tabun	mL	milliliter
GB	sarin	$Na_2CO_3 H_2O$	sodium carbonate and water
GD	soman	NaOH	sodium hydroxide
GF	cyclosarin	NR	no reaction
HD	mustard	STB	super tropical bleach
HTH	high test hypochlorite	VX	v-agent

Table 6-12. Bulk water storage capacity

Storage type	*Capacity in gallons*
Buffalo	400
Blivet	500
TPU	500 per pod
Hippo	2,000
Camel II	800
3K semi-trailer mounted fabric tank	3,000
5K semi-trailer mounted fabric tank	5,000
Collapsible water drums	500 or 250
20K storage distribution system	20,000
50K storage distribution system	50,000

Table 6-13. Preparation of decontamination solution using HTH

Percent HTH Solution	*Amount of Bottles per 4 Gallons Water*[1]	*Amount of Bottles per 10 Gallons Water*[2]	*Amount of Bottles per 20 Gallons Water*[3]
1 percent	1	2	4.5
2 percent	2	5	9.5
3 percent	3	7	14.0
5 percent	5	12	24.0
10 percent	9	22	44.0
[1]Add 3 ounces of detergent (soap) [2]Add 9 ounces of detergent (soap) [3]Add 13 ounces of detergent (soap)			
Legend: HTH high test hypochlorite			

Table 6-14. Estimated water consumption

Equipment	*Time*	*Water Consumption*
Operational decontamination		
M12A1 PDDE M17 LDS M26	12-15 minutes	Regular vehicle: 150 gallons Armored or larger vehicle: 200 gallons
Each large vehicle will take approximately 200 gallons of water and take 15 minutes. Each small vehicle will take approximately 150 gallons of water and take 12 minutes.		
Detailed equipment decontamination		
M12A1 PDDE M17 LDS M26	Initial wash 2-3 min Rinse 200 gallons	Regular vehicles: 450 gallons
During a detailed equipment decontamination, the first vehicle will take approximately 96 minutes to process, each successive vehicle will take an additional 20 minutes.		
Detailed troop decontamination		
10x30 gallon containers 6x3 gallon containers	40 personnel will take approximately 40 minutes	40 personnel: 318 gallons
Note: Once water estimate is complete, add an additional 10 percent planning factor for the total amount of water required.		
Legend: LDS lightweight decontamination system PDDA power driven decontamination equipment		

Table 6-15. Preparation of a 5 percent available chlorine solution

Amount of decontaminant needed to make a 5 percent available chlorine solution		*Decontaminant*			
		HTH	*HTB*	*Calcium Hypochlorite*	*Sodium Hypochlorite*
Volume of solution desired (volume of container)	3,000 gal	1,922 lbs	1,785 lbs	1,922 lbs	2,170 gals
	2,500 gal	1,600 lbs	1,485 lbs	1,600 lbs	1,810 gals
	1,500 gal	960 lbs	892 lbs	960 lbs	1,085 gals
	600 gal	385 lbs	357 lbs	385 lbs	435 gals
	55 gal	35 lbs	33 lbs	35 lbs	40 gals
	40 gal	25 lbs	24 lbs	25 lbs	29 gals
	5 gal	3.20 lbs	2.97 lbs	3.20 lbs	3.62 gals
	1 gal	1.25 c	1.5 c	1.25 c	11.5 c
	1 qt	6.5 tbs	6 tbs	6.5 tbs	3 c

Table 6-15. Preparation of a 5 percent available chlorine solution (continued)

Notes:
1. Calculations are approximate with knowledge of the measurement tools available in the field and with no emphasis on significant figures.
2. HTH has approximately 65 percent available chlorine.
3. HTB has approximately 70 percent available chlorine.
4. Calcium hypochlorite has approximately 65-70 percent available chlorine. In this table, 65 percent is used.
5. Sodium hypochlorite is approximately 5-10 percent available chlorine. In this table, percent is used. Liquid bleach is a type of sodium hypochlorite.
6. A 5 percent of available chlorine solution equals 50,000 ppm.

Legend:	
c	cups
gal(s)	gallon(s)
HTB	high test bleach
HTH	high test hypochlorite
lbs	pounds
ppm	parts per million
qt	quart
tbs	tablespoon

Chapter 7
CBRN Site Assessment

This chapter describes the basics of CBRN site assessment. A CBRN site assessment, also referred to as a sensitive site assessment, is the determination of whether threats or hazards associated with a sensitive site warrant exploitation. If required, a site exploitation can be executed to gather more detailed information. Planning considerations for site exploitation are explained in chapter 8.

SECTION I – FUNDAMENTALS OF SITE ASSESSMENT

7-1. WMD threat assessments must be conducted at the local level and based on the activities (military, terrorists, industrial, agricultural) being conducted in the operational area. A site assessment of an area must address the types of CBRN or WMD related facilities, the pipelines, and the production and storage areas (including temporary storage areas such as ports, rail yards, and airfields). It is common for adversaries to ship hazardous, useful, and valuable materials in mismarked or unmarked containers, railcars, or storage drums. A site assessment detects WMDs, CBRN hazards and related materials, delivery systems, and technologies. A site assessment requires less time and resources than site exploitation.

7-2. Theater level staff develop target folders which are disseminated to units preparing for site assessments. These folders contain the following information:

- Current imagery of the site.
- Current and historical intelligence of the site and its surrounding and supporting facilities or areas. Historical data from previous multinational inspections of the operational area or site.
- Intelligence from other missions that relates to the current site, including general information that helps focus the unit's efforts at the planned site or influences TTP. (This is part of a critical intelligence feedback loop.)
- Site diagram that shows physical barriers and obstacles, with an assessment of possible enemy improvised explosive devices or booby traps.
- Suspected type of site (CBRN research, production, or storage; command and control; headquarters; intelligence collection; signal) and suspected type and amount of CBRN hazards.
- Items at the site that may require seizure, such as documents or electronic media. (Describe these items so that they are easily understood by small-unit leaders. Photographs of similar items may also be useful.)
- Presence and description of enemy control mechanisms. (What military unit or civilian agency controls the site? Who are the occupants of the site? Are there any key personnel who may be encountered at the site? If the site is abandoned, are displaced personnel or looters likely to be present? What are the demographics of the local population?)
- Logistic support to the site, which is critical if the mission includes preventing the interdiction of utilities and supplies after the site has been secured. (What supplies and utilities are provided at the site? Where do supplies and utilities originate? Where are the best locations and means of interdicting logistics to the site?)
- Known or suspected downwind hazard areas, contaminated areas, training areas, test areas, and ranges near the site and an assessment of any battle damage.

***Note*:** Leaders must understand that MOPP gear may not be adequate for the level of protection required to enter, characterize, or conduct any part of assessment or exploitation activities. It is extremely important to ensure that personnel are wearing the appropriate level of protection prior to entering a suspected WMD facility. No single combination of protective equipment is capable of protecting against all hazards.

SENSITIVE AND HAZARDOUS SITES

7-3. Controlling, defeating, disposing, and disabling tasks as a part of CWMD includes determining if the site is sensitive or hazardous. Understanding the differences between sites characterized as CBRN, WMD, or TIM is integral to CWMD operations.

7-4. CBRN site operations include considering the threats and hazards posed by CBRN materials. CBRN hazards can pose a risk to individuals, equipment, animals, agriculture, and infrastructure. They can affect the overall OE and may impose limitations on operations. CBRN hazards include—

- Accidental or deliberate releases of CBRN materials.
- TIM (especially air and water poisons).
- Chemical or biological agents.
- Biological pathogens.
- Radioactive materials.
- Results of WMD employment.
- Incidents encountered during WMD elimination operations.

7-5. Every site has the potential to be a CBRN site. However, if the site contains sensitive materials or weapons, it is a potential WMD site. If a site does not contain sensitive materials or weapons, but includes probable hazardous industrial materials, it is a potential TIM site.

7-6. A site's characterization is determined by the information, personnel, and materials found at the site when assessed against the commander's critical information requirements, regulations, policies, and other specific guidance. Materials may include tactical weapons, bomb-making components, CBRN materiel, TIM, precursor materials, or WMD. Military personnel must understand the objective to determine what information, personnel, or materials are exploitable. Depending on how the site is characterized, the commander may require specialized technical support to fully exploit the target.

Sensitive Sites

7-7. A *sensitive site* is a geographically limited area that contains, but is not limited to, adversary information systems, war crimes sites, critical government facilities, and areas suspected of containing high-value targets (JP 3-31). The term sensitive site is used to describe WMD and CBRN sites due to its perceived potential importance or threat to the United States. WMD sensitive sites include any location known or suspected of involvement in enemy research, production, storage, or past or future employment of CBRN weapons.

7-8. Joint force commanders establish commander's critical information requirements that include information for various sites to be characterized as sensitive, usually in cooperation with our national policy and related guidance. Tactical level commanders consider the commander's critical information requirements when establishing their own information requirements and, subsequently, determine the criteria for additional sites (targeted or opportunity) that will be considered operationally significant hazards. This methodology helps subordinate commanders determine which sites must be assessed and potentially exploited and which sites can be bypassed or abandoned.

7-9. The types of WMD sensitive sites vary and can pose a threat to the noncombatant population, military forces, and strategic theater or national interests. In addition to a site's deadly contents, its political and military importance guarantees that the enemy will protect it by a combination of passive and active defenses. Military personnel must understand that the enemy designs WMD sensitive sites with two priorities—to keep important materials, personnel, and information inside and to keep intruders and the

civilian population outside. WMD-related, sensitive sites include the various components of a WMD program and will normally include one or more of the following elements:

- WMD research and development facility.
- Test and scale-up facility.
- Agent production facility.
- Precursor storage facility.
- Bulk agent storage facility.
- Weaponization facility.
- Billeting and administrative support complex for subject matter experts, the workforce, and guard force personnel.
- Dedicated and redundant power, water, or steam generation plant.
- Specialized medical facility.
- Specialized decontamination facility and equipment.
- Specialized air-handling equipment.
- Environmental monitoring device.
- Mass alarm and warning system.

7-10. Although the site design and degree of protection may vary, it can be very elaborate. Carefully guarded entrances may often be the only access to sensitive facilities that are deep underground. In some instances, sites may be camouflaged to conceal their existence from external enemies and the general population. WMD sensitive sites include, but are not limited to—

- CBRN test sites that are usually operated in conjunction with research and development facilities. Test sites may be open-air or enclosed in a protected building. Open-air sites can present residual hazards for personnel in or near them.
- Storage facilities that may present additional hazards.
- Sites where chemical or biological weapons that have been used against personnel (typically, unprotected personnel or noncombatants). CBRN-use sites require documentation for war crimes proceedings.
- Sites and equipment associated with CBRN research, development, and production that can provide valuable information regarding the direction and sophistication level of the enemy's WMD efforts. Information gained from these sites can produce intelligence concerning the focus of research activities, intended WMD use, and noncompliance with treaties or other international agreements.
- Missile engine testing facilities and missile engine test stands, which can yield information about the size of rocket motors or missile engines being tested. This information may be used to calculate weapon specifications, such as maximum weapon and agent payloads and missile range.

Hazardous Sites

7-11. The presence of CBRN threats, significant environmental hazards (hazardous waste), or TIM may require avoiding the site or mitigating the site to neutralize the hazard or reduce the threat. The characterization of a site as a CBRN, WMD, or TIM hazard is based on conclusions drawn from an assessment of R&S activities.

7-12. Many sites of military significance (such as airports, ammunition storage points, and industrial locations) within an urban environment contain enough residual toxic chemicals that they could be classified as a site containing CBRN hazards. Figure 7-1, page 7-4, depicts the flow of operations on-site.

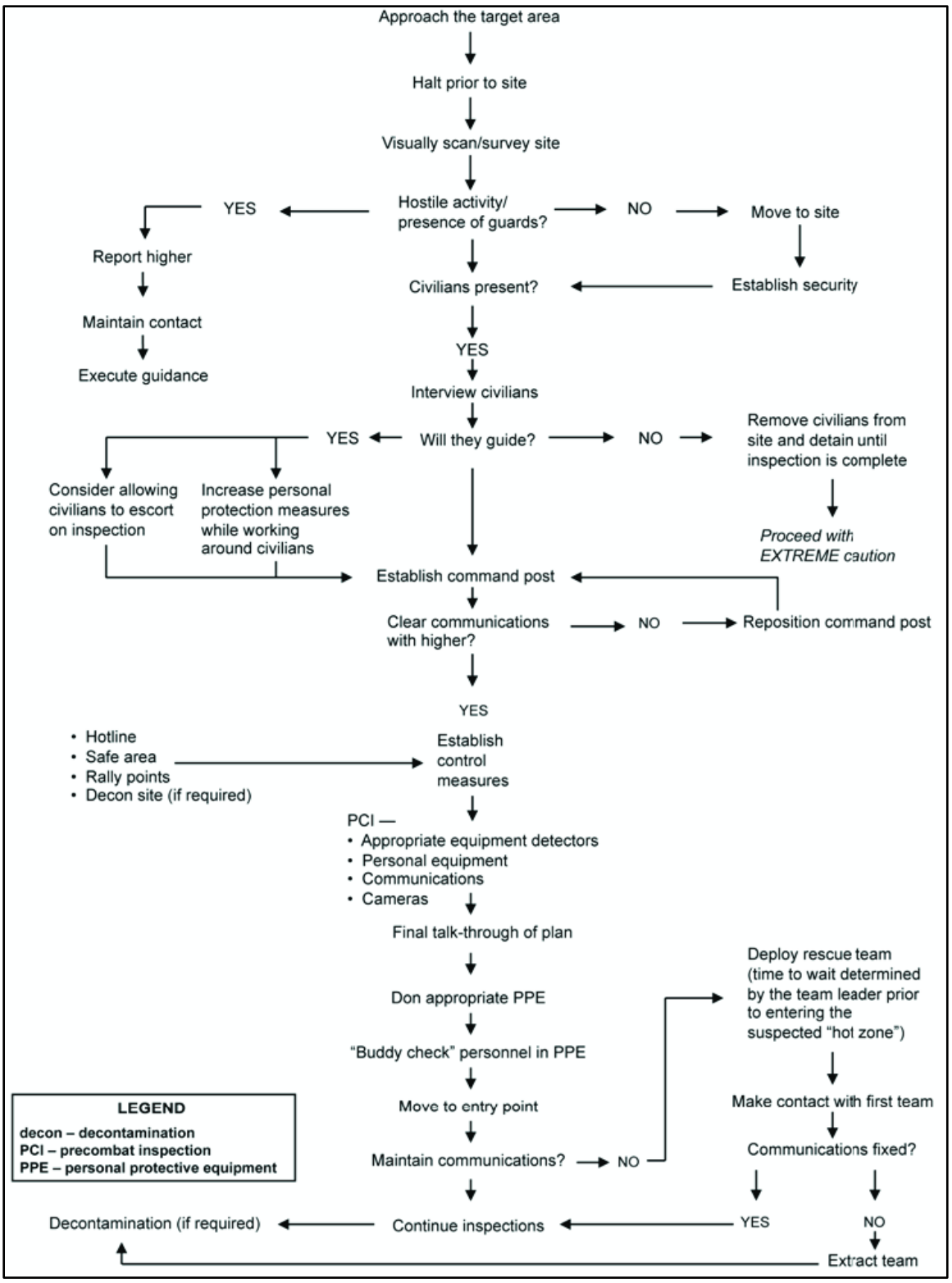


Figure 7-1. Site flow

SECTION II – ASSESSMENT

7-13. The primary duty of the platoon leader is mission accomplishment of site assessment. Understanding the supported commander's intent and mission variables to accomplish the mission in the time available. Platoon leadership must be technically proficient in the use of the platoon's equipment, understand the capabilities of the enemy, and tactically proficient in the employment of the Soldiers and equipment to accomplish the mission. Leaders must—

- Understand the mission and intent to be able to exercise disciplined initiative.
- Manage risk to mission and risk to forces.
- Lead from where they can control all elements, either physically or by radio.
- Make sound, quick decisions.

PLANNING

7-14. When a suspected WMD site, facility, or hazard has been discovered within the OE, the CBRN R&S platoon may receive a WARNORD/OPORD/FRAGORD to conduct a CBRN site assessment. If the leader does not fully understand the mission, they shall seek additional guidance. The platoon leader must determine the time available and use only one-third of the time to prepare the plan. At least two-thirds of the available time should be used for preparation. All subordinate leaders in the platoon conduct TLPs while preparing to support CBRN site assessment.

7-15. The platoon leader issues a WARNORD to the platoon and completes mission analysis preparations. In the WARNORD the platoon leader provides enough information for the platoon to begin preparations for the mission. The WARNORD should contain at a minimum—

- Mission.
- Who is participating in the mission.
- Time.
- General location of the mission.
- Time and place the order will be issued.
- Any special instructions.

7-16. The tentative plan gives the platoon leader a starting point from which to coordinate, reconnoiter, organize, and move. The platoon leader gathers critical site data from the supported unit and headquarters within the AO. If available, the platoon leader obtains pictures, sketches, indicators and readings, and casualty information from and previous elements on the site. The platoon leader updates risk assessments, identifies any additional support requirements (such as security or reachback), and adjusts the plans as needed.

7-17. If time allows, the platoon leader makes a personal reconnaissance to verify analysis, adjust the plan, confirm usability of routes, and time any critical movements. When time does not allow for a personal reconnaissance, the platoon leader must make a map reconnaissance.

7-18. Based on the reconnaissance, the platoon leader completes the plan. The platoon leader performs MOPP analysis to determine the initial IPE requirement. The platoon leader may update IPE requirement as more information is gained on-site. IPE selection options are depicted in figure 7-2, page 7-6. The platoon leader also notifies medical personnel of potential CBRN hazards for establishing casualty exchange points in hot and warm zones.

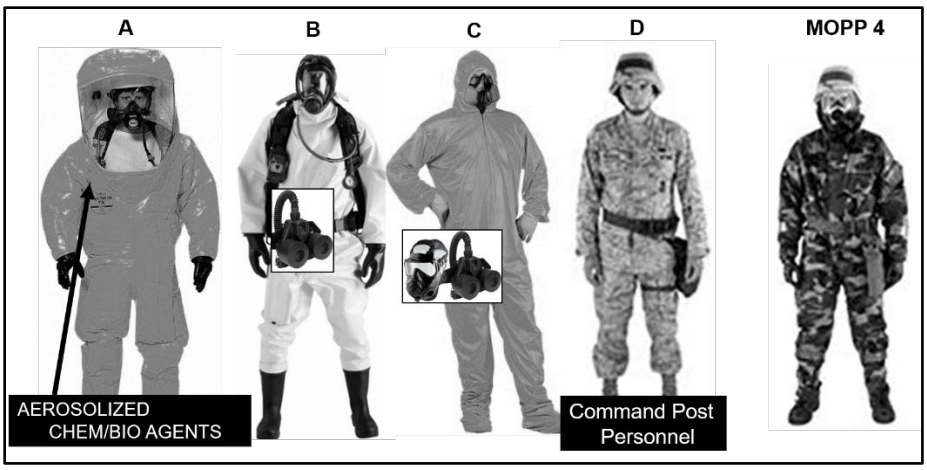


Figure 7-2. IPE selection

7-19. Once a sensitive site has been seized, tactical units may provide external security, preserve materials within the site, and provide additional support, as required, to the site assessment or exploitation team. Site assessment or exploitation teams may consist of civilian experts or other joint and interagency elements. The tactical unit commander establishes a tasking channel from assessment or exploitation teams through the unit CP. For CBRN sites, the primary challenge centers on isolating materials until assessment or exploitation team can remove or destroy it. Sensitive sites normally contain a wealth of intelligence, which is often stored electronically in computers and data networks. Tactical units also secure and safeguard military and civilian personnel captured at the site.

7-20. Ideally, subject matter expert teams will be available to conduct the initial site assessment. Information gained from the initial assessment greatly assists commanders in prioritizing the allocation of limited exploitation resources. See figure 7-3 for IPE and PPE selection

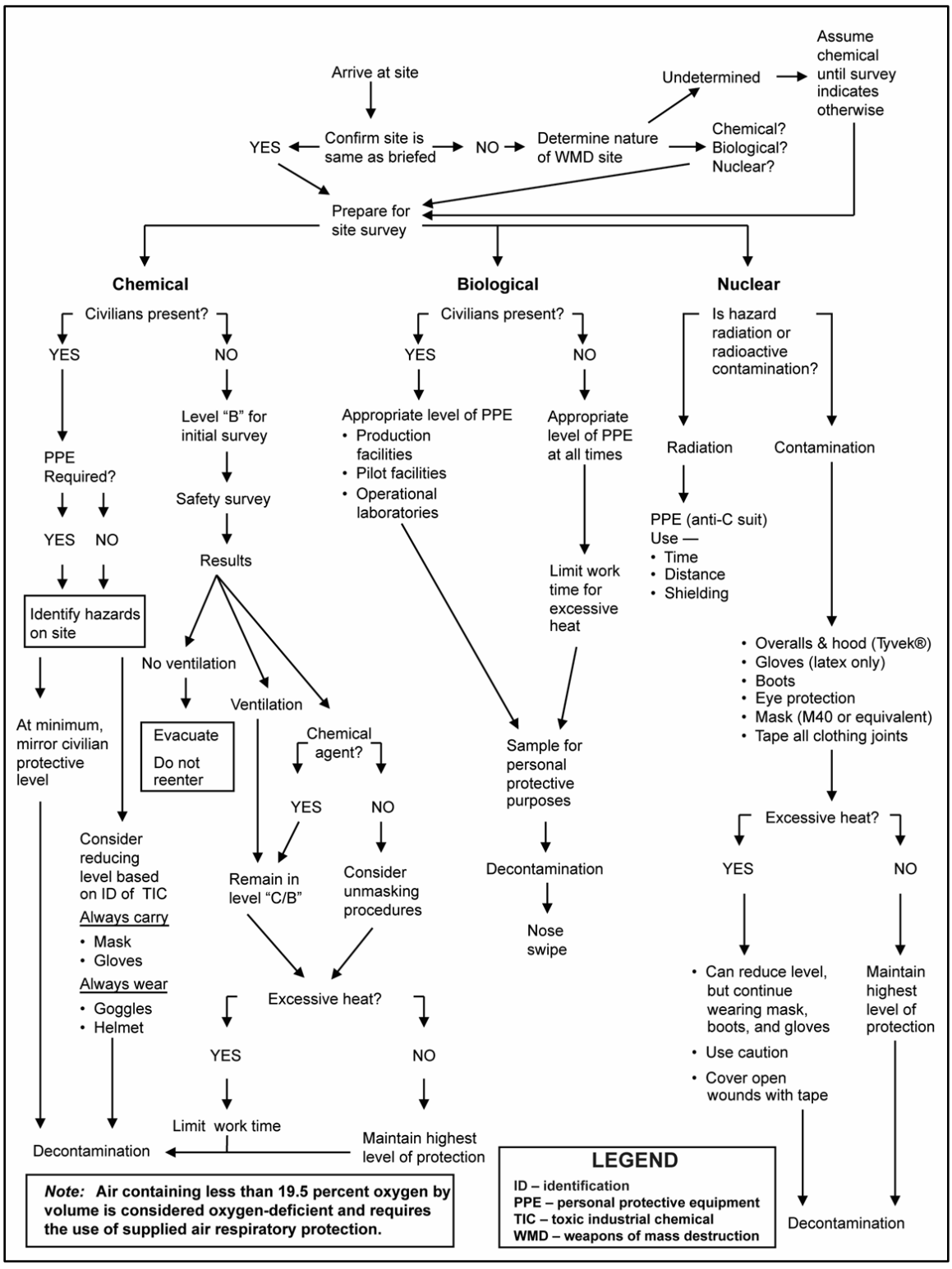


Figure 7-3. IPE/PPE selection

EXECUTION

7-21. The platoon leader issues the order orally following the five paragraph OPORD format. If possible, the order should be issued from a vantage point overlooking the terrain. If it is not possible, the platoon leader should use a terrain map, sketch, or sand table to explain the plan. If time allows, rehearsals and backbriefs should be conducted.

7-22. The CBRN R&S platoon conducts tactical movement and establishes a CP at the site. The CP will provide a staging area for all actions on the objective and establish a mission log for tracking personnel and events. The platoon conducts the mission within the time frame agreed on with the supported unit or higher headquarters, adhering to the appropriate regulations and SOPs. The platoon leader will assess the level of detail for the assessment and prioritize tasks on site based on the time available. The team leader makes the appropriate protective, and responsive action recommendations based on the analysis. Team leaders for entry teams will conduct PCIs, ensure analytical equipment is placed into an operational status in a contamination-free environment, and prepare any documentation such as logs and DD Form 3108 (*CBRN Sample Documentation and Chain of Custody*).

7-23. The platoon leader templates key locations and communicates them to all elements. Key locations include—

- Hot/warm/cold zones.
- Entry control point with separate entry and exit routes.
- Decontamination point.
- Emergency personnel decontamination station.
- Contamination reduction corridor.

7-24. The initial entry team conducts the initial area survey using the safe order of detection according to ATP 3-11.37. The team leader is responsible for controlling, reporting, and recording actions on the site. The analytical section utilizes all the available analytical equipment to provide an accurate analysis of unknown substances.

7-25. When the mission has been completed the platoon records and reports the results to higher headquarters. Reports should answer any CCIR, using standard report formatting (such as CBRN 4 report). Leaders coordinate with medical personnel keeping them informed of important information affecting the health of the force. They report any potential exposures, alerting them to any hazards identified, or potentially the absence of hazards.

SECTION III – CHARACTERIZATION

7-26. Site characterization is a complete description and inventory of personnel, equipment, material, and information discovered during exploitation. It is an in-depth process of the site and requires more time.

7-27. Figure 7-4 provides an illustration for establishing a site characterization layout. Important pieces to consider are the wind direction, location for the CP, and establishing a decontamination corridor.

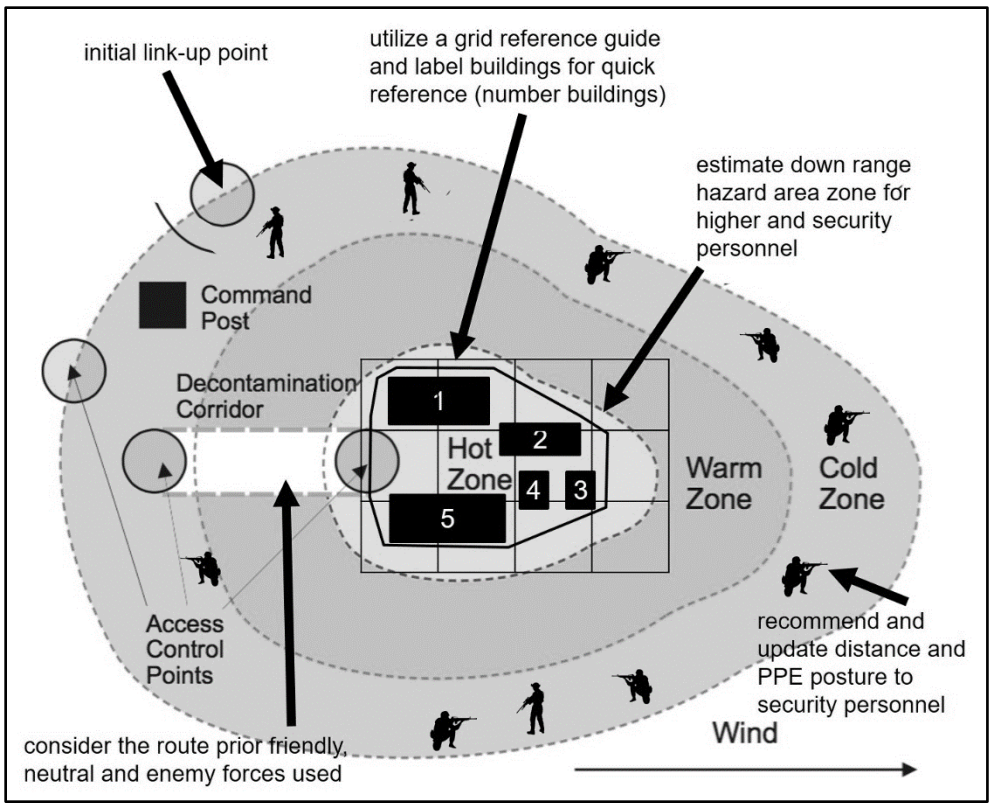


Figure 7-4. Site layout

7-28. Upon completion of characterization, the platoon leader notifies higher headquarters of any CBRN hazards identified. The platoon leader should also notify medical of potential contamination and which CBRN hazard to prepare for.

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Chapter 8
CBRN Site Exploitation

Site exploitation requires more time and resources than a site assessment but provides a more in-depth analysis of the site. Exploitation of a site containing CBRN material is complex due to the technical demands and the numerous program and infrastructure components that must be addressed. Tasks related to CBRN site exploitation include locating, identifying, and securing materials and infrastructure to create forensic evidence.

SECTION I – FUNDAMENTALS OF SITE EXPLOITATION

8-1. The exploit task within the WMD defeat activity of CWMD seeks to maximize the value of intelligence gained from personnel, data, information, and materials obtained during CWMD operations. Processing and the exploitation of information and materials found during site exploitation produces actionable intelligence for countering WMD.

8-2. *Site exploitation* is the synchronized and integrated application of scientific and technological capabilities and enablers to answer information requirements, facilitate subsequent operations, and support host-nation rule of law (ATP 3-90.15). Site exploitation is guided by the unit's information collection plan. Site exploitation is a time-, resource-, and capability-intensive task. Site exploitation is a series of activities that recognize, collect, process, preserve, and analyze information, personnel, and/or material found while conducting operations. It requires additional enablers that are not organic to the unit to exploit data, information, and materials obtained during the operation.

8-3. A CRT/HAP/R&S platoon will likely not be the first personnel on a site, however they often do not have the opportunity to integrate with the initial entry force who was on the objective first. Understanding how CBRN site exploitation compliments tactical site exploitation is essential.

8-4. The objectives of CBRN site exploitation operations are to—

- Safely render or destroy weapons, materials, agents, and delivery systems that pose an immediate or direct threat to the U.S. military or the civilian population.
- Prevent the looting or capture of CBRN materials, WMD, and related materials.
- Exploit program experts, documents, other media, and previously secured weapons and materials to combat further WMD proliferation and prevent the regeneration of a WMD capacity.

8-5. Table 8-1, page 8-2, shows subordinate unit tasks for the CBRN unit to conduct. Figure 8-1, page 8-3, depicts the flow of actions and decisions at a CBRN site exploitation.

Table 8-1. Exploitation tasks

Tasks	*Subordinate Tasks*
Preserve	Plan for the exploitation of CBRN sites.
	Plan for the mitigation of potential collateral effects of WMD or CBRN materials.
	Exercise command and control in preparation for, and conduct of CBRN site exploitation.
Characterize	Conduct tactical-level RM.
	Manage assigned personnel and resources to ensure effective, efficient site exploitation.
	Detect WMD and WMD related materials, delivery systems (and associated material), and technologies during the site exploitation.
Exploit	Characterize WMD, CBRN materials, delivery systems (and associated materiel), and technologies during exploitation mission.
	Search facilities and spaces for CBRN materials.
Disable/Neutralize	Exploit data, information, and materiel's obtained during the site exploitation.
	Gather forensic evidence in support of the site exploitation mission.
	Maintain control of all material.

Legend:
CBRN chemical, biological, radiological, and nuclear
RM risk management
WMD weapons of mass destruction

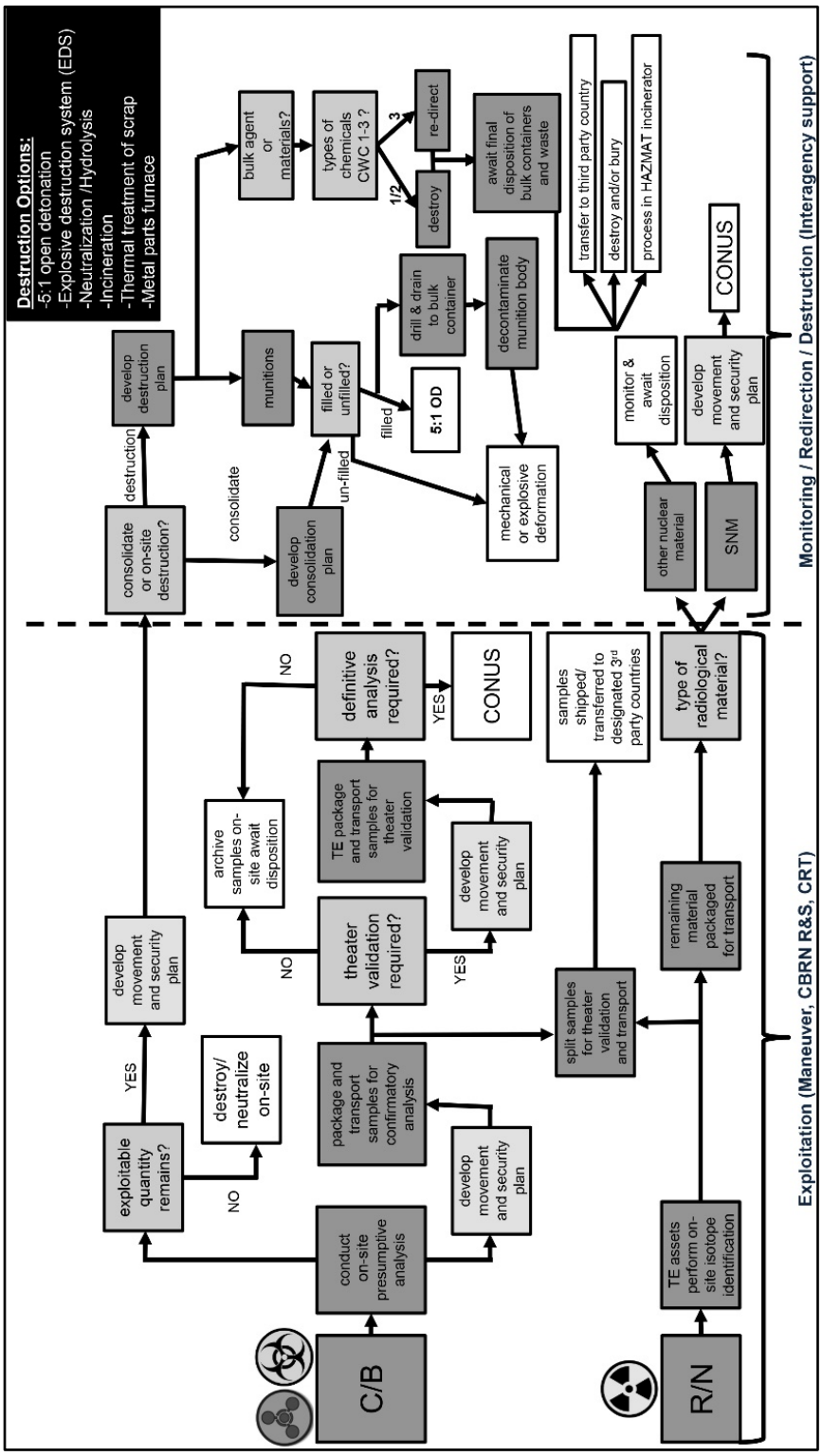

Figure 8-1. Exploitation flow chart

SECTION II – EXPLOITATION

8-6. When a suspected WMD site or facility has been discovered within the OE, a CBRN platoon may receive a WARNORD/OPORD/FRAGORD to conduct a CBRN site exploitation. This may also occur when an assessment by a CBRN R&S platoon reveals that a more in-depth exploitation needs to be conducted to exploit the information available on the site.

8-7. Tactical site exploitation is the methodical process of searching, documenting, gathering, and transporting items of intelligence or evidentiary value from a targeted location for use in operations, questioning, identifying persons of interest, or the judicial process. Tactical site exploitation is executed in support of, or in parallel with direct action, cordon and search, vehicle checkpoint and interdiction operations, raids, high-value individual or high-value target capture, and other missions and operations.

8-8. When the CBRN platoon is assigned an exploitation mission, the platoon leader must decide the best way to divide duties and responsibilities. This may mean the platoon leader designates responsibilities to subordinate leaders to serve as team leaders, assistant team leaders, and others. ATP 3-90.15 describes tactical site exploitation team composition and responsibilities. If a maneuver force is not overall in charge, the CBRN platoon leader has control of the tactical site exploitation team and in some instances the site if not controlled by a maneuver force providing security or a cordon around the site. The following paragraphs describe activities specific responsibilities of the CBRN platoon.

TEAM LEADER

8-9. The CBRN platoon leader will designate responsibilities to subordinate leaders for specific aspects of the mission such as entry team leader and decontamination team leader. The responsibilities of the team leader may include—

- Designating the materiel consolidation point.
- Establishing the start point for exploitation, and initiating and monitoring tactical site exploitation.
- Enforcing standing operating procedures.
- Determining priority of search.
- Designating locations for questioning, subject holding area, and biometric collections area.
- Conducting initial walk-through of the site.
- Establishing the consolidation point.
- Receiving, screening, and inspecting materiel for proper markings.
- Numbering rooms in a clockwise manner, starting with the first floor.
- Informing the on-scene commander of tactical site exploitation results.
- Assisting in tactical site exploitation once the sketch of the target is complete.
- Ensuring a final sweep is conducted on-site to prevent loss of any items of potential value.
- Moving tactical site exploitation materiel to the predetermined consolidation point.

ASSISTANT TEAM LEADER

8-10. The assistant team leader typically has the same skills as the team leader. The assistant team leader—

- Assists the team leader.
- Conducts an inventory of the site exploitation kit and coordinates for the replacement of any items expended.
- Conducts rehearsals.
- Conducts mission preexecution checks.
- Conducts the initial walk-through.
- Establishes the collection point.
- Briefs the team leader.
- Assists the searchers and recorders.
- Conducts a quality check on all materials gathered.

- Prepares all collected materiel for transfer.
- Attends the AAR with the battalion or brigade intelligence staff officer and site exploitation team.
- Completes DD Form 3108.
- Refits the site exploitation kit as needed.
- Performs quality control checks on the chain of custody documents.
- Ensures the chain of custody is maintained until the materiel is transferred to another custodian.

8-11. The search team is responsible for collecting and documenting information, materials, and persons of interest discovered at the site. The search team—

- Conducts a systematic detailed search.
- Immediately alerts the team leader of any booby traps.
- Meticulously catalogs information and materials.
- Wears appropriate PPE while searching.
- Searches the interior and exterior of the site.
- Bags and properly marks gathered materiel.
- Consolidates and organizes collected materiel at the collection point.
- Marks room entrances after the search.
- Turns in collected materiel to the team leader.

8-12. The photographer is responsible for taking archival quality photographs of the tactical site exploitation. The photographer—

- Ensures photographs are taken before materiel is moved.
- Takes panoramic pictures of the building and rooms searched.
- Keeps a log of photographs and locations of items photographed.
- Performs the sketcher's duties when a sketcher is not assigned.
- Downloads photographs immediately upon return from the tactical site exploitation.
- Disseminates photographs using the operations and intelligence networks.

8-13. The sketcher is responsible for drafting sketches of the tactical site exploitation. The sketcher—

- Ensures sketches are completed before materiel is moved.
- Draws detailed sketches of the buildings and rooms searched.
- Identifies the locations of materiel as found.
- Digitizes sketches upon return from the tactical site exploitation.
- Disseminates sketches using the operations and intelligence networks.

PLAN AND PREPARE TECHNIQUES

8-14. CBRN platoon leaders conduct TLPs while preparing to support CBRN site exploitation. The platoon leader issues a WARNORD to the platoon and completes mission analysis preparations. The platoon leader gathers critical site data from the supported unit and headquarters within the AO. If available, the platoon leader obtains any intelligence reports for the site. The platoon leader updates risk assessments, identifies any additional support requirements (such as security, communications capability, or reachback), briefs subordinates on the plan, and adjusts the plans accordingly.

8-15. The identification of items of intelligence value is accomplished early in the planning process. A list of items of intelligence value is posted at the briefing location in a prominent location so that the list is observed by the Soldiers conducting the tactical site exploitation. Items of intelligence value include—

- Videos or photographs of the target layout before the start of the search.
- Components such as the objective name, military grid reference system location, latitude, longitude, district, city, and landmarks.
- Presite exploitation intelligence.
- Layout of the target site.

8-16. The element leader gathers critical site data from the on-site commander, and obtains pictures, sketches, schematics, and locations of the current control measures from the earlier responders, if available. The platoon leader performs MOPP analysis to determine the IPE requirement. The platoon adheres to the appropriate regulations and SOPs. The platoon leader will assess the level of detail for the exploitation and prioritize tasks on site based on the time available. The presearch brief includes—

- An information collection plan with information requirements.
- The resources necessary to achieve the objectives.
- The objectives of the search.
- The personnel involved in the operation on the objective.

8-17. The briefing covers—

- Known intelligence of the site.
- Purpose of the exploitation.
- Type of exploitation—hasty or deliberate.
- Targets for potential prosecution.
- Items expected to be found.
- Known or expected hazards.
- Location of the consolidation point for collected information and materiel.
- Assignment of personnel to individual teams.
- Routes and alternate routes, radio frequencies, and emergency procedures.

8-18. Team leaders for entry teams will conduct PCIs, ensure analytical equipment is placed into an operational status in a contamination-free environment, and prepare any documentation such as logs and DD Form 3108 (*CBRN Sample Documentation and Chain of Custody*). Preparations for missions will include—

- Conducting premedical monitoring.
- Establishing communications with the initial entry team, the backup team, and the on-site commander.
- Conducting final check of personnel and equipment.
- Establishing the decontamination site.

TACTICAL SITE EXPLOITATION EXECUTION

8-19. Actions on the objective include—

- Responding to the tactical site exploitation objective and establishing an inner and outer cordon.
- Entries made with the assistance of host-nation personnel, if available.
- A hasty search conducted by the security team for any threats to the site exploitation team.
- Initiation of the exploitation process by the tactical exploitation team.
- Assessment and prioritization of search areas by the team leader.
- Photographs of the location and numbering the rooms before the search.
- A search conducted by team members according to the tactical site exploitation plan.
- Photographing materiel in place as found, noting locations of materiel on the sketch.
- The transfer of collected materiel to a consolidation point for inventory.
- Notifying the team leader once a search of an area is completed to monitor the progress of the search.
- Photographing the subjects associated with the materiel once the search of the area is completed.
- Collecting and packaging materiel separately.
- Completing a DD Form 3108 for all items collected.

8-20. Figures 8-2 through 8-4, pages 8-7 through 8-9, depict the flow of actions for chemical survey, biological survey and radiological survey.

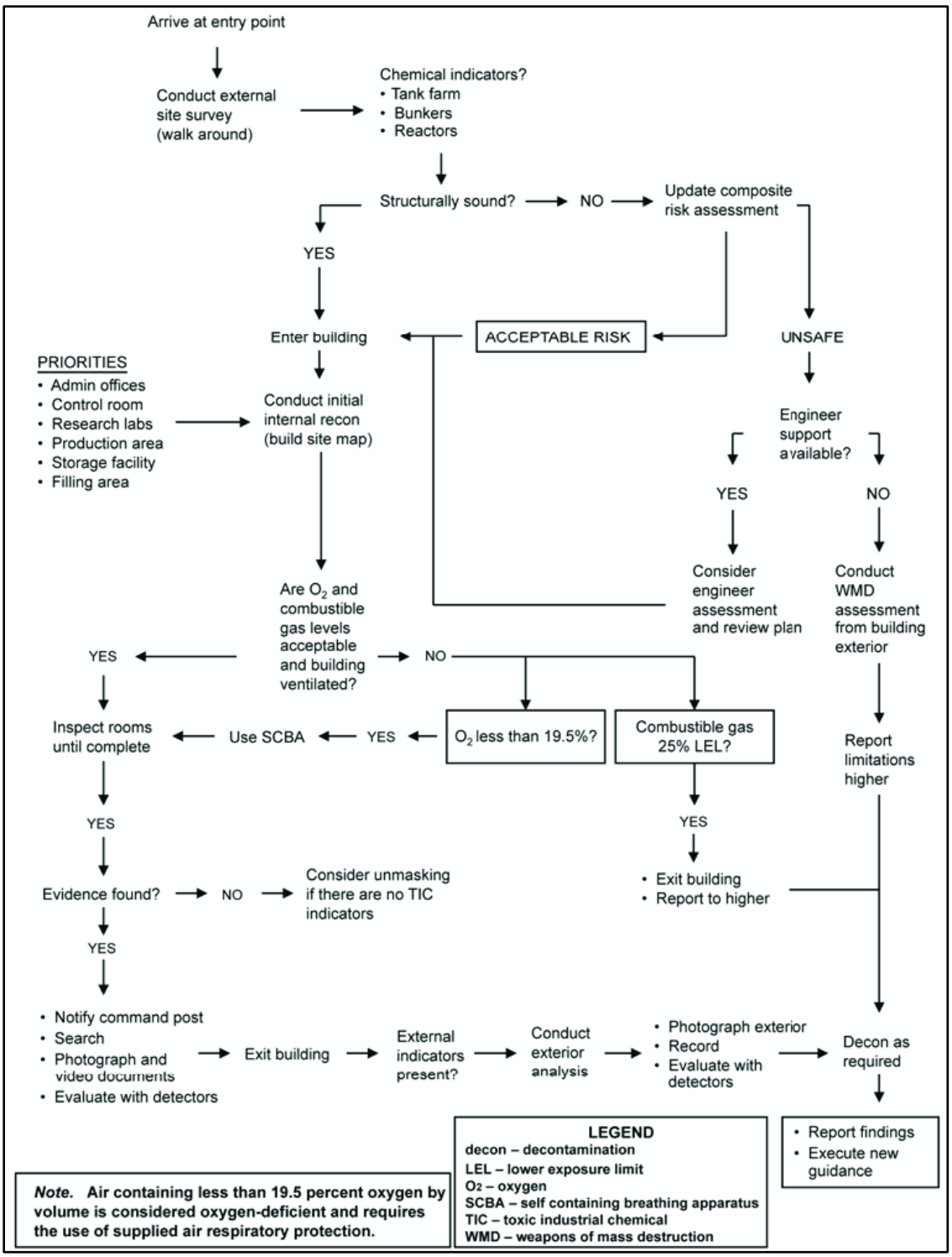

Figure 8-2. Chemical survey

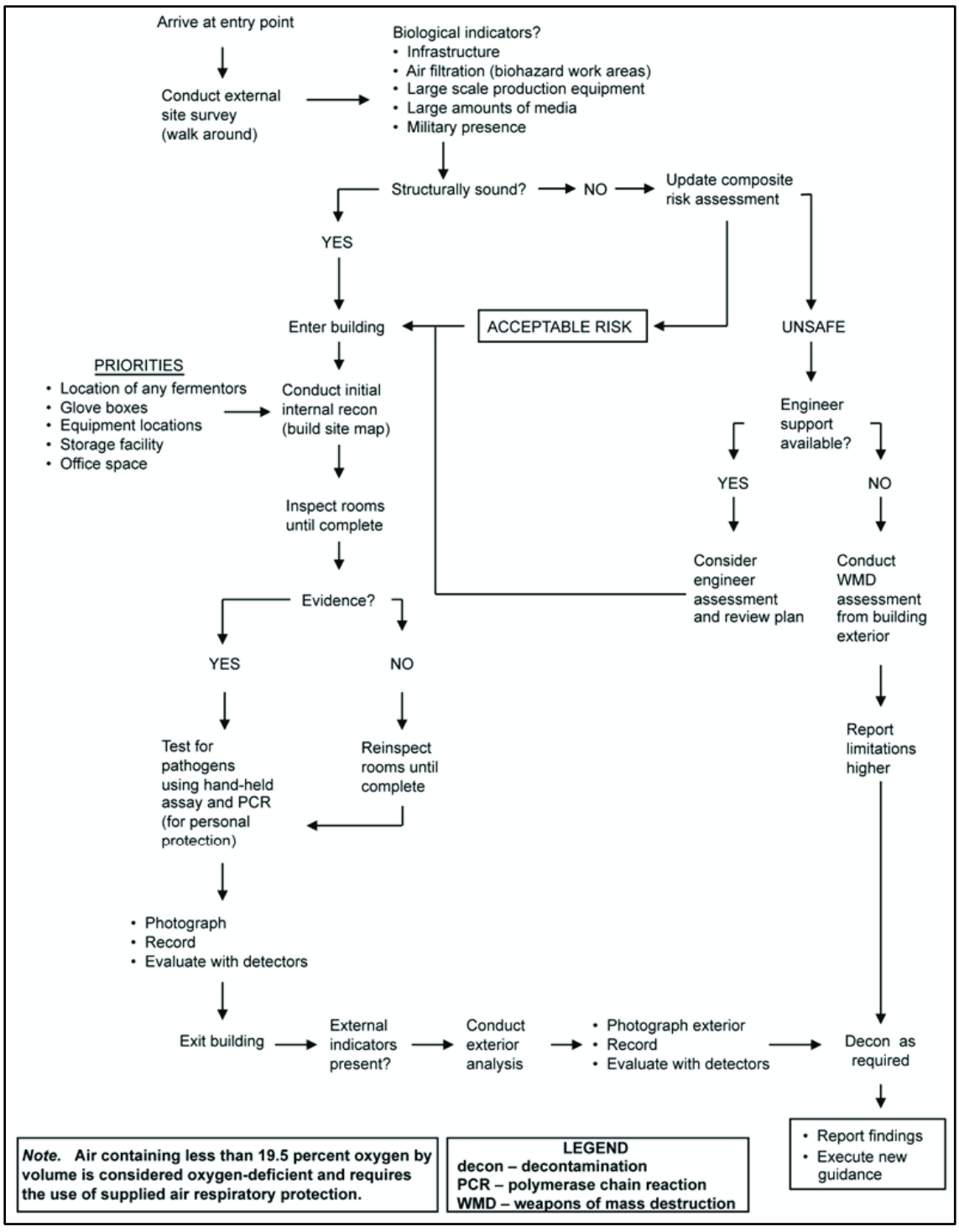

Figure 8-3. Biological site survey

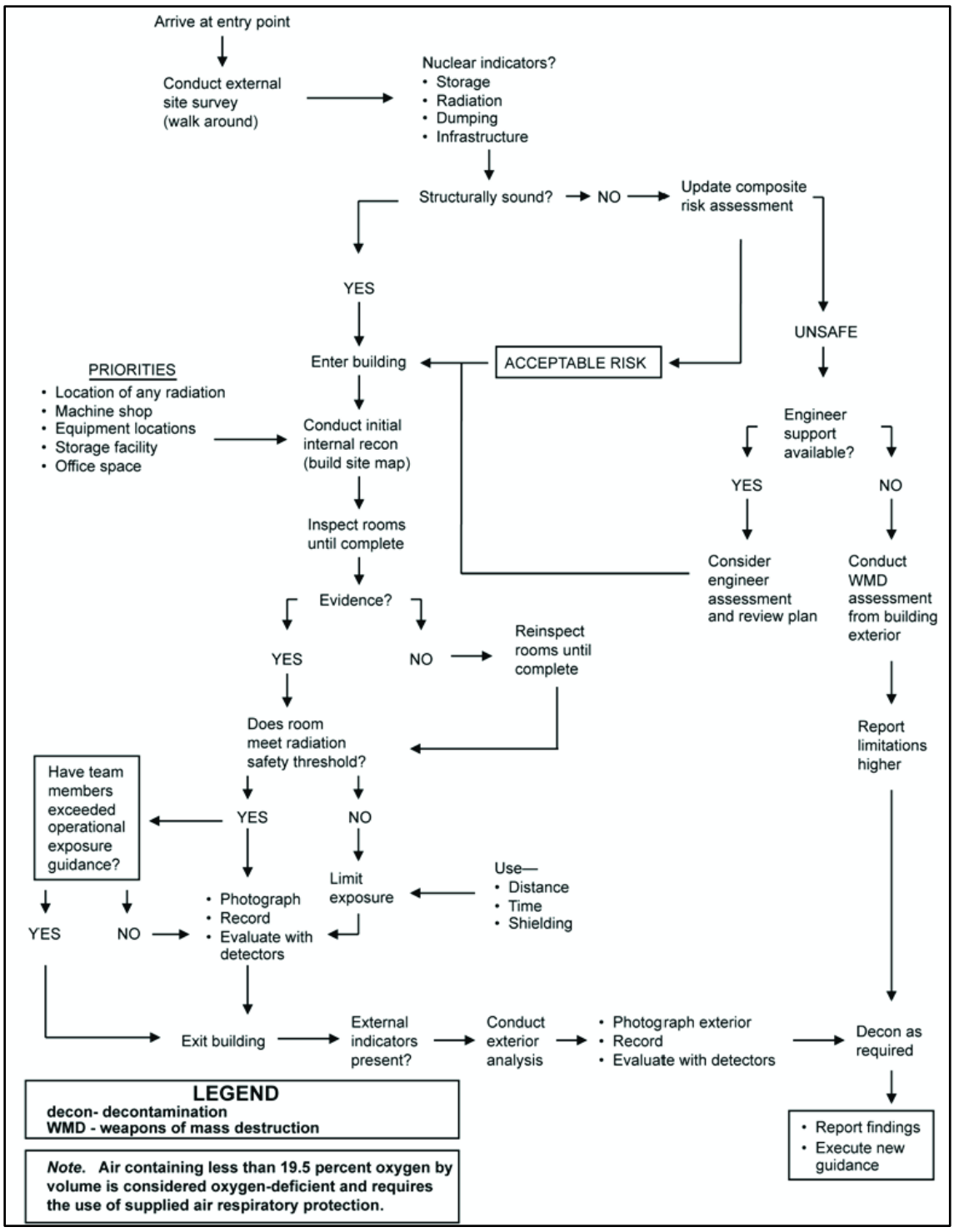

Figure 8-4. Radiological site survey

POST-TACTICAL SITE EXPLOITATION ACTIVITIES

8-21. An inventory containing detailed descriptions of the information, materiel, chain of custody, and all transfer documents is completed at the conclusion of the tactical site exploitation. This knowledge gained from the inventory facilitates subsequent analysis and follow-on requests for information. The team—

- Holds a tactical debrief and AAR.
- Takes pictures of actions on the site.
- Conducts a narrative debrief of the actions on the site.
- Creates a diagram or sketch of all the structures with the location of items found.
- Inventories and replaces all the tactical site exploitation kit items expended.
- Notifies the medical personnel of potential contamination and which CBRN hazards to prepare for.

PHOTOGRAPHY TECHNIQUES

8-22. Photographs document the existence of information and material. Pictures document the existence of an item and provide additional context about the location, condition, orientation, and the appearance of the item when it was found. An item's properties can change between the time the item was collected, the time it was analyzed, and the time it is used to support criminal prosecution. These changes are sometimes the result of mishandling, but, in most cases, are the effects of time and the environment. Because of these potential changes, a photographic record of each item is made at the time of discovery and collection.

8-23. The contents of a site are photographed before any items are moved. Photographs support subsequent forensic analysis and the potential use of collected items as evidence in host-nation judicial proceedings. The value of an object as evidence is not only based on what it is, but is also based on where it was found and the way it was positioned. Removing evidence before it is photographed reduces its forensic value.

8-24. The first set of photographs establishes the view of the site. These photographs consist of a 360-degree exposure taken at the center of the area or room. The exposure consists of several photographs made of the area or room's perimeter. The photographer turns slightly, standing in place, while taking a photograph after each slight turn until the entire area or room is photographed.

8-25. Additional photographs are taken from each corner of the area or room. This process works well for a room with four corners without hidden areas or obstructions, or for outdoor sites where the subject matter is toward the center of the site. When an area is photographed, it is imperative that the photographer does not include coalition forces in the pictures. Photographs containing coalition forces are unusable in host-nation court proceedings.

TACTICAL SITE EXPLOITATION STANDARD OPERATING PROCEDURE

8-26. All items found at the site are photographed with and without a measuring device to provide scale. These photographs are taken on-site exactly as the item was found. If time is limited, materiel is photographed without a measuring device at the site, but is later photographed with a measuring device at a more secure area, before transfer occurs. Items of interest that are not moveable are photographed with and without a measuring device.

8-27. Photographs are taken directly overhead at a 90-degree angle to provide accurate dimensions of an item. The photographer can take additional photographs from different angles to provide better context. The objective of the photographer is to substantiate the existence of the item at the site in the photograph.

8-28. The last photographs are taken at the end of the tactical site exploitation. These photographs establish the final state of the site. The photographs can establish any damage that occurred during the exploitation for establishing any reparations. Photographs taken after the search should not include other Soldiers.

8-29. In summary, photographs capture all aspects of the tactical site exploitation. There are additional guidelines to follow when photographing for tactical site exploitation:

- The site is photographed before tactical site exploitation to document the condition of the site as found.
- A common procedure is photographing the site in all four cardinal directions—north, south, east, and west.
- Individuals associated with the site are photographed on-site.
- Information, materiel, and potential evidence is photographed in place as it was discovered.
- Information and materiel having undetermined or unknown value is photographed.
- The camera is held steady to obtain clear photographs.
- Photographs are logged in a field notebook and numbered according to the photograph number count on the camera. The same number is used on the sketch.

SECTION III – SAMPLING

8-30. CBRN sampling is the process that includes collection, packaging, transport, storage, transfer, accountability, and reporting associated with environmental samples and medical specimens related to CBRN hazards to inform military decision making for operations.

Note: Information about specific sampling techniques can be found in ATP 3-11.37, appendix F.

BIOLOGICAL SAMPLING

8-31. All biological materials discovered at a site are treated as biohazards and handled with caution. Latex, nitrile, or other nonporous polymer gloves are worn when packaging biological material. New gloves are worn after handling each item to avoid cross contamination. PPE or IPE such as eye protection, surgical masks, M50 protective mask, and full-body protective covering are recommended in addition to gloves. All items are documented before being collected. Documentation includes photographing the items in their original location. If sketches are made, the locations of the biological materials are included.

8-32. Items such as clothing that contain blood, urine, or other biological material are packaged separately. Biological agents are sampled with clean, sterile swabs or swatches to collect blood or other fluid samples. Dried blood or other suspect stains are moistened slightly with distilled or deionized water and rubbed with a swab or swatch used to gather the sample. Biological samples should be kept refrigerated, but not frozen. ATP 3-11.37 describes TTPs for sampling biological materials.

CHEMICAL SAMPLING

8-33. Hazardous materials are photographed in place and added to sketches. Chemicals are never mixed together. Less than 0.067 to 0.101 ounces (2 to 3 milliliters) of chemical sample is placed into a sealed glass container, preferably with a polytetrafluoroethylene-lined cap. When collection is required, only trained personnel are used to properly collect and package the chemicals.

8-34. At least one-half cup per sample is collected when obtaining soil and minerals obtained from an outside area. Carpet and other flooring, shovels and other tools, and a vehicle interior, to include the accelerator, clutch, trunk, and vehicle carpet are all examined for soil samples. The samples are placed in a small vial, jar, or clean metal can. A clean glass jar or metal container is suitable for field expediency.

RADIOLOGICAL SAMPLING

8-35. Radiological sample collection operations are important to determine if and where an enemy uses a radiological agent. The collection of samples and background information must be as detailed and comprehensive as possible. Each sample must be processed and analyzed to provide refined data for further analysis.

CAUTION

CBRN R&S sampling teams must consider the possible presence of fissile material when receiving a positive reading of radioactivity. CBRN R&S elements mush understand the unique risks of criticality when interacting with fissile materials. Some fissile materials have dangerous chemical properties. Sampling should only be done by CBRN R&S teams who have received special training for these materials.

8-36. Monitoring for removable radioactive contamination should be conducted using conventional large-area wiping for qualitative analyses using a filter paper or equivalent over 100 square centimeters of the surface. Large-area sample collection is performed by wiping cheesecloth, muslin, or an oil-impregnated dust cloth over the surface. If tritium contamination is likely, collection should be done using wet glass fiber filters meant to be analyzed with a liquid scintillation counter. Refer to ATP 3-11.37 for more information on radiological sampling.

TRANSLOAD

8-37. The transload site is established adjacent to the personnel decontamination station and shares a hotline and the contamination control line. The transload team should consist of a reception member and a packaging member. The packaging member is the only individual that will handle the packages being processed through the site. The reception member assists the packaging member with equipment, paperwork and is responsible for the transload site. A drop cloth or 6 mil bag can be used to create a work surface. When samples are received the reception member verifies information about the sample from the sample team. The packaging member packages samples according to unit SOP. Each sample should be packaged separately and if contaminated, decontaminates the sample using available decontamination solution. The packaging member maintains chain of custody and notifies the CP that the transfer has taken place. In the case of radiological samples, the on-scene commander sets the operational exposure guidance. The packaging member ensures the DD Form 3108 (*CBRN Sample Documentation and Chain of Custody*) is properly completed. The reception member transfers the samples to the contamination control line according to the unit's SOP. The packaging member segregates equipment and materials for recovery and disposal.

8-38. An analytic section may be established at a CBRN site to conduct field screening and assessment of CB agents. The analytical section establishes communication connectivity with higher headquarters for technical reachback. They receive samples from the sampling team or escort team. The analytic section conducts sample analysis using appropriate analytical equipment available (gas chromatograph mass spectrometer, biological hand held assay, polymerase chain reaction, or ion spectroscopy) and provides results to the team leader. The analytic section control the sample material and carry out final instructions for sample disposition (disposal, storage, or sending to laboratory).

Appendix A

CBRN Reconnaissance and Surveillance Platoon (Heavy) Operations

This appendix describes the organization and mission, capabilities and limitations, and planning considerations associated with the core mission of the CBRN R&S Platoon (heavy). CBRN R&S Platoon (heavy) conduct searches, surveys, surveillance, sampling, and reconnaissance to confirm or deny the presence of a CBRN hazard. Figure A-1 depicts the CBRN R&S Platoon (heavy) icon.

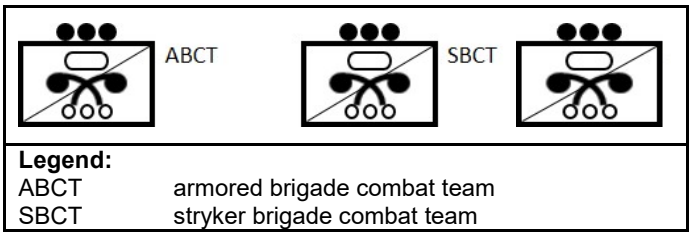

Figure A-1. Heavy reconnaissance and surveillance platoon icon

ORGANIZATION AND MISSION

A-1. The CBRN R&S Platoon (heavy) provides CBRN reconnaissance and surveillance to protect the force during decisive action. The platoon has two configurations. The CBRN Platoon in an armored brigade combat team or Stryker brigade combat team is organized with three NBCRVs. The CBRN R&S Platoon (heavy) in a hazard response company has four NBCRVs. The additional vehicle permits the company to organize its NBCRVs in a 2x2 configuration which is not possible in the armored brigade combat team/Stryker brigade combat team.

CAPABILTIES AND LIMITAIONS

A-2. The CBRN R&S Platoon (heavy) detects and provides field confirmatory identification of CBRN hazards; it provides early warning of contamination for supported units; provides limited conventional reconnaissance when not in a CBRN contaminated environment; and locates, identifies, marks, and reports contaminated areas and identifies bypass routes. Its capabilities are further described in table A-1, page A-2.

Table A-1. Capabilities chart

Parent Organization		*SBCT/ABCT*
Unit Capability		***Mounted reconnaissance***
PPE	JSLIST	
	Level B	
	Level A	
	SCBA	
Detect	Presumptive (C)	
	Presumptive (B)	
	Presumptive (R/N)	
	Presumptive (E)	
	Field Confirmation (C)	
	Field Confirmation (B)	
	Field Confirmation (R/N)	
	Field Confirmation (E)	
Decontamination	Limited Decontamination	
	Mass Decontamination	
	Vehicle Decontamination	
CBRN Reconnaissance	Mounted	
	Dismounted	
Assess	Production	
	Munitions	
Legend: CBRN chemical, biological, radiological, and nuclear JSLIST joint service lightweight integrated suit technology PPE personal protective equipment SCBA self-contained breathing apparatus		
Fully capable	Partially capable	Not capable

A-3. The CBRN R&S Platoon (heavy) depends on supported unit for logistics, sustainment, and human resources.

PLANNING CONSIDERATIONS

A-4. The mobility of mounted CBRN R&S elements makes them most effective in conducting zone, area, and route reconnaissance. CBRN R&S elements may also conduct point and area surveillance, but their use in surveillance does not capitalize on their mobility and protection from enemy fires. CBRN R&S Platoon (heavy) maximizes the mobility, protection, and speed at the expense of more definitive analytics and ease of sampling. CBRN R&S Platoon (heavy) has the mobility to keep pace with maneuver forces along major frontages and to rapidly shift reconnaissance capabilities from one position to another. When given the mission, it is imperative that the CBRN R&S element understands the type of unit and mission it is supporting and the tasks associated with it.

A-5. CBRN R&S Platoon (heavy) elements may be attached to cavalry, armored, and infantry formations to provide early warning of enemy CBRN threats during security operations. To effectively execute mounted CBRN reconnaissance, the CBRN R&S Platoon (heavy) must understand the reconnaissance objective and how to use the full breadth of capabilities to answer information requirements. A thorough task analysis is imperative when planning mounted CBRN R&S operations. Considerations for planning and preparing for CBRN reconnaissance are based on the mission as defined by the OPORD. Mission requirements are also considered during the planning process. The most critical component for ensuring mission success includes receipt and analysis of the mission, planning, and coordination.

A-6. A key factor in CBRN R&S execution is the time available to conduct the mission. The commander must recognize that there is increased risk to the R&S element and the main body when the pace of the

reconnaissance is accelerated. Speed and momentum are typically critical to the successful execution of operations that the CBRN reconnaissance mission may support. Commanders must know when to employ mounted CBRN R&S over dismounted reconnaissance based upon task-organized assets, and the advantages and disadvantages of either asset. The CBRN R&S platoon (heavy) provides the tactical commander the ability to retain the operational tempo.

A-7. The key tasks for mounted CBRN reconnaissance are detect, locate, identify, survey, sample, mark, and report. The commander considers the factors of METT-TC to determine whether to conduct mounted reconnaissance. A mounted reconnaissance operation is conducted when—

- Operational tempo and time constraints based on METT-TC are required for immediate tactical decisions.
- Sample collection and site exploitation are not a priority.
- The required reconnaissance is not constrained by terrain, such as dense urban terrain or subterranean environments.
- Terrain is relatively open.
- Environmental conditions permit this type of reconnaissance.

A-8. The following sections describe techniques and planning considerations used to perform mounted reconnaissance and surveillance missions. The mounted locate and survey techniques are described in detail in ATP 3-11.37. Table A-2 provides an overview of the advantages and disadvantages of the techniques.

Table A-2. Mounted CBRN reconnaissance technique advantages and disadvantages

Technique	*Speed and Resource Requirements*	*Limit Contamination Contact*	*Detail of Results*
Zigzag	Fair	Fair	Good
Lane	Fair	Fair	Poor
Cloverleaf	Fair	Fair	Poor
Grid	Poor	Fair	Good
Nearside-farside	Poor	Poor	Good
Box	Poor	Good	Good
Star	Good	Poor	Fair
Bounce-and-bypass	Fair	Good	Fair
Course leg	Good	Good	Good
Preselected dose rate	Good	Good	Good
	Good=Area covered with a low amount of travel, personnel, and detection points.	Good=Does not continue through contaminated area.	Good=All contamination boundary limits found.
	Fair=Area covered with a moderate amount of travel, personnel, and detection points.	Fair=Does not return through contaminated area.	Fair=Some of the contamination boundary limits found.
	Poor=Area covered with a large amount of travel, personnel, and detection points.	Poor=Returns through contaminated area.	Poor=Contamination only generally located.

LOCATE

A-9. The CBRN mounted locate techniques are conducted to locate suspected or actual CBRN agents or hazards from an attack with the AOR. Locating contamination is conducted through the process of continuous searches to detect hazards along routes, in areas, or selected zones or sectors of interest.

A-10. The technique chosen to conduct the locate task should be best suited to the terrain and mission objectives and may also be dictated by adversary actions. It is possible that one or more of the following CBRN locate techniques may be used during a single mission (for detailed information see ATP 3-11.37):

- **Zigzag.** The zigzag locate technique is used to locate contaminated areas during route, zone, or area reconnaissance missions. The zigzag locate technique has a higher probability of detecting contamination because the surface area not being traversed by the R&S element is less than that of other locate techniques. At the LD, the R&S elements come on line 200 meters apart and verify no presence of ground contamination. The R&S elements start a parallel course toward the suspected contamination at a 45º angle from the left if mission begins on the left flank. Elements continually monitor for contamination. After the element has moved 500 meters along the first zig, it turns 90° and zags. The element moves along this course for 500 meters and turns 90° for a second zig. This zig-zag process is repeated until the entire mission area has been assessed. Once the mission has been completed the results are reported using the CBRN 4 report.
- **Lane.** The lane locate technique is primarily used during route reconnaissance missions but can also be used for area reconnaissance of long, narrow pieces of terrain, such as defiles. For the lane locate technique the mounted reconnaissance element moves in a parallel course maintaining an interval of no more than 200 meters between vehicles. The element will continue along this course until it reaches the LOA. If the entire mission area was not searched a new sweep will be conducted and this process will continue until contamination has been detected or the complete mission area has been searched. Once the entire mission area has been assessed the results are reported using the CBRN 4 report.
- **Cloverleaf.** The cloverleaf technique is used primarily in restricted terrain or to ensure sites for high-value facilities, such as command and control centers, are free of contamination. This technique begins at a point central to the area to be checked. The element moves in a figure-8 pattern using the start point as the center of the 8. If a second vehicle is used, the second vehicle conducts the same pattern moving in a 90º direction from the first vehicle. If only one vehicle is conducting the cloverleaf, it completes one figure 8 and then conducts a second figure 8 at a 90º angle from the first. The element conducts point monitoring every 50-200 meters, based on METT-TC. The process is repeated until contamination is detected or the entire mission area has been assessed. Any results obtained are reported using the CBRN 4 report.
- **Grid.** The grid technique is employed by elements conducting mounted reconnaissance where accuracy is important. The grid technique is employed by superimposing a grid overlay on a map of an area of concern, which enables rapid communication of detection locations. The R&S element conducts point monitoring at numbered/lettered detection locations assigned by the command.

SURVEY

A-11. After contamination is detected, the survey task is used to determine the location and size of the contamination. This is a resource intensive operation typically conducted in rear areas to prevent units from unknowingly entering the contaminated area.

A-12. Planning considerations associated with performing the survey task include movement to a staging area and establishing a button-up point in relation to the LD. The button-up point is where the crew will close all hatches, activate the over-pressure system, and collect control samples for comparison of contaminated samples. The distance from the staging area to the reconnaissance site is determined by various factors such as weather conditions, terrain, suspected agent, and security concerns.

A-13. Conducting tactical movement the CBRN element moves from the staging area to the LD using an upwind approach to begin the survey task using one of the following techniques:

- **Nearside-farside.** The nearside-farside technique is used by a CBRN element to quickly determine the nearside and farside boundaries (length/depth) of a contaminated area. If the CBRN element suspects they have entered a contaminated area, all vehicles stop and check for ground contamination. If the element is in a contaminated area, it moves back along its original path checking contamination every 200 meters. Once out of the contaminated area, appropriate warning markers are emplaced. Once the initial vehicle has found the nearside boundary of contamination, it moves forward across the contaminated area, testing every 200 meters. When the element obtains two consecutive negative detections, the elements drops a CBRN warning marker to indicate the farside line and sends a CBRN 4 marker report. The CBRN element determines the left and right boundaries by replicating the same procedures, approaching from either the left or the right side.
- **Box.** The box survey technique is used to determine the general dimensions (length and width) of a contaminated area and to provide detailed information on the extent of ground contamination, but it is very time-consuming. At the LD (mission start location), R&S elements come on line 200 meters apart and verify that there is no presence of ground contamination. The R&S elements start a parallel course toward the suspected contamination by using the appropriate location technique (lane, zig-zag, or grid) based on METT-TC. If the length of the reconnaissance area is covered without finding contamination, each R&S element increases the distance between vehicles by 200 meters and then returns toward the original start location. This process continues until the entire area of concern is covered or contamination is detected. Once contamination is detected, the R&S elements transition from the locate technique to the box survey technique. It is best employed by three teams, but may be employed by one or two elements. Detailed procedures for the box technique are available in ATP 3-11.37.
- **Star**. The star survey technique is a quick way to determine the rough limits of a contaminated area. The star technique is used to obtain contamination limits while providing commanders optimal time to make tactical decisions necessary for their operational execution and success. This technique can be used by two or more R&S elements to obtain more detecting points, increasing the accuracy of the survey. The element that encounters the contamination first sends a CBRN 4 report and moves their vehicle back from the contaminated area 200 meters from the initial positive reading. If no contamination is detected, the element moves back another 200 meters and posts a CBRN marker. This point is the base of the star. The element proceeds forward to find the farside, detecting every 200 meters until no contamination is detected. The element proceeds another 200 meters, checks again so that no contamination is detected, and posts a CBRN marker. Based on METT-TC the element turns +/-135° and travels in that direction, detecting every 200 meters. All turns must be consistent with first turn either left or right. If no contamination is detected on this leg, the element does not travel any longer than the length of the initial leg. The element repeats this process until it arrives at or near the base of the star. This technique can be used by two or more elements to obtain more detecting points, increasing the accuracy of the survey.
- **Bounce and bypass**. The bounce and bypass technique is used to locate the general boundaries of a CBRN contaminated area. The R&S element places CBRN markers at specified intervals around the contaminated area and at all entry points. The bounce and bypass technique can also be used to support a radiological survey. The R&S element reports the intensity of radiation at the contamination boundary. The R&S element stops and checks for contamination in their immediate area. If no contamination is found the element moves forward checking for contamination every 50 meters. Once contamination is detected the element moves out of the contaminated area, checking for contamination every 50 meters and placing a CBRN marker 50 meters after no contamination is detected. The element turns toward the contaminated area, checking every 50 meters until contamination is detected again. Once contamination is detected, the R&S element proceeds out of the contaminated area and places a CBRN marker 50 meters after no contamination is detected. This process continues until no contamination is detected. Once the mission area has been surveyed the results of reported using the CBRN 4 report.

- **Course leg**. The course leg technique is used primarily during aerial reconnaissance but may be conducted mounted. It is used to find the extent and intensity of radiological contamination. The CBRN R&S element moves between two checkpoints; for example, from point A (top of hill) to point B (top of another hill). Readings are taken at given intervals along the route between the two checkpoints. When conducting a mounted radiological course leg, the element must be given a turn-back dose and turn-back dose rate. Conducting mounted versus aerial radiological course leg results in higher radiation doses to personnel. Reports of the results of mounted course leg techniques may be submitted in various ways. Normally, a survey data sheet is filled out and turned in to the tasking headquarters at the end of the mission, or data is sent via a CBRN 4 report.
- **Preselected dose rate.** The preselected dose rate is a route technique where the element is sent along a route and told to report and or mark at preselected dose rates. Element departs its start point and constantly monitors the survey meter while moving along its designated route. This is used for radiological surveys and once multiple preselected dose routes have been conducted, the points can be correlated to show the contour lines of radiological contamination fallout. Upon locating a reading of 1 centigray and/or its designated dose rates, the element records the dose rate and drops a radiological marker if directed. The element records its final reading upon reaching the end point of its route or its highest preselected dose rate. Under no circumstances should the element continue further into a contaminated area if it reaches its turn-back dose or turn-back dose rate.

SURVEILLANCE

A-14. CBRN surveillance areas are typically named areas of interest identified during the IPB. The surveillance task is typically conducted in rear areas along main supply routes and road networks.

A-15. One of the best ways of conducting the surveillance tasks is through observation posts. An observation post is a position occupied to observe a designated area. R&S leaders consider movement to and from listening post/observation post or NAIs. Leaders should determine whether R&S assets can maximize observation and sensing of NAIs from their listening post/observation post without revealing their positions or the deployment of unmanned systems that are within range. A CBRN reconnaissance element can report any indication of a CBRN attack and enemy activity using any of the following observe techniques:

- **Critical node.** The critical node technique is used where CBRN elements may be tasked with observing designated areas for CBRN attacks. When occupying a designated observation point the CBRN element will employ all monitoring capabilities and reports all indications of a CBRN attack. Any data collected will be provided for the completion of CBRN reports.
- **Area array.** An area array is established in order to maximize the probability of CBRN hazard detection over a large area of interest. When establishing an area array special consideration is given to terrain, weather conditions, performance characteristics, and the quantity of CBRN detection assets. The specific architecture of the array is designed by the CBRN staff in close coordination with operations, intelligence, and medical staffs.

A-16. Another way to conduct the surveillance task is through the technique of monitoring. Monitoring CBRN hazards is described as checking the environment for the presence of CBRN hazards. When monitoring for CBRN hazards the following methods are used:

- **Periodic.** The periodic method of monitoring is used when the intelligence estimates deem that there is a reduced likelihood of a CBRN incident. Based on the threat assessment the CBRN element will select the times between monitoring. Following a CBRN incident, the periodic monitoring method will be used over an extended period to determine whether hazardous effects remain in the area.
- **Continuous.** When a CBRN attack or incident is anticipated, the continuous monitoring method is used to provide the greatest opportunity for warning the area of concern of the impending hazardous conditions.

SAMPLING

A-17. Sampling operations are particularly important if a previously unknown agent is used or if the suspected use is the first use of an agent by a threat force. If the type of agent is unknown, the unit leader conducts a risk assessment to provide safety for their unit.

A-18. Planning considerations for mounted CBRN sampling include tactical movement to the staging area and establishing a button-up point in relation to the LD. Plan reporting procedures for suspected or known exposures to medical personnel

A-19. When collecting samples obtain an environmental baseline sample to provide a background level of indigenous biological material in a given area. Collect and attempt to identify suspect CBRN samples from soil, air, liquids, vegetation, and anatomical samples from animals or suspected contaminated animal specimens. Collect radiological samples such as radioactive dust particles, pellets, or industrial waste spread throughout an area.

A-20. It is important to be able to identify key indicators of potential CBRN hazards in order to collect samples. The following are examples of CBRN hazard indications:

- Crater caused by bursting munitions or fragmentation of projectiles.
- Unusual liquid droplets.
- An oily film on the surface of water.
- Discoloration of topsoil.
- Dead and discolored vegetation.
- Absence or lack of insect and animal life.
- Dead animals and birds

A-21. Preparing a sample for transport requires maintaining the integrity of the sample and ensuring the chain of custody is uninterrupted. Label the sample and provide the date the sample was collected, a sample sequence number, unit identification code, and sampler identification.

A-22. When shipping a sample consideration will be given to the level of priority, how the sample can be transported, and appropriately trained personnel to transport samples. Coordination with appropriate transportation authorities will be necessary to help ensure the transport and transfer of a sample is uninterrupted across international borders or to another government agency.

SPECIAL CONSIDERATIONS

A-23. There are multiple preparatory considerations that support the actions involved in the transitions to sustained operations.

A-24. CBRN reconnaissance preparatory considerations can include the following:

- **Intelligence.** Leaders use IPB to direct CBRN reconnaissance operations. They gain information that is critical to making decisions in defined areas and specific locations.
- **Organization and training.** Leaders understand CBRN reconnaissance capabilities and prepare effective employment plans that maximize the probability of detection. Platoon leaders assess team and overall unit performance and ensure the limiting factors, such as environmental impact on detections, are properly considered.
- **Physical environment.** Seasonal effects on terrain and weather conditions are carefully assessed before and during operations to determine the potential impact on CBRN reconnaissance capabilities.

A-25. Many of the actions undertaken during peacetime preparedness will continue during the transition to operations.

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Appendix B

CBRN Reconnaissance and Surveillance Platoon (Light) Operations

This appendix describes the organization and mission, capabilities and limitations, and planning considerations associated with the core mission of the CBRN R&S Platoon (light). Figure B-1 depicts the CBRN R&S Platoon (light) icon..

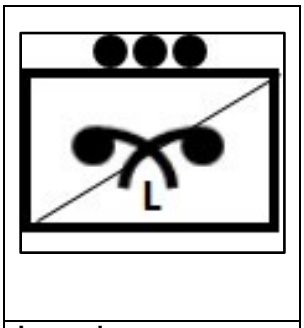


Figure B-1. Light reconnaissance and surveillance platoon icon

ORGANIZATION AND MISSION

B-1. The role of the CBRN R&S Platoon (light) is to conduct CBRN reconnaissance and surveillance missions in order to answer the commander's information requirements, provide early warning to the force, enable targeting of threat CBRN systems, and enable freedom of maneuver allowing decisive action. CBRN reconnaissance platoons are the infantry brigade combat team (IBCT) commander's primary organic CBRN capability. The CBRN R&S Platoon (light) must be capable of integrating with any of the battalions of the IBCT in the execution of main effort, shaping, and supporting operations.

B-2. The R&S Platoon (light) will conduct operations in close contact with enemy forces, hazardous chemical/explosive environments, and in civilian populations that are intrinsically linked to enemy information campaigns and proxy operations. Personnel selected for the R&S Platoon (light) must demonstrate the maturity, technical and tactical competence, and mental toughness for this mission. The R&S platoon sergeant, in coordination with the brigade combat team (BCT) command sergeant major and CBRN noncommissioned officer ensure that the assignment of CBRN Soldiers throughout the brigade supports the combat effectiveness of the R&S Platoon (light) to prevent a significant gap in the BCT's reconnaissance capabilities.

B-3. In order to accomplish its missions, the R&S Platoon (light) is tactically proficient, able to match the mobility of any of the BCT maneuver elements, and is able to integrate with reconnaissance elements operating in the BCT deep area and conducting CBRN R&S tasks in a highly lethal environment.

B-4. The R&S Platoon (light) is uniquely equipped, trained, and organized to answer the commander's CBRN related PIRs. Although the R&S Platoon (light) is a CBRN unit, its tasks and abilities are not strictly limited to the utilization of CBRN specific systems. The R&S Platoon (light) is placed within the commander's overall scheme of reconnaissance and is responsible for reporting any tactically relevant activities, and are expected to seize the initiative to develop and assess the situation in support of the commander's reconnaissance guidance.

B-5. The R&S Platoon (light) is organized into a command section and two reconnaissance squads, each of which is equipped with 1x vehicle, light and medium machine guns, and a grenade launcher. Each squad has equal firepower and combat power of a similarly sized infantry or cavalry team or squad, and operates under similar guidance with respect to engagement/disengagement criteria, distance from supporting forces, reinforcement requirements, and risk mitigation.

CAPABILITIES AND LIMITATIONS

B-6. Capabilities of the light reconnaissance platoon include—

- Detecting and providing field confirmatory identification of CBRN hazards.
- Locating, identifying, marking, and reporting contaminated areas.
- Assessing and characterizing hazards to confirm or deny the presence of CBRN materials.
- Collecting CBRN samples, as required in the overall sample management plan and coordinate for sample transport.
- Performing technical decontamination of team members.
- Mitigating small CBRN hazards.

B-7. The light reconnaissance platoon depends on elements within the AO for logistic and human resource support. Table B-2 provides a list of the equipment and capabilities within a light reconnaissance platoon.

Table B-2. Capabilities chart

Parent Organization		***IBCT***
Unit Capability		***Dismounted reconnaissance***
Individual protective equipment/personal protective equipment	JSLIST	
	Level B	
	Level A	
	SCBA	
Detect	Presumptive (C)	
	Presumptive (B)	
	Presumptive (R/N)	
	Presumptive (E)	
	Field Confirmation (C)	
	Field Confirmation (B)	
	Field Confirmation (R/N)	
	Field Confirmation (E)	
Decontamination	Limited Decontamination	
	Mass Decontamination	
	Vehicle Decontamination	
CBRN Reconnaissance	Mounted	
	Dismounted	
Assess	Production	
	Munitions	
Legend: CBRN chemical, biological, radiological, and nuclear JSLIST joint service lightweight integrated suit technology PPE personal protective equipment SCBA self-contained breathing apparatus		
Fully capable	Partially capable	Not capable

B-8. Key considerations for the R&S Platoon (light) command and control are the dispersed and task-organized nature of the missions and OE they will likely encounter. Operating semi-independently and at

distance, the R&S team leader must be capable of operating within the commander's intent in hazardous conditions without immediately available friendly forces.

B-9. Due to the dispersed nature of reconnaissance operations, all R&S Platoon (light) personnel must be able to operate, troubleshoot, and conduct field repairs and maintenance of communications equipment, and transmit reports.

B-10. Operating in close proximity to enemy forces, signature reduction is a key element of the command and control of an R&S Platoon (light). In addition to implementing communications and operational security, transmissions must be kept as brief as possible, transmitted only when/where necessary, and according to higher security and deception plans

PLANNING CONSIDERATIONS

B-11. Unique planning considerations for the R&S Platoon (light) are the requirements to integrate with any of the maneuver or support battalions/squadron within an IBCT or IBCT task force in order to answer the BCT commander's PIR. The R&S Platoon (light) platoon leader and platoon sergeant must be capable of integrating with the planning and rehearsals of the BCT operations to ensure the R&S Platoon (light) is effectively utilized and adequately supported. These planning requirements are normally handled by company grade leadership and/or battalion staff. Battalion and BCT CBRN staff personnel will assist with the support coordination and planning of CBRN missions, but are not in a command relationship to the R&S Platoon (light).

B-12. When the situation permits, dismounted CBRN elements conduct tactical movement to and from the objectives using available vehicles to expedite ground movement. Vehicle movement also enables the dismounted element to bring a larger array of equipment to increase available capabilities at objectives. It is important for the dismounted CBRN element's leadership to discuss what essential pieces of equipment must be taken on the mission. They must also determine where secondary pieces can be maintained to minimize space and weight during load planning. This is important if the dismounted element must conduct ground movement on foot for any substantial portion of the mission.

B-13. If the tactical situation requires a security force, the headquarters unit with areas of operations responsibility assigns security, with sufficient command and support relationships to accomplish the mission. One option is to establish a company team, with the dismounted CBRN R&S element as part of the team. For example, an infantry company has overall mission control, but has a dismounted CBRN reconnaissance platoon task-organized for a specific mission. The critical planning factor is that the CBRN R&S element has tactical control of all actions in vicinity of the area of contamination. The security lead element controls the tactical placement of the security forces encompassing the exterior of the contaminated area to protect the dismounted CBRN R&S element. It is recommended that the link-up between security forces and the dismounted CBRN R&S element occur during mission planning.

B-14. A CBRN R&S element should approach a CBRN survey area from upwind. The CBRN R&S leadership determines the initial predicted hazard/exclusion area. The element will stop prior to entering the suspect area or point to set up an objective rally point. The distance from the actual site is determined by various factors such as local weather data/conditions and geography (altitude), terrain, suspected agents, security concerns, and target size. Guidance may be given by the higher command, but normally this distance is in element SOPs or may be based on a safe standoff distance provided in the Emergency Response Guidebook, or other such documents.

B-15. Once the safe standoff distance is determined, the R&S element establishes 360º of security around the objective rally point and the lead element solicits any last minute intelligence updates on the objective from higher headquarters. A CP is established to provide command and control of both the security and dismounted CBRN R&S elements from the objective rally point. The CP location will also serve as the element staging area for all actions on objective.

B-16. To track downrange personnel and equipment, a log must be maintained of personnel and equipment that are in the hot zone or warm zone or have been left in the hot zone or warm zone. A log is kept at the CP concerning area operations and events. A log is kept by the element that conducts site characterization or sampling in the hot zone. The log will include entry times and expected exit times.

B-17. There are also planning considerations specific to dismounted survey and sampling techniques. For a more thorough discussion relate to these techniques refer to ATP 3-11.37.

SURVEY

B-18. In the same way survey is employed by the mounted R&S Platoon (light) the same considerations should be made for the dismounted R&S Platoon (light).

B-19. The CBRN reconnaissance survey task used for dismounted reconnaissance is similar to that used for mounted operations, except for the distances covered and the duration of time spent in an area. Another significant difference in dismounted survey is the configuration of the survey team. A dismounted survey team is made up of a minimum of two-person teams for safety, one person conducts the survey while the other remains in overwatch for security.

B-20. The six techniques used for dismounted survey are the same as the mounted survey with many of the same planning considerations. The following are dismounted survey techniques and associated planning considerations.

Nearside/farside

B-21. In the nearside/farside technique each element determines if they are in the contaminated area. If so, the element moves back along its original path checking for contamination every 50 meters until CBRN contamination is no longer detected. Once out of the contaminated area the CBRN element emplaces the appropriate CBRN warning markers.

B-22. Once the element has found the nearside boundary of contamination, it moves forward across the contaminated area making checks every 50 meters. If no contamination is detected the element moves forward another 20 to 50 meters and checks again. If no contamination is detected the element emplaces a CBRN warning marker. This process is repeated until the element is clear of the contamination. Each element executes this process to determine the nearside and farside boundaries of the contamination and submits the results using the CBRN 4 report.

Bounce-and-Bypass

B-23. The bounce-and-bypass technique is used to locate the general boundaries of a CBRN contaminated area. The bounce-and-bypass technique is initiated by a check for contamination in the immediate area. If no contamination is detected the element continues to move forward until contamination is detected. Once contamination is detected, the element moves out of the contaminated area and places a CBRN marker where no contamination is found. The element then moves in a general axis away from the initial start point for at least 50 meters and then turns into the direction of the contaminated area until it is detected again. Once the element has detected the contamination again it proceeds back out and places a CBRN warning marker where no contamination is found. This process is repeated until no contamination is found.

Box

B-24. The box technique is used to determine the general dimensions of a contaminated area. The element stops and checks for contamination in their immediate area. The first element to report contamination become the base element and all other elements orient on the base element. If any other element finds themselves inside the contaminated area they must back out of the contamination. The base element moves forward checking for contamination every 50 meters until it finds the farside of the contamination. If the base element fails to get another positive reading it proceeds another 50 meters and places a CBRN warning marker to establish the initial farside.

B-25. The element to the right of the base element places a CBRN waring marker to indicate the initial nearside line and then moves forward 50 meters and checks for contamination. At this point the element may or may not detect any contamination. If contamination is detected the element turns to the right 90^{o}, moves 50 meters and checks again. If the element does not detect any contamination it turns 90^{o} to the left, moves forward 50 meters, and checks again. The process of going straight or turning will continue in a boxlike

movement until the element has crossed the initial farside line; this is the initial right limit of the contamination.

B-26. The element to the left of the base element executes the same movement as the element to the right except its first turn will be to the left. Once the boundaries of the contamination have been established the element reports the results using the CBRN 4 report.

Star

B-27. The star dismounted survey technique is a quick way to determine the rough limits of a contaminated area. In order to increase the accuracy of the survey the technique can be used by two or more elements to obtain more detecting points.

B-28. The element that encounters the contamination first moves back from the contaminated area 50 meters from the initial positive reading, this point will be the base of the star. The CBRN element posts a CBRN warning marker and proceeds forward to find the farside, detecting every 50 meters until no contamination is detected. Once no contamination is detected the element proceeds another 50 meters, checks again to ensure that no contamination is detected, and posts a CBRN warning marker. This ends the first leg of the star.

B-29. Turning 135º the element begins moving in that direction checking for contamination every 50 meters. If no contamination is detected the element will not travel any farther than the length of the initial leg. It is important to make sure all 135º turns are consistent with the first turn, either left or right.

B-30. Once the star technique has been completed the element reports the results using the CBRN 4 report.

Course leg

B-31. The course leg technique is used to find the extent and intensity of radiological contamination. When conducting a dismounted radiological course leg the CBRN element must be given a turn-back dose or turn-back dose rate. The dismounted radiological course legs exposes personnel to higher radiation doses versus mounted or aerial radiological course legs. Before each course leg the survey meter should be rechecked and zeroed to ensure proper operation.

B-32. The element begins the course leg by reading the survey meter and recoding the dose rate. As the element moves along the course leg survey readings will be taken at preselected intervals and the dose rate recorded. The will continue with a final reading being taken at the end of the course leg.

B-33. The CBRN element will submit a DD Form 3038 (*Nuclear Data Sheet Route or Course Leg Technique*) to the tasking headquarters at the end of the mission or the data can be sent via a CBRN 4 report.

Preselected does rate

B-34. In this technique the dismounted CBRN element looks for a given does rate or multiple dose rates designated by the commander. Under no circumstance should the element continue further into a contaminated area if it reaches its turn back-dose or turn-back does rate.

B-35. The element begins by moving along its designated route constantly monitoring the survey meter. Once the element locates an area with a reading of 1 centigray and/or its dose rate, it places a CBRN warning marker, if directed. The element will continue along its route recording the final reading at the end point of its route or the highest preselected dose rate.

B-36. As with the course leg, the survey meter should be rechecked and zeroed before each mission to ensure proper operation.

SAMPLE

B-37. The decision to collect samples should be made with a specific intent associated with answering CCIR. Many factors will influence the requirement to take samples and determine what level of identification is needed. The key CBRN sampling tasks form a process whereby samples are collected, packaged, transported, stored, transferred, analyzed, tracked, and disposed of.

B-38. Dismounted sampling is conducted by two basic team structures. The three person sample collection element and the two-person sample collection element are described in the following sections.

Three-Person Sample Collection Element

B-39. A three-person collection team is the optimum organization. It allows distribution of responsibilities between a clean person, the sampler, and a recorder. The sample team leaders provides initial quality assurance/quality control and efficient documentation of the sample collection operations that occur. While a three-person collection team is optimum, it is often difficult with the small size of the dismounted R&S Platoon (light). Detailed instructions for the three-person team may be found in ATP 3-11.37.

Two-Person Sample Collection Element

B-40. A two-person collection team is the minimum size to safely collect a CBRN sample. It places a large load on the clean person to document and supply the sampler with the sample collection equipment needed, when needed. Using two people is more time and labor intensive than a team with three and requires slow and methodical actions to ensure sample integrity, safety, and proper documentation. The sample team leader will perform the duties as both recorder and clean person.

B-41. The sample collector or "dirty person" is responsible for exercising overall control of the sample collection and assists the clean person with setting up. They will also identify what equipment and procedures will be needed and inform the clean person to ensure the sample is successfully collected.

B-42. The assistant sample collector or "clean person" is responsible for preparing all the equipment needed to collect the samples. The clean person will also be responsible for maintaining a sample log notebook and documenting the collection process with still and video recordings.

SPECIAL CONSIDERATIONS

B-43. The dismounted R&S Platoon's (light) protection from CBRN hazards is limited to IPE such as the JSLIST and M50 protective mask. Operating at distance from decontamination support, the R&S Platoon (light) must ensure that effective personnel decontamination and IPE/PPE exchange takes place following exposure to a CBRN hazard. The R&S Platoon's (light) sampling capabilities are limited, and the R&S Platoon's primary mission is ensuring freedom of action for the IBCT. While the R&S Platoon (light) may be used to conduct assessment of potential CBRN sites—more detailed characterization should be conducted by CRT elements in follow on operations.

B-44. Dismounted CBRN R&S is the best method for gathering specific information at an NAI. Understanding what information is essential to meet the commander's intent and the value of that information to various organizations is an important planning consideration. The dismounted CBRN R&S element must also understand its specific information collection role in large-scale ground combat operations.

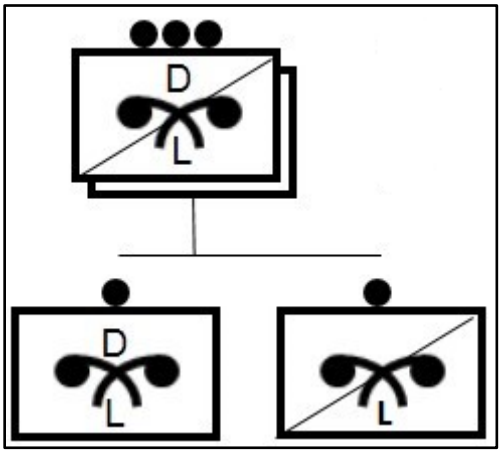
B-45. Effective selection of key equipment to perform the CBRN reconnaissance mission can change the success or failure of a mission. Taking the wrong equipment, too much equipment, not preparing it properly (for example, calibration, no air in the SCBA, or batteries), not enough sample collection containers, and inappropriate decontaminant are examples of things that can cause a CBRN mission to fail.

B-46. Determining if a CBRN R&S element is prepared for its mission is the tactical leader's responsibility and is verified by the commander, based on the level of acceptable risk. Noncommissioned officers are paramount to ensure equipment readiness and conduct individual and team training to execute missions. CBRN warrant officers inform the commander on the technical capabilities and limitations of equipment. Rarely is an element 100 percent prepared for every aspect of a mission. With the best intelligence available and an understanding of the operational and mission variables, equipment is employed to maximize CBRN R&S asset capability while minimizing risk.

Appendix C

Hazard Assessment Platoon Operations

This appendix describes the organization and mission, capabilities and limitations, and planning considerations associated with the core mission of the HAP. Figure C-1 is the icon for the HAP. The HAP can conduct dismounted reconnaissance tasks as described in appendix B and decontamination tasks as described in appendix D. These tasks will not be repeated here.



Legend:
D decontamination
L light

Figure C-1. HAP icon

ORGANIZATION AND MISSION

C-1. The HAP is manned, equipped, and trained to conduct decontamination and dismounted reconnaissance tasks. The HAP provides two HAP squads and two decontamination support squads. This allows the platoon to provide operational level decontamination and casualty decontamination.

CAPABILITIES AND LIMITATIONS

C-2. The HAP provide the following capabilities:

- Detecting and providing field confirmatory identification of CBRN hazards.
- Locating, identifying, marking, and reporting contaminated areas.
- Collecting CBRN samples as required in the overall sample management plan and coordinating for sample transport.
- Performing technical decontamination of team members.
- Mitigating small CBRN hazards.

- Providing equipment and personnel decontamination.
- Supporting a single long-duration or up to two short durations simultaneous independent operational equipment decontamination sites.

C-3. Table C-1 provides a list of equipment and capabilities within the HAP.

Table C-1. Capabilities chart

Parent Organization		***CBRN Company***
Unit Capability		***Hazard Assessment Platoon***
PPE	JSLIST	■
	Level B	■
	Level A	■
	SCBA	■
Detect	Presumptive (C)	■
	Presumptive (B)	■
	Presumptive (R/N)	■
	Presumptive (E)	■
	Field Confirmation (C)	■
	Field Confirmation (B)	
	Field Confirmation (R/N)	■
	Field Confirmation (E)	■
Decontamination	Limited Decontamination	■
	Mass Decontamination	■
	Vehicle Decontamination	■
CBRN Reconnaissance	Mounted	
	Dismounted	■
Assess	Production	■
	Munitions	

Legend:
CBRN chemical, biological, radiological, and nuclear
JSLIST joint service lightweight integrated suit technology
PPE personal protective equipment
SCBA self-contained breathing apparatus

■ Fully capable | Partially capable | Not capable

PLANNING CONSIDERATIONS

C-4. Central to the mission of the HAP is the ability to locate and identify CBRN hazards. In appendix B, planning considerations for conducting dismounted reconnaissance survey and dismounted reconnaissance sampling missions were addressed. Those same planning considerations are applicable to the HAP and can be referenced.

C-5. Additionally, the HAP will execute site assessments and reconnaissance of toxic industrial materials each with their own unique planning considerations. Both are important information gathering missions that will support the higher headquarters decision making process.

C-6. The HAP must consider decontamination planning as well. Chapter 6 and ATP 3-11.32 provide additional considerations for decontamination operations.

CBRN SENSITIVE SITE ASSESSMENT

C-7. As part of locating and identifying CBRN hazards the HAP may be required to carry out a CBRN site assessment which is used to detect WMD and related materials, delivery systems, associated material, and technologies. A site assessment requires less time and resources than a site characterization or site exploitation and may occur concurrently with tactical enabling tasks such as search and attack.

C-8. When preparing for a CBRN site assessment there are several factors to consider. The planning involves establishing contact with the on-scene commander and locating the site CP. Obtain any available data pertaining to the site from the on-scene commander. If there are any pictures, sketches, or schematics of the site those will be helpful in creating a visual plan for approaching and searching the site. If there were any casualties found at the site knowing how many and their associated symptoms is important information. Check with other responders who located the site for any readings or indicators related to WMDs.

C-9. While the platoon leader is gathering information about the site from the on-scene commander a CP is being established. Identify the initial entry party (IEP), back-up team, and a decontamination team and begin preparation for operations. The HAP platoon leader performs a MOPP analysis to determine the proper level of IPE/PPE required for the operation. In an unknown environment the IEP will wear a level of protection determined by the platoon leader based off the expected enemy, CBRN hazard, and the situation. The back-up entry team will serve as an emergency extraction team and a relief team, should assessment be extensive and the operation take more time than expected. A back-up entry team, as a minimum, will enter the area of suspected contamination in the same level of protection as the team in the hot zone.

C-10. An assessment is completed outside of the objective using the mission parameters to maintain safe distances from the objective and conducts monitoring of security forces. If enemy presence at the objective exceeds the security force capacity, a decision should be made to displace or increase security forces at the objective.

C-11. The IEP should conduct an initial reconnaissance of the site evaluating the atmosphere for radiological levels, lower explosive limits, volatile organic compound levels, and any toxic chemical vapors of interest. If the presence of an explosive hazard is suspected request EOD support or support from a CBRNE company with EOD assets. If there is explosive residue located it can be used to establish minimum safe distance if the type of explosive can be determined.

C-12. The platoon leader will also template the locations of the hot, warm, and cold zones and communicate them to supporting elements. This includes the potentially safe route to the objective on a path void of physical hazards. Identify the target arear along with the contaminated and uncontaminated CCPs.

C-13. During the site assessment the IEP will survey the structure/room using the units SOP for search patterns. During the survey the IEP will be alert for the presence of booby traps ensuring they do not touch anything during the initial sweep. An important rule to follow is not to turn anything on or off. Be sure to mark access and egress areas and mark rooms and areas that were searched.

C-14. Collect information on chemical hazard concentration, contamination limits, and agent presumptive identification to make IPE/PPE recommendations to any follow-on work parties. For radiological hazards collect information on hazard strength, type of emission, and contamination limits to make recommendations to follow-on team's stay times. Also identify any industrial and mechanical hazards such as—

- Live electrical systems.
- Pressurized vessels and systems.
- Cutting and crushing hazards.
- Systems involving extremely hot or cold materials.
- Ongoing chemical reactions.
- Potential confined space hazards.
- Storage sites with flammable, corrosive, or explosive materials.
- Unstable equipment.
- Potential slip/fall hazards.

C-15. Other things to look for during the initial sweep include information critical to planning further actions on the site such as—

- Process schematics.
- Identification markings of bulk chemical containers.
- Other documentation.

C-16. If there is any specialized equipment found during the initial reconnaissance note the brand, size, model, serial number, and date and place of manufacture if the information is available. Conduct photographic

documentation of all locations and items of interest along with a detailed sketch indicating the locations of key equipment.

C-17. All of the information collected and documented by the IEP will be reported back to the team leader and used to update the risk assessment and inform any adjustments to the PPE guidance. The information will also be used to determine the remaining information requirements for follow-on work parties to gather.

C-18. The IEP will communicate to the decontamination station in the warm zone when they have completed their search and are prepared to exit the area/structure. This will allow the decontamination team enough time for any last minute preparations prior to receiving the IEP and processing them through technical decontamination. The method of decontamination is determined based on the time available, threat level, hazard agent, and the IPE/PPE worn.

C-19. It is possible that no contamination was encountered in the hot zone and the CBRN R&S platoon leader can forego conducting decontamination based on the findings of the entry teams and field analysis conducted. Prior to decontamination, a check is conducted of all personnel that were in the hot zone. Technical decontamination is then conducted for all applicable teams. Once decontamination is complete the IEP team leader will brief the sample collection team members about the objective.

C-20. The platoon leader will provide recommendations for further courses of action to the higher headquarters using the information from the IEP reconnaissance, recovered documents, photos, video, sketches, and sample analysis results.

TOXIC INDUSTRIAL MATERIAL RECONNAISSANCE

C-21. Although less lethal than current chemical warfare agents, industrial materials are often available in enormous quantities, do not require expensive research programs, are easily mass produced, do not violate the Chemical Weapons Convention, and can still produce mass casualties. TIMs could be released from industrial plants or storage depots through battle damage, as a consequence of a strike against a particular facility, or as a desperate measure during military operations. They could also be used as improvised chemical weapons and have potential for inclusion into clandestine programs or contingency plans.

C-22. Planning considerations for a TIM reconnaissance are very similar to CBRN reconnaissance with a few notable differences. Particular care should be taken in identifying the nature of hazards posed by TIMs, because in many cases, standard military CBRN IPE may not provide the necessary protection.

C-23. When conducting a TIM reconnaissance, conduct a thorough risk assessment and implement controls to either eliminate or reduce the risk. Coordinate with the higher headquarters for sample collection and determine the methods for conducting the reconnaissance of the site.

C-24. Particular attention should be given to the proper instrumentation and/or detection equipment needed to detect and identify common TIM hazards. Indications of a TIM hazard may include the following:

- Vapor clouds.
- Damaged or leaking containers or vessels.
- Strong or irritating odors.
- Victims or casualties.
- Dead plants or animals.
- Vapor buildup or oxygen deficiency in confined spaces.
- Toxic chemicals, energetic, or explosive materials.

SPECIAL CONSIDERATIONS

C-25. Maintaining adequate preparedness requires a clear understanding of the threats and operational requirements, both overseas and in the United States. To support these requirements, the commanders' mission analysis identify specific, mission-essential tasks for individuals and organizations that facilitate operations in CBRN environments.

C-26. Complete intelligence collection and analysis for each specific threat assessment is seldom available. Changes in the perceived magnitude or severity of the threat when compared to friendly vulnerability and risk

limitations often dictate adjustments or changes to the plan when those threat characteristics exceed friendly force limitations established in planning.

C-27. The probability that U.S. forces will encounter a CBRN hazard in the OE remains a serious concern. This threat can come from nation states and non-state actors, sometimes simultaneously, and may occur in a variety of forms, including deliberate attacks or accidental releases.

C-28. The CBRN threat assessment is an analysis of the likelihood that units will confront CBRN threats and hazards. Some CBRN threats are deliberate attacks, while others originate from technological or natural disasters. The CBRN threat assessment must address all potential threats and hazards. For more information on CBRN threat assessments see ATP 3-11.36.

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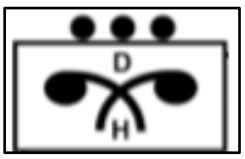
Appendix D

Heavy Decontamination Platoon Operations

This appendix describes planning considerations and select performance steps for key missions associated with heavy decontamination platoon operations. Figure D-1 is the icon for the heavy decontamination platoon.



Legend:
D decontamination
H heavy

Figure D-1. Heavy decontamination platoon icon

ORGANIZATION AND MISSION

D-1. The heavy decontamination platoon is assigned to the area support company and provides thorough equipment decontamination, area decontamination, casualty decontamination, and hazardous materials mitigation support to tactical level combat forces. The quantity of personnel and equipment decontamination depends on availability of water, decontaminant, and supporting systems. The number and type of equipment, weather conditions, and METT-TC also play a part.

CAPABILITIES AND LIMITATIONS

D-2. The heavy decontamination platoon provides the following capabilities:

- Providing equipment and personnel decontamination. (The quantity of personnel and equipment decontamination is dependent on the availability and type of equipment, temperature, and geographic location.)
- Providing area decontamination and support for mass casualty decontamination, patient decontamination, and remains decontamination.

D-3. The heavy decontamination platoon depends on the CBRN company or supported unit for command, guidance, and coordination for additional resources as needed.

PLANNING CONSIDERATIONS

D-4. It is important for the heavy decontamination platoon leader to have a thorough understanding of the following decontamination missions and their associated planning considerations:

- Operational decontamination.
- Thorough decontamination.
- Aircraft decontamination.
- Terrain decontamination.
- Fixed-site decontamination.

OPERATIONAL DECONTAMINATION

D-5. Operational decontamination limits the spread and transfer of contamination, allows temporary relief from MOPP4, and facilitates additional decontamination requirements. By expediting the weathering process, the need for a thorough decontamination may be avoided.

D-6. Planning for operational decontamination includes preplanning potential sites within the operational area that units may select as options. The site where the operational decontamination mission will take place is selected by the leader of the contaminated element ensuring there is adequate overhead cover, good drainage, easy access and exit routes, close proximity to a water source, and enough space to accommodate the units being decontaminated.

> ***Note*:** While units have organic capability to perform operational decontamination, the CBRN platoon may be tasked to support maneuver forces. The CBRN platoon leader working with the leader of the contaminated element will ensure the process runs smoothly and effectively.

D-7. When executing an operational decontamination mission the platoon leader must take into account factors such as surface composition, type and extent of the contamination, weather conditions, and entry and exit routes. Wind direction will continue to be a consideration and should be checked often to ensure it has not shifted. If the wind direction changes it may cause personnel to become inside the hazard area while conducting MOPP gear exchange. During the MOPP gear exchange, personnel should use the buddy system unless in an emergency and the risks of MOPP failure demand that a MOPP exchange occur.

D-8. It will be necessary for the CBRN leader to provide oversight of the operational decontamination process and ensure vehicles processing through the operational decontamination maintain a proper interval. It is the responsibility of the contaminated element to monitor and track the status of supplies.

THOROUGH DECONTAMINATION

D-9. 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. Coordination between the decontamination platoon leader and the contaminated unit is crucial. The contaminated unit will send contaminated vehicles for processing based on priority.

D-10. 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 between phases during an operation.

D-11. Prior to conducting a thorough decontamination mission, the platoon leader will receive an OPORD from a higher unit. This will be the indication for the platoon leader to start conducting TLPs and coordinating with supporting elements (such as medical, engineer, military police, and water resupply) for any necessary support.

D-12. 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.

D-13. While selecting a thorough decontamination site the platoon leader considers several factors including security and staging areas. Security for the decontamination site is the responsibility of the contaminated unit and should be coordinated prior to arriving at the linkup point. The staging area allows predecontamination where contaminated vehicles are segregated from uncontaminated ones.

D-14. The CBRN platoon leader, in coordination with a leader from the contaminated unit, will supervise the overall thorough decontamination site operations. When the platoon leader establishes communication with the contaminated unit it will be important to gather the following information:

- The time and location of the contamination.
- Type and quantity of equipment to be decontaminated.
- Location where the decontamination will occur (use at least a six-digit grid coordinate).

- The number of personnel requiring decontamination.
- A point of contact for executing the linkup.

D-15. The DED process requires a methodical and well thought out plan making sure it is mindful of wind and terrain considerations and effective reduction of contamination to negligible levels. The following are examples of some of the considerations:

- Ensure the DED is premarked prior to mission execution to assist in travel between stations and for the CBRN 5 report when closing down the site.
- If there is sufficient time and circumstances spray hoses can be buried to protect them from vehicle traffic.
- Platforms may also be positioned to make sure the tops of vehicle are washed and rinsed.
- Once the vehicle had been decontaminated it will be checked using the appropriate monitor and technique.
- Recycle criteria is established. If contamination is found, the vehicle is recycled to the appropriate station ensuring the driver remains in elevated MOPP. If the vehicle cannot be recycled, the commander must decide what to do with the vehicle; at a minimum it should be segregated from the clean troops and vehicles for weathering to occur.

D-16. Time is an important factor during decontamination operations. Table D-1 provides basic planning factors for some equipment using different standard decontamination apparatus.

Table D-1. Planning factors for rinse station

Equipment	*M12 PDDA*		*M17*		*M26*	
	Gallons applied	*Minutes*	*Gallons applied*	*Minutes*	*Gallons applied*	*Minutes*
M1 tank	325	12	57	14	200	15
M2 Bradley	325	12	57	14	200	15
M113	203	9	38	10	150	11
M109A Paladin	325	12	57	14	200	15
HEMTT	180	8	30	12	150	11
5-ton truck	158	7	42	11	150	11
HMMWV	90	4	23	6	150	11
Legend:						
HEMTT	heavy expanded mobility tactical truck					
HMMWV	high mobility multipurpose wheeled vehicle					
PDDA	power driven decontamination equipment					

D-17. The post decontamination assembly area should have good cover and concealment. It is positioned upwind from the DED and DTD operations and is large enough to support all decontaminated vehicles. Site selection for a post decontamination assembly area must be large enough to hold the entire unit and provide proper cover and concealment during thorough decontamination. The unit assembles in the post decontamination assembly area after completing DTD and DED operations. The unit occupies the post decontamination assembly area until the entire unit has gone through decontamination and will be instructed to move to a reconstitution location or tactical assembly area to prepare for future operations.

D-18. The CBRN platoon leader determines the general location of the DTD site and establishes a route to move vehicle operators from the DED to the DTD site. The contaminated unit sets up the DTD.

AIRCRAFT DECONTAMINATION

D-19. The goal of aircraft decontamination is to eliminate or reduce the contamination and restore the mission critical resources to a condition that permits unrestricted use, handling, and operation. The protection of aircraft and aircrews is of utmost importance during a CBRN threat. The ultimate goal is to minimize sortie generation degradation using proper decontamination procedures.

D-20. The type of aircraft being decontaminated and where the decontamination operations will occur is a primary consideration for both operational and thorough aircraft decontamination. Additionally, a separate area for detailed aircraft decontamination (DAD) and DTD is established during thorough aircraft decontamination. For the DAD, the aircraft should be towed from station to station in order to reduce the spread of contamination. If the aircraft needs to be towed then an aviation safety officer should be present.

D-21. Site selection for aircraft decontamination must consider the proximity to the flight line and impacts to flight operations. The decontamination pad should have enough space so that drainage and waste water runoff can be collected and contained. The construction of the decontamination pad should be of a waterproof material (vinyl, plastic, or tarp) with suitable side to control and contain the water or decontaminant runoff. Sewer drains should be plugged, and a system for containing discarded waste water should be established using a temporary berm.

D-22. For DAD, there are two possible set ups for conducting decontamination. The stationary, single station method and a five-station method composed of a primary wash, decontamination solution application, contact time/interior decontamination, rinse, and check.

D-23. When executing a DAD using water or decontamination spray, consider the following:

- Use the aircraft crew to designate specific pressure areas to avoid. Consult the appropriate aircraft maintenance technical manuals and technical orders for areas that could be damaged by water spray.
- Wear wet weather gear or a toxicological agent protective apron over MOPP gear to avoid becoming saturated with water.
- Reduce overspray or splatter by placing the decontamination area at a 20º angle to the prevailing wind. Using this method, the concentration of trailing vapor hazards should be significantly reduced.
- Use aircraft stands or ladders to spray areas inaccessible from the ground.
- Spray streams should be angled from 15º to 30º in order to avoid water being introduced behind the hatch and cover seams that house the sensitive aircraft components.
- Use a solution of hot soapy water to decontaminate the inside of the aircraft as long as maintenance personnel approve the use of it on certain areas of the equipment. Decontaminating the inside of the aircraft requires special planning for the best method to decontaminate optical and electrical equipment and instruments.

D-24. The contaminated unit or its higher headquarters will process aircrew personnel through the DTD. The DTD and reconstitution operations are the same for both ground and aviation forces. The contaminated unit or its higher headquarters is responsible for setting up, operating, manning, and closing the DTD area at the thorough decontamination site. The CBRN platoon leader will determine the general location of the DTD and provide technical advice on setting up, operating, and closing the DTD area.

TERRAIN DECONTAMINATION

D-25. Most terrain surfaces (excluding unpainted metal and glass) absorb agents. Thus, an agent may be transferred to clothing or skin by physical contact. The agent may also be transferred through vaporization and subsequent inhalation or diffusion into eyes or clothing. The decontamination of terrain allows personnel to increase stay time in an area and provides passage through an area. Large scale terrain decontamination requires extensive amounts of equipment, material, and time. Terrain is limited to areas of critical importance. Contaminated areas that can be avoided only require weathering to decontaminate. If they must be used then decontamination may be necessary using established procedures.

D-26. Terrain decontamination provides more long-term than short-term benefit. Generally, terrain cannot be decontaminated enough to allow a reduction of MOPP level right away. At best, the decontamination process may help speed the weathering process. Terrain decontamination can be so expensive and so ineffective that the commander may consider not doing it.

D-27. The goal of terrain decontamination is to achieve 100 percent coverage of decontaminates over the contaminated area. Factors to consider during a terrain decontamination mission are surface composition, the extent of the contamination weather conditions and entry and exit routes. Information regarding these factors

should be obtained during a reconnaissance of the contaminated area conducted by the CBRN platoon leader. Table D-2 outlines decontamination planning factors for area decontamination.

Table D-2. Basic terrain decontamination planning factors

Area Decontamination				
Mission	***Mission coverage***	***Water Required (gallons)***	***Decontaminate (lbs STB)***	***Time (minutes)***
Terrain decontamination	100 m x 30 m area	1500	300	40
Legend. lbs pounds STB super tropical bleach				

D-28. At the completion of a terrain decontamination mission all vehicles that traveled in the contaminated area are checked for contamination using multiple types of detection equipment for redundancy. Figure D-2 is an example of a planning calculation for a truck and sprayer used for terrain decontamination.

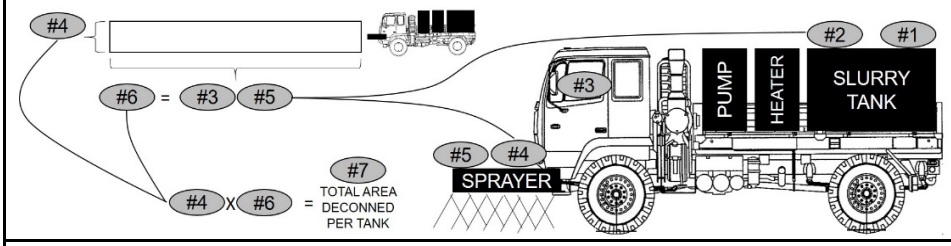
#1	Determine the decontaminant to water ratio (cross multiply, reference information for amount). $\frac{\text{\% of decon}}{100\%} \times \frac{\text{amount of decon per liter}}{\text{total amount of water in liter}}$
#2	Determine the size of the tank used to hold slurry in liters.
#3	Determine how much decontaminate will be sprayed in a specific time.
#4	Determine how long the tank can spray decontamination slurry given the liters per minute of the sprayer. Tank size #2 divided by liter per minute sprayer output #4. Answer will be the time variable in minutes.
#5	Determine how far the vehicle will provide coverage. #6 Distance = Rate #3 x Time #5
#6	Determine how much area can be sprayed with #4 and #6. Area = Length (distance before slurry ran out #6) x Width (swath of the sprayer #4)
	
Legend: decon decontamination	

Figure D-2. Example planning calculation for terrain decontamination

***Note*:** Vehicles will require multiple turns to provide coverage; the length of time required to fill tanks is a significant planning factor.

FIXED-SITE DECONTAMINATION

D-29. Fixed-site decontamination may be required when sites (such as ports, airfields, and command and control facilities) are contaminated where protective equipment cannot be worn to perform the mission, or when long-term occupancy is anticipated. Some planning considerations for fixed-site decontamination include—

- Coordinating with the contaminated fixed site representative.
- Identifying the extent and type contamination.
- Coordinating with supporting elements (medical, engineer, military police).
- Establishing priorities for decontamination.

SPECIAL CONSIDERATIONS

D-30. We know that some equipment is extremely vulnerable to damage when subjected to decontamination. The decontamination of equipment containing vulnerable components presents certain challenges. ATP 3-11.32 contains more information about decontamination.

ELECTRONICS

D-31. Electronics and optics are especially vulnerable to damage if not carefully decontaminated. Some materials, such as canvas and rubber, tend to absorb chemical agents. As a result, decontaminating absorbent surfaces is extremely difficult, if not impossible.

REMAINS

D-32. Mortuary affairs personnel are responsible for coordinating the disposition of contaminated human remains. This includes the decontamination of human remains when required. A mortuary affairs collection point and mortuary affairs contaminated remains mitigation site may become operational whenever the threat of CBRN warfare exists. The Joint Mortuary Affairs Office acts as the theater central point of contact to coordinate for this operation. The handling of contaminated remains is a process consisting of the following:

- The mortuary affairs collection point is deployed to the area concerned for the recovery of contaminated remains. The mortuary affairs contaminated remains mitigation site will set up operations just outside the contaminated area.
- Upon verification that the remains have been decontaminated or packaged for safe transportation and burial according to regulations, the human remains are transported to the theater mortuary evacuation point or designated holding area.
- The final verification of decontamination completeness will be conducted within the theater.

MILITARY WORKING DOGS

D-33. The decontamination of military working dogs and other government-owned animals should be accomplished by military working dog handlers and supporting veterinarian personnel. Definitive decontamination requires the removal and replacement of all contaminated handling equipment and the thorough washing of the animal with soap and water, followed by a thorough rinsing with water. If soap is not available, copious rinsing with water alone should provide adequate decontamination. Each handler should store extra handling equipment in a chemically protected container for use after decontamination.

Appendix E

CBRNE Response Team Operations

This appendix describes the planning considerations and select performance steps for key missions associated with CBRNE response teams (CRT). CRT deploy to conduct CBRN hazard characterization, monitoring, disablement, elimination support operations, WMD and CBRN incident emergency response, and contingency support operations to geographic combat commands and lead federal agencies. Figure E-1 is the icon for the CRT.

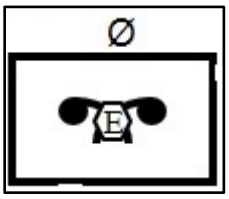


Figure E-1. CBRNE response team icon

ORGANIZATION AND MISSION

E-1. The CRT, formerly known as the technical escort team, is a technical CBRNE team that conducts escort of CBRN material and has an organic capability to perform explosive ordnance disposal and render safe operations. These are low-density, high-demand teams that have enhanced training and equipment for operations in unique environments.

E-2. The mission of the CRT is to provide advice, assessment, sampling, detection, verification, render-safe, packaging and escort of chemical and biological devices or hazards and limited CBRN response support to military forces or civilian authorities. CRT provide support to mission requirements in the continental United States and outside the continental United States, to include training exercises, local mission responses, and overseas contingency requirements.

CAPABILITIES AND LIMITATION

E-3. A CRT is generally organized into six teams: initial-entry team, sample team, decontamination team, rescue team, analytical team, and CP (table E-1, page E-2).

Table E-1. CRT team duties

Team	*Duties*
Initial entry team	• Locates and takes appropriate action against explosive hazards. • Methodically assesses and characterizes the site for the team leader. • Reports all findings and pertinent information to the team leader for decision making.
Sample team	• Conducts site assessment and exploitation. • Advises and assists in the creation of a sample management plan for the team leader.
Decontamination team	• Identifies and advises the team leader on the appropriate decontaminate. • Decontaminates personnel returning from the site.
Rescue team	• Monitors the movement of the team members downrange with the CP. • Assists in the initial setup and teardown of the CP and decontamination line when team members are not downrange. • Is on standby with rescue equipment and combat life saver kit in the event rescue is required.
Analytical team	• Conducts field confirmatory identification of select chemical/biological samples. • Prioritizes samples for follow-on transport.
Command Post	• Provides mission command. • Provides reach back information to teams in the AO. • Sends reports and supporting information to higher headquarters. • Documents all actions on site. • Continuously reports findings to higher headquarters throughout the course of countering weapons of mass destruction operations.
Legend: AO area of operations CP command post	

E-4. A CRT provides the following capabilities to the supported unit as well as those described in table E-2:

- Ground and air technical escort of hazardous chemical, biological, and radiological material.
- Render-safe procedures for chemical, biological, radiological, and explosive devices.
- Detection and field confirmatory identification of CBRN hazards.
- CBRNE site exploitation of hazards to answer information requirements and facilitate subsequent operations.
- Preserve, characterize, exploit, and disable or neutralize WMD targets.
- Destroy, dismantle, remove, transfer, dispose of, or consolidate WMD targets.
- Provides support to the combatant commander and other government agencies during CWMD operations.
- Operate within uncertain environments.
- Provides support to combatant commands and traditional CBRN units.
- Capable of supporting the Department of Justice, the DOD, and local responders with emergency response, to include render-safe procedures on CBRN devices
- Supports the Department of Justice, DOD, and local responders with domestic crisis management for CBRN incidents.

Table E-2. Capabilities chart

Parent Organization		*CBRNE Company*
Unit Capability		*CRT*
PPE	JSLIST	
	Level B suit	
	Level A suit	
	SCBA	
Detect	Presumptive (C)	
	Presumptive (B)	
	Presumptive (R/N)	
	Presumptive (E)	
	Field Confirmation (C)	
	Field Confirmation (B)	
	Field Confirmation (R/N)	
	Field Confirmation (E)	
Decontamination	Limited Decontamination	
	Mass Decontamination	
	Vehicle Decontamination	
CBRN Recon	Mounted	
	Dismounted	
Assess	Production	
	Munitions	
Legend:		
CBRN	chemical, biological, radiological, and nuclear	
JSLIST	joint service lightweight integrated suit technology	
PPE	personal protective equipment	
SCBA	self-contained breathing apparatus	
Fully capable	Partially capable	Not capable

E-5. The CRT depends on appropriate elements within the theater for movement, logistics, sustainment, and administrative services. It also depends on the supported BCT/division direct support EOD company/battalion for all EOD render safe operations.

PLANNING CONSIDERATIONS

E-6. Gathering pertinent and valuable information to conduct an operation is essential for a CRT. Information obtained before arriving on the scene better prepares the CRT for its mission.

E-7. Necessary CP information—

- Location of MEDEVAC, CP, decontamination site, emergency personnel decontamination site, and emergency rally point.
- Supported unit and frequencies for MEDEVAC, security, other units involved.
- Mission statement, endstate, CCIR/PIR, turnback dose (operational exposure guidance, disposition of trash or contaminated materials).
- Any available related information/intelligence.
- Availability of reachback.
- Alert medical treatment facilities of going into a CBRN threat so that they can prepare medical countermeasures.

E-8. General planning considerations—

- Storage containers for unitary chemical agents and precursor chemicals can become pressurized due to degradation/breakdown of the chemical. Precautions should be taken to prevent exposure/spread of contamination during access and venting procedures.
- On-going chemical processes and equipment should not be shut-down until the system is understood and can be done safely.
- Any air-handling system(s) and/or fume-hoods should be left operating if currently operating.
- Ensure detection and monitoring equipment is capable of detecting the various hazards expected on site.
- Use more than one type of detector technology to determine presence of a hazard. Multiple detection systems are more reliable than a single detector.
- Ensure proper decontaminants are on-hand/known prior to commencing operations.
- Place emergency personnel decontamination site as close as safely possible to site in order to expedite any emergency care/evacuation, site can and should be moved as the site exploitation develops.
- Request current/recent imagery and/or video (such as thermal/infrared) to identify facility operating status, facility use.
- Conduct downwind hazard prediction modeling prior to commencing operations to identify potential operational limitations on maneuver, in the event of an accident or incident involving CBRN materials and to identify potential areas for evacuation of noncombatants.
- Cover body surfaces that have scratches, cuts, thin, or moist skin
- Approach target from upwind and verify CP area contains no contamination before commencing operations.
- Account for the following impacts of underground CBRNE facilities—
  - Limitations for stand-off detection capability of CBRN materials.
  - Concentrated contaminated/hazardous environment requiring additional PPE and detection requirements.
  - Containment of contamination, limiting the affected downwind hazard area in the event of an accident or incident inside the underground facility.
  - Conditions may rapidly change.
- Determine how long the objective will be allowed to be exploited. Time will change variables like temperature, sunlight, weather, and more.
- Is an element available to cordon off the area if it is in public, or can operations be conducted during limited visibility or nighttime hours?
- Continue to refine questions, variables sometimes change or appear later as a scenario develops.

E-9. Examples of document and media exploitation:

- Details on purchasing chemicals and equipment.
- Books or papers dealing with chemical synthesis or instructions.
- Chemistry books and associated literature used as reference.
- Books on toxicology and medicine.
- Manuals dealing with decontamination, treatment, or PPE.
- General information on locations, dates, times, people, associated plans, maps, and notebooks.
- Paperwork or visuals on weaponization or dissemination.
- Notebooks with drawing of chemical structures or general laboratory notes.

EMPLOYMENT

E-10. The CRT will provide assessments of CBRN hazards to a supported headquarters. The CBRN threat assessment is an analysis of the likelihood that units will confront CBRN threats and hazards. Some CBRN threats are deliberate attacks, while others originate from technological or natural disasters. The CBRN threat assessment must address all potential threats and hazards. The assessment will be based off of collected intelligence and information gathered from previous site surveys. The goal is to support the commander's decision making process by developing recommendations related to CBRN hazards and any actions that should or should not be taken at a specific site.

E-11. The CRT begins conducting a team assessment by the following:

- Developing critical site data and obtaining intelligence from any available historical site surveys.
- Gathering weather data.
- Obtaining the number and current location of casualties.
- Obtaining the symptoms of the casualties.
- Determining the type of CBRN release.
- Identifying the chemical agent if possible
- Gathering information on other known or suspected hazards.
- Obtaining the location of the incident CP.
- Determining the location of and control measures for the hot, warm, and cold zone.
- Compiling a list of responding units/agencies on the scene.

E-12. Information will also be gathered from the entry team pertaining to collected samples, reach back capabilities, any relevant weather data. Information is also collected by bystanders, detainees, and human intelligence sources. If possible, a prediction model should be constructed to demonstrate the potential immediate and downwind hazard areas.

E-13. Once the CRT leader has completed the analysis, mission planning is initiated while recommendations are presented to the responsible commander. The CRT leader develops a course of action to accomplish the commander's intent along with the intent for the disposition of the site and the CBRN hazards present.

CONDUCT CONFINED SPACE OPERATIONS

E-14. Confined space is defined as an area large enough and configured so that a member can enter and perform their assigned work, but which has limited or restricted means for entry and exit and is not designed for continuous human occupancy. Preparations to conduct confined-space operations are conducted by trained technical and specialized forces due to air quality control and the requirements for legal advice and review prior to equipment retrograde.

E-15. Confined space also constitutes an oxygen-deficient atmosphere, which is an atmosphere that contains less than 19.5 percent oxygen by volume. Oxygen-deficient atmospheres are dangerous because asphyxiation can occur when the oxygen content drops below normal (approximately 21 percent). As the oxygen percentage decreases, damaging physiological effects increase, such as faulty judgment and poor coordination.

E-16. Confined-space operations should be considered hazardous. Entry into confined spaces is prohibited until such spaces are certified safe for entry by personnel who are trained for confined-space operations; for example, they must be rendered safe by EOD personnel.

E-17. Depending on the characterization of a confined space, the requirements for personnel who must enter a confined space may include special training, monitoring the atmosphere inside the space, ventilating the space, controlling hazards within the space, and using PPE.

E-18. The team leader selects the type of entry plan to use best suited for the proposed confined space entry based on the planned actions of the team. There are three general classes of confined space hazards—engulfment, mechanical, and atmospheric. The team identifies the confined space hazards in the order they are monitored:

- Oxygen (deficient or enriched atmosphere).
- Flammable, combustible, or explosive atmosphere.
  - Flammable atmospheres are generally caused by evaporation of flammable liquids (e.g. gasoline).
  - By products of chemical reactions (such as decomposition of organic matter to form methane).
- Toxic Atmosphere. When an atmosphere contains a concentration of any chemical substance over its occupational exposure limit. A toxic atmosphere may be present as a result of the following:
  - Product stored in a confined space, vapors remain in the atmosphere due to poor ventilation.
  - Work being conducted in the confined space, such as welding or brazing, painting, scraping, sanding, and so forth.
  - Common toxins found in confined spaces such as carbon monoxide and hydrogen sulfide.

E-19. If a confined space entry operation is conducted in support of homeland operations a confined space permit may be required. It will be the responsibility of the platoon leader to ensure any necessary permits are on hand prior to the confined space operation.

E-20. General forces may provide security at the outer areas of a confined space, such as doorways or tunnels leading into it. The team leader must ensure safety zones are identified and access to the confined space is controlled. Any equipment that may be needed to support a rescue situation should be identified and staged nearby.

E-21. In preparation for entry into the confined space make sure communication equipment is operating and communications between the entry team and the command team are established. The entry team should be determined according to the onsite conditions and level of experience. Once the entry team has been medically monitored the appropriate level of protection is donned before moving to the entry point.

E-22. Once inside the confined space the entry team makes communication with the CP and continues to monitor the atmosphere. If self-extraction is needed the entry team selects and set ups the retrieval system. A complete search of the confined space is conducted noting all possible hazards using photographs and sketch drawings. When samples are collected ensure they are properly package and documented.

E-23. When the team is preparing to exit the confined space communication with the decontamination station is established so that personnel are prepared to receive them. Once the team has exited the confined space they will execute transload operations, if required, and proceed to decontaminate using the buddy team method. An after action review is conducted and the team leader prepares and communicates an initial assessment report to the higher headquarters.

INITIAL-ENTRY TEAM

E-24. An initial entry team is made up of at least two personnel and are responsible for conducting a thorough initial survey of the objective. In the case where unexploded ordnance or IEDs are suspected, EOD personnel must be included to perform render safe procedures. EOD personnel ensure that the area is clear of any additional IEDs or booby traps. In the case of open areas (fields), a preliminary sweep will be conducted ensuring the same. When it is not practical to clear all IEDs, booby traps, or similar devices from the area, the EOD element will clear and mark a path to the sample collection area if sample collection is required. The initial entry element leader will determine the best placement for the path. Duties will be divided up among the element members to record the area, monitor the site for hazards, and communicate. If possible, and man power is available, additional personnel should be added to conduct the initial area survey.

Perform Site Characterization

E-25. After initial-entry personnel conduct mitigation and render-safe operations, the sample team leader conducts site characterization. Information is limited to visual depictions of suspected contaminated areas and is reported to the CP throughout the duration of the mission. The entire site is assessed before the sample plan is established. The presumptive identification of CBRN threats and hazards occurs during this step. The results support force protection and provide the commander with situational understanding.

Develop a Sample Collection Plan

E-26. After the site characterization is complete, the CRT develops a sample collection plan. This plan includes information on what samples to collect, where to collect them from, the appropriate sample techniques and equipment, and handling procedures after sample collection. The sample plan also includes the following:

- Establish the priorities of sample collection.
- Establish a timeline for sample collection.
- Establish sample location sites.
- Establish specific sample media (liquid, soil).

E-27. The sample team—

- Identifies and characterizes suspected CBRN threats and hazards.
- Provides pictures, sketches, and detailed descriptions of the site.
- Secures documents for review by intelligence organizations.
- Conducts CBRN environmental sample collection and packaging.
- Transports CBRN environmental samples to the decontamination and transload locations.

Collect a Sample

E-28. After the sample collection plan is approved, the CRT collects and packages samples for further analysis. Sterile (aseptic) techniques and procedures are used to maintain sample integrity. Specialized sampling techniques and procedures are used based on the types of samples to be collected. (For more information on the sample management process, see ATP 3-11.37 or seek sample guidance from the higher headquarters.)

DECONTAMINATION TEAM

E-29. The decontamination team is primarily concerned with setting up a personnel decontamination site (PDS) in order to process personnel, equipment, and collected samples from inside the hot zone to the cold zone. Below is a list of key functions performed by the decontamination team;

- Establishes a hotline to control entry to and exit from the exclusion zone.
- Collects and packages contaminated waste.
- Conducts technical decontamination procedures.
- Monitors decontaminated items when necessary.
- Performs buddy aid.
- Conducts triage of injured personnel.
- Establishes a CCP.
- Receives and packages samples and documentation (for example, DD Form 3108).
- Transfers samples and documentation to the appropriate personnel or lab.

E-30. Prior to the initial entry party moving into the site, the decontaminating team selects the location of the PDS based on prevailing weather conditions. The PDS is established using the following stations:

- Station 1 (equipment recovery tarp)
- Station 2 (dry or wet decontamination)
- Station 3 (suit, boot cut out)
- Station 4 (monitoring)

- Station 5 (transload)
- Station 6 (rescue)

Transload Material

E-31. Once samples are collected, CRT verify that the exterior of the packaging material is free of contamination before transport. Decontamination and additional packaging may be required. CRT maintains the chain of custody for the samples and transport them to the appropriate authority.

E-32. Establishing a transload site requires a team consisting of at least two personnel; a reception member and a packaging member. The packaging member is the only individual that will handle packages being processed through the site. The reception member assists the packaging member with equipment, paperwork, and is responsible for the transload site.

E-33. After the transload team leader identifies the location of the PDS a safety survey will be conducted which includes—

- Checking for possible contamination.
- Identifying slip, trip, and fall hazards.
- Identifying anything that could hinder the proper packaging of samples.

E-34. When the samples are received the reception member verifies the number of packages, number of samples, types of samples, any special handing requirements, and all available sample information. The reception member also documents all information given to establish the chain of custody and notifies the CP that the transfer has taken place.

E-35. Each type of sample should be packaged separately. Furthermore if contamination is found, decontaminate the sample using available decontamination solution. Once decontaminated the packaging member starts packaging procedures all over again. In the case of radiological samples the team leader sets the operational exposure guidance.

E-36. The packaging member ensures the sample log notebook is packaged in the final layer of the transload package. If a sample log notebook is not available then the following information is provided, much of this information is recorded on DD Form 3108:

- Date sample was taken.
- Type of samples.
  - Suspect chemical.
  - Suspect biological.
  - Radiological.
  - Intelligence.
  - Explosives.
- Who took the sample.
- Special instructions.
- Mark the package “fragile.”
- Place an “orientation marker” on package.
- Location in building where sample was taken from, if applicable.

Conduct Storage and Safeguard Procedures

E-37. CRT ensure that samples are properly stored. (Cold storage is necessary for the viability of liquid biological samples.) They also maintain sample security and positive control of the sample at all times with supporting documentation. In the continental United States, the transfer will most likely occur immediately. Immediate transfer eliminates the requirement for storage by the CRT. Outside the continental United States, the transfer will most likely occur in theater to a regional laboratory or approved agency. It is possible that the sample is divided into split samples and is then further delivered to the national laboratories based in the United States for definitive validation of the substance. Before operations begin CRT should verify the sample plans in their AO to avoid sampling too much or too little material than necessary.

ANALYTICAL TEAM

E-38. An analytical team—

- Conducts a nonintrusive chemical munitions analysis.
- Performs radiological analysis.
- Conducts field confirmatory identification.

Transfer or Transport Materials

E-39. If agencies are not available to receive the sample at the transload site, CRT are able to transport the samples to a secondary location. This course of action is the least likely to occur in the continental United States, as there are other specialized organizations equipped to conduct the transfer.

- Transfer procedures are described in ATP 3-11.37.
- Sample transfers occur between the CRT and approved agencies.
- CRT have the capability to transfer samples directly to the approved laboratory.

E-40. Command post.

- Provides mission command.
- Provides reach back information to teams in the AO.
- Documents all actions on site.
- Continuously reports findings to higher headquarters throughout the course of CWMD operations.

SPECIAL CONSIDERATIONS

E-41. EOD personnel are organic to the CRT and greatly enhance the capability of the CRT as a whole. A certified EOD team leader is the only individual who can conduct render-safe procedures on explosive hazards or munitions. Being that EOD personnel are their own military occupational specialty, it is essential that the CRT understand the role of the EOD team leader and assistant EOD team leader or team member.

E-42. The initial entry team or IET can be configured as necessary by the team leader to exploit the site. Various types, size, and extend of structures will warrant different approaches by the CRT. If the site is not large it is even possible for the IET to conduct the tasks the sample team would if they go downrange with the correct supplies. This should only be done when the entire site is cleared of all hazards and the extent of contamination is known.

E-43. Sampling has four tiers of confidence or validation: presumptive, confirmatory, theater, and definitive. CRT are unique in that they are one of the few CBRN forces that possess analytical equipment to conduct exploitation of a CBRN site. The CRT has technologies that use polymerase-chain-reaction for biological agents, a gas chromatograph mass spectrometer, and a portable isotopic neutron spectroscopy device for chemical agents. Understanding where and how to employ these technologies is essential. In order to raise the validity of the results of the exploitation, confidence, and validation using polymerase-chain-reaction, gas chromatograph mass spectrometer, and portable isotopic neutron spectroscopy technologies must occur away from the site. The polymerase-chain-reaction, gas chromatograph mass spectrometer, and portable isotopic neutron spectroscopy technologies are sensitive, valuable, and time consuming technologies. They should be used in a safe controlled area to ensure reliable results and safe use of equipment and personnel during operations.

CBRNE RESPONSE TEAM CONFIGURATION

E-44. CRT can be configured with more or less personnel in each sub- team to accomplish their assigned missions or tasks. They can also be divided as necessary by the team leader with prudent risk reduction measures and mitigation as well as collaboration with the team sergeant and team warrant officer. For example, the initial entry team can have more or less personnel from the sample team to conduct sampling operations when ready and avoid a potentially time consuming objective hand over brief. Members of the decontamination team and double as members of the analytical team when the decontamination line is closed down. In any scenario be sure that the adjustment does not place the team at risk of overextending sub- team

operations, create too great of a hazard, or over burden the rescue team. Factors like the size of the objective, the PPE required, level of oxygen, or ability to maintain communications may dictate CRT configurations.

INITIAL FORCES AND TECHNICAL FOLLOW ON FORCES

E-45. CRTs are technical follow on forces unless given guidance to do otherwise. With that in mind, the site hand over from the initial exploitation force regardless of their composition or type is essential. Having an effective handover will minimize the amount of tasks the CRT conducts on site. This is especially true for the initial entry team and certified EOD team leader who will enter the site first. The CRT should have a checklist of questions to ask the initial exploitation force before conducting operations.

E-46. Table E-3 and figure E-2 describe the checklist for operations.

Table E-3. TRACEM checklist

TRACEM Hazard Assessment	
T	Thermal (cryos/combustibles/chemicals
R	Radiological (materials/meters)
A	Asphyxiation (confined spaces/cylinders)
C	Chemical (containers/peroxides/powders)
E	Etiological/electrical (bugs/barriers)
M	Mechanical (pressure/hydraulic/pneumatic/machinery)

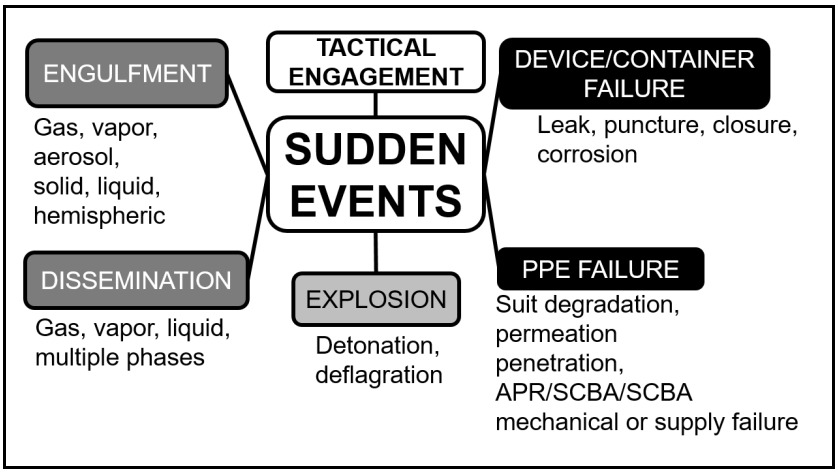


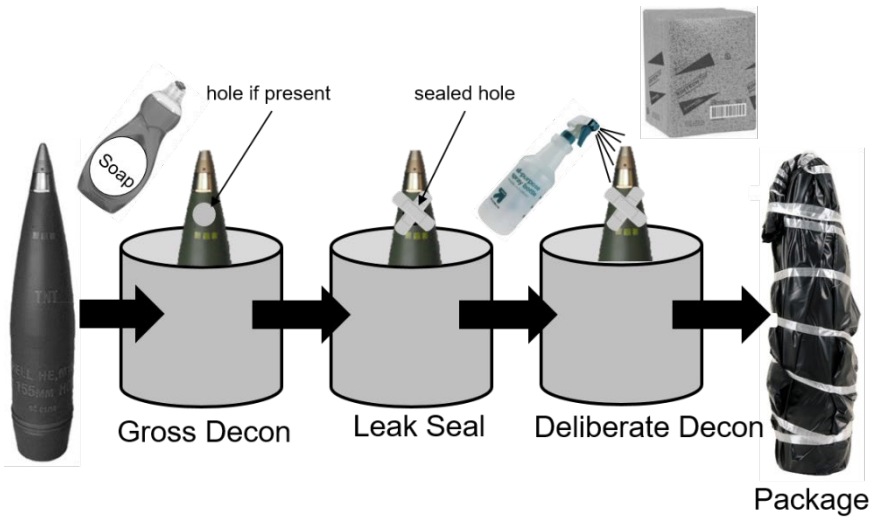
Figure E-2. CRT operations checklist

LEAK-SEAL-PACK

E-47. For a munition that is identified as chemically filled, the team can mitigate the initial hazards and perform leak-seal-pack on the munition for transportation. The procedures in table E-4 and figure E-3, page E-12, will ensure that the munition is safe to transport.

Table E-4. Steps for leak-seal-pack

Initial down range actions	1. Identify spread of contamination, stop spread of contamination, sample to confirm agent before leak-seal-pack.
	2. Separate and upright leaking from nonleaking munitions.
	3. Establish shuffle pit.
Leak-seal-pack	4. Perform gross decontamination.
	5. Rinse munition.
	6. Leak seal munition with plaster of paris, epoxy, for example.
	7. Perform deliberate decontamination.
	8. Wipe munition with microfiber cloth.
	9. Spray or pour decontaminant on munition.
	10. Observe contact time.
	11. Wipe munition again with a new microfiber cloth.
	12. Place munition in plastic bag or other suitable material.
	13. Tape the bag around the munition in a spiraling pattern, removing all air, bend the top portion over to create a pig tail.
	14. Using a second bag repeat step 10.
	15. Conduct vapor check if positive repeat step 10.
	16. Place the munition upright in an authorized container if any marked with location of leak, agent type, munition type, absence or presence of high explosive, type of decontamination used, date/location/grid, unit and point of contact.



Legend:
decon decontamination

Figure E-3. Steps for leak-seal-pack

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Appendix F

Special Operations CBRN Detachments

This appendix describes planning considerations and select performance steps for key missions associated with special operations CBRN detachments. It describes several tactics, techniques, procedures, and capabilities tailored to the CBRN dimension in special operations missions and activities. Figure F-1 depicts the icons for three variants of special operations CBRN detachments.

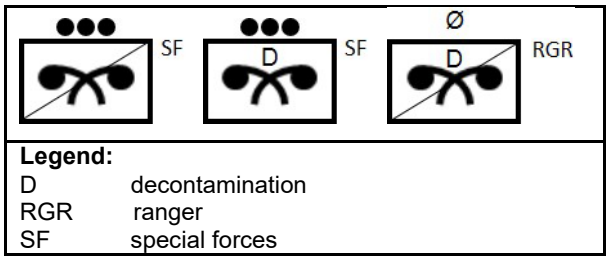

Figure F-1. Special operations CBRN teams icons

ORGANIZATION AND MISSION

F-1. Special Operations Forces (SOF) CBRN forces have a critical role as the direct CBRN support providers for Army elements of Special Operations Command, which is the proponent command for countering WMD and counter proliferation. SOF CBRN forces are organic to the Special Forces Groups, 75th Ranger Regiment, and 160th Special Operations Aviation Regiment, enabling these organizations to fight in a CBRN environment and execute their CWMD missions.

F-2. The CBRN personnel assigned to SOF support must have the maturity, fitness, and tactical and technical competence to function effectively in demanding environments, support the CWMD mission set, and operate with limited direct guidance, and command and control.

F-3. Key considerations for the command and control of SOF CBRN detachments are the ambiguous, dynamic, and isolated OEs that are typical for their mission set. Junior NCOs must demonstrate the maturity, initiative, and expertise to support battalion level or higher SOF planning and command elements, integrating unique CBRN capabilities within a range of efforts and operations.

F-4. Operating ahead of the forward line of own troops or in nonpermissive environments, SOF CBRN personnel must be expert in the employment of multiple means of communication while maintaining communications and operational security.

PLANNING CONSIDERATIONS

F-5. Unique planning considerations for SOF CBRN detachments include the requirements to integrate with, support, or utilize attachments from allied SOF, partner nation forces, irregular forces, and other government agencies.

F-6. SOF CBRN detachments, supported by their element CBRN staff sections, must integrate early and fully with analysis, planning, and target development on all CBRN-related missions to ensure the best utilization of the SOF CBRN detachment and successful execution of CWMD mission. The sustainment challenges of SOF in deep operations calls for special care in planning resupply, medical support, and evacuation.

F-7. As the typical assignment for SOF CBRN personnel is 2-5 years, with training and schools required and received only after arrival on station, it is critical that the internally managed training of the SOF CBRN NCOs is managed to provide the maximum amount of time for a fully-trained and qualified NCO with the aligned SOF unit.

SPECIAL CONSIDERATIONS

F-8. SOF organizations are not organically equipped with heavy protection capabilities. SOF CBRN detachments, as the CBRN SMEs within their organization will also support passive defense planning, training, and preparation to mitigate risk of threat CBRN strikes.

F-9. The presence of CBRN personnel or CBRN equipment is a potential target for enemy disinformation campaigns. Training and equipping of partner nation CBRN forces must be addressed by the special operations information operations campaign plan to mitigate the risk of hostile exploitation.

F-10. The use of special operations in semi-permissive environments during Phase 0 and Phase 1 activities provides SOF CBRN detachments the ability to provide a degree of situational awareness for potential CBRN threats and hazard, and to support counter-proliferation activities nested within partnership and training missions.

SECTION I – CHEMICAL RECONNAISSANCE DETACHMENT

F-11. The Chemical Reconnaissance Detachment (CRD) is Special Forces Group commander's primary asset to conduct reconnaissance and sample collection in a CBRN environment or evidence collection and target exploitation support to site exploitation operations in a non-CBRN environment.

F-12. The CRD is broken into detachments aligned to each battalion within the Group, and is capable of conducting split team operations as the mission requires.

F-13. Each detachment must be able to conduct the following tasks:

- **Detect and identify CBRN agents and TIMs**: Detect CBRN agents or TIMs in vapor, liquid, or solid forms. Conduct field confirmatory level identification on site and provide near real-time result to supported SOF element.
- **Detect and identify radioactive sources**: Detect low levels of alpha, beta, gamma, and neutron radiation; determine distance to source; identify the isotope producing the radiation.
- **Characterize site**: Provide the supported SOF element a detailed description of the objective that enables the exploitation and analysis of tactical relevant captured enemy materials or CBRN samples.
- **Support special reconnaissance**: Support SOF teams tasked with conducting special reconnaissance missions. CRD personnel will provide CBRN expertise for planning, preparation, and execution of special reconnaissance against potential CBRN objectives. Special reconnaissance will utilize a range of information collection techniques and technologies, including visual observation (aided by optical, night vision, and thermal devices,), electronic and cyber, unmanned devices. Special reconnaissance may answer a CCIR/PIR with a high degree of confidence off indirect indicators of or relevant to the objective (patterns of life in or around the objective, thermal or electronic signatures of vehicles/supplies entering the objective, or positive identification of known persons.) Special reconnaissance is a key element in supporting follow on direct action CWMD operations.
- **Support direct action**: Support SOF teams conducting interdiction, seizure, or denial of CBRN materials, systems, weapons, or personnel.
- **Analyze and report findings**: Interpreting the results provided by the equipment and providing an initial analysis to the supported SOF element. This is accomplished both by technical expertise of CRD personnel and reachback to higher-level technical resources and agencies. An initial analysis should be completed as soon as possible, with a final analysis within 48 hours.
- **Maintain chain of custody**: The chain of custody requirements can range from internal accountability to supporting host-nation legal proceedings or WMD attribution.

- **Identify explosive compounds**: Identify explosive compounds from swipe tests of explosive storage areas, post-blast analysis, skin, and clothing. Detect and identify explosive vapor signatures. Conduct gunshot residue testing on individuals.
- **Collect samples**: Collect solid, liquid, wipe, air, vegetation, radiological, water, sludge, biomedical, bioassay, and tissue samples. Whenever possible, three samples of each material of interest are collected to support representative and statistical analysis. Collect control samples, which can be soil, air, water, or vegetation near the objective, but which are not contaminated.
- **Operate in confined spaces**: Examples of confined spaces include bunkers, small rooms or basements, sewer systems, underground facilities, and caves. Confined spaces may be low in oxygen or contain high concentrations of chemical vapor in which a protective mask is insufficient. The Special Forces Chemical Detachment must assess oxygen and vapor levels before entering any confined space. If these conditions are either confirmed or suspected, the Special Forces Chemical Detachment uses a SCBA in conjunction with protective mask. SCBA must provide a minimum of 1 hour of supplied air.

INSERTION METHODS

F-14. One of the truly unique aspects of the CRD are the various methods of insertion employed to arrive at a CBRN site.

Helicopter Insertion

F-15. A helicopter insertion is how the team leader organizes the equipment load out for a helicopter insertion is an important planning consideration. The team leader will designate chalk leaders and cross load key personnel and weapons. After the team leader conducts an air mission brief with the pilot in command team personnel are briefed about helicopter landing zone and rendezvous points, the type of aircraft being used, and a contingency plan for a downed aircraft.

F-16. Once the team has completed equipment preparations and are ready to load the aircraft the team leader establishes FM communication with the helicopter pilot. It may be necessary to provide guidance and instruction related to CBRN hazards throughout the course of the mission. The team will load and exit the aircraft according to the unit SOP and load plan. At the CBRN site team members exit the aircraft and immediately establish security and provide a SITREP to the higher headquarters before continuing the mission.

Waterborne Insertion

F-17. A waterborne insertion is when there are four basic types of waterborne insertion methods—boat, helocast, scuba, and scout swimmer. The type of waterborne insertion method selected will be dependent upon mission requirements and the necessary equipment needed. Planning considerations will include coordinating waterborne assets and developing a movement plan, identifying the location of the landing site, and coordinating navigation requirements.

F-18. After the team leader briefs unit personnel on the insertion plan the assistant team leader will ensure the necessary equipment is drawn and checked for serviceability. Rehearsals are especially important for a waterborne insertion emphasizing safety, accountability, and communications with the higher headquarters.

Airborne Insertion

F-19. An airborne insertion is one of the most common and more rehearsed types of insertion methods. The initial planning considerations for an airborne insertion are mission coordination, a briefing from the Marshalling Area Control Officer, and a team brief on the insertion plan. An insertion of advanced serials whether within the objective area or some distance away are always METT-TC dependent, as the commander strives to achieve surprise regarding exact objectives within the airborne operations.

F-20. When preparing to load the aircraft develop with cross loaded key leadership, crew-served weapons and equipment followed by all other personnel to ensure team integrity upon insertion into the AO. The jumpmaster will remain oriented on the aircraft and keeps unit members notified of their location. The unit will adhere to the jumpmaster's commands and signals maintaining one second intervals between jumpers

when exiting the aircraft. After the airborne insertion the team will establish security at the designated assembly area and account for all personnel and equipment within 15 minutes and then continues the mission as directed.

ESCORT MISSION

F-21. Federal agencies regulate the transportation of hazardous chemicals and related items within the force limits of the continental United States and in some areas overseas. There are procedures that must be followed before, during, and after shipment of material requiring escorts.

F-22. Escort teams follow and strictly enforce a "two-person rule," the intent of which is to help ensure the safety of the individuals directly involved in chemical-agent handling and security. One of these two personnel is designated as the team leader.

F-23. The team leader receives the escort mission from the company and begins TLP, performing the following functions during the final preparation phase:

- Ensuring that the element had the proper equipment based on the type of escort mission.
- Briefing all element members on the duties that were required.
- Ensuring that escort vehicles and equipment were inspected and that the required written inspection sheets were complete.
- Ensuring that all equipment and supplies were loaded and secured according to the unit load plan.
- Ensuring that the element leader and one escort element member (armed, if required) rode in the cab of the cargo vehicle.
- Conducting a route reconnaissance of primary and alternate routes prior to the actual movement of cargo. Routes must be cleared and coordinated with the appropriate authorities.
- Determining the number of vehicles required based on the mission.
- Providing a verbal duress code to the battalion or brigade operations staff officer (S-3) operations section and the escort team only. Do not provide the duress code to any other individual. Do not write or record it in any way.
- Conducting a safety inspection of each vehicle and emplaces all placards prior to loading the cargo.

F-24. There will be no less than 3 vehicles for surety escort missions: one sweep vehicle, one cargo vehicle, and one guard vehicle. The cargo compartment must be separated from the passenger section on the cargo vehicles.

F-25. The element performs the following functions during the escort mission:

- Ensures the 2-person rile was maintained at all times.
- Maintains the log.
- Ensures the security requirements were maintained.
- Ensures the appropriate air-monitoring equipment was used to monitor each container of cargo.
- Obtains the DD Form 3108 and appropriate shipping documents from the shipper.
- Accounts for each container listed on the shipping documents.
- Ensures that the shipper certified that the materials were properly classified, described, packaged, marked, labeled, and in proper condition for transportation.
- Signs for the cargo on the appropriate shipping documents.
- Provides the original documents to the shipper and retained the duplicates.
- Places the shipping documents in the technical escort officer packet.
- Inspects the loading of the cargo and ensured that cargo was properly secured in the vehicle.
- Ensures that each package was properly labeled.
- Ensures that each cargo vehicle was properly placarded.
- Notifies the S-3 operations section as soon as possible of any delays in the mission.

F-26. Whenever the vehicle is loaded with cargo, placards must be displayed according to 49 CFR. In addition, when the driver is in the vehicle, the shipping papers must be within arm's reach. If the driver leaves the vehicle, the shipping papers must be placed on the driver's seat or stored in a pouch on the driver's side door.

F-27. Vehicle operators perform the following:

- Signs and carries the appropriate documents at all times.
- Maintains at least 1 car length between vehicles for each 10 miles per hour.
- Positions vehicles so that the cargo vehicle is always under surveillance.

F-28. Except in an emergency or when otherwise specified, convoys must not travel farther than 400 miles or longer than 8 hours per day—whichever occurs first. Rest and meal periods are not considered driving time. Overnight stops are not normally made; however, they may be arranged by the battalion S-3 on a case-by-case basis.

F-29. If the visual inspection conducted during receipt of the cargo indicated possible damage, the cargo is also to be inspected:

- After loading and securing the cargo in each transport vehicle.
- After loading the cargo from one mode of transportation to another (ground to air or air to ground).
- After the occurrence of an unplanned incident (a road accident or heavy turbulence during air movement).

F-30. Upon arrival at the destination the escort element performs the following functions:

- Makes positive identification of the authorized recipient of the cargo.
- Monitors the cargo with the appropriate air-monitoring equipment.

***Note*:** If evidence of contamination is discovered, follow emergency decontamination operations. If contamination is discovered on the receiver's property, comply with the receiver's decontamination plan.

- Provides one copy of the DD Form 3108 (*CBRN Sample Documentation and Chain of Custody)* and other shipping documents to the receiver and retains the remaining copies.
- Assists the receiver in unpacking and inventorying the cargo.
- Receipts the cargo to the custodian using the appropriate form and retains a copy of the receipt.
- Removes all placards after unloading.
- Contacts the S-3 operations section and the appropriate agency with the time that the mission was completed.

F-31. In addition to the general escort mission procedures, the following also apply specifically to air transport:

- Ensures that 4 armed guards accompanied a neat chemical-agent mission.
- Ensures that a minimum of 2 unarmed personnel accompanied dilute chemical agents.
- Establishes a rotation order for the element members to ensure that the 2 person rule was maintained.
- Briefs the aircraft commander, as per SOP.

F-32. The air escort team requires 4 escort personnel for surety material. All ground movement of surety material requires a minimum of six personnel.

INTERAGENCY COORDINATION

F-33. The involvement of a large collection of agencies and organizations is a common thread throughout technical CBRN operations. These interagency participants, many with indispensable practical competencies and significant legal responsibilities, often provide enabling functions that are critical to the success of technical CBRN operations. Close and continuous interagency and interdepartmental coordination and collaboration are necessary to effectively accomplish these missions.

F-34. Technical CBRNE forces operate across the full range of military operations, integrating their actions with joint, interagency, and multinational partners as part of a larger effort. These unified action partner activities are coordinated, integrated, or synchronized with the military operations to achieve mutual goals and mission success. The relationship between the elements is formal or ad-hoc based on a common purpose or mutual necessity. Likewise, government agencies outside the DOD possess the knowledge, skills, and capabilities that are necessary for success. Some of the partners and their coordinated missions are listed below:

- **Defense Intelligence Agency**. The involvement of a large collection of agencies and organizations is a common thread throughout technical CBRN operations. These interagency participants, many with indispensable practical competencies and significant legal responsibilities, often provide enabling functions that are critical to the success of technical CBRN operations. Close and continuous interagency and interdepartmental coordination and collaboration are necessary to effectively accomplish these missions.
- **National Ground Intelligence Center**. The National Ground Intelligence Center produces and disseminates all-source, integrated intelligence on foreign ground forces, systems, and supporting combat technologies to ensure that U.S. forces have a decisive edge on any battlefield. The center supports U.S. Army forces during training, operational planning, deployment, and redeployment. The center provides technical CBRNE forces with analytical product support, including WMD target analysis, CBRN device analysis, and biometric targeting support.
- **National Media Exploitation Center.** The National Media Exploitation Center provides document and media exploitation and training reachback support to technical CBRNE forces. Additionally, the center's personnel may provide augmentation to technical CBRN operations upon request.
- **National Forensic Science and Technology Center**. The National Forensic Science and Technology Center is a nonprofit organization within the Department of Justice. It serves as a training reachback organization and provides operational reachback support to some technical CBRNE forces to gain higher echelons of CBRN hazard identification validation.
- **Technical Support Working Group.** The Technical Support Working Group is the U.S. national forum that identifies, prioritizes, and coordinates interagency and international research and development requirements for combating terrorism. The working group rapidly develops technologies and equipment to meet high priority needs of the combating terrorism community and addresses joint international operational requirements through cooperative research and development with major allies.
- **Central Intelligence Agency.** The Central Intelligence Agency is the U.S. government proponent for information collection and provides intelligence products that support technical CBRN material collection.
- **Federal Bureau of Investigation**. The Federal Bureau of Investigation Terrorism Explosive Device Analytical Center provides Level III improvised explosive device exploitation support to technical CBRNE forces.
- **Drug Enforcement Administration.** The Drug Enforcement Administration provides legal authority in some theaters to conduct technical CBRNE operations. Technical CBRNE forces may provide augmentation to Drug Enforcement Administration operations upon request.
- **Bureau of Alcohol, Tobacco, Firearms, and Explosives**. The Bureau of Alcohol, Tobacco, Firearms, and Explosives provides legal authority in some theaters to conduct technical CBRNE operations. Technical CBRNE forces may provide augmentation to the Bureau of Alcohol, Tobacco, Firearms, and Explosives operations upon request.
- **Biometric Identity Management Agency**. The Biometric Identity Management Agency (which operates under the Office of the Provost Marshal General as the DOD biometrics executive agent) provides biometrics and identity, analytical, and repository reachback support to technical CBRNE forces.
- **Armed Forces Deoxyribonucleic Acid (DNA) Identification Laboratory**. The Armed Forces DNA identification laboratory provides analytical reachback support to technical CBRNE forces DNA collections.

- **DOD law enforcement**. DOD law enforcement agencies (United States Army Criminal Investigation Command, Naval Criminal Investigative Services, and United States Air Force Office of Special Investigations) provide liaison with host nation legal activities to synchronize information collection activities. Technical CBRNE forces may provide analytical support to these activities upon request.
- **Asymmetric Warfare Group**. The Asymmetric Warfare Group conducts operations in support of joint and Army commanders to mitigate and defeat specified asymmetric threats. The Asymmetric Warfare Group assists in the exploitation and analysis of asymmetric threats and provides advisory training for in-theater or predeployment forces.
- **Naval Explosive Ordnance Disposal Technology Division**. The Naval Explosive Ordnance Disposal Technology Division exploits technology and intelligence to develop and deliver EOD information, tools, equipment, and life cycle support to meet the needs of joint EOD operations forces and other specified customers. The Naval Explosive Ordnance Disposal Technology Division manages the EOD database and provides continuous reachback capability for unexploded ordnance, improvised explosive devices, and CBRN information.
- **Defense Threat Reduction Agency.** The Defense Threat Reduction Agency is the DOD official support agency for CWMD. The Defense Threat Reduction Agency missions vary but primarily support operational and strategic levels of command by integrating, synchronizing, and providing expertise, technologies, and capabilities across all operating environments. The Defense Threat Reduction Agency serves as the lead for preincident threat reduction cooperation and postincident modeling and analysis.
- **Department of Energy**. The mission of the Department of Energy is to ensure American security and prosperity by addressing energy, environmental, and nuclear challenges through transformative science and technology solutions. In conjunction with DOD elements, the Department of Energy enhances nuclear security through defense, nonproliferation, and environmental efforts.
- **Federal Emergency Management Agency.** The Federal Emergency Management Agency is an element within the Department of Homeland Security. The Federal Emergency Management Agency mission is to support citizens and first responders to ensure that the nation works together to build, sustain, and improve its capability to prepare for, protect against, respond to, recover from, and mitigate the effects of all hazards, with an emphasis on disaster response. Disasters take many forms, to include hurricanes, earthquakes, tornados, floods, fires, hazardous spills, acts of nature, and acts of terrorism.
- **Department of Homeland Security**. The Department of Homeland Security mission is to ensure a homeland that is safe, secure, and resilient against terrorism and other hazards. Department of Homeland Security partners throughout the federal government (including DOD, state, local, tribal, and territorial governments), the private sector, and other nongovernmental organizations are responsible for executing the following 5 primary missions: preventing terrorism and enhancing security, securing and managing borders, enforcing and administering immigration laws, safeguarding and securing cyberspace, and ensuring resilience to disasters.
- **United States Army Intelligence and Security Command**. The United States Army Intelligence and Security Command conducts a wide range of production activities, ranging from intelligence preparation of the OE to situation development, including signal intelligence analysis, imagery exploitation, and science and technology intelligence production.

F-35. Planning considerations for conducting interagency coordination begin with identifying the incident commander or the representative for the lead agency. The representative will be able to provide mission essential information. This is also an opportunity for the CRD element leader to provide their range of capabilities and limitations along with an initial threat assessment.

F-36. CRD communication assets should be integrated into the communications network as soon as possible. Once communications are established the CRD element leader designates personnel to exchange information and support the development of the incident action plan and element operational plan.

CBRN PROTECTIVE MEASURES

F-37. At the detachment level implementation of CBRN protective measures begin by checking the accountability and serviceability of the CBRN defense equipment. A risk assessment will identify vulnerabilities and assist in establishing control measures. Possible control measures include the following:

- Moving operations (for example, relocating a base camp).
- Managing work schedules and limiting shift duration.
- Managing personnel rotation on high-risk missions.
- Monitors and conducts surveillance of potential threats.
- Briefs personnel on potential threats and appropriate responses.
- Enforcing the correct wear of uniforms.
- Using MOPP gear.
- Monitoring weather conditions and considering the increase of protective levels.

F-38. Incorporating key FHP and HSS programs are important protection measures. Key elements of FHP and HSS include exposure guidance, casualty estimation, medical countermeasures, health and medical surveillance, preventive medicine, diagnostics, mass casualty management, evacuation, and medical and occupational environmental health. FHP and HSS planning addresses decontamination considerations. Unit plans should recognize that CBRN attacks have the potential to create mass casualties.

F-39. Preparing for operations under chemical or biological conditions requires the ability to assume MOPP 4 with 8 minutes of notification. CBRN detectors and alarms are employed upwind of the elements position and M9 detector paper is attached to the upper arm, wrist, and ankle.

F-40. For operations under radiological or nuclear conditions vehicles and equipment should be emplaced using the best terrain for shielding (hill masses, slopes, culverts, and depressions) available. Turn off and disconnect nonessential electronic equipment, take down or disconnect antenna and antenna leads.

CASUALTY RECOVERY IN A HOT ZONE

F-41. Casualty recovery may be performed by a designated deployable unit or by members of the effected element. When preparing for a casualty recovery mission the element leader conducts the following:

- Establishes recovery team(s).
- Establishes back up team(s).
- Establishes decontamination team.
- Establishes recovery rotation and hydration plan.
- Implements the commander's information objectives in the casualty recovery plan.
- Selects the appropriate detection and recovery equipment.
- Prioritizes tasks to meet the ICs objectives.

F-42. The platoon leader may conduct a leader's reconnaissance but there will be times when only a map reconnaissance can be accomplished if time allows. When the element leader is ready to brief the mission plan particular emphasis is placed on the route, enclosed space procedures, types of known hazards, suspected location of the casualty, and mission abort criteria. For radiological missions the platoon leader will provide operational exposure guidance for monitoring along with a turn back dose and turn back dose rate. The element leader will provide mission command of the recovery team(s) using appropriate control measures.

F-43. The recovery team(s) execute the recovery mission with the following steps:

- Detecting and identifying hazards present within mission capabilities.
- Providing SITREPs to the element leader.
- Collecting the following information:
  - Location and types of hazards
  - Physical layouts and structure descriptions
  - Number of ambulatory and nonambulatory casualties.
  - Video and/or still camera pictures.

- Adjusting the recovery plan as required
- Identifying and marking the searched area.

F-44. The recovery team identifies and marks the area searched. The rooms located in a structure are also identified and marked once the recovery is complete. This will prevent follow-on teams from duplicating the search effort. Marking procedures are conducted according to unit SOP.

F-45. As soon as casualties are located they are transported to the CCP. If a team member becomes a casualty, the priority goes to extracting the team member out of the hot zone and transported to the decontamination line.

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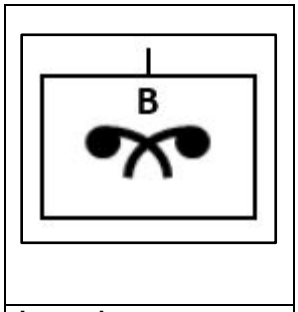
Appendix G

Biological Integrated Detection System Platoon Operations

The biological detection platoon is responsible for limiting the effects of large-area-coverage biological agent attacks that have the potential for catastrophic effects to U.S. forces at the operational level of war. Figure G-1 depicts the icon for biological detection platoons.



Legend:
B biological

Figure G-1. Biological detection platoon icon

ORGANIZATION AND MISSION

G-1. Each biological detection platoon is organized with a platoon headquarters and seven subordinate biological teams of the biological integrated detection system (BIDS). The biological detection platoon may operate in an area array configuration to protect key troop concentrations (reception, staging, onward movement, integration, and tactical assembly areas). The biological detection platoon may also operate in a critical-node configuration to protect installations, key facilities, or other strategic sites.

G-2. The biological detection platoon is employed to detect and identify biological agents throughout the theater of operations. This platoon can provide 24-hour operations in all weather conditions. When the BIDS is operational, it is continuously monitoring the air for an increase in the number of aerosol particles within a certain size range that would indicate a biological warfare attack. If a positive detection is made the BIDS team can collect and transfer known or suspected samples of biological agents.

CAPABILITIES AND LIMITATIONS

G-3. The biological detection platoon headquarters is capable of providing command and supervision of personnel assigned in support of the assigned mission.

G-4. The BIDS system is capable of monitoring, alerting, sampling, detecting, identifying, and through the operator, reporting biological agents in the area. This system provides a presumptive level of identification. The team can transport a sample, maintaining chain of custody, for higher identification.

PLANNING CONSIDERATIONS

G-5. Biological detection and collection assets are employed based on the mission, the risk assessment, and an evaluation of the threat force capability to use biological warfare agents. BIDS platoons are best suited for fixed-site biological detection and collection such as ports, airfields, and maneuver or maritime logistics sites. Planning considerations for emplacement of BIDS teams:

- Integrate BIDS into supported unit's reconnaissance and surveillance plan.
- Determine weather and terrain effects on the detection mission.
- Select area array to identify moving biological aerosol cloud.
- Select critical node array to detect/identify on-target attacks.
- Position BIDS upwind of supported unit or critical node.

G-6. The BIDS platoon leader should plan for a biosurveillance mission following the principles of reconnaissance described in chapter 5 and ATP 3-11.37. Additional tasks that should be considered include—

- Integrating with the supported unit's operations and intelligence staffs to best account for mission intent and threat capabilities.
- Establishing communications with higher headquarters for ongoing support, security, and reporting requirements.

G-7. The following are fundamental performance tasks central to the BIDS platoon mission.

BIOLOGICAL SURVEILLANCE

G-8. Identifying biological surveillance sites requires and understanding of the biological agent production or handling indicators. Biological production equipment may be industrial or improvised. Biological production equipment includes agar or growth medias, petri dishes, fermenters, bioreactors, incubators, grinders, filters, glassware (flasks, funnels, cylinders, beakers), and accessories such as measuring devices, industrial vacuums, and modular piping and clamp arrays to facilitate use of glassware. Like chemical agent processes, biological production equipment may range from process-specific industrial scale facilities to improvised, clandestine facilities made of repurposed kitchen and food storage items.

G-9. Planning considerations for identifying biological surveillance sites begins with selecting an employment location and the surveillance method (critical node or area array) for the detection systems. Factors considered for employment of surveillance assets include the following:

- Estimated separation distance between detectors in a critical node or area array.
- Recommended employment tactic for detectors and/or collectors of the array.
- Number of available assets.
- Size of operational area.

G-10. When establishing separation distances between surveillance assets consider a distance of 200-400 meters between detection and/or collection systems for an expected near point or aerosol vapor release. This is a general rule of thumb for approximate cloud radius after clod dissemination. For general dissemination, the preferred distance between systems is 400-600 meters. For on target releases and stand-off detection of areas with a large field of view/regard and the ability to overlap observation zones, a recommended distance no greater than 800 meters between detection and/or collection systems. Actual distance is determined based on the number of surveillance systems available, capability, and area covered. For expected line source releases while in an area array, consider the width of sector being protected, estimated length of line source, and number of detectors desired to intersect the cloud path. The following formula is a generic estimate of separation distance: width of sector being protected ÷ by estimated length of line source release × by the number of systems intersecting the cloud + 1 = number of detectors required.

G-11. There following are factors which will affect how the platoon leader determines to employ the detection systems (dice 5, circle, picket line, semicircle, or dense picket):

- The biological warfare risk assessment and intelligence preparation of the operational environment/intelligence preparation of the battlefield (IPOE/IPB) including expected delivery system and tactics.
- Terrain and weather conditions.
- The location and size of the assigned NAIs.
- The number of detection and/or collection assets that are available.
- Distance from objects that may impede flow.
- Detector height.

- The distance of the alarm from personnel to help ensure that alarms are heard, in case of unmanned systems.
- Verification of detection using alternate means or technologies, if applicable.
- The commander's guidance.

G-12. Deployment areas are used as planning tools to give biological-detection asset leaders a frame of reference for selecting detection sites that are mutually supporting and meet force protection requirements.

G-13. Detection sites are the actual biological detection positions. Leaders at all levels must deconflict site selection to reduce vulnerability to fratricide and ensure that coverage is within the capabilities of the unit. The following are considerations when selecting detection sites:

- Has a 100-meter radius available.
- Permits maximum airflow of possible hazards.
- Has minimal overhead cover.
- Is upwind of the supported unit or critical node.
- Permits rapid ingress and egress.
- Protects from the threat of direct fire, if possible.
- Conceals and camouflages.
- Is out of enemy mortar and tube artillery range, if possible.
- Permits effective communications.
- Has mutually supportive positions.

G-14. Without minimal overhead cover, various detectors will not get maximum airflow over the collector concentrators.

EVACUATING BIOLOGICAL SAMPLES

G-15. For preparing a presumptive biological sample for transport the biological detection platoon uses the following steps:

- Marks the primary sample container with identification number using an adhesive label or by marking the container.
- Seals the primary container first with laboratory film, decontaminates, labels, and then seals with tamper-resistant tape. Ensure that tape covers a portion of the label on the container, but does not cover the sample identification number.
- Places the conical sample tube inside a plastic bag containing enough absorbent material to soak up liquid in case of container leakage. Decontaminates the package. Remove excess air, twist the neck of bag until it forms a tight coil with the bag snug around the container, and seal it with a strip bag tie.
- Places an adhesive label containing the sample identification number on plastic bag.
- Places the package inside a second bag. Decontaminate the second bag. Remove the excess air, twist the neck of the second bag until it forms a tight coil, and seals it with a strip bag tie.
- Places an adhesive label containing sample identification number on the outer packaging.
- Places the package inside the sample transfer case.
- Packages appropriate digital media and supporting documentation (Biological Event Log and Biological Incident Report) in diskette/document mailer.

G-16. Once the biological detection platoon has prepared the chain of custody documentation the platoon leader is notified that sample transport packages are ready for transport.

SPECIAL CONSIDERATIONS

G-17. Success of BIDS operations depends on implementing effective practices and actions to ensure that a system, process, or analytical test is functioning properly. Failure of quality management practices within the biological detection platoon decreases the overall quality of the analytical result. Elements of quality management program can include ensuring—

- Proper operator training and certification to maintain skilled operators to perform analysis.
- PMCS on all equipment and instruments.
- Critical reagents and controls are transported and stored in the proper environment (refrigerated) as directed by manufacturer.
- Leadership maintains awareness of potential errors and problems with the system or process, evaluate personnel and process, document errors or problems and take action to correct or minimize such errors.

LABORATORY SUPPORT

G-18. The commander has a number of critical decisions to make in a biological warfare environment that require information that can only be provided by a supporting medical lab. A designated supporting laboratory will perform the field confirmatory identification of a biological warfare attack. Service and in theater laboratory support include Navy units, Navy large deck platforms, the Air Force biological augmentation team, a theater Army medical laboratory, and other forward fixed-site laboratories.

SAMPLE TRANSPORT

G-19. The ability to transport suspected biological samples from biological detection assets to supporting laboratories while maintaining chain of custody is of significant importance. Under normal circumstances the biological detection asset is responsible for the transport of their samples to a designated sample transfer point. However, depending on the proximity of the supporting laboratory, the biological detection asset may be required to transport the sample directly to the lab.

G-20. The platoon leader works with the supported command to establish a sample management plan. This plan should include supporting laboratories, escort units, security and chain of custody. More about sample management planning can be found in ATP 3-11.37.

Glossary

The glossary lists acronyms and terms with Army or joint definitions. Terms for with ATP 3-11.74 is the proponent are marked with an asterisk (*).

SECTION I – ACRONYMS AND ABBREVIATION

AAR	after action review
AGCF	air-ground correlation factor
AHS	Army health system
AO	area of operations
AOR	area of responsibility
APS	Army pre-positioned stock
ASCOPE	areas, structures, capabilities, organization people, and events
ATNAA	antidote treatment–nerve agent, auto-injector
BAS	battalion aid station
BCT	brigade combat team
BDAR	battle damage and repair
BIDS	biological integrated detection system
CANA	convulsant antidote, nerve agent, auto-injector
CASEVAC	casualty evacuation
CBRN	chemical, biological, radiological, and nuclear
CBRNE	chemical, biological, radiological, nuclear, and explosive
CCIR	commanders critical information requirements
CCP	casualty collection point
CFF	call for fire
COA	course of action
CP	command post
CRD	chemical reconnaissance detachment
CRT	CBRNE response team
CSS	combat service support
CWMD	countering weapons of mass destruction
DAD	detailed aircraft decontamination
DED	detailed equipment decontamination
DOD	Department of Defense
DTD	detailed troop decontamination
EMT	emergency medical treatment
EOD	explosive ordnance disposal
EPDS	emergency personnel decontamination station

FDC	fire direction center
FEDLOG	federal logistics database
FFID	Fielded Force Integration Directorate
FHP	force health protection
FRAGORD	fragmentary order
G-2	assistant chief of staff, intelligence
GCSS-A	Global Combat Support System-Army
GMLRS	guided multiple launch rocket system
HAP	hazard assessment platoon
HSS	health service support
IC	Incident commander
IEP	initial entry party
IPB	intelligence preparation of the battlefield
IPE	individual protective equipment
JSLIST	joint service lightweight integrated suit technology
LD	line of departure
LOGPAC	logistics package
MCD	mass casualty decontamination
MCP	maintenance collection point
MEDEVAC	medical evacuation
METT-TC	mission, enemy, terrain and weather, troops, and support available, time available, and civil considerations
MOPP	mission-oriented protective posture
MTF	medical treatment facility
NAI	named area of interest
NBCRV	nuclear, biological, and chemical reconnaissance vehicle
NCO	noncommissioned officer
OAKOC	obstacles, avenues of approach, key terrain, observation and fields of fire, cover and concealment
OE	operational environment
OEH	occupational and environmental health
OPORD	operations order
PCC	precombat checks
PCI	precombat inspections
PDS	Personnel decontamination site
PIR	priority information requirements
PLT	platoon
PMCS	preventive maintenance checks and services
PMESII-PT	political, military, economic, social, information, infrastructure, physical emvironment, and time
POL	petroleum, oil, and lubricants
PPE	personal protective equipment

PSG	platoon sergeant
QA	quality assurance
QC	quality control
RADIAC	radiation, detection, indication, and computation
R&S	reconnaissance and surveillance
RM	risk management
S-2	battalion or brigade intelligence staff officer
S-3	battalion or brigade operations staff officer
SALUTE	size, activity, location, unit, time, and equipment
SCBA	self-contained breathing apparatus
SENITREP	sensitive items report
SITREP	situation report
SME	subject matter expert
SOF	special operations forces
SOP	standard operating procedures
SPOTREP	spot report
TIM	toxic industrial materials
TLP	troop leading procedures
TTP	tactics, techniques, and procedures
UAS	unmanned aerial system
UGV	unmanned ground vehicle
VSAT	very small aperture terminal
WARNORD	warning order
WIA	wounded in action
WMD	weapons of mass destruction

SECTION II – TERMS

decontamination

Decontamination is the process of making any person, object, or area safe by destroying, neutralizing, making harmless, or absorbing and removing chemical or biological agents or by removing radioactive material clinging to or around it (JP 3-11).

force protection

Force protection is preventive measures taken to mitigate hostile actions against Department of Defense personnel (to include Family members), resources, facilities, and critical information (JP 3-0).

medical surveillance

Medical surveillance is the ongoing, systematic collection, analysis, and interpretation of data derived from instances of medical care or medical evaluation, and the reporting of population-based information for characterizing and countering threats to a population's health, well-being, and performance (JP 4-02).

mission command

Mission command is the Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation (ADP 6-0).

occupational and environmental health surveillence

Occupational and environmental health surveillance is the regular or repeated collection, analysis, archiving, interpretation, and dissemination of occupational and environmental health-related data for monitoring the health of, or potential health hazard impact on, a population and individual personnel, and for intervening in a timely manner to prevent, treat, or control the occurrence of disease or injury when determined necessary (DODD 6490.02E).

sensitive site

A sensitive site is a geographically limited area that contains, but is not limited to, adversary information systems, war crimes sites, critical government facilities, and areas suspected of containing high value targets. (JP 3-31)

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