Department of the Army Pamphlet 50–6

Nuclear and Chemical Weapons and Materiel

Chemical Accident or Incident Response and Assistance (CAIRA) Operations

Headquarters
Department of the Army
Washington, DC
26 March 2003

UNCLASSIFIED

SUMMARY of CHANGE

DA PAM 50–6
Chemical Accident or Incident Response and Assistance (CAIRA) Operations

This revision--

- Clarifies procedures that may be adapted to situations involving terrorist use of chemical agent in the public domain (para 1-1).
- Clarifies Army responsibilities under Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements (para 2-2b).
- Clarifies that for the purpose of enhancing management or meeting personal command style, the commander may modify the Initial Response Force (IRF) and Service Response Force (SRF) organizations (para 2-7*c*(5)).
- Contains new procedures for a split-based concept of operations for the SRF (para 2-9e).
- Eliminates granting the IRF/SRF special authority to waive Army regulatory requirements under certain circumstances.
- Installations now must coordinate CAIRA Plans with the Regional Response Teams (para 2-13b(1)).
- Incorporates provisions for an Army-appointed Remedial Project Manager to oversee long-term chemical accident/incident (CAI) recovery operations (para 3-6b(1)).
- Requires attachment of a copy of the Hazard Assessment to CAIRA Plans (para 3-4c(3)).
- Adds munitions render safe and disposal procedures (para 7-3).
- Revises guidelines for tort damage claims associated with a CAI (para 10-1).
- Revises procedures for environmental monitoring to include lessons learned from CSEPP exercises and updated regulatory guidance (chap 11).
- Modifies procedures for remedial operations to reflect the latest regulatory guidance and field practices (chap 14).
- Deletes most of the guidance on IRF and SRF exercises (para 17-4).
- Updates the points of contact for CAIRA operations and lists Internet addresses for select Government agencies (appendix C).
- Deletes the appendix on the U.S. Army Combat Pictorial Detachment.
- Deletes the appendix on personnel protective clothing and equipment.

- Deletes the appendix on CAIRA personnel decontamination station.
- Deletes the appendix on chemical agent behavior in the atmosphere.
- Deletes the appendix on overpack containers.
- Deletes the appendix on decontaminants.
- Deletes the appendix on decontamination of specific items.
- Adds a new appendix that provides general information on CAI at formerly used defense sites and nonstockpile emergencies (app I).
- Eliminates most of the detailed guidance on preparation of CAIRA plans (app J).

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Nuclear and Chemical Weapons and Materiel

Chemical Accident or Incident Response and Assistance (CAIRA) Operations

By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

Official:

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Administrative Assistant to the Secretary of the Army

History. This publication is a revision.

Summary. This pamphlet explains the policies and procedures prescribed for chemical accident or incident response and assistance operations in Army Regulation 50–6.

Applicability. This pamphlet applies to the Active Army, the Army National Guard of the United States, and the U.S. Army Reserve. Specifically, this pamphlet applies to personnel, organizations, and contractors that have or will have the potential to respond to accidents or incidents involving chemical agent material (including research, development, test, and evaluation of dilute solutions) or nonsurety material (nonstockpile chemical weapons munitions/materiel).

Proponent and exception authority. The proponent for this pamphlet is the Deputy Chief of Staff, G–3. The Deputy Chief of Staff, G–3 has the authority to approve exceptions to this pamphlet that are consistent with controlling law and regulation. The Deputy Chief of Staff, G–3 may delegate this authority in writing to a division chief within the proponent agency who holds the grade of colonel or the civilian equivalent.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to the Deputy Chief of Staff, G–3, ATTN: DAMO–SSD, 400 Army Pentagon, Washington, DC 20310–0400.

Distribution. This publication is available in electronic media only and is intended for command levels C, D, and E for Active Army, Army National Guard of the United States, and U.S. Army Reserve.

Contents (Listed by paragraph and page number)

*This pamphlet supersedes DA Pamphlet 50–6, dated 17 May 1991.

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Chapter 1
Introduction

1–1. Purpose

This pamphlet is a comprehensive reference for the commander and staff to use in preparing for, responding to, and recovering from a chemical accident/incident (CAI) involving surety or nonsurety material (nonstockpile chemical weapons munitions/material). It explains the concepts and procedures to be used by an emergency response force while executing chemical accident/incident response and assistance (CAIRA) operations. This pamphlet provides typical emergency effort technical information upon which a variety of decisions may be made. This pamphlet is the base document for CAIRA training throughout the Army. It can be used at all levels of command as an aid to developing plans for responding to all types of chemical hazards. This pamphlet does not address the requirements for responding to terrorist use of chemical agents in the public domain; however, some of the techniques and procedures may be adapted for use in such situations.

1–2. References

Required and related publications and referenced forms are listed in appendix A.

1–3. Explanation of abbreviations and terms

Abbreviations and special terms used in this pamphlet are explained in the glossary.

1–4. Organization

a. Chapters 2 and 3 present the "big picture" as a prelude to a more detailed explanation of various functional areas. Chapter 2 describes the functions and structures of organizations that respond to a CAI. Chapter 3 focuses on managing an emergency response effort. Chapter 3 also addresses the problem from a commander's viewpoint and illustrates the principal concepts, policies, and procedures that will significantly enhance CAIRA operation effectiveness.

b. Chapters 4 through 14 explain each functional area in more detail and describe key operational tasks. Chapter 15 addresses the unique aspects of emergency response for contractor-owned or -operated facilities. Chapter 16 discusses CAIRA operations outside the continental United States (OCONUS). Chapter 17 explains the spectrum of training available for those who must be prepared to respond to a CAI. Appendices B through J amplify the guidance discussed in each chapter and provide technical data and points of contact.

Chapter 2
Emergency Response System

Section I
Introduction

2–1. Overview

This chapter provides information pertinent to DA, Federal, State, and local government agencies preparing for and responding to a CAI. Specifically, section I synopsizes the key regulatory documents that provide the framework within which responding agencies will execute emergency operations. Section II depicts the role of Army emergency response forces. Section II also emphasizes the Initial Response Force (IRF) and Service Response Force (SRF) commanders. Paragraph 2–10*b*(3) describes the duties of the on-scene coordinator (OSC), who coordinates and supervises Federal resources from agencies outside and inside the Department of Defense (DOD) and ensures that removal/restoration efforts comply with environmental laws. Section III explains the various levels of the emergency response system, from the national level to the local government level. Section III also provides an overview of the roles, capabilities, and interrelationships of the many agencies within Federal, State, and local governments that would complement the Army's emergency response capability during CAIRA operations.

2–2. Principal regulatory documents

Public laws (PLs), Executive orders (EOs), DOD directives (DODDs), and Army regulations (ARs) provide the governing framework for coordinating the efforts of the various agencies that respond to a CAI. The more significant regulatory documents are briefly described below to assist the reader's comprehension of the emergency response system described in sections II and III.

a. Chapter 103, Sections 9601– 9675, Title 42, United States Code (The Comprehensive Environmental Response Compensation, and Liability Act, Public Law 96–510)(42 USC –9675). In December 1980, Congress enacted Public Law 96–510 to establish a reporting, response, and liability system for hazardous substance releases into the environment. This law also authorized the Federal Government to conduct federally-funded clean-up operations. Additionally, this law required the revision of the National Oil and Hazardous Substance Pollution Contingency Plan, most

commonly known as the National Contingency Plan (NCP). The requirements of this law are applicable to CAIRA operations because chemical agent material is legally defined as an extremely hazardous substance.

b. Public Law 99–499 (Superfund Amendments and Reauthorization Act of 1986 (SARA)). Public Law 99–499, amended CERCLA in 1996 and, in Title III, mandates extensive information sharing and emergency planning between operators of hazardous substance facilities and State and local governments. Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, requires all Federal departments to share information concerning toxic chemicals to improve local emergency planning, response, and accident notification.

c. Executive Order 12580, Volume 52, Federal Register, p. 2923 (52 FR 2923). (Superfund Implementation). In response to the provisions of SARA, the President of the United States directed a number of changes be made to the responsibilities assigned to the Federal response community. Under EO 12580, response authority for certain DOD releases is delegated to the Secretary of Defense, and the DOD as the lead agency. In other emergencies, the Environmental Protection Agency (EPA) or United States Coast Guard (USCG) is the Federal lead agency. Additionally, this EO establishes the current National Response System (NRS). The NRS is the mechanism for coordinating all levels of Government response in support of the NCP.

d. DODD 4715.1. DOD Directive 4715.1 provides overarching policy for environmental security within DOD. It establishes the requirement to develop new DOD instructions that implement this DODD.

e. AR 200–1. AR 200–1 prescribes the policies, responsibilities, and procedures to protect and preserve the quality of the environment.

f. AR 50–6. AR 50–6 prescribes policies, responsibilities, and procedures for the Army Chemical Surety Program of which CAIRA operations are an integral part.

g. AR 385–61. AR 385–61 prescribes DA safety policy, responsibilities, and procedures for all operations involving toxic chemical agents and associated weapons systems.

h. DA Pam 385–61. Department of the Army (DA) Pamphlet (Pam) 385–61 explains the minimum safety criteria and standards for processing, handling, storing, transporting, disposing of, and decontaminating blister agents H, HD, L, and HT and nerve agents GB, GA, and VX.

i. AR 385–64. AR 385–64 prescribes DA safety policy, responsibilities, and procedures for all operations involving ammunition and/or explosives.

j. DA Pam 385–64. DA Pam 385–64 explains the Army's safety criteria and standards for operations involving ammunitions and explosives.

Section II
Army Emergency Response System

2–3. Organizational concept

a. The Army Emergency Response System provides commanders with an organization and means to prepare for, respond to, and recover from a CAI. Through this system of personnel, facilities, and communications, commanders are able to plan, coordinate, and direct CAIRA operations. The system extends through all echelons from Headquarters, Department of the Army (HQDA), Deputy Chief of Staff, G–3 (DCS, G–3) to research, development, test, and evaluation (RDTE) laboratories and chemical storage and demilitarization facilities. At installation level, the commander establishes emergency response forces consistent with the CAI potential. For those chemical events that exceed the emergency capabilities of an installation, the U.S. Army Materiel Command (AMC) and U.S. Army Pacific (USARPAC) each maintain an emergency response force manned and equipped to provide for sustained operations. In addition, when needed, the total resources of the DOD are available for CAIRA operations. The Army Emergency Response System complements the Federal Response Plan (FRP), thereby providing commanders access to resources available from a variety of Federal departments, as well as State and local governments. Conversely, the FRP can readily access the Army's system for additional support during times of nonchemical agent material emergencies in civilian communities.

b. The Army's system is organized along the principles of centralized control and decentralized execution. Centrally controlling emergency assets enables the commander to marshal and integrate resources for deployment to the CAI scene. Centrally controlling assets also fully exploits the flexibility of assigned or attached resources. However, using the emergency response force organization described later in this chapter, enables the commander to conduct decentralized execution of functions inherent in CAIRA operations. The commander is then able to focus the required expertise on that portion of the problem requiring immediate attention.

2–4. Headquarters, Department of the Army

a. Deputy Chief of Staff, G–3. The DCS, G–3 has Department of the Army (DA) staff responsibility for overall coordination of Army CAIRA activities. This includes functioning as the HQDA single point of contact for—

(1) CAIRA matters.

(2) Integrating other HQDA principal officials' responsibilities into the CAIRA program.

(3) Establishing uniform policies for command CAIRA programs.

(4) Developing casualty estimates for potential CAIRA scenarios.

b. Other DA principal elements. The remaining DA staff elements support CAIRA operations consistent with their inherent staff responsibilities.

c. Army Operations Center.

(1) The Army Operations Center (AOC) is the command center for staff efforts during emergency operations and readiness actions. Located in the Pentagon, the AOC is operational 24 hours a day and serves as an operations and information center for HQDA. The AOC notifies the Secretary of the Army, Chief of Staff of the Army, and appropriate HQDA elements of significant events and supports crisis management operations during emergency situations involving the Army staff and secretariat.

(2) Installation commanders and personnel responsible for chemical materials report CAIs to the AOC in accordance with the procedures described in AR 50–6.

(3) Concurrent with the notification of the Army's senior leadership and appropriate staff elements, the AOC notifies the National Response Center (NRC) as a backup to the notification provided by the commander at the CAI site.

(4) HQDA manages CAIs through the AOC.

2–5. Major Army commands

a. Initial command and control.

(1) The major Army command (MACOM) or Army component of the unified or specified command will execute initial command and control of emergency response forces and their activities at a CAI location when it—

(a) Has command of the facility or installation on which the CAI occurs.

(b) Has custody of the chemical agent or munition at the time a CAI occurs off-post.

(2) As a representative of a MACOM or field operating agency (FOA), and until relieved by the commander of the nearest Army installation or a designated IRF or SRF commander, an escort officer accompanying a chemical agent shipment oversees all actions at the scene of a military CAI occurring outside the boundaries of a military installation.

b. Specific activities. AR 50–6, paragraph 1–4 prescribes CAIRA activities for appropriate MACOMs and installations.

2–6. Army Technical Escort Unit

a. Mission. The Army Technical Escort Unit (TEU) provides a worldwide, no-notice capability to conduct chemical, biological, radiological, and industrial hazards (CBR–I) operations in support of DOD, local, State, and Federal agencies.

b. Procedures. The TEU is organized with both military and civilian personnel performing explosive ordnance disposal (EOD), chemical, and escort duties. At least two persons (officer, noncommissioned officer, or DA civilian) will conduct TEU operations, depending on the mission.

c. Organization. The TEU is organized with both military and civilian personnel performing explosive ordnance disposal (EOD), chemical, and guard duties. At least two personnel (officer, noncommissioned officer, or DA civilian toxic handler) will conduct TEU operations, depending on the mission. See FM 9–20 for additional information on the TEU.

2–7. Emergency response forces

a. Mission. Emergency response forces perform the following functions:

(1) Prepare for deployment to the scene of a CAI.

(2) Upon determining that a CAI has occurred, respond to the emergency, and execute emergency operations.

(3) When the emergency has been stabilized, initiate activities to restore, as feasible, conditions at the CAI site to pre-CAI status.

(4) Transfer responsibility for restoration operations to other agencies as directed.

(5) Facilitate the withdrawal of military and civilian emergency response elements from the CAI site.

b. Procedures. To accomplish the mission, emergency response forces maintain the capability to perform activities related to the following functions:

(1) Command and control.

(2) Communication.

(3) Hazard assessment.

(4) Alert and notification.

(5) Protective actions.

(6) Firefighting and rescue.

(7) Medical treatment.

(8) Agent and munitions operations.

(9) Safety.

(10) Security.
(11) Public affairs.
(12) Restoration.
(13) Administration.
(14) Logistics.
(15) Legal services.
(16) Chaplain's crisis response.
(17) Training and education.

c. Organization.

(1) The nature of the chemical event determines the size and structure of responding emergency forces. CAI scenarios may vary. For example, only a small portion of an installation's total emergency capability deploys to deal with a minor chemical spill in a storage igloo, while a catastrophic CAI involving widespread damage and injury may require installation, local community, State, and Federal emergency resources. The level of response must **equal** the severity of the event. To effectively respond to the many possible CAI scenarios, the Army emergency response forces should organize into three groups: Command, Response, and Support. (See fig 2–1.)

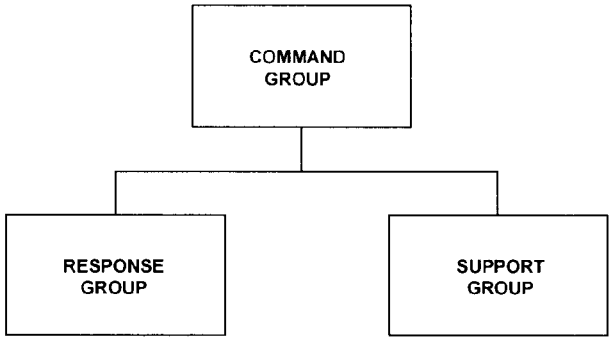


Figure 2–1. Emergency response force

(2) The Command Group (fig 2–2) provides the personnel and equipment required to perform the command and control of CAIRA operations. Depending on the level of response, the IRF or SRF commander heads this group. The commander designates members of the special staff who will work under his or her immediate control and assist him or her directly, rather than work through another member of the staff, such as the Director of Operations. For CAIRA operations, the public affairs officer (PAO), safety officer, legal officer, surgeon, and chaplain typically occupy the special staff positions.

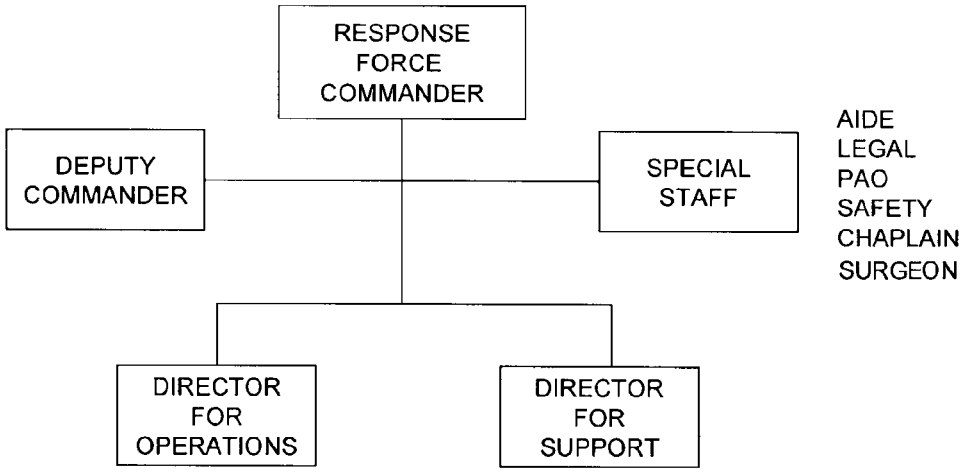


Figure 2–2. Command group

(3) The Response Group (fig 2–3) is the force commander's principal organization for applying and controlling emergency response resources. To accomplish this, the group organizes into an Emergency Operations Center (EOC), an Augmentation Response Element, and a Site Response Element. The EOC combines the planning, coordinating, and directing functions in support of the entire force. The Site Response Element controls those emergency activities that are applied directly to the CAI. The Augmentation Response Element coordinates emergency activities and resources provided by State and local governments, as well as Federal agencies other than HQDA.

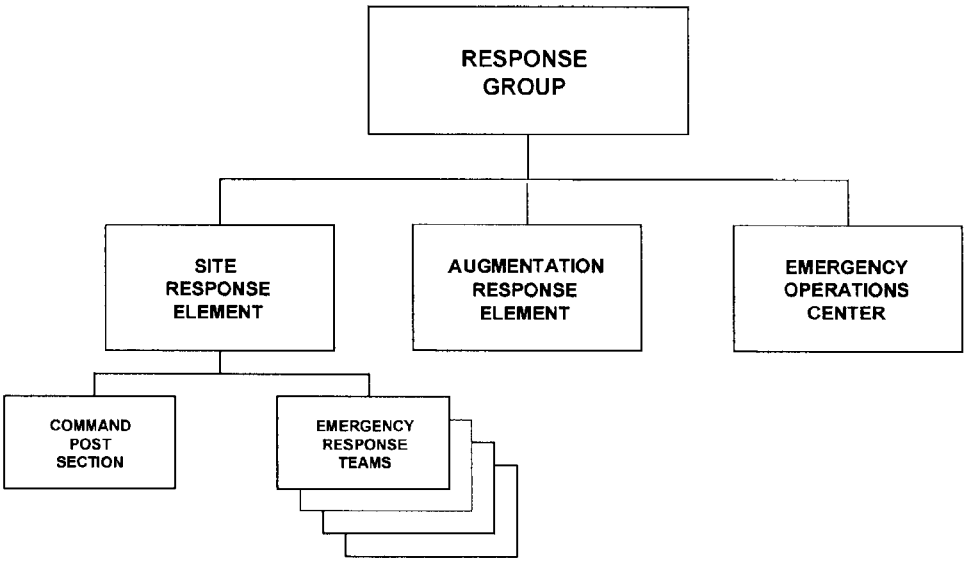


Figure 2–3. Response group

(4) The Support Group (fig 2–4) provides a variety of services and supplies to the emergency force. The group's primary function is to sustain the force without interfering with emergency operations. Figure 2–4 depicts the elements that are most appropriately organized under the Support Group.

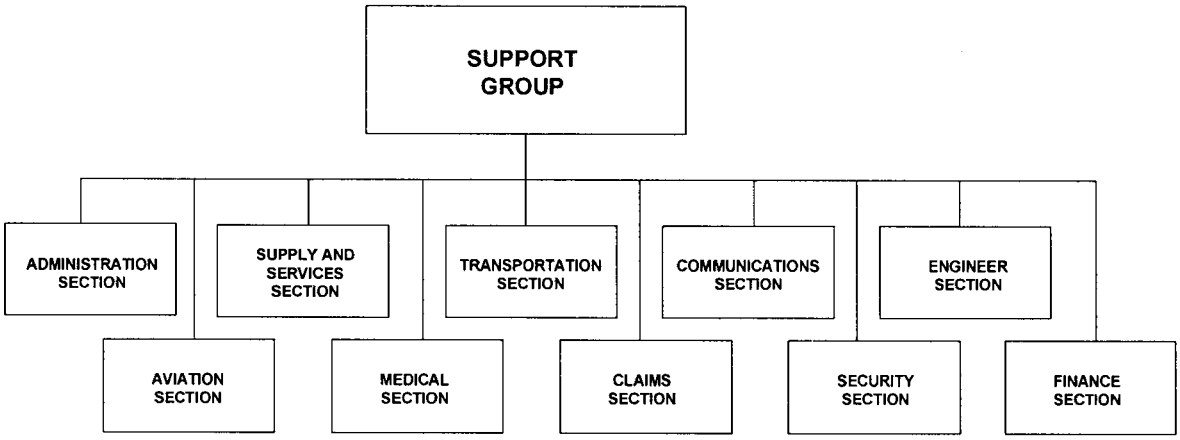


Figure 2–4. Support group

(5) The IRF and SRF commanders may modify the organization to enhance management of a tailored response force or to suit his or her personal command style. The IRF and SRF commanders must, however, retain the basic functions required to support the CAI and maintain an effective command and control.

2–8. Initial Response Force

a. Concept. The IRF is an installation level emergency response force that is organized to provide a first response to a CAI.

b. Mission. The IRF performs the duties of the emergency response force described in paragraph 2–7*a*.

c. Procedures.

(1) To accomplish its mission, the IRF executes the functions listed in paragraph 2–7*b*. These functions are discussed in more detail in chapter 3.

(2) The IRF, as the first responding force also—

(a) Assigns the chemical event emergency notification level to the CAI in accordance with AR 50–6, chapter 11.

(b) Notifies local and State authorities in a timely manner as specified in the Planning Guidance for the Chemical Stockpile Emergency Preparedness Program (CSEPP) or as stated in MOAs with the off-post organization, whichever is stricter.

(c) Initiates protective actions for on-post and recommends protective actions for off-post personnel.

(d) Commits installation assets to assist in the off-post CAI response if available and requested.

(e) Serves as primary point of contact (POC) for off-post officials until the SRF commander arrives, as provided for in established memorandums of understanding (MOUs) with the off-post local, State, and Federal organizations.

(f) Notifies the NRC and the AOC. A listing of required reports is at appendix B.

d. Organization.

(1) The installation commander is the IRF commander. In accordance with the NCP, the IRF commander is also the OSC, until the SRF commander assumes these duties. Depending on the severity of the CAI, the IRF may execute all phases of a CAIRA operation without SRF involvement.

(2) The commander assigns personnel to the IRF based on their current duties or familiarity with chemical agent material. First consideration should be given to those persons whose positions are directly related to the chemical surety mission.

(3) The organization of the IRF must have the flexibility to expand in size to accommodate additional resources to match the severity of the event.

e. Limitations.

(1) At the outset of a CAI, the number of qualified personnel available to execute critical functions (such as public affairs (PA) and security) may be limited. Commanders may request additional resources from other supporting agencies to bolster the installation's baseline capability.

(2) A chemical agent material installation may not possess a sufficient number of qualified personnel to staff an IRF for sustained CAIRA operations and continue to execute the installation's primary mission. The commander may request additional resources or direct that the installation minimize or cease other operations until the CAI is resolved.

(3) The level of supply available to an IRF will probably be restricted to that amount required to adequately respond to the most probable CAI scenarios. The commander may request an emergency supply of critical items for sustained operations.

f. Readiness. The IRF must be prepared to execute CAIRA operations with little or no notice. The IRF must be well trained and exercised in emergency response procedures. Within the Army Emergency Response System, the IRF should have first priority for training resources.

2–9. Service Response Force

a. Concept. The SRF is a DA-level emergency response force established to provide a follow-on response to a CAI, if required. As a follow-on force, the SRF has expertise in the various technical aspects of CAIRA operations and the ability to conduct sustained operations.

b. Mission. The SRF's mission is described in paragraph 2–7*a*.

c. Procedures. The SRF executes the functions listed in paragraph 2–7*b*.

d. Organization.

(1) AR 50–6 directs which MACOMs must establish and maintain an SRF for their respective command. During CAIRA operations, however, the deployed SRF is under the operational control of HQDA DCS, G–3.

(2) The SRF commander, a general officer recommended by the MACOM, is appointed by HQDA DCS, G–3. Each affected MACOM will pre-nominate an SRF commander and ensure that acting as the OSC is one of his or her duties. Each SRF commander nominee should have a working knowledge of chemical agent material and be trained for CAIRA operations, including duties as an OSC.

(3) For the NCP, the SRF commander becomes the OSC once assuming control of operations at the CAI location.

(4) A smooth transition from an IRF- to an SRF-controlled CAIRA operation is possible when the organizational structure of each force is essentially the same. The IRF, although part of the SRF, loses its identity once the SRF becomes operational at the CAI location. The SRF staff may be composed of elements of the IRF staff, the staff of the general officer designated as the SRF commander, personnel selected for their expertise from a variety of Army organizations, or a combination.

e. Split-based concept of operations. The nature of the CAI determines the size of the SRF. The SRF commander determines the exact size, composition, and location of the SRF elements. The SRF composition will be situation specific and flexible enough to meet the wide spectrum of emergency response possibilities.

(1) The SRF commander and an advance party of key advisors may deploy to the CAI site, assess the scope of the CAI, and direct additional SRF staff and other resources to the site as needed to support SRF requirements.

(2) SRF members who do not deploy to the site initially may deploy later or provide assistance from their home base. The MACOM or major subordinate command (MSC) operations center may serve as the split base and provide scientific and technical expertise to the SRF commander and staff at the CAI site by telephone, data fax, and electronic mail. This precludes deploying large numbers of personnel to the CAI site, yet makes extensive expertise available to the SRF commander.

2–10. Roles and duties of IRF and SRF commanders

a. Roles.

(1) The IRF or SRF commander will be regarded as the senior military official present at the CAI scene, representing both DA and DOD. The IRF or SRF commander also provides operational command and control of all deployed military forces and operations at the CAI location. In this capacity, the IRF or SRF commander serves as the single POC for DOD support during a CAI. The IRF or SRF commander requests any Army materiel and manpower necessary to rapidly resolve the CAI. When specialized equipment or personnel are not available from Army sources, the IRF or SRF commander has the authority and priority to request support through appropriate channels from other Service or DOD agencies. As the senior DOD representative at the CAI location, the IRF or SRF commander has direct access to the highest levels of DA and DOD to bring the CAI to a swift resolution.

(2) The OSC is another role for the IRF or SRF commander. As established by the NCP, the OSC coordinates and directs the Federal response to a hazardous substance, pollutant, or contaminant release. Normally, in the public sector, the OSC is an official pre-designated by the EPA or the USCG to respond to an accident or incident. When a CAI occurs on a DOD facility or vessel, however, a DOD official, specifically the IRF or SRF commander, performs the OSC responsibilities. In this role, the commander provides valuable support and information to the local emergency response community and is the point of contact for coordinating the Federal effort with the efforts of the State and

local community. Additionally, the OSC position allows access to extensive Federal resources beyond those provided by the DOD.

b. Duties.

(1) The IRF commander—

(a) Establishes and maintains an IRF.

(b) Develops and implements an IRF training program designed to prepare the force and individuals to meet or surpass the standards for effective emergency response.

(c) Evaluates, by the use of an exercise program, the IRF's ability to execute its mission.

(d) Controls all response, logistical, and administrative activities during a CAI.

(e) Provides lifesaving and humanitarian assistance to the injured.

(f) Protects the public from health and safety hazards.

(g) Protects the environment from further damage.

(h) Safeguards classified materiel and Government property.

(i) Executes responsibilities of the OSC.

(j) Maintains a close working relationship with supporting Federal, State, and local authorities before, during, and after a CAI.

(k) Maintains a timely dialogue with higher headquarters regarding the progress of the operation.

(l) Executes a PA program before, during, and after a CAI.

(m) Establishes and operates a base of operations.

(n) Initiates actions to restore conditions at or near the CAI site to a technically achievable and acceptable state if within the capabilities of the IRF.

(o) Facilitates the withdrawal of military forces and civil agencies from the CAI site when directed.

(2) The SRF commander—

(a) Establishes and maintains an SRF staff for deployment.

(b) Trains and exercises the SRF staff for conducting CAIRA operations.

(c) Deploys to the CAI scene on order.

(d) Assumes command of response activities at the CAI location.

(e) Combines the SRF staff, IRF, and follow-on forces into an SRF.

(f) Assumes and executes OSC's responsibilities.

(g) Continues response activities to save life, preserve health and safety, secure classified materiel and Government property, and protect the environment.

(h) Continues close coordination with Federal, State, and local authorities.

(i) Communicates all essential or required information and situations reports to higher headquarters.

(j) Continues efforts to provide timely, accurate information about the event and SRF operations to the public.

(k) Initiates actions to restore conditions at or near the CAI location to a technically achievable and acceptable state.

(l) Facilitates the withdrawal of military forces and civil agencies from the CAI location when directed.

(3) The IRF or SRF commander, executing the role of DOD OSC, has an extensive list of coordinating duties. These responsibilities are discharged through a chain of command (see fig 2–5). Within the staff, the deputy OSC is normally an individual who has extensive knowledge of the local community and how it operates. The deputy OSC usually works directly with civilian authorities and serves as the exclusive link between the OSC and civilian authorities. This allows the Director of Operations to focus on operations at the CAI site and the Director for Support to concentrate on administrative and logistical tasks. The principal duties of the OSC are as follows:

(a) Coordinate and direct Federal response operations in cooperation with State and local authorities, other Federal agencies, and appropriate private organizations.

(b) Ensure that all IRF or SRF personnel comply with environmental laws and regulations applicable to the DOD.

(c) Identify parties responsible for the CAI, if applicable.

(d) Collect information about the materiel, source, cause, and potential harm of a release.

(e) Advise the Federal Emergency Management Agency (FEMA), when necessary, of potential disaster situations that could lead to a Presidential declaration of disaster.

(f) Notify the Department of Health and Human Services (HHS) in cases where public health and/or worker health and safety are threatened or when transportation of chemical agents will be necessary.

(g) Notify natural resource trustees (and land management agencies if they are different) of releases and discharges affecting resources under their jurisdiction.

(h) Notify either the National Oceanic and Atmospheric Administration (NOAA) or the Department of Interior (DOI) of releases that could affect endangered species or their critical habitat.

(i) Assess worker safety at the response scene.

(j) Develop a site remedial operation plan.

(k) File reports to the AOC.

(l) Notify the NRC.

(m) Delegate authority, as necessary, to subordinates to act on the OSC's behalf, understanding that the OSC must provide training for these subordinates and that their actions remain the responsibility of the OSC.

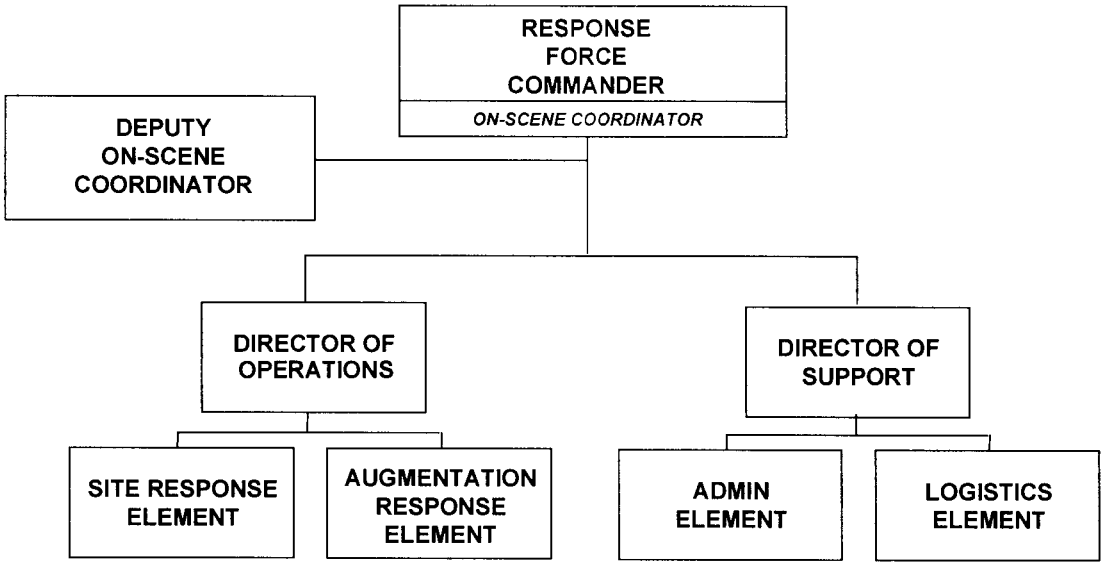


Figure 2–5. OSC operational chain of command

Section III
National Response System

2–11. National Contingency Plan

The NCP provides the framework for the NRS. The NCP ensures that the expertise and resources of the Federal government are available to respond to a serious oil or hazardous substance accident/release. The NCP derives its statutory authority from Section 3 of the Clean Water Act (CWA) and CERCLA, and its amendment, SARA. The NCP is a blueprint for preparing for and conducting emergency response operations. It provides for the division of authority and responsibility among the various levels of Government. As a result, a hierarchy of coordinating entities is established that together form the NRS. This system functions through a network of interagency and intergovernmental relationships. Its success depends upon multi-agency organizations following well-practiced contingency plans and the combined efforts of these organizations working together at the national, regional, State, and local levels. Figure 2–6 and subsequent paragraphs provide a more detailed explanation of the NRS.

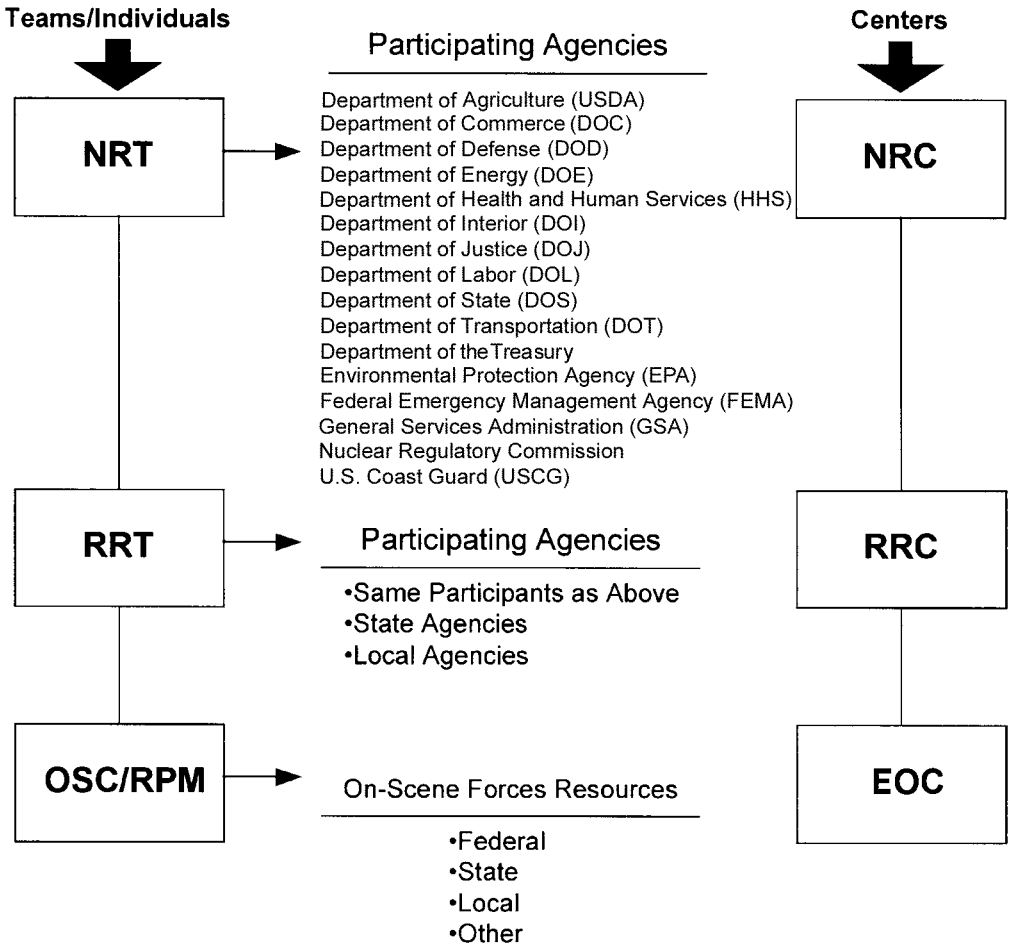


Figure 2–6. Operational chain of command/National Response System

2–12. Federal

a. National Response Team. The National Response Team (NRT) is a body of 15 Federal agencies charged with the responsibility to provide oversight of the nation's ability to respond to an oil or hazardous substance accident and/or incident. The NRT is responsible for national level planning, preparedness, and response actions for such circumstances. The NRT is also responsible for documenting and publishing guidance for preparing contingency plans. The NRT does not respond directly to a CAI, but is available to provide additional resources, if requested. The following agencies are the NRT membership:

(1) Department of Agriculture (USDA).
(2) Department of Commerce (DOC).
(3) Department of Defense (DOD).
(4) Department of Energy (DOE).
(5) Department of Health and Human Services (HHS).
(6) Department of Interior (DOI).
(7) Department of Justice (DOJ).
(8) Department of Labor (DOL).
(9) Department of State (DOS).
(10) Department of Transportation (DOT).
(11) Department of the Treasury.
(12) Environmental Protection Agency (EPA), which provides the chairperson.
(13) Federal Emergency Management Agency (FEMA).

(14) General Services Administration (GSA).

(15) Nuclear Regulatory Commission.

(16) U.S. Coast Guard (USCG), which provides the vice chairperson.

b. The National Response Center (NRC).

(1) The National Response Center (NRC) provides the 24-hour communications link for the NRT. The NRC is located at the USCG Headquarters in Washington, DC and funded through NRT interagency agreements. The NRC receives telephone reports of oil spills and chemical releases through its toll free number (800–424–8802), or its commercial number (202–426–2675). The NRC will notify or request assistance from all Federal agencies.

(2) The NRC must be notified if the release—

(a) Exceeds reportable quantities per AR 200–1 and 40 CFR 372.

(b) Involves radioactive materiel.

(c) Involves a disease-causing agent.

(3) See AR 50–6 and AR 200–1 for a more detailed explanation of chemical agent material and environmental reporting requirements. See appendix B for a list of required reports.

(4) The NRC serves the following four functions:

(a) Making an official record of release.

(b) Alerting key Federal authorities.

(c) Providing the OSC with informational support.

(d) Coordinating requests for assistance originating from the Regional Response Teams (RRTs) and/or OSCs.

c. Members. The role of each Federal agency in a CAIRA operation is summarized below. Additional information on these roles is contained in the NCP.

(1) *Department of Defense (DOD).*

(a) Under the NCP, DOD plays two distinct roles in a response to an oil or hazardous substance release. For nonmilitary events, the NCP assigns a supporting role to DOD. In these circumstances, DOD joins with other Federal departments in planning for, responding to, and conducting remedial operations. DOD is also subject to requests by the principal responding agencies to provide resource assistance. AR 500–60 prescribes the policies and procedures used in support of the NCP and further defines the Army's contribution to DOD's supporting role.

(b) If the release is from any facility or vessel under the jurisdiction, custody, or control of DOD, EO 12580, as further refinement to the NCP, directs DOD to execute lead agency responsibilities for the response. Simply stated, if a hazardous material release or spill is from a DOD facility or vessel, DOD will execute the functions that are usually performed by the EPA or USCG.

(2) *Environmental Protection Agency (EPA).*

(a) Current laws establish EPA as the lead Federal agency for prevention and management environmental problems arising from oil and hazardous substances in the United States.

(b) The EPA maintains the NCP and provides support to the NRT. The EPA provides the chairperson for the NRT and a co-chairperson for RRTs.

(c) The EPA provides the OSC and remedial project/program managers (RPMs) for all inland zone oil and chemical releases not involving DOD or DOE facilities or materiel.

(d) The EPA provides expertise on environmental effects of releases and on environmental pollution control techniques.

(e) The EPA provides guidance, technical assistance, and training in emergency preparedness and response.

(f) The EPA maintains the legal expertise to interpret CERCLA and other environmental statutes as they relate to liability for a CAI.

(3) *United States Coast Guard (USCG).*

(a) As prescribed by the NCP, the USCG provides the vice-chairperson for the NRT, the co-chairperson for the RRT, and predesignated OSC for the coastal zone and the high seas.

(b) The USCG also staffs and administers the NRC and maintains continuously manned facilities that can be used for command, control, and surveillance of releases in coastal waters.

(c) In addition, the USCG maintains a national strike force that is specially trained and equipped to respond to hazardous substance releases. These assets are available to support DOD CAIRA operations.

(4) *Federal Emergency Management Agency (FEMA).*

(a) In a Federal response to a hazardous materiel (HAZMAT) emergency, FEMA provides advice and assistance to the lead agency on coordinating relocation assistance and mitigation efforts with other Federal agencies, State and local governments, and private sectors. FEMA may enter into a contract or cooperative agreement with the appropriate State or political subdivision in order to implement relocation assistance in response.

(b) Under Chapter 68, Sections 5121– 5206, Title 42, United States Code (Robert T. Stafford Disaster Relief and Emergency Assistance, Public Law 93–288) (42 USC 5121– 5206), and the FRP, the President may act upon a request by a Governor and declare a major disaster or emergency and appoint a Federal coordinating officer (FCO) to

coordinate all Federal disaster assistance activities. In such cases, the OSC would continue to carry out assigned responsibilities under the NCP, but would coordinate the activities with the FCO to ensure consistency with other Federal disaster assistance activities.

(c) In the absence of a declared emergency, FEMA provides policy, guidance, program advice, and technical assistance; publishes State and local emergency planning guidance; and provides training and training grants to State and local officials with a role in emergency response.

(d) Except during a national emergency, FEMA will normally assume an advice and support role. However, because FEMA administers funds both for disaster relief and for program support to State and local emergency management organizations, FEMA establishes certain planning requirements and qualifications for jurisdictions seeking these funds. Typically, these requirements extend to the content of emergency response plans and the character of emergency operating facilities, personnel, equipment, and training. In addition, the State and local agencies with which FEMA, among all Federal agencies, maintains the closest working relationship are those that maintain and operate the local warning and control networks. For example, a municipal or county emergency operations center or emergency management agency maintains the capability to activate the community's warning sirens and local stations in the Emergency Alert System (EAS). At the Federal level, FEMA is the only agency that routinely coordinates with these organizations and the only agency with a well-developed network of contacts among emergency services at the State and local level. FEMA coordinates accident response planning and readiness for those states and counties near the continental United States (CONUS) chemical agent stockpile sites through CSEPP, which it administers jointly with the Army.

(5) *Department of Transportation (DOT).*

(a) DOT maintains two seats on the NRT. One is assigned by statute to the USCG regardless of the Federal department (DOT or DOD) to which it is subordinate. The other is assigned to a delegate of DOT's Research and Special Programs Administration (RSPA). Within DOT, RSPA develops regulations and conducts research related to the transportation of oil and hazardous substances.

(b) In the event of an actual or threatened release, RSPA provides the OSC with information on the packaging, handling, and transport of regulated materiel.

(6) *Department of Commerce (DOC).*

(a) Within DOC, the NOAA maintains responsibility for dealing with hazardous substance events.

(b) NOAA's Hazardous Materiel Response Branch (HMRB) provides scientific support for response and contingency planning in coastal and marine areas. This includes assessing the hazards that may be involved, predicting oil and hazardous substance movement and dispersion through trajectory modeling, and reporting on actual and predicted meteorological, hydrologic, and ice conditions for inland waters.

(7) *Department of Interior (DOI).*

(a) DOI maintains jurisdiction over national parks, national wildlife refuges and fish hatcheries, public lands, and some electrical power projects in the Western States. Within DOI, the Office of Environmental Affairs (a special staff office of the Secretary of Interior established specifically to monitor environmental activities throughout DOI) acts as the focal point for activities under the NCP. The Division of Natural Resources Trust and Emergency Affairs (a component of the Office of Environmental Affairs) is responsible for responding to CAIs.

(b) Table 2–1 lists the various DOI agencies and their areas of responsibility.

Table 2–1
DOI agencies and areas of responsibility under NCP

Agency	Area
Fish and Wildlife Service	Responsible for protection of fish and wildlife, endangered and threatened species, some marine mammal species, and migratory birds, and offers advice and laboratory support bearing on wildlife habitats and contamination.
Geological Survey	Provides advice and support in geology, hydrology, and natural hazards.
Bureau of Mines	Performs analysis and identification of inorganic hazardous substances.
Office of Surface Mining	Provides expertise in coal mining wastes and land reclamation.
National Park Service	Provides biological and natural resource expertise at national parks and monuments.
Bureau of Land Management	Provides information and advice on minerals, soils, vegetation, wildlife and wildlife habitat, archaeology, and wilderness areas.
Minerals Management Service	Provides oversight of the Outer Continental Shelf.
Bureau of Reclamation	Operates certain water projects in the western United States and offers support relative to engineering and hydrology.
Bureau of Indian Affairs	Coordinates activities affecting Indian lands.
Office of Territorial Affairs	Coordinates activities affecting American Samoa, Guam, the former Trust Territory of the Pacific Islands, and the Virgin Islands.

(8) *U.S. Department of Agriculture (USDA).* Within USDA, the Forest Service is the principal component involved in CAIRA operations. If called upon, the USDA assists the OSC with information on the effects of hazardous substances on soil, water, wildlife, vegetation, livestock, and crops.

(9) *Department of State (DOS).* DOS acts as the lead agency for liaison with foreign governments and international organizations for the development of international contingency plans. See chapter 16 for OCONUS operations.

(10) *Department of Justice (DOJ).*

(a) As prescribed by the NCP, DOJ provides expert legal advice on issues arising from discharges or releases and Federal agency responsibility. In addition, DOJ represents the Federal government, including its agencies, in litigation.

(b) Although EO 12580 allows DOD to appoint an OSC for release of hazardous substances on DOD property or involving DOD facilities, DOJ is the only Federal agency with authority to represent the United States Government in judicial proceedings.

(11) *Department of the Treasury.* Treasury provides assistance and expertise from its various bureaus and offices. For example, during an incident, the Bureau of Alcohol, Tobacco, and Firearms may provide law enforcement support with experts in the field of fire and explosive investigations.

(12) *Department of Health and Human Services (HHS).*

(a) Within HHS, the Office of Emergency Planning (an office under the jurisdiction of the Assistant Secretary for Health) is principally responsible for chemical emergencies. HHS acts principally as a policy and coordinating office. Operational functions reside elsewhere in the agency.

(b) HHS, through the National Institute for Occupational Safety and Health (NIOSH), part of the Centers for Disease Control (CDC), studies human exposure to hazardous substance releases and recommends exposure limits for workers. The CDC also provides health effects information and support in emergency conditions.

(c) The National Center for Environmental Health (NCEH) generally acts as lead agency for HHS in responding to environmental problems. The NCEH makes recommendations for protection of human health and safety in connection with disposal or transportation of lethal chemical agents. The NCEH establishes worker and general public exposure limits for lethal chemical agents, maintains liaison with State and local health environmental and emergency agencies, and provides advice and assistance on health effects.

(d) The U.S. Agency for Toxic Substances and Disease Registry (ATSDR) leads the HHS response to chemical emergencies under CERCLA. The ATSDR's Emergency Response Branch (ERB) of the Division of Health Assessment and Consultation manages the ATSDR's response and coordinates responses with NCEH. Other public health service agencies, including the Indian Health Service; the Health Resources and Services Administration; the Alcohol, Drug Abuse, and Mental Health Administration; the National Institutes of Health; and the Food and Drug Administration provide personnel, advice, laboratory, and other resource support.

(e) The Food and Drug Administration is responsible for safety of food and dairy products that might be affected by a release with consequences that are off-post.

(13) *Department of Labor (DOL).*

(a) Under the terms of the NCP, DOL, through its subsidiary Occupational Safety and Health Administration (OSHA), cooperates with EPA and NRT to prevent hazards to the health and safety of persons responding to oil and hazardous substance releases. The OSHA was provided authority to do this in CERCLA, SARA, and PL 94–580 (Resource Conservation and Recovery Act of 1976 (RCRA)). Congress specifically directed OSHA to issue safety and health regulations for workers engaged in hazardous waste operations, including emergency response personnel and workers involved in cleanup of oil and hazardous substance releases.

(b) OSHA provides advice, guidance, and assistance to the OSC in matters of worker safety.

(c) OSHA's established policy specifies that for requests by a lead response agency or contractor, OSHA will provide technical assistance to ensure worker safety.

(d) OSHA technical assistance may include reviewing site safety plans, reviewing site work practices, assisting with exposure monitoring, and answering questions about compliance with OSHA regulations.

(e) OSHA also investigates and responds to worker complaints about safety practices or working conditions at response sites.

(14) *Department of Energy (DOE) and Nuclear Regulatory Commission.* DOE and the Nuclear Regulatory Commission are involved in executing the NCP only when radioactive materiel is released.

(15) *General Services Administration (GSA).* GSA provides logistic and telecommunication support to Federal agencies. During an emergency situation, the GSA quickly responds to aid State and local governments as directed by other Federal agencies. GSA's provided support might include leasing and furnishing office space, setting up telecommunication and transportation services, and advisory assistance.

2–13. Regional

a. Regional Response Team.

(1) The NCP refers to the RRT as the operational focus for resource planning and remedial activities for oil and hazardous substance releases. RRTs are planning, policy, and coordination bodies. They develop regional contingency plans and coordinate participating agencies' activities supporting the OSC. RRTs do not respond directly to chemical

events but rather provide advice and/or support to the OSC when requested. They may provide material (equipment, supplies, or facilities) or informational (personnel with special expertise) support.

(2) The NCP directs the RRTs to encourage State and local response communities to improve their preparedness for response. The RRT has no authority, however, other than to review and advise. The RRT has no command authority over a DOD OSC from HQDA.

(3) There are 13 RRTs, one for each of the 10 Federal regions, plus one each for Alaska, the Caribbean, and the Pacific Basin. Boundaries for Federal and local contingency plans for a Federal response involving EPA or USCG OSC management are established in consultation with State and local governments in the affected area. Appendix C contains RRT POC addresses and telephone numbers.

b. On-scene coordinator.

(1) The OSC is the principal focus of a Federal response effort. The OSC coordinates and directs all Federal containment, removal, and disposal efforts and resources during a CAI. For Army CAIs, IRF commanders, as the first-line OSCs, are responsible for initial coordination of CAIRA plans with the appropriate RRTs.

(2) Once Federal funds are activated, the OSC assumes control of the response, using procedures established in Regional Contingency Plans and in OSC Contingency Plans for specific areas in the region.

(3) The OSC and supporting staff—

(a) Evaluate the extent of the incident, the potential hazards, the types of resources needed, and the ability of the responsible party or local officials to handle the incident.

(b) Monitor the response action if responsible party or local emergency response forces are cleaning up the release.

(c) Provide technical advice to ensure that steps taken are appropriate and effective.

(d) File pollution reports during the incident report to summarize actions taken during the response effort.

(4) The NCP contains a more detailed description of the OSC's duties.

2–14. State

a. Emergency management. All State governments have emergency management organization structures that plan and/or respond to a full range of emergency situations and disasters, including those involving HAZMAT. Some states layer the management function by joining together to form regional emergency management organizations. State emergency management agencies work full-time to accomplish the State government's emergency and disaster responsibilities, to coordinate with the departments of the State government, and to oversee county and municipal (local) government emergency planning and response. State and local jurisdictions prepare and maintain emergency operations plans, train emergency response personnel, and conduct periodic exercises and evaluations of plans and capabilities.

b. Emergency planning . In November l986, Congress passed Title III, PL 99–499 to help communities deal with the many hazardous substances used in our society. EO 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements, requires all Federal departments to share information concerning toxic chemicals to improve local emergency planning, response, and accident notification. Title III, PL 99–499 provides—

(1) A basis for each community to develop a chemical emergency preparedness and planning program that suits its needs.

(2) The public with the identity, quantity, location, and properties of hazardous substances in the community, as well as data on annual releases of certain chemicals into the environment.

c. State Emergency Response Commission. Title III, PL 99–499 requires each state to establish a State Emergency Response Commission (SERC). In some States, the SERCs have been formed from existing organizations such as emergency management, environmental, and public health agencies. Other states have formed new organizations with representatives from private groups, public agencies, and industrial associations. SERCs will—

(1) Designate local emergency planning districts.

(2) Appoint local emergency planning committees (LEPCs) for each district.

(3) Coordinate and supervise the activities of the LEPCs.

(4) Review local emergency response plans and make recommendations for any needed improvement.

2–15. Local

a. Emergency management. Local civil governments must organize for and prepare to respond to a broad range of incidents involving chemical substances and must routinely practice those responses.

(1) County or community government emergency managers may be full-time employees or agencies dedicated to that function, or may have emergency management as an additional responsibility. Often they are located in the sheriff's department, the fire department, the local civil defense directorate, or another appropriate office.

(2) Installations must ensure that their CAIRA plans are closely coordinated with civil authorities. This may be accomplished either through local emergency agencies or the LEPC described below. In addition, commanders may enhance the capability of civil emergency responders to cooperate and participate in CAIRA by providing them with training on chemical agent material-unique aspects. At CONUS chemical agent stockpile installations, CSEPP provides

for plans integration, training, enhancement of local response capability, and joint exercises to optimize civil preparedness for a CAI, especially implementing protective actions for the public. Even though the responsibility for the response to a chemical agent material CAI rests primarily with HQDA, civilian governmental agencies are very likely to be deeply involved in and heavily committed to an effective execution of CAIRA operations.

b. Local Emergency Planning Committee.

(1) One of the ways that can be used to tie the civil and military response forces closer together is through using the LEPC. The LEPC is a county and municipal committee appointed by the SERC under the provisions of the Emergency Planning and Community Right-to-Know Act. It develops an emergency plan to prepare for and respond to chemical emergencies of whatever type. The committee must publicize the plan through public meetings or through the news media and review, test, and update the plan on an annual basis. The goal is to gain feedback from the citizenry and to inform the public that a plan exists for response to any chemical agent emergency at a local facility or military installation.

(2) The LEPC provides a valuable forum for information and discussions on emergency matters primarily because of the expertise the representation on the committee brings to bear on an issue. LEPCs are broad-based forums and include elected officials, law enforcement, emergency management, firefighting, medical services, local environmental and transportation agencies, hospitals, news media, community groups, and owners and operators of the facilities covered under SARA requirements. Because the LEPC membership is from the local community, they can provide valuable information concerning the factors that influence emergency planning decisions regarding safety, environment, and the economy in that area.

Chapter 3
Management

Section I
Introduction

3–1. Overview

This chapter describes the overall management structure necessary in responding to a CAI, and the relationships and interaction of each element. Section II details the aspects that must be considered during the three phases of a CAI: readiness, response, and recovery. Section II includes a graphic portrayal of functions accomplished by specific responsible agencies within a prescribed period of time. Information on the readiness phase also includes planning considerations for establishing an emergency notification system and emergency planning zones (EPZs).

3–2. Management fundamentals

a. The fundamental principle of CAIRA management is to maintain the capability to respond to and recover from a CAI.

b. Each installation commander has the responsibility and authority for initial response to CAI that occur on-post and for the protection of on-post personnel and mitigation of CAI consequences. Installations also alert and inform community officials of the nature and extent of the CAI and recommend appropriate measures for protecting the civilian population. The OSC manages the Federal response effort to the CAI occurring on-post.

c. State and local community officials implement actions off-post for public protection and coordinate emergency resources and information during all phases of the emergency.

d. DOD, FEMA, and EPA share Federal emergency management responsibilities. For CAI on DOD facilities, DOD has the primary responsibility. FEMA is responsible for providing advice and assistance to DOD for coordinating relocation and some of the mitigating efforts with State and local governments and the private sector. EPA provides technical assistance as it applies to removal and/or remedial activities.

e. The DCS, G–3 provides HQDA-level command and control through the AOC. The AOC provides information and support to the CAIRA operation as required.

f. CERCLA and SARA require that removal operations contribute to the efficient performance of any long-term remedial operations to the extent practicable.

g. Consistent with established MOUs, HQDA provides administrative, logistical and medical support for Federal organizations responding to an Army CAI.

Section II
Concept of Operations

3–3. Concept

a. Upon determining that a CAI has occurred, installation emergency response elements, organized as the IRF,

respond immediately to the CAI site to save lives, to preserve health and safety, and to prevent further damage to the environment. Any response, whether confined to the installation or extending into the local community, will involve the coordinated use of military response forces in conjunction with civilian emergency agencies. The IRF executes a variety of actions, such as assessing, notifying, caring for casualties, safeguarding chemical agent material, and minimizing and mitigating the hazard. The IRF assists civilian emergency agencies with off-post environmental monitoring within its capabilities.

b. Although unlikely, the worst potential outcome of a CAI would be death. The IRF, the principal responding element, will emphasize the portions of the mission that pertain to saving lives and preserving health and safety.

c. Should the CAI produce a hazard that cannot be managed by the IRF (even with limited augmentation), then follow-on forces consisting of additional staff elements and technical experts will deploy to the CAI site under the direction of a general officer. The SRF assumes the mission on arrival, provides command and control of all military forces, and coordinates the activities of Federal, State, and local agencies responding to the CAI. As OSC, the SRF commander requests additional support as needed and controls these elements until the emergency is resolved. The SRF is responsible for containing the hazard, to the extent that there is no longer a health hazard, and restoring the CAI site and environmental damage to a technically achievable or acceptable condition. SRF assistance may also be required to conduct recovery operations.

d. The transition from IRF to SRF begins when the SRF lead elements arrive at the CAI site. The SRF commander must ensure that an orderly transition takes place. The IRF commander and staff brief their SRF counterparts, and when the SRF commander is satisfied that the staff is ready to assume control of the situation, he or she makes a public announcement. The SRF commander's assumption of response force/OSC duties does not imply a relief of the IRF. The IRF staff normally integrates into the SRF staff and the IRF commander becomes a special advisor to the SRF commander or OSC.

e. Figure 3–1 graphically displays the principal functions executed during CAIRA operations. The chart provides a one-page overview of the function, executing agency, and time relationship.

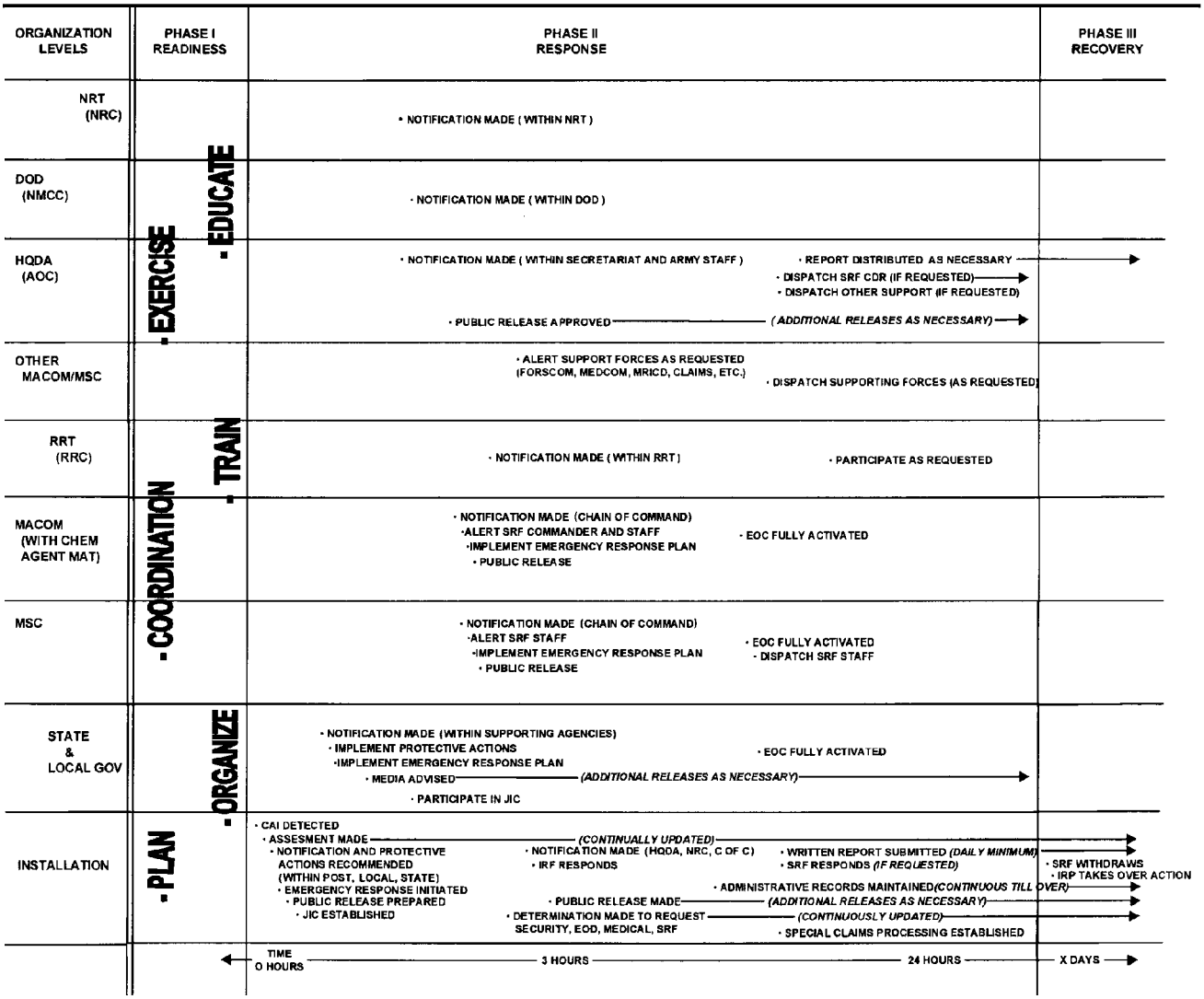


Figure 3–1. Functions chart

3–4. Readiness phase

a. Concept. During the readiness phase, those organizations identified as potential members of Army emergency response forces prepare and coordinate appropriate response plans. The pre-nominated SRFs will also establish organizations to execute plans, train personnel and organizations to the required level of proficiency, evaluate the response organization's ability to execute plans, and educate the public to the potential threat, including emergency response procedures. The concept of operations for this phase must consider planning, organizing, training, evaluating, and educating.

(1) *Planning.* An effective and timely CAI response requires eliminating as much of the risk and uncertainty in CAIRA operations as possible. An effective tool to achieve this goal is to develop a well-coordinated and comprehensive plan that is tailored to the specific needs of the installation and local community. The CAIRA plan must promote uniformity in principles, policies, concepts of operations, and compatibility of organizations and systems to facilitate a coordinated response. This encompasses preparation of supporting plans, ascertaining and programming support requirements that are beyond current organizational capability, identifying deficiencies or shortcomings, and taking necessary corrective actions to ensure requisite assets are available to support CAIRA operations. Successful planning also requires community involvement throughout the process. This interaction ensures that everyone who could ultimately be involved in a CAIRA operation knows who is responsible for what activities and who is capable of performing what activities. Details on preparation and coordination of a CAIRA plan are contained at appendix J. Appendix J and subsequent chapters also discuss specific areas to be addressed in the plan.

(2) *Organizing.* Within the framework of CAIRA operations, commanders must ultimately task organize their commands to accomplish a CAIRA mission consistent with operational requirements and the local environment. Organizing is primarily the process of establishing relationships between functions, materiel, and personnel grouped together for a common purpose. The steps are as follows:

(a) Determine the mission and the tasks and objectives of the mission. Compile task lists indicating what the organization must do to accomplish its mission.

(b) Establish the emergency response structure and assign specific duties and responsibilities to elements (and in some cases individuals) based upon required tasks.

(c) Group elements as they relate to the type of duties to be performed. This grouping of related duties will evolve into an organizational framework. Chart this framework and prepare a written description of duties and responsibilities for each element.

(3) *Training.* CAIRA operations have low tolerance for failure; therefore, individual and team training for everyone with CAIRA responsibilities is an important element of the readiness phase. A dynamic training program, conducted on a regular basis, facilitates the mastery of individual skills and familiarizes personnel with up-to-date techniques to develop them into an effective response team. Training must also convey a total appreciation of the importance of each person's role and the effect that each person has on implementing an effective emergency response. CAIRA planners at all levels must determine and document the required training and other qualifications for each position cited in the response plan.

(4) *Evaluating.* Periodic exercises and tests measure whether the installation's trained personnel and available resources are adequate to respond to a CAI. A well-planned and orchestrated evaluation identifies any weaknesses in a plan, as well as the need for additional training. Exercises and tests also reveal more efficient ways of responding to an actual emergency and promote a clearer understanding of the roles and resources required of response organizations. Chapter 17 contains a more detailed explanation of training exercises and testing.

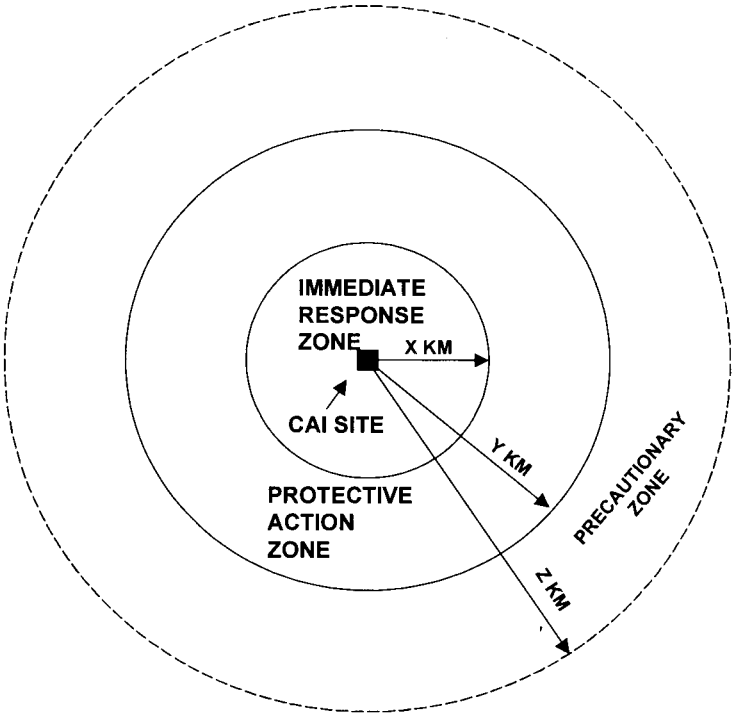
(5) *Educating.* The mission statement for CAIRA operations requires that the Army maintain the public's confidence in its ability to respond to a CAI. Success in this endeavor begins with proper planning and efforts to establish this confidence before the event. An effective public awareness program, coupled with continuing education and effective emergency plans and procedural safeguards, promotes favorable public support of the Army's chemical surety mission. Since local governments and communities play a critical role in the emergency response arena, it is paramount that the response force commander/OSC keep the public fully informed concerning the following:

(a) Unique aspects of the Army's chemical agent mission at the various CONUS installations.

(b) Operational safeguards and contingency planning that ensure an optimum safe environment for the off-post community.

b. Planning considerations. Important planning concepts for the readiness phase are Emergency Planning Zones (EPZs) and the Chemical Event Emergency Notification System. These are vital to an effective response effort.

(1) *Emergency Planning Zones.* Emergency planning zones are established in order to provide a unified method for emergency response planning. The distances established as part of the zones are used to protect unprotected people from vapors resulting from spills involving chemical agents and their primary danger is toxicity by inhalation. The zones are established before incidents occur during initial planning and are used following an incident as initial guidance until technically qualified response personnel provide an updated situation and hazard assessment. The EPZ is composed of three areas that reflect degrees of hazard and potential unprotected exposure risks resulting from the accidental release of chemical agents. These zones are depicted in figure 3–2.



Solid Line - Known plan zones
Dashed Line - To be defined during assessment of the CAI

Figure 3–2. Emergency Planning Zones

(a) Immediate Response Zone. The Immediate Response Zone defines an area SURROUNDING the incident in which unprotected, exposed persons may be exposed to dangerous (upwind) and life threatening (downwind) concentrations of agents. Within this zone, the highest concentrations of liquid and vapors will occur beginning at the agent incident site. Along with agent effects, potential fire and explosion hazards may be of significant concerns to emergency response personnel. Unprotected personnel in this zone should be the first to be evacuated or directed to take protective actions in the event of an incident.

(b) Protective Action Zone. The Protective Action Zone defines an area in the DOWNWIND area from the incident in which unprotected, exposed persons may become incapacitated and unable to take protective action and may incur serious or irreversible health effects. Unprotected personnel in this zone should take appropriate protective actions as directed by incident assessment personnel.

(c) Precautionary Zone. The Precautionary Zone is an additional area beyond the Protective Action Zone, in the DOWNWIND area from the incident, in which unprotected, exposed persons may be required to take some protective action. In this area, exposed personnel will receive no significant adverse physical effects of agent exposure and, if exposed to any agent vapors, may receive exposures below which no permanent effects will occur or will still allow them to safely evacuate the area, should evacuation be directed.

(d) Distances. The actual distances associated with the EPZs are chemical agent and location specific and must be determined at each installation during the planning process.

(2) *Chemical event emergency notification system.* A standard CAI notification system at each chemical agent material installation is essential for clear and effective off-post coordination. It provides a common language among HQDA, MACOMs, chemical agent material installations, and off-post emergency responders and fosters a clear understanding and ready reference for emergency response actions. Installations will establish a chemical event emergency notification system in accordance with AR 50–6, chapter 11. Table 3–1 defines the categories of chemical event emergency levels and figure 3–3 graphically depicts the three events that involve chemical materials. Response force commanders and their staffs must continuously monitor the CAI site. As new information becomes available, response force commanders and their staffs must adjust classification levels and protective action recommendations, as required.

Table 3–1
Chemical event emergency notification system

Type: Non-surety emergency (informational) **Definition:** Events are likely to occur or have occurred that may be perceived as a chemical agent material emergency or that may be of general public interest, but which pose no chemical agent materiel hazard
Type: Limited area emergency **Definition:** Events are likely to occur or have occurred that involve agent release outside engineering controls or approved chemical storage facilities with chemical effects expected to be confined to the chemical limited area. This level will be declared when the predicted chemical agent, as defined under Acute Exposure Guideline 3, does not extend beyond the chemical limited area where the event occurred.
Type: Post only emergency **Definition:** Events are likely to occur or have occurred that involve agent release with chemical effects beyond the chemical limited area. Releases are not expected to present a danger to the off-post public. This level will be declared when the predicted chemical agent, as defined under Acute Exposure Guideline 3, extends beyond the chemical limited area but does not extend beyond the installation boundary.
Type: Community emergency **Definition:** Events are likely to occur or have occurred that involve agent release with chemical effects beyond the installation boundary. This level will be declared when the predicted chemical agent "no significant effects level" extends beyond the installation boundary.

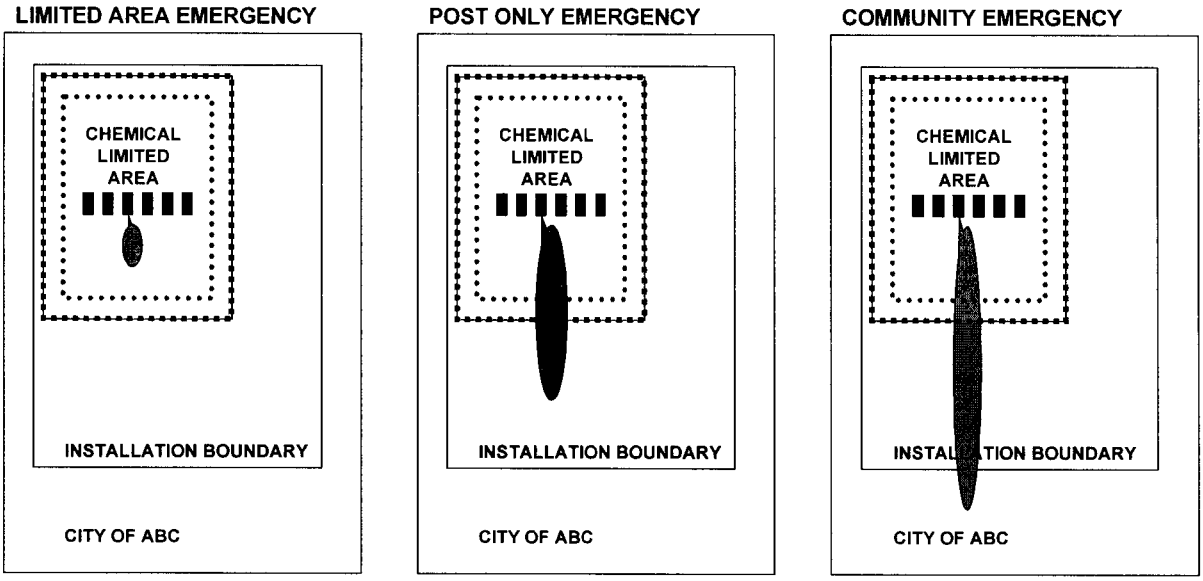


Figure 3–3. Standard chemical event emergency notification system

c. Functions. During the readiness phase, the following activities inherent in CAIRA functions need to be considered:

(1) *Command and control.* During CAIRA operations commanders will establish a 24-hour EOC as the central point for command and control. During the readiness phase, commanders will plan for staffing and equipping such a facility to receive reports, analyze data, assess the magnitude of the CAI, estimate impact, alert the command and local community, recommend protective actions, and notify the AOC.

(2) *Communications.* Communications encompasses establishing, using, maintaining, augmenting, and providing backup for all channels of communication needed for emergency response and recovery. Installations must prepare information system support plans, ascertain and program support requirements beyond current organizational capability, identify shortfalls, and take corrective actions to ensure requisite installation or facility level communication assets are

available (including secure communications) to support CAIRA operations. This encompasses coordinating and integrating available information systems assets and ensuring that specific provisions are made for accurate and efficient communication among all the various organizations during the response. Different response organizations may use different radio frequencies or arrive with equipment that is not compatible with the installation's communications equipment. Therefore, specific provisions must be made for accurate and efficient communication among all the various organizations during the response. At a minimum, commanders will establish networks that will allow for communication among those activities/agencies performing similar tasks. Further, plans should require that all command and control elements be provided with compatible communications equipment.

(3) *Hazard assessment.* A CAI assessment, a crucial part of the planning process, is required to determine the scope and potential impact of a CAI. It consists of determining what hazards are likely to exist, what locations would most likely be adversely affected, what HAZMAT could be involved, and what conditions might exist during a spill or release. This provides both the basis to set priorities for planning and also the necessary documentation for supporting HAZMAT planning and response efforts appropriate to the local situation and the environment. The process involves planning for various activities, including accident investigation, monitoring, dispersion modeling, and translating technical assessment data to emergency response considerations. The assessment must consider all known hazards, not just hazards from toxic chemical agents. These may include, inter alia, explosive, structural, or fire hazards. The installation CAIRA plan or standing operating procedures (SOPs) should detail the CAI assessment process for the installation. A copy of the assessment must be attached to the CAIRA plan.

(4) *Alert and notification.* Commanders must ensure that systems are established and maintained to disseminate timely warnings of all hazards requiring emergency preparedness or response actions to appropriate military and local officials and the general public. All aspects of existing warning systems, to include backup systems, must be identified and provision made to implement them when needed. This requires the description of warning systems in place and responsibilities and procedures for using these systems. Further, establishing a standard chemical event notification system at each chemical agent material installation is essential for clear and effective off-post coordination. A standard chemical event notification system provides a common language between chemical agent material installation and off-post emergency responders and fosters a clear understanding and ready reference for emergency response actions.

(5) *Protective actions.* Although local or State elected officials are responsible and legally authorized to make protective action decisions, the chemical agent material installation will recommend protective actions for off-post areas which could be affected by a CAI. Plans must clearly indicate what protective actions are required/recommended in especially hazardous situations. Evacuation is the preferred protective action when an evacuation can be completed prior to personnel exposure to hazardous agent concentrations. Shelter-in-place is the preferred protective action when personnel evacuation cannot be reasonably completed prior to plume arrival.

(6) *Firefighting and rescue* . The policies, procedures, and responsibilities must address fire prevention and firefighting during and after emergencies and the roles and responsibilities inherent in search and rescue. This includes augmenting on-post assets with off-post fire and rescue resources. Off-post firefighting equipment (not personnel) may augment on-post firefighting capability to fight chemical fires or other fires inside chemical plumes. Off-post firefighters may not be used to fight chemical fires, though they may fight nonchemical/non-explosive fires that are not in downwind plume areas. MOUs must be established. The installation fire chief and the commander will review annually all MOUs that provide equipment during CAIRA operations. All operating personnel and firefighting forces involved must be trained in precautions dealing with chemical-laden smoke caused from incomplete combustion. The Army fire department will give familiarization training to senior fire officials of cooperating departments for firefighting problems in territory served by their fire departments.

(7) *Medical.* Medical support during CAIRA operations requires a wide range of medical expertise to provide care to chemical casualties. Casualty prediction determined through using the most probable event (MPE) concept (see terms), will determine an installation's medical capability as it relates to the chemical mission. Planning for CAIRA operations will, however, encompass medical considerations for a response to a maximum credible event (MCE). An MCE considers a maximum release of agent and a worst-case casualty scenario. Plans must describe the policies and procedures for mobilizing on-post and off-post medical personnel and emergency medical services and prescribe medical care for the civilian population under emergency conditions of varying scope. This also entails protective action recommendations for sanitation, water supplies, recovery, and reentry. Consequently, coordination with local civilian medical treatment facilities is required to ensure the availability of additional support (for example, exchange of plans, establishment of MOUs for various services, and stockpile of CAIRA-unique medical supplies). MOAs with medical facilities and emergency medical services (EMS) are to be reviewed and updated annually by the IMA or contract medical director and signed by the installation or activity commander, the MEDDAC/MEDCEN commander (or site project manager if a contractor-operated disposal facility), and a senior representative of the off-post treatment facility or EMS.

(8) *Agent and munitions operations.* These operations commence with reconnaissance and continue until the chemical agent munitions or containers, including explosive hazards, have been removed from the CAI site. Installations must develop specific operational guidance and procedures for locating and eliminating the hazards associated with chemical agent munitions or containers involved in a CAI. This must include resources for hazardous waste storage and disposal. This entails a delineation of the relationships between the various emergency response elements

(for example, EOD teams and TEU), their respective responsibilities, and procedures to be implemented for agent containment and decontamination. Plans must also provide clear guidance on the proper type and level of protective clothing to be worn by emergency response elements.

(9) *Safety.* Safety of response personnel is paramount in any situation involving chemical agent material. Approved plans must prescribe operational procedures for entering and leaving the CAI site, accountability of personnel entering and leaving the CAI site, decontamination procedures, and personnel safety precautions and equipment.

(10) *Security.* In the event of a CAI, security of the CAI site is paramount. To meet this objective, commanders will establish a security program that addresses CAIs both on and off Federal property. Planning guidance must consider the following: site security procedures to include site access, protecting chemical agent material and components; safeguarding classified defense information; coordination with civil law enforcement agencies; actions or intelligence collection efforts to counter potential terrorist or radical group activities; and protection of security personnel from agent and explosive hazards to include decontamination of personal equipment. Because CAIRA operations will inevitably involve State and/or local law enforcement personnel to maintain civil order under emergency conditions, installations must coordinate and specify in the CAIRA plan a clear chain of command, areas of responsibility, and procedures for maintaining security as specified in the CAIRA plan.

(11) *Public affairs.* In the event of a CAI, it is vital to provide accurate and timely information to the public in order to prevent panic. Consequently, the goal of PA is to increase public awareness of hazards and to provide active channels for informing and advising the public on appropriate actions before, during, and after emergencies. Plans must describe policies, roles, responsibilities, and procedures for communicating with the public during all three phases. Plans must include procedures for developing and disseminating public information materials on CAIRA operations, and for handling all aspects of relations with the mass media during an emergency. Public affairs efforts must be coordinated through the designated PAO. This includes public information, community relations, and internal information. The PAO can identify to the media individuals who have specialized knowledge about the event. Members of the response team should likewise be aware of the need to direct all communications and public relations issues to the designated spokesperson. The capability to make videos and pictures for PA releases will be required. A visual recording of the CAI site and response events for analysis during operations can be an invaluable tool for the IRF and/or SRF commander and for higher headquarters to gain a complete picture of the CAI site status and the scope of activity. Recording for historical purposes (training, analysis, litigation) is also necessary.

(12) *Site restoration.* On installations, the installation commander, as the primary responsible official for the execution of installation restoration, must not wait for the occurrence of a CAI to begin planning for restoration operations. Since potential CAI scenarios are known, a great deal of preparation can be accomplished. The commander must be aware that Federal law requires prior planning, coordination, and interface with the local community to prepare for conducting restoration operations. In planning, the installation commander must deal with differing concerns if the consequences of the CAI are confined to on-post, as opposed to a situation with off-post implications. The commander must also realize that restoration operations tend to be relatively long-term endeavors, possibly taking up to several years to complete. When developing an installation site restoration plan, consider the following areas:

(a) Chemical agent characteristics.

(b) Environmental factors.

(c) Health standards.

(d) Legal factors.

(e) Equipment requirements.

(f) Labor costs.

(g) Specific skills and procedures associated with site restoration and removal operations.

(h) The U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), (410) 436–2953, maintains the Environmental Health Risk Assessment and Risk Communication Program, which can be used as a resource for onsite, consultative, and training purposes regarding Health Risk Communication techniques.

(13) *Administration.* An installation experiencing a CAI will have primary responsibility to provide administrative support to the responding force. The total requirement depends on the magnitude and seriousness of the CAI. Installation commanders must plan to accommodate an influx of DOD personnel requiring administrative support (for example, pay or emergency leave). This support should be provided in accordance with standing procedures. Accurate personnel strength accounting (to include tracking of dead, injured, and evacuees) will be extremely important during CAIRA operations. First and foremost, dead and injured reports, both civilian and military, must be correct; and second, accurate numbers are required to correctly draw on additional resources to support personnel services requirements.

(14) *Logistics.* The ability of the responding force to effectively conduct CAIRA operations depends on an effective logistical system. The logistical support provided to emergency forces is that normally provided to any force engaged in an operation. There are, however, several characteristics of support that are readily identified with CAIRA operations. Since the immediate availability of supplies and services is a critical factor, a major task in the planning process is to identify what resources are already available (including prepositioned supplies) and what must come from other sources. For some classes of supply it may be necessary to stock quantities that have no justification other than as

contingency stocks. This may include storing large amounts of decontaminants or possessing more than one of a major end item (that is, the M12A1 Decontaminating Apparatus). Installations must identify those resources that must be provided by external sources and develop and coordinate push-packages with higher headquarters.

(15) *Legal.* The potential lethality of a chemical release is an important legal issue. Problems ranging from processing personnel injury claims to negotiating highly complex cleanup operations with State and Federal environmental regulators can be expected. Therefore, it is essential that commanders and their staffs have access to legal advice and assistance and that installation plans prescribe comprehensive procedures and guidance to meet legal obligations. In planning, areas to be considered are—

(a) Interrelationships between Army legal personnel and Federal, State, and local officials.

(b) Procedures for establishing and operating a claims center.

(c) Guidance concerning legal requirements for establishing a National Defense Area (NDA) during a CAI.

(d) Requirements and liabilities of administering lifesaving measures to civilian casualties.

(e) Decontamination prerequisites for ensuring bodies released to the public for final disposition comply with Federal and State laws.

(f) Procedures for documenting facts and physical evidence for use in resolving potential claims and litigation.

(16) *Chaplain.* Chaplain support during CAIRA operations requires a broad range of operations expertise in a crisis environment. Because CAIRA operations will inevitably involve emotional trauma of military and civilian personnel, the Army Chief of Chaplains will designate a Unit Ministry Team who will support the local chaplains and chaplains' assistants who are at a CAI site, hospital, and mortuary, as necessary. The mission of this team is to provide emotional and spiritual support for CAI victims, their families, and members of the IRF and SRF, as necessary. The mission includes coordination with medical personnel of the response force and with local civilian clergy for overall pastoral care, emotional support, and for denominational specific ministry that may not be available on the team. This team will be part of the SRF and is trained to function effectively in a rapidly changing situation. Ministrations and pastoral counseling in the crisis environment are important additional specialized pastoral skills. The IRF chaplains' assistants and chapel support staff (where they exist) will provide administrative and logistical support to the SRF chaplains and the Unit Ministry Team. In planning, consider the following areas:

(a) Providing chaplains trained in trauma intervention ministry.

(b) Number of Unit Ministry Teams.

(c) Establishment of a base of operations close to the CAI site.

(d) Transportation and communications assets.

(e) Ministry and support to other members of the SRF.

(f) Assisting in notification of next-of-kin.

(g) Possible augmentation of the team by chaplain assets provided by the Office of the Chief of Chaplains.

3–5. Response phase

a. Concept. Army emergency response forces (in conjunction with civilian emergency response elements as appropriate) take those actions necessary to gain control of the CAI. These actions include saving lives, preserving health and safety, containing and rendering safe HAZMAT, protecting the environment, securing chemical agent material and Government property, and promoting public confidence in the Army's ability to conduct emergency response operations.

b. Commander's perspective. When responding to a CAI, the IRF and SRF commanders must view the execution of their responsibilities from two perspectives.

(1) Operationally, they must do everything possible to save lives and preserve public health and safety. They must also act to protect the environment from further damage and, within their resources, work to restore the damaged environment to technically achievable standards.

(2) Administratively, the IRF or SRF commander must comply with the provisions of various environmental protection laws as they execute response actions. For example, under the NCP, they, as OSCs, would be required to prepare an action memorandum and administrative record that may serve as supporting documentation in the event of cost recovery actions, challenges to the selection of response actions, or claims for reimbursement. It is not the intent of these laws to restrict the initiative or the resolve of the commander in accomplishing his mission. Rather, in any CAI in which lives have been lost or threatened and property damaged, there must be an accounting of the event. Preparation of the action memorandum and administrative record will greatly reduce the number of administrative (fiscal and legal) problems that can occur after the CAI. See Subpart I of the NCP for additional guidance on maintaining administrative records.

c. Functions. Consider the following functions and activities during the response phase:

(1) *Command and control.*

(a) To accomplish CAIRA operations effectively, the IRF/SRF commander must establish command and control early on in the response phase. This requirement is especially critical because a CAI will involve many participants and may have more than one organization performing the same service. As a result, there is a high potential for confusion,

inactivity, and working at cross-purposes among the responding force when speed and the efficient application of resources to the problem is necessary to save lives and protect the environment.

(b) Command and control is facilitated by executing a series of tasks that collectively provide the commander the means to effectively apply leadership, make decisions, issue orders, and supervise operations. These tasks are: activate communication systems; recall response personnel; implement plans; develop and coordinate exchange of information; activate support facilities; brief staff, supporting elements and, as appropriate, the public; and establish and maintain accurate records of response actions taken for use in preparing an action memorandum and administrative record.

(c) The need to establish command posts (CPs) (fixed and mobile) cannot be overemphasized. Command posts assist the commander in executing the command and control function by providing locations in which the commander's staff is organized to acquire, consolidate, and coordinate emergency management information. Depending on the scope of the CAI, the commander establishes a network to gather information from subordinates and supporting agencies and, as appropriate, provide direction and coordination. A typical CP network is shown in figure 3–4.

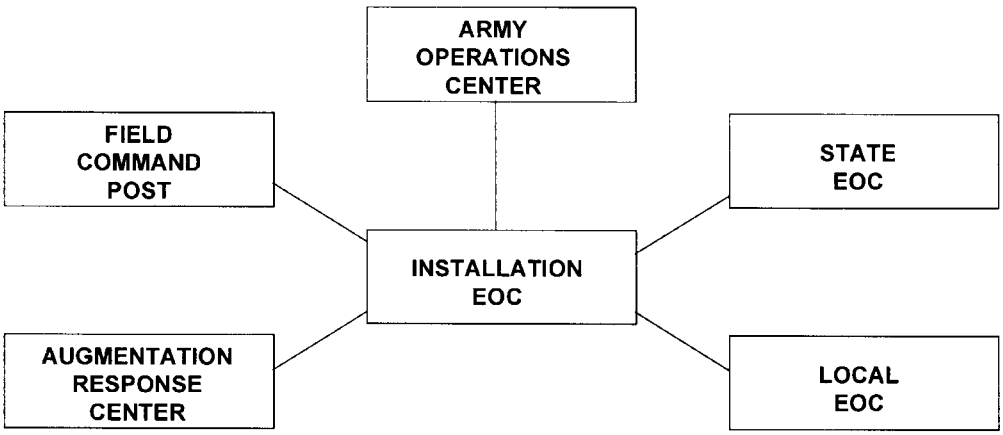


Figure 3–4. Typical command post network

(2) *Communications.* Effective communications within the response force, with higher headquarters, and with State and local agencies responding to the CAI is essential to command and control. Consequently, during the response phase, CAIRA operations must have priority for communications assets. This mandates timely activation of communications systems among all the various responding organizations. Communications during the early stages of CAIRA operations will be accomplished through using installation assets, both fixed and mobile support communications, during the early stages of CAIRA operations. Management of CAIRA operations is best accomplished through using a fixed EOC. The fixed EOC will serve as the focal point of command and control of response operations. The EOC must include, at a minimum, the following capabilities: sufficient communications equipment to communicate with the AOC; the installation's higher headquarters; the local community, the State EOC, and the installation emergency response team; and sufficient space to accommodate representatives from each of the primary staff functions for CAIRA operations. Commanders must position the EOC or ensure that it is appropriately protected so that MCE and normal wind shifts will not interfere with EOC operations. The commanders must also maintain, augment, and provide backup for all channels of communication. Should operations be extended in terms of time and/or geographic area, commanders must plan to obtain additional communications support from outside resources. This requires coordination among all the various organizations during the response and integration of all information systems assets and responding forces.

(3) *Hazard assessment.* It is important that any potential hazard be assessed. Safety measures to protect the employee and the public from contamination must be considered. Long-term hazards must be identified. Safety of the worker, the public, and the environment must take priority over time and cost. An analysis of all hazards will be made. An abatement program must be established in accordance with AR 385–10 to address the risk determined by the hazard assessment. The assessment process is continuous throughout the response phase.

(a) Detection. CAI detection will occur in numerous ways. A catastrophic event will be self-evident, in which case the problem becomes one of quickly obtaining the best information possible to characterize the situation. Normally,

facility personnel will observe a CAI occurrence during routine operations. They must characterize the event immediately. Witnesses must report the situation as quickly and accurately as possible. Characterization of the CAI is vital to the emergency response process and subsequent removal operations. Initial reports must include the location, time CAI occurred, name of the person making the call, number of injured/dead, description of the CAI, and type and quantity of munitions/agent involved. Once a CAI has been detected, information characterizing the situation must be communicated to the EOC. The EOC is staffed to receive reports, analyze data, assess the seriousness of the event, estimate the impact, if necessary, alert the command and local community, recommend protective actions, and notify the AOC (and the NRC if the CAI exceeds reportable quantities) per AR 200–1 and 40 CFR 372.

(b) Assessment. Hazard assessment during the response phase consists of two elements:

1. Initial. This element's activities are oriented toward characterizing the CAI, to initiate the alert and notification system if necessary. Information obtained when the CAI was first detected is analyzed by the duty officer. The duty officer matches the situation with the notification classification system and takes the actions prescribed by the level most accurately describing the situation. This process is characterized by speed. While technical data is important for the decision process, the completion of computerized dispersion modeling is not an essential prerequisite for initiating an alert. If the chemical release has the potential to affect nearby population centers, warning, protective actions, and recommendations must be automatic.

2. Subsequent. As resources become available, the commander seeks to have a better definition of the situation. The primary objective is to obtain a representative body of reliable data to describe the CAI and its effects on the environment. Monitoring personnel will collect, analyze, and report contamination information to the EOC. Within the EOC, projections of hazard levels and areas affected are developed. Additionally, within the EOC, recommendations will be made with regard to personnel exposure controls, continuing environmental monitoring, and protective measures. The requirement to be ever watchful for changes in the situation that may require new or revised protective measures must never be overlooked.

(c) The commander will define the boundaries of the contamination. The inner boundary of this contamination is called the "hotline," where the inner side of the line is considered contaminated, and the side away from the CAI is an area of reduced contamination.

(4) *Alert and notification.*

(a) The capability to execute an alert notification on a daily 24-hour basis is essential. Each facility will establish a notification system that ensures all jurisdictions and localities affected by an event are notified. This applies to off-post notification as well as higher headquarters notification. The local off-post alert and notification system must exhibit a high degree of reliability and security. Commanders should consider a system of dedicated telephone lines with a backup system. Local off-post authorities should receive notification through a standard chemical event emergency notification system and locally developed procedures.

(b) Commanders must report the release of any chemical agent material to the LEPC and the NRC. In CONUS, installations will notify State and local committees. The IRF commander at the CAI site notifies the NRC, with the AOC providing backup notification.

(c) If the IRF commander requests assistance of more than a few additional staff functions and the situation is beyond the IRF's capability, the SRF should be requested. The correct procedure for notifying the SRF commander is for the IRF commander to send a request to HQDA DCS, G–3 through the AOC for the SRF commander and the SRF staff. HQDA DCS, G–3, through the AOC, will notify the pre-nominated individual. This official designation and notification scheme does not prohibit MACOM and MSC notifications from being made; however, the HQDA staff will make official requests and notification of the SRF commander of his or her responsibility to perform HQDA-level actions as the OSC. MACOMs, once contacted by HQDA for the SRF commander's name and telephone number, may start the notification procedure to inform the SRF commander's staff if not already requested or in the process of forming.

(5) *Protective actions.* Commanders will determine appropriate protective actions for on-post personnel. Local off-post civilian authorities decide and implement appropriate protective actions for the civilian population. The evacuation of non-essential personnel from the chemical agent material facility must be coordinated with local off-post authorities and be consistent with off-post emergency plans for traffic routing and control. On-post resources from the chemical agent material facility that are not essential to the CAI response should be made available to local off-post response agencies if requested. If sheltering is recommended, off-post authorities must be kept advised regarding plume passage. Local and State elected officials are responsible for final protective action decisions. The chemical agent material facility commander will make recommendations only. In the event of a fast-breaking CAI with the potential of a resulting community emergency, and when prearranged and agreed to by the local authorities, the chemical agent material installation may activate the IRZ alert and notification system and contact local EAS radio stations directly with protective action recommendations. Chemical agent material installations maintain communication with local off-post authorities and provide periodic updates on CAI status, changes in emergency notification levels, and changes in protective action recommendations.

(6) *Firefighting and rescue.* Chemical agent material and munitions involved in a chemical event pose unique dangers to fire and rescue personnel. If, for any reason, military response forces are not readily at hand, civilian

firefighters responding to an off-post CAI will be advised by whatever means available of the exact nature of the hazardous materials, including high explosives if present, and any specific safety precautions and protective measures (to include specialized clothing) that must be taken. In addition to firefighting, the rescue and treatment of casualties should receive high priority. Until proven otherwise, casualties should be considered as having been exposed to chemical contamination. For this reason, officials at hospitals and clinics to which casualties are evacuated should be notified of the possibility of chemical contamination so that proper protective measures can be taken. Finally, if the situation permits, firefighting and search and rescue personnel may be used to assist in any evacuation of a CAI site only if they are wearing appropriate protective clothing. On-post firefighters and rescue personel will perform all chemical firefighting and rescue operations; off-post personnel will assist only in areas not affected by chemicals.

(7) *Medical.* Although basic principles of medical treatment apply for CAIRA operations, proper care must be given during the early stages of the response to prevent serious injury or death. Injuries that are associated with chemical agent exposure may require the administration of emergency medical treatment procedures and immediate decontamination of the injured person. Medical care will require initial treatment of casualties in the field, continuing treatment at the appropriate medical treatment facility, and continuous communication with supporting medical facilities. Patients moved to supporting medical treatment facilities must have chemical contamination reduced to the lowest level possible. If contamination cannot be completely removed, the receiving facility must be notified that some contamination may remain. Medical personnel must ensure that chemical contamination does not leave the CAI site as a result of improper casualty handling practices. Installations with MEDEVAC helicopter support agreements with off-post medical facilities must ensure in-flight communications have been established to facilitate safe and timely casualty evacuation. Medical treatment will be carried out through the following four medical response levels. (See chap 6.)

(a) Level I. That support provided by nonmedical personnel such as firefighters, security forces, and/or fellow workers, consisting of self-aid, buddy-aid, and emergency first aid.

(b) Level II. That support provided by the local medical response team (MRT), to include medical triage, treatment, stabilization, and evacuation. Personnel staffing the MRT are trained medical professionals.

(c) Level III. That support provided by the supporting military medical center or activity in the form of a medical augmentation team (MAT). Medical services are those associated with definitive treatment of chemical agent casualties.

(d) Level IV. That support provided by the Medical Chemical Advisory Team (MCAT).

(8) *Agent and munitions operations.* Situations involving chemical agent-filled munitions may pose a dual hazard—the explosive components of any munitions present and the chemical agent filler itself. Each hazard poses its own set of problems and requires specific protective measures. The first step in chemical agent and munitions operations should be a thorough search to determine the exact number of agent containers or munitions involved and the extent of damage to each. EOD and TEU personnel, operating from a forward CP, will normally perform this function, if available. However, evacuation of personnel, and decontamination and containerization of leakers can be conducted by specially trained military or DA civilians who are members of the IRF, prior to the arrival of EOD or TEU, if safety is not compromised. After all chemical agent material has been located, EOD personnel will perform render safe procedures (RSPs) as required. The IRF chemical agent material handlers will seal or containerize the remaining leaking agent containers or munitions. Concurrently, a personnel decontamination station will be established for processing and decontaminating individuals working on contaminated materiel and also to serve as an entry and exit point to the actual work site. Finally, upon elimination of immediate safety hazards, surveys should be conducted to determine the exact extent and nature of chemical agent contamination.

(9) *Safety.* During the response phase, all responders must utilize correct procedures (for example, donning protective gear and understanding the limits of their equipment), and adhere to the applicable standards and criteria to operate safely. Requirements and procedures for obtaining waivers to chemical agent safety standards are contained in AR 385–61.

(10) *Security.* A chemical event requires establishing immediate control over the affected area. This will probably require a security perimeter and allocation of dedicated resources to protect both personnel and Government property. In addition to safeguarding equipment and property at the CAI scene, security personnel must control access into the secured area and may be called upon to assist in evacuating the affected site. This function poses significant challenges for the OSC's security forces, since it brings them into direct contact, and possibly confrontation, with the local populace.

(a) If the CAI has occurred on non-Federal land, the IRF or the SRF commander should consider establishing a National Defense Area (NDA) per DODD 5200.8. Coordination with civil law enforcement agencies should be effected immediately upon arrival of the initial response forces to ensure that adequate security has been provided for chemical agent material involved in the event.

(b) In overseas areas beyond U.S. ability to establish an NDA, close cooperation with local (host nation) authorities is essential to ensure the establishment of some form of disaster cordon or security area to restrict personnel from the CAI site for their own protection and the safeguarding of chemical agent material.

(11) *Public affairs.* Activities are geared to support the notion that the Army can and will respond quickly and

effectively to minimize damage and potential hazards to life and property (chap 8). Activities that promote this goal, in coordination with off-post public information offices, are as follows:

(a) Establish the Joint Information Center (JIC) as soon as possible.

(b) Coordinate all news releases within the response force, as well as with higher headquarters.

(c) Execute command information, community relations, and media relations programs.

(12) *Administration.* Administrative support should be as defined during the readiness phase. Log entries of exceptions and modifications should be used after a CAIRA to develop lessons learned for possible modifications to the CAIRA plan.

(13) *Logistics.*

(a) Logistical support for initial response was established in the Readiness Phase. Additional assets will be granted on a priority basis as necessary. In addition, the installation may have to provide support to the SRF upon their arrival.

(b) Timely provision of a service, an item, or technical assistance is vital to emergency response efforts. The management of support functions, therefore, must be coordinated with the response effort. Continuously exchanging information among logistical supervisors and operational personnel is essential to the success of both operational and logistical plans. Requisition supplies through the designated installation supply officer, using fund citations and project codes, when established by HQDA, at the time of initiating response operations. As the response force grows in size, a corresponding demand to maintain accountability and security of supplies will increase. The SRF commander may need to increase the size of the staff and security elements to adequately perform these tasks. As required, the SRF should request assistance from higher headquarters and/or adjacent military facilities to meet logistical support requirements. There is always a potential for chemical contamination of equipment and supplies during the course of a CAI and its subsequent cleanup. Managers must attempt to anticipate the problems that will develop because of this situation. The effects of contamination will also require special handling of equipment during maintenance and different and more demanding standards and procedures for property disposal. Installations must provide transportation and maintenance support to response forces as needed by using the command's assets and/or contractual services. The following services must also be provided: food and drinking water to CAI site and supporting facilities, bathing facilities, billets, and laundry facilities with decontamination capability.

(14) *Legal.* Due to the sensitive nature of legal issues that surround a CAI, the IRF or SRF commander must rely heavily on legal counsel. As such, the principal legal advisor (appointed by the MACOM Staff Judge Advocate (SJA) or Command Counsel) to the IRF or SRF commander and staff must be readily available to the IRF or SRF commander and staff at all times. At the onset of a CAI, early coordination must be made with State and local legal and law enforcement authorities to establish and maintain an effective response effort and to assure all legal advice and assistance is available. Equally important, channels for coordinating legal matters with higher headquarters and State and local agencies must be established. When establishing the claims processing facility, the location and procedures for processing claims need to be coordinated with the JIC for media release and Commander, U.S. Army Claims Service (USARCS) for claims oversight. An Army claims attorney from an area claims office must be detailed to the CAI site to handle all claims matters and should implement controls to ensure that information provided by the claims office is in accordance with policy and that requests for any additional information are referred to PA personnel. Throughout CAIRA operations, take immediate action to ensure documentation of physical evidence, relevant data, and reports that may be needed in the resolution of claims or litigation. Before the IRF or SRF commander approves disseminating information to the public concerning the status of ongoing actions at the CAI site, all press releases should be coordinated with the principal legal advisor.

(15) *Chaplain.* A CAI occurrence may involve a mass casualty event. The event may include both physical injury and emotional trauma. Both victims and responders will need immediate spiritual and emotional support. The Chaplain Unit Ministry Team fulfills these needs.

(a) The first priority after reporting to the OSC is to evaluate the scope of the CAI and determine if a need exists for augmenting the Chaplain Unit Ministry Team. If the team leader determines augmenting necessary, he or she will brief the OSC and recommend the number of augmenting chaplains needed. The team leader will implement the OSC's decision through the MACOM staff chaplain, in coordination with the installation staff chaplain.

(b) The Chaplain Unit Ministry Team, along with the installation chaplain's staff, will act as liaisons between the response force and the local community clergies for coordinating ministry requirements.

(c) As needed, the team will arrange for funeral and memorial services, grief awareness instruction, group and individual pastoral counseling, notification support, and mutual support for other team members to maximize the overall effectiveness of the team.

3–6. Recovery phase

a. Concept. During the recovery phase, Army emergency response forces initiate action to restore conditions at and in the vicinity of the CAIRA site to a technically feasible and acceptable state. When appropriate, the Installation Restoration Program will assume responsibility for restoration. Additionally, the response force commander will facilitate withdrawing military forces and civil agencies from the CAI site when the capabilities and services of these response elements are no longer required.

(1) The focus of this phase is initiating restoration operations. However, it may be necessary to continue removal operations started earlier in the response phase. Nevertheless, the goal is to restore the CAI site to technologically feasible and acceptable conditions, ideally with unrestricted use.

(2) One of the key elements during execution of restoration operations is that it builds on previous removal operations. HQDA and EPA (local, State, and national) must agree on all actions taken. If an agreement cannot be reached, the EPA administrator has the final word on specific restoration actions. Also, in this aspect of CAIRA operations, the installation commander may wish to consider the stand down of certain elements of the response force whose services are no longer required.

(3) The transition to remedial operations under the National Contingency Plan should not be declared earlier than necessary. Operations that can be justified under removal actions should be continued as part of the removal process as long as possible. This is due to the requirements of the National Contingency Plan that remedial activities be subject to public consideration and, therefore, could evolve into a lengthy process. In order to remove hazards from the release site in a timely manner, the removal phase should not be ended prematurely.

b. Functions. During the recovery phase, consider the following aspects of CAIRA operations:

(1) *Command and control.* Operational command of Army forces or elements remains under the appropriate Army commander throughout recovery operations. If the SRF was called, transition of command and control of CAIRA operations to the installation commander or other DA-appointed RPM must occur.

(2) *Communications.* During the recovery phase, on-post information systems support requirements will focus on restoration operations. Overall communications requirements will begin to decrease. After chemical agent material and any other HAZMAT are removed from the CAI site, the primary communications will more frequently be routine situation reports, supply, and other administrative messages. There may be little or no further need to communicate by voice radio. Ultimately, communication assets need to be reallocated and installation or facility communication systems restored to normal operations.

(3) *Hazard assessment.* During recovery, the commander assesses any potential hazard and recommends appropriate precautionary and safety measures to further protect the public and site workers from exposure to accident related contamination. The commander must also clearly identify long-term hazards. Together, these provide the factual basis to set and revise priorities for recovery efforts appropriate to the local situation or environment.

(4) *Alert and notification.* Emergency notification systems between the installation and local community will remain in effect to address any subsequent emergencies.

(5) *Protective actions.* The IRF and/or SRF commander must continue to assist in protecting the public and site workers from chemical hazards and supporting the DOD contribution to returning the area to an acceptable condition. As operational conditions permit, nonessential protective measures should be terminated. However any long-term protective actions must be identified, coordinated, and implemented.

(6) *Firefighting and rescue.* During recovery, installation firefighting and rescue assets must be available to support on-post restoration operations.

(7) *Medical.* As long as required, on-location medical expertise, to include preventive medicine expertise, must be provided to support the recovery effort. Depending on the magnitude of the CAI, long-term public health problems may need to be addressed to include disease control activities related to sanitation and assessing contamination of water and food supplies. Consultation with the CDC may be appropriate to address public health concerns related to the recovery effort. The ATSDR may be used to assess health impacts associated with a CAI.

(8) *Agent and munitions operations.* A major step in chemical agent material recovery begins with the remediation of identified hazards. The IRF or SRF commander must establish priorities for removing all hazards so response personnel may conduct CAI site restoration. Once chemical agent material has been evaluated as safe for movement, it should be moved to a designated secure staging and storage area and prepared for disposal and/or shipment. Maintain chemical agent material accountability and chain of custody at all times.

(9) *Safety.* The high priority given to restoration operations does not inherently imply a need for rapid action. Safety criteria and standards are of utmost importance and cannot be waived or deviated from without appropriate authorization.

(10) *Security.* When chemical agent material and classified information have been removed, site security procedures established by the IRF or SRF commander should be reduced consistent with operational requirements to provide effective control of the accident area. Providing long-term site security control during extended cleanups may also be required.

(11) *Public affairs.* Questions will remain as to what happened, what will be done to preclude recurrence, and what is being done to deal with any medical, legal, or environmental repercussions. PA efforts will also be critically needed to assist an installation to return to its former productivity and standing in the community. Therefore, attention must focus on maintaining channels of communication with the public. Continue to release appropriate information, particularly on essential service restoration, travel restrictions, and available assistance programs. Keep the public up-to-date about return-to-work efforts at the affected installation. Further, continue to assess the level of public understanding to ensure that the PA program is meeting the needs of the affected public. Likewise, keep the IRF or SRF commander and staff informed of press releases, press conferences, and other events that provide information to the media and general

public in order to identify misinformation and provide accurate, timely information. It is equally important to keep all senior Federal officials, both military and civilian, and responsible State and local officials fully informed of conditions at the CAI site and ongoing site restoration actions. As determined by the IRF or SRF commander, take action to disestablish the JIC and relinquish PA responsibilities to installation PAO.

(12) *Site restoration.* Returning the CAI site to a condition that is safe and acceptable to the public through reasonable and technologically feasible means begins early in the response effort. However, site restoration becomes the dominant problem (and is primarily a function of the recovery phase) only after disestablishing the NDA or when response personnel have removed all chemical agent material, classified information, and other hazards from the CAI site. For a CAI that occurs on a military installation and does not threaten any area off the installation, DOD and/or DA assets will perform all actions. In both on- and off-post CAIs, site restoration activities will be coordinated with Federal (such as FEMA and EPA), State, and local officials. The Army is the lead Federal agency for removal and potential restoration operations on and off Federal installations involving Army chemical agent material. As required, the IRF or SRF and the appropriate response force elements will assist State and local officials in performing any necessary restoration work. Agreement on environmental screening and/or action levels, as well as methods and procedures used for disposing of contaminated waste materiel, will be a major issue or consideration to be resolved in coordination and agreement with Federal and State officials. Both CERCLA and SARA emphasize electing removal operations that are consistent with longer-term restoration operations. Because site restoration depends heavily on interdisciplinary engineering procedures, the staff engineer plays a major role in developing the site restoration plan. Primary actions that must be accomplished are—

(a) Preliminary assessment.

(b) Site inspection.

(c) Site investigation and risk assessment.

(d) Feasibility study.

(e) Selection of remedy.

(f) Documenting the decision (Record of Decision (ROD)).

(g) Public comment period.

(13) *Administration.* Although situation dependent, commanders may need to establish a personnel replacement and/or rotation program to support long-term operations and, as appropriate, to minimize chemical exposure to response force personnel.

(14) *Logistics.* Decontamination and site restoration operational requirements, the number of personnel involved, and the duration of the operation will determine the type and amount of logistics support required. Logistics planners must ensure that requisite heavy engineering equipment, supplies, facilities, and services are available to sustain site restoration operations and that nonessential borrowed equipment is prepared for turn in, all expended supplies are accounted for, and expended emergency supplies are replaced. Logistics planners must also account for and maintain disbursement of funds and disbursement of costs related to the CAI.

(15) *Legal.* Legal officers must continue to manage all legal aspects of the CAI. It is essential that channels for coordination of technical legal matters with higher headquarters and principal legal advisors of other participating Federal and State departments and agencies be maintained. Since the processing of personal injury and property damage claims will be a critical activity, coupled with the sensitive and emotional issues concerning a CAI, every effort must be made to promptly meet the needs of all claimants.

(16) *Chaplain.* As long as required, the Chaplain Crisis Response Team will provide or arrange for funeral and memorial services, grief awareness instruction, group and individual pastoral counseling, notification support, and mutual support of other team members to maximize the overall effectiveness of the team. During the recovery phase, the team will continue to provide advice and consultation to the OSC and staff on matters of religion and morale, as well as provide pertinent information on overall morale of response members and religious requirements of personnel remaining at the CAI site. The team will ensure that pastoral care is provided or available from specially trained chaplains at hospitals and other health care facilities at or near the CAI site. Before the Chaplain Crisis Response Team leaves the CAI site, make provisions for worship and memorial services that meet the community needs.

(17) *Training and education.* At some point after the emergency has been brought under control, the commander and staff must objectively evaluate the facts and circumstances leading to the CAI and the resultant response effort. The purpose is how to avoid similar accidents, whether the CAIRA plan should be amended, and what follow-up military and public training programs are needed.

3–7. Recordkeeping

a. Field records. The details surrounding a CAI operation and all decision points should be fully documented in the official field notes. This information can be used in the future to improve response actions for future events, and to provide a logical audit trail for subsequent litigation/civil actions. Information tracked should include characteristics of the materiel involved; prevalent environmental conditions; monitoring data; model input and results; response actions; coordinating with local, State, and Federal emergency service organizations; personnel responding (for example, EOD,

TEU, IRF, and SRF); disposing of agent materiel; environmental sampling and analytical results; conditions and decisions regarding reentry; and considerations for transition to remediation.

b. CAIRA report. A CAIRA report should be clear and concise, and present only the most critical information used to make decisions during the incident. The causes and corrective actions directly associated with the CAI should be indicated, and supported by the monitoring data and technical input gathered during the event. The sequence of events from hazard recognition through containment and control to contamination removal should be identified. Further, proposed remedial actions necessary for environment restoration should be outlined. The complete data records may be filed with the field records, with copies furnished/courtesy copies to the appropriate installation, MSC, and MACOM environmental offices.

Chapter 4
Information Systems Support

4–1. Overview

This chapter provides guidance for—

a. Planning information systems support at installation or facility level to support CAIRA operations.

b. Determining, analyzing, and requesting additional information systems support to meet the needs of CAIRA operations.

4–2. Functions

Automation, telecommunications, records management, printing and publications, and visual information activities comprise the information systems of an installation or facility.

4–3. CAIRA operations

a. The Director of Information Management (DOIM) manager for information systems performs the following in support of CAIRA operations:

(1) Planning, programming, and implementing programs to ensure that essential installation or facility level information systems are available to support CAIRA operations or installations with a chemical surety mission.

(2) Providing initial response, evaluation, and restoration of systems.

(3) Augmenting the existing information systems with reallocating available assets from within DOIM jurisdiction.

b. Information systems support planning and implementation will be keyed to the three chemical emergency response operations phases.

(1) *Phase I—Readiness.* Prepare support plans, define support requirements, identify deficiencies, and take corrective actions to eliminate these deficiencies.

(2) *Phase II—Response.* Implement information systems support measures. Request additional telecommunications circuits and services. Request assistance from higher headquarters, if required.

(3) *Phase III—Recovery.* Provide required information systems support to satisfy CAIRA operations and installation or facility requirements.

4–4. Information systems capability planning

Reliable and readily available information systems are essential in supporting CAIRA operations. Prior planning and coordination are necessary to achieve the level of information systems capability to support these operations. Planning must be oriented to a single objective—ensure that information systems services vital to effective functioning during an emergency will be available and assigned the priorities necessary in the allocation of resources.

a. The U.S. Army Information Systems Command will coordinate with other DOD agencies and elements to obtain information management assets for contingency use and provide these assets to the MACOM Deputy Chiefs of Staff for Information Management (DCSIMs) that have a chemical agent material mission. Information is to be updated annually to the MACOM DCSIM.

b. MACOM commanders—

(1) Assisted by the installation DOIM, ensure MACOM CAIRA support plans are written and establish necessary memoranda of agreement (MOA) for support.

(2) Establish emergency CAIRA operations support procedures at the MACOM level. As a minimum, these procedures provide guidance to—

(a) Identify information systems assets available within the MACOM that could be moved to the emergency CAI site and/or installation and define how to request these assets.

(b) Identify information systems assets available at their installations or facilities that could be moved to the emergency CAI site and/or installation and define how to request those assets.

(c) Identify points of contact for CAIRA information support at the MACOM and other applicable organizations.

(d) Assist in coordinating with other DOD agencies and elements to obtain information system assets for contingency use.

c. Installation commanders with a chemical agent material mission will develop an information systems annex to the CAIRA plan. (Minimum requirements are specified in para 4–8.)

4–5. Concept of operations

a. As the manager for CAIRA operations information systems support, the DOIM is responsible for providing and managing information systems support.

b. Processing requirements immediately following the onset of an emergency will involve restoring any disrupted services, as well as providing additional new services.

c. Allocation and controlling resources is a continual process. During the initial stages of the emergency, and for as long as determined by the commander, essential information systems service functions will receive priority for allocating resources. Nonessential information systems will be maintained for as long as residual capability exists, but not at the expense of denying or otherwise restricting essential information systems support.

4–6. Additional resources

A number of options are available for requesting additional information systems resources. The DOIM's evaluation of the user's emergency requirements and the availability of resources to satisfy these requirements must be considered when requesting additional assets. Additional resources to augment existing or damaged installation assets include the following:

a. Leased communications services.

(1) *Local leased information services.* DA Form 3938 (Local Service Request) (LSR) is the basic document for initiating requests for local leased telecommunications services. In CONUS, the LSR is submitted by the DOIM to a telecommunications coordinator. If the requirement is within the telecommunications coordinator's procurement authority, the telecommunications coordinator will prepare a DD Form 1367 (Commercial Communications Work Order) to authorize the local telephone company to provide the service. If the requirement exceeds the telecommunications coordinator's procurement authority, the telecommunications coordinator will forward the LSR to the Office of Acquisition, HQ, 7th Signal Command, Fort Ritchie, MD for contracting officer action. Office of Acquisition, HQ, 7th Signal Command prepares and administrates the DD Form 428 (Communications Service Authorization), which supports the local leased telecommunications service requirement.

(2) *Long-haul information transfer service.* Request for service procedures are used to obtain long-haul information transfer services. The request for service is submitted by the DOIM, through the MACOM DCSIM, to the U.S. Army Commercial Communications Office (USARCCO) to obtain dedicated long-haul information transfer services. Emergency requests may be made by telephone and subsequent coordination in writing.

(3) *Other services.* The National Security Emergency Preparedness (NSEP) telecommunications procedures are available when the local telephone company or other common carrier is not responsive to communications requests submitted through normal channels, or the response time is not adequate to meet emergency requirements. These procedures would be used as a last resort, to expedite leased communications service requests or restoration during an emergency. A request for NSEP assistance is submitted by the DOIM through the MACOM DCSIM, through 7th Signal Command, to USARCCO. Requests may also be submitted from the SRF commander through the AOC to the HQ for action by USARCCO.

b. Civil disturbance assets. The HQDA Directorate of Military Support (DOMS) has prepackaged communication assets for use in support of civil disturbance (Garden Plot) operations. These assets consist of portable radios, repeaters, and base stations that are prepositioned at various locations for use in support of Garden Plot operations. Packages may be requested to augment available information systems assets during a CAIRA operation. HQDA (DAMO–ODS) controls Garden Plot assets. The SRF commander may request these assets telephonically through the AOC, with a follow-on message.

c. 11th Signal Brigade assets. The 11th Signal Brigade can provide mobile or transportable communications support. This category of support may be necessary if the CAI results in the disruption of normal installation or facility information systems (telephone system or telecommunications center) or involves an off-post location. Requests for 11th Signal Brigade assets must be submitted to DISC4, 107 Army Pentagon, Washington, DC 20310-0107 for coordination with HQDA (DAMO–ODS). Requests for support must include the following information:

(1) Type of communications support required. (Generic requirement statement such as "secure record connectivity between point x and point y.")

(2) Preferred equipment, specified by unit type code (UTC).

(3) Date and time service required.

(4) Availability and location of tie-in points (dial central office, telecommunications center, or other location) on the installation, facility, or the location of the nearest tie-in points.

(5) Defense Communications System (DCS) interface points if long-haul DCS connectivity is required.

(6) Nearest geographically definable area (for example, military installation or city) and Universal Transverse Mercator (UTM) coordinates.

(7) Availability of suitable power for deployed equipment.

(8) Coordination POC within the requesting command, including name and telephone number (commercial and defense switch network (DSN)).

d. Satellite access. Requests for emergency satellite access for organic single-channel, ultra high frequency (UHF) satellite assets will be made to the U.S. Air Force Satellite Communication Systems (AFSATCOM). The unit having the terminal equipment makes satellite access requests.

e. Hammer ACE. Another Air Force communication package is Hammer ACE. Hammer ACE includes secure satellite systems for voice, facsimile, and limited data communications. The secure link can interface with Automatic Secure Voice Communications Network (AUTOSEVOCOM), secure telephone unit III (STU–III), secure telephone equipment (STE), Defense Switched Network (DSN), and commercial phone systems through the Hammer ACE operations center. The secure link must be requested through the AOC and Air Force Operations Center, to Headquarters Air Force Communications Command (Hammer ACE), Emergency Operations Requests, DSN 638–2591. Additional information can be obtained by calling DSN 638–3431.

f. Computer and automated data processing assistance. Requests for computer and automated data processing assistance should be submitted by the requiring activity to the DOIM.

4–7. Guidelines

a. CAIRA operations information systems support may be subdivided into the following general categories:

(1) *Installation or facilities information systems.* These are the information mission area services provided by the installation or facility activity. Also included are the nontactical radio systems operated and maintained by the installation.

(2) *EOC information systems.* These are the information mission area services installed in, or available to, the EOC and nontactical radio systems installed in the EOC. This also includes AMC organic satellite terminals at some locations.

(3) *Recovery task force operations communications support.* These are information mission area services available to and/or installed at recovery task force operations locations on the installation or facility. This also includes nontactical radio systems and other organic equipment that individual organizations may bring with them.

(4) *Recovery task force contingency information system.* These are transportable communications assets required in the event CAIRA operations involve an off-post location or the CAI results in a disruption of on-post assets.

b. Within each category, the installation commander will determine specific requirements for information systems support during CAIRA operations. This will be done in conjunction with the DOIM and the supporting activity.

c. Commanders will use the following guidelines to determine CAIRA operations baseline information systems support requirements. Exact equipment requirements will vary by installation or facility (for example, number of telephones installed in the EOC or number of nontactical radio system networks for which an interface is required).

(1) *Installation or facility information systems.* Commanders will consider those information systems services normally available at the installation or facility for use in supporting CAIRA operations. Representative information systems include the following:

(a) Administrative telephone service.

(b) Telecommunications center. (Available services include common user secure record communications and facsimile.)

(c) Nontactical radio networks.

(d) High frequency radio.

(e) Secure voice.

(f) Printing and publications and visual information facilities.

(g) Data processing and computers.

(2) *EOC information systems.* The following information systems are recommended for inclusion in the EOC. If a secondary EOC is also used, similar information systems support should be provided for that location.

(a) Telephone service. Class A lines have DSN and off-base access capability and can be connected to data modems. Local lines may only be used on-post.

(b) Nontactical radio. Adequate nontactical radio equipment should be provided for communications with the networks as follows.

Installation or facility security network
Installation or facility fire department network
Local area civilian police network (if required)
Local and State Police network (if required)
Hospitals, ambulance service, and other medical resources (if required)

(c) Ground to air communications system. (Very high frequency (VHF) frequency modulated (FM) radio system.)

(d) Frequency scanner. One multichannel frequency scanner to monitor emergency frequencies.

(e) Secure voice. At least one STE/STU–III unit will be installed on the class A (DSN/off-base access) telephone lines. The commander will determine the total quantity required.

(f) Secure record communications. Common user secure record communications support should be provided by the supporting installation or facility telecommunications center.

(g) Facsimile service. Dedicated user facsimile machine(s) will be located in the EOC and/or other SRF operation locations to support CAIRA operations.

(h) Satellite communications. One secure, portable satellite communications system.

(i) Television set. Television set for monitoring local television broadcasts. Cable and satellite television capabilities may be required.

(j) Automation. Personal computer or laptop with printer, data modem, and associated software (actual quantity optional, as necessary to support requirements).

(3) *SRF CAIRA operations communications support.* Communications equipment requirements are similar to those for supporting IRF operations but must be capable of supporting the larger scope operation that requires the SRF.

(4) *SRF contingency information systems support.* In the event a recovery operation involves an off-base location, or results in the total disruption of the installation or facility information systems facilities, the SRF should consider requesting the transportable communications assets previously discussed.

d. A suggested CAIRA operations information systems interconnectivity diagram is shown at figure 4–1. CAIRA operations information systems necessary to support this configuration are location-specific and should be part of the installation CAIRA plan.

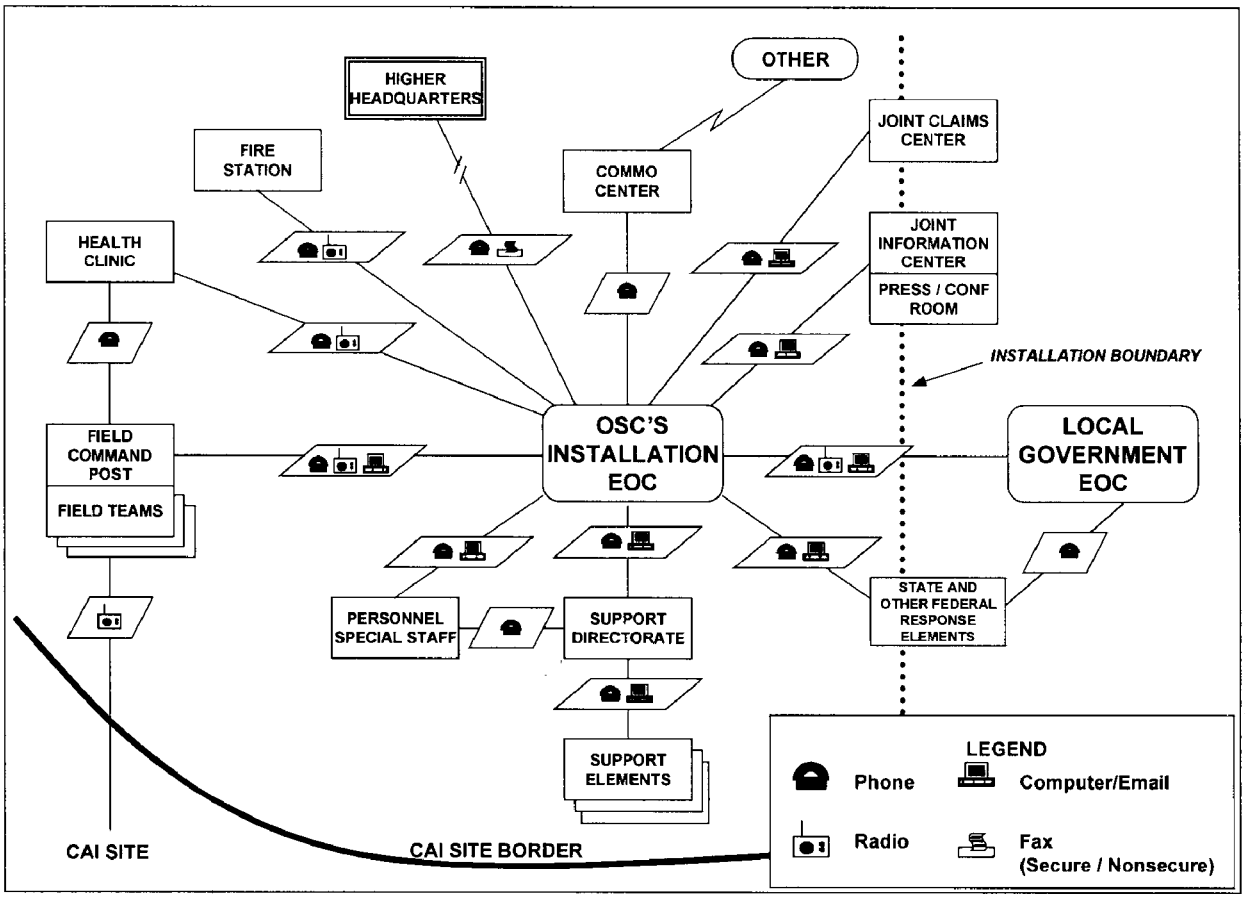


Figure 4–1. CAIRA information system interconnectivity

4–8. Information systems annex

Installation commanders with chemical agent material will ensure that their DOIM develops a supporting information system annex to the CAIRA plan. As a minimum, this annex should include the following:

a. The current information system capabilities of the installation.

b. Information systems necessary to support CAIRA operations based on IRF and SRF commander guidance. This includes information systems assets not normally available at the installation or facility level, but required to support CAIRA operations. These assets may be available at the MACOM or another installation or facility in the local or immediate area.

c. Identification of assets used for normal operations that could be diverted to support CAIRA operations.

d. Radio procedures, frequencies, and call signs.

e. Essential elements of friendly information (EEFI).

f. Procedures for imposing MINIMIZE.

g. Communications discipline information with codes, authentication charts, and call sign change procedures in the Communication-Electronics Operations Instructions (CEOI). (A separate CEOI for IRF and SRF will be required for radio traffic.)

h. Procedures for obtaining leased communications.

i. Procedures for requesting additional information systems support not presently available at the installation or facility.

j. Procedures for obtaining frequency approval and implementing frequency changes.

Chapter 5
Security

5–1. Security program

The presence of chemical agent material at a CAI site requires immediately implementing an effective security program. CAIs occurring off military installations may require establishing an NDA and may require security assistance from civil authorities. Close coordination with civil law enforcement agencies is essential to an effective program.

5–2. Specific requirements

a. A security program established at the CAI site must—

b. Control the CAI area.

c. Protect chemical agent material and components.

d. Safeguard classified defense information and protect DOD equipment or materiel.

e. Provide for coordination with civil law enforcement agencies.

f. Provide necessary operations security (OPSEC).

g. Counter potential terrorist or radical group activities or intelligence collection efforts.

h. Protect security personnel from agent and explosive hazard.

5–3. Resources

a. The IRF provides a security element for perimeter security, entry and exit control, and protection of classified defense information and equipment or materiel. The IRF security elements may or may not require augmentation. Security forces can expect to encounter large numbers of people attracted to the CAI site, especially one off-post. The IRF security element should be exercised not less than quarterly. Commanders will ensure that only experienced security personnel are used in supervisory positions. Chemical agent material installations tasked to provide an IRF security element must stock and maintain equipment to adequately control access to a CAI site. This equipment should include items such as rope and stanchions for barricading the CAI site, entry control point signs, and portable lights. The IRF provides security personnel operating within the chemical control area with protective clothing. Riot control gear should be available for crowd control if required. Security personnel will normally possess equipment such as weapons and ammunition, cold weather gear, protective masks, hand held radios, canteens, and helmets.

b. Civilian law enforcement response will depend upon the location of the CAI site. If the CAI occurs off a military installation near a populated area, local police, fire, and rescue units probably will be notified and may already be on-scene when the IRF arrives. Civilian law enforcement personnel may be requested to assist military security personnel as necessary.

5–4. Concept of operations

a. CAI assessment. Upon arrival at the CAI site, the security officer must assess the situation. This assessment includes an evaluation of ongoing emergency response operations and actions of local law enforcement agencies. During the assessment, security should be established at the CAI site in cooperation with civil authorities. Security should consider fragmentation hazard distances and the possibility of chemical contamination when locating security personnel. The security officer also should consider the following elements in this assessment:

(1) Threat (real and potential).

(2) Location (on or off military installation).

(3) CAI environment (rural, suburban, urban).

(4) Terrain characteristics (critical or dominating features).

(5) Contamination (chemical agents involved and quantity).

(6) CAI hazards (high explosives, rocket motors, or hazardous chemicals).

(7) Local meteorological conditions (include prevailing winds).

(8) Transportation network at CAI site (access routes and types and vehicle number and types).

(9) Structures in CAI area (type and quantity).

b. Safety of security personnel (fragmentation distances, contamination, weather).

c. National Defense Area.

(1) An NDA may be required any time a CAI occurs on non-Federal land. The NDA may, or may not, encompass the entire area of contamination. Civilian authorities should provide security for any portion of the contaminated area outside of the NDA, although military assistance may be requested.

(2) DODD 5200.8 and 50 USC 797, section 21 provides the legal basis for establishing an NDA. The NDA is established specifically to enhance the protection of Government property and equipment located on civilian land. Only the IRF or SRF commander is authorized to designate an NDA, and then only to safeguard Government resources, irrespective of other factors. The IRF or SRF commander should seek legal advice on any decisions regarding NDA establishment, disestablishment, or modification.

d. DOD general security procedures.

(1) Sentry post locations around the CAI site should enable good visual contact to prevent unauthorized persons from approaching the CAI site undetected. Lighting should be provided, or guard spacing adjusted, to ensure that visual contact can also be maintained during periods of limited visibility. Each guard should have a means of requesting assistance, preferably a radio, or be in voice contact with someone who does.

(2) During the initial response, entry and exit of emergency units and other personnel may be difficult to control. The security officer should recognize that during initial response, necessary lifesaving, fire suppression, and other emergency activities are considered priority. As response operations continue, standard security measures specified in AR 190–59 must be implemented. As soon as possible, establish an entry control point. When personnel from various Federal, State, and local agencies arrive at the entry control point, escort the leaders to the EOC. The security officer should establish an entry control, complete with identification and access control systems, to record all personnel who enter and exit the CAI area.

(3) Establish a security operations center or CP close to the entry control point as the focal point for security operations. Locate representatives of all participating law enforcement agencies at the security operations center. The law enforcement representatives should be able to communicate with their personnel.

(4) Establish a security alert force capability, although sufficient personnel may not be available early in the CAI response to form a complete force.

e. Security considerations.

(1) Individuals with varying degrees of knowledge and appreciation for security requirements will assist in response operations.

(2) The security officer must ensure that procedures are established to provide two-person rule compliance for all chemical agent material and applicable components located at the CAI site.

(3) In the initial emergency response, EOD and CAI response personnel are not required to be in the personnel reliability program (PRP).

(4) Make an area available within the security perimeter where EOD or TEU personnel can discuss on-going operations. Also, establish areas for storing classified documents and recovered weapons and munitions. The security officer must ensure that adequate security is provided for these areas.

(5) If a base camp is established to support the response operation, post traffic control signs, develop law enforcement procedures, and establish base camp entry control point. Verifying vehicle trip authorization, restricting curiosity seekers access to the camp, and maintaining order and discipline within the camp are part of base camp security functions.

f. Intelligence consideration. Use military intelligence personnel to the fullest extent possible and actively involve them in the overall security, which includes, but is not limited to, the following:

(1) Counterintelligence advice and assistance to the IRF or SRF commander and staff.

(2) Liaison and coordination with Federal, State, and local agencies on threats to response operations, such as, hostile intelligence collection efforts and terrorist activities.

(3) Coordination and advice to the IRF or SRF commander and staff regarding OPSEC.

(4) An interface to investigate and report events of immediate security interest to the IRF or SRF commander and the staff (in cooperation with the local Federal Bureau of Investigation (FBI)).

(5) Advice and assistance to the IRF or SRF commander and staff on matters of personnel and information security necessary to maintain high standards of security.

5–5. Operations security

a. OPSEC is the process of denying adversaries information about friendly capabilities and intentions by identifying, controlling, and protecting indicators associated with the planning and conducting of military operations and other activities.

b. OPSEC is a command responsibility. IRF or SRF commanders ensure that OPSEC is planned for and implemented during CAIRA operations. Additional guidance is in AR 530–1.

5–6. Security annex

Installation commanders with chemical agent material ensure that a supporting CAIRA plan is developed which describes the responsibilities and procedures of the security operations and forces. As a minimum, the security annex should address the following:

a. Operational security procedures; that is, perimeter access and entry procedures, information security, rules of engagement, and use of deadly force.

b. A description of the interface with Federal, State, and local law enforcement officials, to include identification of emergency security assets and assistance available for off-post movement of chemical agent material. Specific points of contact and phone numbers may be included in a separate appendix.

c. Procedures for locating and operating the security operations center.

d. Guidance for handling unprotected personnel encountered in the contaminated area.

e. Procedures for coordinating with contamination control personnel to ensure sentry posts outside the controlled area are not affected by contaminants spread during wind shifts.

f. Administrative and logistic requirements; for example, entry logs, badges, and materials required (rope, stanchions, and signs) to establish the restricted area, special communications, and clothing requirements.

Chapter 6
Medical Support

6–1. Overview

a. This chapter provides guidance on the medical support required during CAIRA operations.

b. Medical support during CAIRA operations involves personnel with a wide range of medical expertise providing continuing care to chemical casualties. With a severe nerve agent exposure, for example, the establishment of a patient airway with adequate ventilation, concurrent with administration of appropriate antidotes and decontamination, must occur within minutes to prevent serious injury or death.

c. Several levels of medical response should be available to initiate prompt medical care. Triage and medical treatment must be integrated into operations at the CAI site, the personnel decontamination station (PDS) and the on-post medical treatment facility to ensure timely delivery of emergency lifesaving care and prevent worsening of exposure signs and symptoms.

d. The U.S. Army Medical Command (MEDCOM) established Special Medical Augmentation Teams (SMART) to provide specially trained, equipped, and organized medical teams to support contingency operations over a wide spectrum of events. These teams can provide additional support in the following areas:

(1) Trauma/Critical Care (SMART–TCC)

(2) Chemical/Biological (SMART–CB)

(3) Stress Management (SMART–SM)

(4) Medical Command, Control, Communications, Telemedicine (SMART–MC3T)

(5) Preventive Medicine/Disease Surveillance (SMART–PM)

(6) Burns (SMART–B)

(7) Veterinary (SMART–V)

(8) Health Systems Assessment and Assistance (SMART–HS)

e. These elements will deploy on-order of HQDA, Office of the Surgeon General (OTSG)/MEDCOM at the request of the OSC or SRF commander to provide short duration medical augmentation when needed.

6–2. Specific requirements

To ensure proper medical support, the following measures should be taken during the readiness phase of CAIRA operations:

a. The installation medical authority (IMA) or contract medical director, if appropriate, in coordination with the surety officer, develops a list of chemical agents to which personnel may be exposed, along with a description of potential health effects. This information should be maintained at all on-post Government or contractor operated medical treatment facilities (MTFs). (Appendix D provides a list of chemical agents with the signs and symptoms of chemical agent exposure.) The IMA or contract medical director will develop appropriate chemical agent treatment protocols for use by members of the MRT and MAT.

b. The IMA or contract medical director, in coordination with the installation or activity commander, should develop MOAs with civilian MTFs, Federal MTFs, and ambulance services to ensure that appropriate off-post resources may be available in the event of a CAI. (If a contractor provides medical services, the contracting officer or contracting officer's technical representative (COTR) should ensure that these MOAs are developed.) Each MOA should detail the level of training health care providers will receive, who will provide this training (that is, the IMA, contract medical director, MEDDAC, or CSEPP), and how frequently refresher training will be offered. MOAs should also specify how casualties would be transported to off-post medical facilities, by whom, and any other contingency plans for casualty evacuation. MOAs with each off-post medical facility should detail the quantities and type of CAIRA-unique medical supplies required to support CAIRA operations and whether these will be prepositioned or provided with the patients as they are transported. The IMA or contract medical director should ensure that the information described in paragraph 6–2*a* is provided with the MOA. Each off-post medical facility with which an MOA is developed should participate in a CAIRA exercise at least annually. MOAs should be reviewed and updated in writing annually, based upon lessons learned during the CAIRA exercise.

c. The installation or activity commander should make available to the IMA or contract medical director a general description of each chemical agent operation. These descriptions include the number of personnel involved, location, a summary of work procedures, the duration of the operation, and the potential chemical agent exposure hazards.

d. The installation or activity commander, in coordination with the installation medical authority or contract medical director, should establish casualty estimates for the installation or activity's MCE and MPE. The description of the MPE should include the number and type of casualties anticipated (that is, pure chemical, mixed chemical and conventional, or pure conventional casualties), the possible routes of exposure (that is, inhalation, dermal, ocular, or ingestion), the anticipated severity of injuries (that is, mild, moderate, or severe), and the medical capabilities and staffing levels required to treat these casualties. From the hazard analysis standpoint, MCE is the worst event that could occur at any time, with maximal release of agent from a munition, bulk container, or process resulting from an unintended, unplanned, or accidental occurrence that has a reasonable probability of occurring. In contrast, MPE refers to the worst potential event that is likely to occur during routine handling, storage, maintenance, surveillance, or demilitarization operations resulting in the release of agent and the exposure of personnel. For medical planning purposes, the equipping, staffing, and resourcing of the installation or contractor-operated MTF should be sufficient to provide care for casualties generated by the MPE and to staff the MRT (para 6–3). The MCE, though less likely to occur than the MPE, may generate types and numbers of casualties beyond the capability of the installation or contractor-operated MTF. For this reason, medical contingency plans, in the form of MOAs, will ensure that treatment is provided expeditiously and in an organized fashion. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) will develop guidance for use by installations in estimating the chemical agent casualties expected from an MPE or MCE.

e. The IMA or contract medical director should coordinate with off-post medical officials on a regular basis (at least annually) to ensure compatibility between MOAs and the installation or activity's CAIRA plan. Communication links between potential CAI sites, the installation or contractor-operated MTF, off-post ground and air ambulances, and off-post medical facilities should be checked for compatibility and tested as part of CAIRA exercises.

f. The IMA or contract medical director, in coordination with the installation or activity commander, should ensure that appropriate medical supplies, equipment, and casualty decontamination solutions are available on the installation's ambulances and at the medical treatment facilities. (As described in *b* above, CAIRA-unique medical supplies should also be prepositioned at off-post medical facilities per MOA.) The medical supply stockage level should be determined by the IMA or contract medical director to meet the casualty requirements associated with the MPE. A list of suggested equipment and supplies is provided in tables 6–1 and 6–2, respectively. The IMA or contract medical director may supplement these lists with other medical items they consider truly necessary (for example, laryngoscopes, endotracheal tubes, IV fluids, 16–18–20 gauge IV catheters, and other advanced airway management supplies and equipment).

g. The IMA, in coordination with the supporting medical department activity (MEDDAC) or U.S. Army Medical Center's (MEDCEN's) medical augmentation team (MAT) leader, should develop contingency plans as to how the MAT may be used in the event of a CAI or SRF deployment. Plans should factor in MAT response time to the CAI scene, as well as the role of the MAT in providing chemical casualty care, ambulatory care, emergency medical services, preventive medicine support, or casualty evacuation services.

h. The installation or activity commander, in coordination with the IMA or contract medical director, should ensure that initial response force nonmedical personnel receive relevant medical training before working with chemical agents. Training should include individual protection, recognizing signs and symptoms of agent exposure, self-aid, buddy-aid,

emergency first aid, individual protection, casualty decontamination, and evacuation procedures. The IMA or contract medical director should review and approve this training in writing on an annual basis.

Table 6–1
Medical support treatment equipment

Item ID	Nomenclature	QTY	UI
6515–00–300–2900	Airway, Pharyngeal Rubber, Large, Adult	6	EA
6515–00–300–2910	Airway, Pharyngeal Rubber, Small, Adult	6	EA
6506–00–299–9673	Atropine Sulfate Injection, USP, 2 mg per ml, 25 ml	4	EA
6506–00–299–9674	Bag, Casualty, Chemical Protective	12	EA
6506–00–299–9675	Chest, Medical Instrument & Supply Set Fld No. 4 30x18x12 in deep	3	EA
6506–00–299–9676	Diazepam, Injection, USP Syringe, Needle Unit, 5mg/ml 2ml 10	4	BX
6506–00–299–9677	Intravenous Injection Set, 21 Gauge Needle, Pediatric Disposable Type	60	SE
6506–00–299–9678	Needle, Hypo, C13A GP 1.5L 18GA Luer Lock Blister Pack 1003	1.2	BX
6506–00–299–9679	Pralidoxime Chloride Injection 300 mg per ml, 2 ml	500	EA
6506–00–299–9680	Resuscitator, Hand Powered, Intermit Pos Press High Oxygen Conc	4	EA
6506–00–299–9681	Sodium Nitrite Injection, USP 300 mg per 10 ml, 10 ml	12	PG
6506–00–299–9682	Sodium Thiosulfate Injection, USP 12.5 gr, 50 ml	60	PG
6506–00–299–9683	Suction Apparatus, Oropharyngeal, Portable Battery Operated	4	EA
6506–00–299–9684	Syringe, Hypo, Gen Purpose, 50ml Luer Slip Ster Disp w/o NDL 1003	0.6	PG
6506–00–299–9685	Syringe, Hypodermic, Disposable 10 or 12 ml 1003	0.6	PG
6506–00–299–9686	Treatment of Chem Agent Casualties and Conventional Military Injuries	1	EA

Table 6–2
Medical support detection and decontamination supplies

Item ID	Nomenclature	QTY	UI
8105–00–191–3902	Bag, Plastic, Polyolefin .0080 in Single Wall 65x50x42 inches	2	RO
6665–01–199–4253	Chemical Agent Monitor	1	EA
6545–00–914–3490	Chest, Medical Instrument & Supply Set, Fld No. 4 30x18x12 in deep	1	EA
8415–00–266–8675	Gloves Rubber, Acid and Alkali Resistant Black Type I	8	PR
7240–00–773–0975	Pail, Utility, Corrosion-Resisting Steel, 12 qt	4	EA
6665–00–050–8529	Paper, Chemical, M8	25	BK
8135–00–618–1783	Plastic Sheet, Polyethlene, 1200 in long x 192 in wide x .006 in thick	1	RO
6515–00–935–7138	Scissors, Bandage, Angular 7 1/4 inch	16	EA
6920–00–240–2559	Sponge, Cellulose, 3–5/8 x 5–3/4 x 1–3/4	4	EA
6530–00–660–0034	Support Litter, Folding, Lightweight 31–1/2 in high	4	PR

6–3. Concept of operations

CAIRA encompasses actions to save lives and preserve health and safety. This support involves treatment of casualties at the CAI site, the PDS, continuing treatment at the appropriate MTF, and ongoing communication with supporting medical facilities. Proper care given during the early stages following exposure may prevent serious injury or death. Lifesaving measures should be carried out through several levels of medical treatment. The organizations that have or will have the potential to respond to accidents or incidents occurring at chemical storage or disposal installations will have the medical responsibilities listed in tables 6–3 and 6–4. Medical care includes the following:

a. Level I—IRF nonmedical personnel.

(1) The IRF is comprised of available installation personnel and is under the direction of the installation commander. Depending on the installation, the IRF may include firefighters, security forces, supervisors, toxic materiel handlers, EOD crews, and many other personnel.

(2) The IRF provides immediate safety, security, rescue, and control at the CAI site to save lives and reduce exposure to hazards. The installation commander appoints the IRF members and ensures all members are provided initial and ongoing training as described in (3) below.

(3) IRF personnel should be experienced in the chemical agent mission. CAI training is required in self-aid, buddy-aid, emergency first aid, individual protection, casualty decontamination, and evacuation procedures. IRF members should receive annual instruction that includes initial chemical casualty treatment and emergency first aid procedures. The IMA or contract medical director should establish the specific content of the medical training program for nonmedical first responders. Additional supplementary training may be added at the local commander's discretion.

b. Level II—MRT of the IRF.

(1) The MRT is composed of on-post medical personnel. An appropriately staffed, trained, and equipped MRT will be on duty during all shifts where chemical operations or maintenance activities are ongoing at storage or disposal facilities, and a chemical agent exposure potential exists for workers conducting their normal duties. The MRT leader must be a physician (Government or contractor) who has completed the training listed in table 6–3, and who is clinically privileged to provide chemical casualty care. The MRT leader is not required to be onsite during chemical operations, but must be able to respond to the installation within 60 minutes, and be immediately available by cell phone and/or radio, so that he or she can be notified and provide verbal direction to the MRT while en route to the clinic. If the MRT leader is not on the installation, a suitably trained and privileged physician's assistant or nurse practitioner must be on the installation to act on behalf of the MRT leader while he or she is en route. The MRT leader response time and communications connectivity must be demonstrated at least annually during a CAIRA exercise.

(2) The MRT will be capable of providing advanced life support care, to include emergency medical triage, advanced airway management, treatment of chemical and conventional injuries, stabilization, and transport of casualties from the CAI site to the appropriate supporting MTF. The IMA or contract medical director will designate in writing the members of the MRT and the MRT leader.

(a) The MRT leader (whether permanently or temporarily assigned in this capacity) will accomplish the tasks shown in table 6–3.

(b) Other MRT members will accomplish the tasks shown in table 6–4.

c. Level III—MAT.

(1) Each MEDDAC/MEDCEN with a geographic responsibility for chemical stockpile or nonstockpile sites should maintain the ability to deploy a MAT. The MAT leader should develop contingency plans as to how the team may be used in the event of a CAI or SRF deployment, either to augment the installation MRT or deploy to nonstockpile or formerly used defense sites (FUDS) within its geographic area. Plans should factor in MAT response time to the CAI scene, as well as the role of the MAT in providing chemical casualty care, ambulatory care, emergency medical services, preventive medicine support, or casualty evacuation services.

(2) The MEDDAC/MEDCEN commander will designate in writing the MAT leader and MAT members. The MAT leader will accomplish the tasks shown in table 6–5.

(3) In addition to medical specialty training, all members of the MAT should have training equivalent to that of MRT members.

(4) MATs may also be activated to respond to chemical events occurring at installations that do not have chemical agent missions (for example, installations at which chemical agent identification sets (CAISs) are uncovered). MAT activation for support of installations without chemical surety missions is left to the discretion of HQ MEDCOM.

d. Level IV. The U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) Medical Chemical Advisory Team (MCAT). The Medical Chemical Advisory Team (MCAT) is composed of clinical consultants and subject matter experts from the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD). The Chief, Chemical Casualty Care Division, USAMRICD should serve as the chemical casualty care consultant to The Surgeon General (TSG), and provide telephonic physician consultation to the MRT leader, MAT leader, or SRF surgeon. The Commander, USAMRICD will also appoint the MCAT leader, who serves as the physician point of contact for telephonic deployment in the event of a CAI and upon request of the responsible MACOM headquarters. The MCAT should provide clinical advice and consultation in matters related to the initial or long-term management of chemical casualties at the CAI site. For consultation, contact Commander, USAMRICD, commercial (410) 436–3276 or DSN 584–3276, or contact the National Response Center at 1–800–424–8802.

Table 6–3
MRT leader tasks

Task: 1
Description: Attends Medical Management of Chemical Casualties Course conducted by USAMRICD.

Table 6–3
MRT leader tasks—Continued

Task: 2
Description: Maintains clinical privileges to provide advanced life support and chemical casualty care. (This would include, but may not be limited to, procedures such as endotrachael intubation, methods of ventilating apneic patients, management of cardiac arrhythmias, and fluid resuscitation using peripheral and central intravenous techniques.)

Task: 3
Description: Attends Toxic Chemical Training Course for Medical Support Personnel, conducted by the U.S. Army Soldier and Biological Chemical Command (SBCCOM).

Task: 4
Description: Attends other military or civilian courses (particularly in the areas of occupational health, emergency medicine, or ambulatory care) that may benefit the team by increasing professional and technical capabilities.

Task: 5
Description: Attends other military or civilian courses (particularly in the areas of occupational health, emergency medicine, or ambulatory care) that may benefit the team by increasing professional and technical capabilities.

Task: 6
Description: Ensures the technical proficiency of all MRT members.

Task: 7
Description: Reviews the technical proficiency of all MRT members.

Task: 8
Description: Directs properly trained and equipped MRT personnel to cross the hotline under circumstances described in paragraph 6–5*a*(3).

Task: 9
Description: Ensures timely patient movement across the hotline and to definitive medical care.

Task: 10
Description: Certifies patients as free of contamination prior to evacuation of patients to off-post medical treatment facilities.

Table 6–4
MRT member tasks

Task: 1
Description: Receives annual training in the medical treatment of chemical casualties from the MRT leader or through courses mentioned in table 6–3. Topics should include (but are not limited to) airway management techniques, patient assessment skills, use of nerve agent antidotes and anticonvulsants (if appropriate), patient decontamination, and START triage.

Task: 2
Description: Maintains licensure or certification as a physician, emergency medical technician (EMT), registered nurse, nurse practitioner, or physician's assistant. At least two members of the MRT will have demonstrated proficiency in advanced airway management techniques.

Task: 3
Description: Attends regularly scheduled training provided by the MRT leader pertaining to treatment of chemical casualties or emergency medical procedures to maintain technical proficiency.

Task: 4
Description: Participates in local CAIRA training.

Task: 5
Description: Maintains current certification in cardio-pulmonary resuscitation.

Table 6–5
MAT leader tasks

Task: 1
Description: Provide overall backup medical support to installations and FUDS within his or her area of regional responsibility that may have NSCM but do not have chemical surety operations.

Table 6–5
MAT leader tasks—Continued

Task: 2
Description: Ensures overall backup medical support to installations with chemical surety operations within the MAT leader's assigned area of regional responsibility.

Task: 3
Description: Ensures all support agreements concerning MAT functions are current.

Task: 4
Description: Attends the Medical Management of Chemical Casualties Course and the Toxic Chemical Training Course for Medical Support Personnel at USAMRICD and SBCCOM, respectively.

Task: 5
Description: Maintains clinical privileges to provide advanced life support care (see subtask 2 of table 6–3)
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6–4. Service Response Force medical support

The MACOM surgeon is the SRF surgeon and is the staff medical authority of the SRF commander. The SRF surgeon, through the SRF commander, should assume operational control of the MRT, MAT, and MCAT at the CAI site. The SRF surgeon should—

a. Provide medical consultation to the SRF commander.

b. Request additional health services support as needed through MEDCOM headquarters.

c. Coordinate requests for off-post medical and/or public health assets with appropriate local, State, and Federal facilities or organizations. This should normally be accomplished through close coordination with the IMA or contract medical director.

d. Collect on and off-post patient treatment data and provide a summary to the installation commander for submission to higher headquarters per table 6–6 (list of patients by name will not by reported through higher headquarters).

e. Provide consultation (through the MCAT leader) to the local medical community on chemical casualty management.

6–5. Medical treatment of chemical agent casualties

a. Treatment in the field.

(1) Self-aid consists of first-aid measures the chemically contaminated person can apply as self help. These measures include decontaminating the chemically contaminated person and administering the chemical agent antidote.

(2) Buddy-aid consists of emergency actions given by an individual to a chemical agent casualty who is unable to perform self-aid. These actions include masking the injured person, administering antidote, decontaminating, giving assisted ventilation, and evacuating the chemical agent casualty. It is essential that buddy-aid providers recognize the importance of timely provision of an adequate airway, assurance of adequate breathing effort, control of blood loss, and rapid and proper administration of antidote. If more than one employee or buddy is available to provide assistance, one can perform the ABCs (airway, breathing, and circulation) of cardiopulmonary resuscitation, and the other can administer the antidote. All steps are critical to survival.

(3) Medical personnel from the MRT should provide the required medical care after receiving the chemical agent casualty at the hotline. After stabilization, the injured person should be transported to a military or civilian medical treatment facility for further care. The MRT leader should direct properly trained and equipped medical personnel to cross the hotline to provide lifesaving care as required, recognizing the limited emergency lifesaving capability of the nonmedical members of the IRF. The MRT leader should take such action only in circumstances where crossing the hotline will not compromise the medical capabilities that are necessary outside the contaminated area.

b. Priority of emergency medical treatment procedures.

(1) Emergency treatment to save life or limb takes precedence over decontamination. Airway management and/or control of hemorrhage may be as important as treatment of chemical agent poisoning. For contaminated personnel who have traumatic injuries, decontamination should be accomplished as quickly as possible. However, lifesaving measures for a traumatic injury have priority over immediate decontamination, provided that rescuers/medical personnel remain protected against the chemical agent.

(2) In general, when contamination results in respiratory difficulty, loss of consciousness, hemorrhage, or shock, the following steps, in order of priority, are suggested:

(a) Self-protection by donning protective mask and equipment.

(b) Removal of injured person upwind from the immediate area of any liquid contamination.

(c) Perform the ABCs of cardiopulmonary resuscitation in conjunction with (*d*) and (*e*) below.

(d) Administer chemical agent antidote.

(e) Decontaminate the injured person.

Note. Decontaminating a vapor-exposed casualty consists of removing the victim's clothing in a clean air environment, and a subsequent shampooing or rinsing of hair to prevent vapor off-gassing. Decontaminating a liquid-exposed casualty requires these same steps, along with applying soap and water or 0.5 percent sodium hypochlorite to physically remove liquid agent from exposed skin. Use only sterile saline or water to decontaminate the victim's eyes, mucous membranes, or open wounds.

(f) Administer additional emergency medical care for shock, wounds, and illnesses that may endanger life or limb.

(g) Administer supportive care for less urgent injuries.

(h) Evacuate the individual as soon as resuscitation and stabilization have occurred.

(3) The priority of emergency medical treatment procedures may vary, depending upon the agent, circumstances of exposure, and clinical condition of the individual.

(a) Mustard agents. Decontaminating the individual's eyes quickly is absolutely essential following liquid mustard exposure. If the individual's eyes are exposed to liquid mustard, remove the individual from the liquid agent source and flush the eyes with water by tilting the head to the side, pulling eyelids apart with the fingers, and pouring water slowly into the eyes. Remove the injured person upwind from the immediate area of contamination prior to further assessment of the injured person. To prevent subsequent skin redness or vesication, decontaminate any skin exposed to liquid mustard as rapidly as possible (within one to two minutes) with whatever decontaminant is available. Based upon the most recent animal studies from the U.S. Army Medical Research Institute of Chemical Defense, the decontaminant of choice at this time is 0.5 percent sodium hypochlorite (1:10 dilution of household bleach).

(b) Nerve agents. Most Sarin (GB) injury scenarios involve respiratory exposure to GB vapor. Vapor-exposed injuries should be immediately removed upwind. If the injured person is severely intoxicated, nerve agent antidote (three Mark I or ATNAA kits) should be given immediately prior to performing ABCs and decontaminating the individual. Decontamination of skin exposed to liquid GB should be performed as rapidly as possible (within one to two minutes), with whatever decontaminant is available, to prevent subsequent local and systemic effects of nerve agent poisoning. The decontaminant of choice at this time is soap and/or water, based upon the most recent information provided by USAMRICD. In contrast, O-ethyl S (VX) presents more of a percutaneous liquid hazard than a vapor hazard. In the event of liquid VX exposure to the skin, immediately decontaminate the individual in accordance with DA Pam 40–8 and DA Pam 40–173 before evacuating the individual to an uncontaminated area. The need for nerve agent antidote may be assessed while the injured person is being decontaminated.

c. Administration of the nerve agent antidote.

(1) An individual who has received a nerve agent exposure and exhibits definite signs or symptoms of nerve agent exposure should receive immediate treatment with a Mark I or ATNAA kit. After significant exposure to nerve agent, the patient may demonstrate the first signs of exposure: anxiety, rapidly followed by unconsciousness. Individual exposure routes to nerve agents differ and are related to the physical and chemical properties of the agent. Inhalation is the most common exposure route for volatile (nonpersistent) agents, while cutaneous exposure is more common for persistent agents. Significant exposures may occur through ocular absorption. Inhalation exposures may be associated with runny nose (rhinorrhea), blurred vision, pinpoint pupils (miosis), and chest tightness with shortness of breath. Cutaneous exposures may be associated with localized sweating or muscular twitching followed by systemic effects such as nausea or abdominal cramps. Regardless of exposure route, symptoms and signs may progress from local effects to systemic effects and result in generalized convulsions, respiratory arrest, and death.

(2) The Mark I or ATNAA kit injectors are injected into the outer (lateral) thigh muscle or upper outer quarter of the buttocks. Injections may be repeated at 5 minute (or less) intervals if signs and symptoms are progressing, until three injections are given. No more than three injections will be given unless directed by medical personnel. If the individual has severe signs of agent exposure (that is, respiratory failure, unconsciousness, convulsions, or severe muscular twitching), all three Mark I kit injectors will be given in rapid succession. Diazepam should be administered immediately following the three Mark I kits for any severely intoxicated nerve agent casualty to prevent possible nerve agent-induced brain injury or to control seizures in actively convulsing patients.

Note. Treatment of actively convulsing patients with diazepam may require dosages in excess of 20mg intravenously. Anticonvulsants that are routinely used for the treatment of status epilepticus, such as dilantin, phenobarbital, or valproic acid, are NOT effective in the treatment of nerve agent-induced seizures.

d. Patient decontamination. Medical personnel should ensure that patients have been adequately decontaminated to reduce continued dermal absorption of agent, to prevent secondary exposure of subsequent healthcare providers. Before transporting patients from the contamination control line, the MRT leader (or designee) should confirm that the casualties have been decontaminated and are free from residual agent contamination. This may be done by using a low-level monitoring device (such as Automatic Continuous Air Monitoring Systems (ACAMS) or Miniature Continuous Air Monitoring Systems (MINICAMS)®) in an enclosed environment to detect any evidence of vapor off-gassing. Patients should be prominently tagged as decontaminated before being transported to definitive care facilities off-post.

Table 6–6
Sample cumulative casualty summary (status as of xxxx hours, xx Jun 20xx)

Category	On-post personnel	Off-post personnel	Total	Change in last 24 hours
Fatalities	5	44	49	+8
Hospital Admissions	2	42	44[1]	+30
Outpatient Care Only	12	29	41[1]	+9
Total	19	115	134	+47

Notes:
[1] Of the 85 personnel in the hospital and duty status
—52 Nerve agent exposure
—25 Anxiety reaction
—08 Nonrelated (insect bites and so forth).

Chapter 7
Agent and Munitions Operations

7–1. Overview

This chapter provides guidance for dealing with a CAI involving chemical agent munitions or containers that require special procedures. In addition to the hazard from the explosive components of any munitions present, the agent filler is extremely dangerous. The number and type of munitions or containers, their location, and other hazards present are of primary concern. If the outer casing of the munition or container has maintained its structural integrity and there has been no agent release, the gravity of the situation is greatly reduced. However, even intact munitions or containers can still pose significant problems if proper precautions are not taken during response operations. Therefore, only chemical agent material qualified personnel, to include EOD, TEU, and specially trained military or DA civilian members of the IRF, should be authorized to perform recovery operations of chemical agent munitions or containers. In all instances, explosives loaded munitions will be assessed by a qualified person to determine if RSPs are needed prior to working with the munitions. Qualified EOD personnel will evaluate munitions that have deteriorated or damaged explosive components. All RSPs are to be performed by qualified EOD personnel.

7–2. Concept of operations

CAIRA operations begin with the notification of a known or suspected CAI, proceed through the initial reconnaissance, continue with containment or elimination of the agent source, and end with final decontamination of the affected areas.

a. Two-person rule. Commanders will strictly enforce the two-person rule at all times during operations for the safety of all personnel and the security of chemical agent material.

b. EOD support. Request EOD support if chemical munitions with explosive components are involved. (See para 7–3.)

c. Priorities. Priorities for responding forces are as follows:

(1) Administrate first aid and other immediate lifesaving measures.

(2) Determine from available information, the type and extent of hazard present.

(3) Implement preplanned emergency procedures to limit the spread of contamination and to protect property, the environment, and life.

(4) Identify the hazard area.

(5) Develop a plan of action to include the accountability of the chemical weapons involved.

(6) Eliminate and dispose of the hazard and its source.

(7) Decontaminate affected areas.

d. Initial entry party (IEP).

(1) Based on available information, the entry team leader decides the level of protective clothing in accordance with DA Pam 385–61. The primary mission of the IEP is to collect information at the CAI site so an accurate determination of the situation can be made. As a minimum, the IEP should carry detection equipment, appropriate first aid equipment, two-way communications, and a decontaminant for the agent involved. This materiel is to be used for emergency decontamination operations. For CAIs involving munitions with explosive components, the IEP will include qualified EOD personnel.

(2) After processing through the PDS, the IEP should approach the CAI site by the most direct upwind route while avoiding areas of gross contamination (any unknown liquids and/or animals exhibiting agent symptoms). Upon reaching the CAI site, the IEP will determine the following:

(a) The location, amount, and condition of the containers or munitions.

(b) The type of agent filler.

(c) The type of fusing and fuse condition, if applicable.

(d) The presence of agent leakage and/or contamination.

(3) After assessing the CAI site situation, the IEP may take positive steps to stabilize and contain the agent or munition if the task is within the capabilities of the IEP. If no further actions are required, the IEP should depart the area by the initial entry route back to the PDS for processing out of the restricted area. The PDS should be operated in accordance with FM 3–5 and local SOPs or procedures.

e. Agent containment.

(1) Procedural priorities should be developed from the evaluation of the information furnished by the IEP. The IRF or SRF commander should consult with the IEP team leader while developing the response effort priority list. Once a plan has been finalized, a work party dressed out in the appropriate level of protective clothing specified in DA Pam 385–61 should be dispatched to the CAI site to begin agent containment operations and conducting required RSPs.

(2) Upon arriving at the CAI site, the work party should try to reduce or stop agent leakage if the IEP was unable to perform this operation. There are various interim techniques for sealing ruptured munitions or containers. After containing the leak, an attempt should be made to decontaminate the surface of the item. Leak sealing procedures will depend on the condition and the ultimate disposition of the materiel, but under no circumstances should the interim sealing procedures preclude containerization of the item in accordance with SB 742–1, chapter 7 or a container specific letter of instruction (LOI), if applicable. Additional information on agent containment is contained in paragraph 13–3.

(3) When chemical munitions are involved in a CAI, it may be necessary to perform RSPs prior to starting any containment operations based upon the condition of the explosive components present. Only qualified EOD personnel may perform RSPs. The EOD officer evaluates the situation and advises the IRF or SRF commander of the safest and most reliable means to render safe the munitions, but the IRF or SRF commander is ultimately responsible for the decision. Once the required RSPs are complete, the EOD officer will request disposition instructions from the IRF or SRF commander.

(4) If the IRF or SRF commander decides to transport the item, it must be decontaminated, packaged/labeled/marked per DOD instructions, containerized per SB 742–1, and meet DOT requirements for transport per DOD 4500.9–R, Part II. Personnel involved in the preparing and/or shipping HAZMAT will be trained and certified in accordance with training requirements in DOD 4500.9–R and Title 49 CFR, subpart 172.704. For shipments requiring DOT Exemptions (DOT–E) or Competent Authority Approval (CAA) for transport, a copy of the document must be attached to the DD Form 836 (shipping paper). TEU/EOD personnel must accompany the off-post shipment of a damaged chemical munition containing explosive components. When the decision is made to dispose of the item, the applicable EOD publication will be followed when disposing of the item's explosive components.

(5) The EOD element may be assigned to track the munitions with a numbering system, for count verification. A tagging system should be used to track munitions and surety components for recovery to the safe holding area and/or disposal location. This numbering system can be used to enhance the identification of the munition's condition while in storage.

f. Decontamination. After the source of contamination has been eliminated, decontamination operations can begin in earnest. Chapter 13 contains additional information on contamination control. Decontamination is accomplished per DA Pam 385–61.

(1) DD Form 2271 (Decontamination Tag) and physical markings will be used to identify all contaminated equipment, materiel, and facilities.

(2) The levels of decontamination apply only to Government-owned materiel and properties. Standards of decontamination for chemical agent material may have been established for the civilian sector by each state that may be more stringent. If no standard has been established, the standard for Government-owned materiel and properties should be applied.

g. Final disposition of chemical agent material. There are several options available for final disposition of chemical agent material in munitions or containers. Chemical agent material can be packaged per DOT regulations for transport, destroyed by detonation, or neutralized by mixing with a decontaminating solution. However, there are many variables to consider before implementing the final resolution to the situation. The criterion for emergency destruction and the destruction method is contained in AR 75–15.

7–3. Munitions render safe and disposal

a. Explosive ordnance disposal. EOD personnel are responsible for the actual performance, supervision, and control of render safe and/or disposal operations. The following guidelines apply to EOD team use:

(1) Only EOD personnel are qualified to perform RSPs. EOD personnel are trained to identify, detect, contain, and/or eliminate explosive and toxic hazards associated with chemical weapons.

(2) Qualified EOD personnel must be present to conduct operations involving chemical agent munitions in an explosively hazardous or unsafe condition and/or to transport them from the CAI site. If the response is immediate, life threatening, impacts the environmental, or is a potential explosive threat to public or property, EOD personnel will take the necessary action to abate the threat. This includes transporting the item to a safer location to be defused, detonated, or otherwise rendered safe. EOD personnel are specifically trained to apply the EPA Military Munitions Rule and to

use the specific exemptions provided them during emergency response operations. Trained members of the IRF may decontaminate, containerize, transport the munitions or containers, and evacuate personnel.

(3) When EOD personnel are dispatched, they assume the situation requires, from an explosive safety standpoint, an immediate response; the exception is when they are advised otherwise. Upon evaluation of an explosives or munitions emergency, the EOD or TEU emergency response specialists may determine that—

(a) An immediate response is required. In this situation, the Munitions Rule (MR) immediate response exemption from RCRA applies.

(b) An immediate response is not required, but the situation poses an imminent and substantial risk to human health or the environment. In this situation the MR's immediate response exemption from RCRA may not apply. The responder should consult with the installation's environmental office.

(c) An emergency response is not required.

(4) Requirements for RCRA compliance are as follows. EPA's objectives in clarifying the applicability of RCRA to emergency responses were to remove regulatory impediments to emergency responses and promote the safe and prompt management of emergencies that involved explosives and munitions. RCRA rules exempt emergency responses from permit requirements in two ways. The distinctions between the two are based on the emergency response specialist's determination as to the action required to control or eliminate the actual or potential threat to human health, public safety, or property. These distinctions are—

(a) Immediate Responses (Level 1).

1. EPA established exemptions from RCRA generator, transporter, and permitting (to include emergency permits) requirements during the "immediate response" to an explosives or munitions emergency. This exemption allows emergency response specialists to take whatever action is necessary to control or eliminate the immediate threat. Such actions include the movement (transport) of an item to a safer location for defusing, detonation, or the performance of render-safe procedures. The EOD or TEU emergency response specialist is the only authority that can determine when a Level 1 response is terminated.

2. EPA guidance as to what constitutes an immediate response (Level 1) is limited. DOD's position is that these include responses to situations where military munitions that are not properly secured or under DOD control potentially threaten human health, the environment, or property. DOD's intent is that EOD and TEU personnel will use established procedures and good judgment to determine whether a situation requires a Level 1 response.

3. Reasonable Delays. When extenuating circumstances (for example, adverse weather, nightfall, safety, and so forth) delay actions necessary to terminate an explosives or munitions emergency, the response may be delayed until the necessary action can be completed. EOD or TEU personnel must ensure the explosives or munitions are in a safe and secure environment. If time permits or as agreed upon in an MOU (see para 7–3*c*), the EOD or TEU personnel will consult with the host installation's environmental office, which will consult with the appropriate Federal, State, or local environmental agency regarding permitting requirements. If the host installation does not have an environmental office, the EOD or TEU personnel should contact the DOD Component Regional Environmental Coordinator (REC) for assistance.

4. Once the EOD or TEU personnel determine the Level 1 response is over, remaining waste munitions, if any, must be managed in compliance with RCRA regulations or an emergency permit.

5. Prior coordination with local authorities and regulators, regulator familiarization training, use of an MOU, and establishment of ground rules for such responses will minimize controversies arising during or after emergency responses.

(b) Imminent and Substantial Endangerment Responses (Level 2).

1. EOD or TEU personnel must determine whether the response action can be delayed without compromising safety or increasing the risk long enough to obtain an emergency permit. When the response action can be delayed, the EOD or TEU personnel should consult with the host installation's environmental office, which will consult with the appropriate State or Federal regulatory authority. If the host installation does not have an environmental office, the EOD or TEU personnel should contact the DOD Component REC for assistance.

2. In Level 2 responses, EPA or the State may issue a temporary emergency permit that allows a response that is not in compliance with normal RCRA requirements. When requesting an emergency permit, the following information, as a minimum, should be provided: type of military munitions (hazardous waste) involved, to the extent known; manner and location of proposed disposal, treatment, or storage; and manner in which the military munitions (waste) will be transported to another site, if required.

3. Environmental agencies normally issue such permits telephonically. The regulator is responsible for providing a written emergency permit within 5 days. The requesting installation is required to have the written permit as part of its emergency response records. To ensure appropriate documentation, the installation should submit a written followup to its telephonic emergency permit request and include this request in its records.

(5) DOD sites used for emergency responses are used as follows. A RCRA operating permit is not required for DOD sites (for example, EOD ranges) that emergency response specialists use for destruction or render-safe procedures of munitions recovered during emergency responses. For safe use, access to such DOD sites must be controlled and the explosive safety considerations of DOD 6055.9–STD (for example, the distance to inhabited buildings, public traffic

routes, and so forth) must be known. The use of known sites helps ensure recovered munitions, which can be transported safely, are managed in a manner that will not endanger the public or cause collateral damage.

b. Emergency storage of munitions and chemicals. During emergencies, installations can store or temporarily store munitions and chemical agent material.

(1) Temporary storage for extenuating circumstances, such as adverse weather, nightfall, or explosive safety considerations, fall within the immediate response permit. If the EOD team leader determines that temporary storage is required, the storage site must be safe and secure. Sites used to store for longer than 96 hours must comply with DDESB explosive requirements for storing waste munitions or explosives.

(2) RCRA requires recordkeeping for all emergency responses involving waste munitions and chemicals. These records must be kept for at least 3 years. The required records are similar in content to existing EOD records and include the following requirements:

(a) Date and time of response.

(b) Individuals who responded.

(c) Type and description of the materiel addressed.

(d) Disposition of the materiel.

(e) If an emergency permit is issued, a written copy of the permit and all related documents.

c. Memoranda of Agreements. Memoranda of Agreement with Federal, State, and local authorities involving emergency activities vary considerably. Each installation with a chemical mission should establish MOAs to ensure that EOD emergency procedures and requirements are clearly defined and understood in advance by all involved parties.

7–4. Agent and munitions annex

The CAIRA plan will include a supporting annex that establishes operational procedures to be implemented during emergency operations. As a minimum, the annex should include the following:

a. A delineation of the relationships among the various emergency response elements and their respective responsibilities.

b. Procedures for augmenting the EOC with EOD expertise.

c. Procedures for establishing the hazard area.

d. Agent containment and decontamination procedures.

e. Procedures for establishing and operating a staging area and a personnel decontamination station.

f. Procedures for operating the IEP, work party, and decontamination teams.

Chapter 8
Public Affairs

8–1. Overview

The public must be confident that the Army is fully capable of responding quickly and efficiently to a CAI, and that the safety and security of life and property will be the paramount objective of any response. Public affairs efforts to ensure that confidence must be based on public awareness programs that address the potential threat, safety systems and procedures to neutralize the threat, and response procedures if systems fail. This chapter provides the necessary guidance for an appropriate PA program.

8–2. Planning

Each installation having a CAIRA mission will establish and implement a command information and public affairs (CI/PA) program as part of its normal operations. The objectives of this CI/PA plan are to keep the public informed about the installation and inspire confidence in the Army's ability to protect their safety. This plan will form the basis for CI/PA actions during the readiness phase, with the objective of building public support and confidence so that it will be retained in the case of an accident or incident. The CAIRA plan will include a public affairs annex focusing on activities during the response and recovery phases, with the objectives of sustaining (or recovering) public support in the event of an accident or incident.

8–3. Preparation

A sound PA program must emphasize that the way to sustain public confidence in an emergency is to establish and maintain confidence in the installation's normal operating and safety systems and procedures. Public affairs personnel must take aggressive steps to reach all personnel on and off the installation.

a. Command information. The internal public are those persons (uniformed personnel, civilian employees, contractors, family members) who work or live on the installation and any person who regularly visits the installation and stays for an appreciable time. The command information program must obtain and sustain their confidence because the

external public and news media often look to them as credible sources for inside information. (See app E for recommended checklist guidance to the command information elements shown below.)

(1) *Welcome packets.* New arrivals to the installation should receive informational materials that detail chemicals stored at the installation, chemical operations, and safety and emergency procedures.

(2) *Orientation.* Any orientation for new arrivals should include a segment reinforcing material provided in the welcome packets. Family members and regular visitors should be invited to the orientations.

(3) *Classes.* At least annually, ensure refresher classes on emergency preparedness are conducted for appropriate installation personnel.

(4) *Students.* At the beginning of each school year, conduct an orientation lecture at those installations with on-post elementary, intermediate, or high schools. Attendees should be students, teachers, and parents by invitation.

(5) *Alert signs.* Throughout the installation, particularly in areas where large numbers of people congregate, there should be signs giving the meanings of various alerts. These signs should include emergency procedures to be taken for each.

(6) *Media.* Command newspapers, daily or weekly bulletins, and newsletters should include, on a continuing basis—

(a) Articles that provide meanings of various alerts.

(b) Emergency procedures for each alert.

(c) The call letters of television or radio stations to switch to in the event of an emergency.

(7) *Alert exercises.* Commanders should advertise and conduct periodic siren alert exercise to ensure that all persons are aware of actions to take in the event of an actual emergency alert.

b. Community relations. Community leaders are members of Federal, State and local governments and the heads and/or prominent members of local safety, law enforcement, medical, educational, business, industrial, civic, and fraternal organizations. The community relations program helps them understand chemical operations and the Army's ability to respond to an emergency. These actions can help reassure the community to quell rumors and prevent panic in an emergency. (See app E for recommended checklist guidance to the community relations elements shown below.)

(1) The PAO should be a member of any installation emergency planning team that develops and reviews the coordination that will be needed between the installation and the community during an emergency.

(2) The PAO should interact with PA representatives of local leaders regularly, to solicit their support and establish a PA notification system to use in an emergency. This notification system could be a telephone recall roster whereby the PAO could inform one pre-identified person, who then would notify others in a network. Do not confuse this PAO notification system with the official notification system between on- and off-post EOCs.

(3) Safety and security permitting, local leaders should periodically be invited to tour chemical facilities of the installation and view operations. If viewing of actual operations is not feasible, commanders should consider demonstrating simulated procedures, as well as viewing CAIRA drills and exercises.

(4) Installation representatives should take every opportunity to address community organizations about chemical operations, safety, and emergency preparedness.

(5) The commander or the commander's representative and the PAO should attend town meetings to answer questions and get a sensing of the community's feelings about the installation's chemical operations. Periodically, the commander or the commander's representative and the PAO should request a place on the agenda to discuss operations and emergency preparedness.

c. Media relations. During an emergency, the size of the media contingent and its continuing presence will be determined by the nature and scope of the CAI. How the media reacts to what they see and hear, and what they report to the public will depend largely on how much they know coming into the situation. A media relations program must ensure that media representatives properly understand the ramifications surrounding a chemical accident or incident. This program will support the Army's need for the media to inform the public and forestall rumors, as well as ensure that the media does not present misinformation. The program must consider all electronic and print media. (See app E for recommended checklist guidance to the media relation elements shown below.)

(1) The commander and PAO should visit key personnel of local newspapers and radio and television stations to discuss the potential for installation emergencies and what can be done mutually to ease public fears if an emergency should occur. Key personnel should include newspaper publishers, executive editors, managing editors, city and suburban editors, radio or television station owners, general managers, news directors, assistant news directors, and assignment editors. PAOs should provide emergency information packets to media outlets. The PAO will assemble emergency media kits prior to a CAI. Kits must contain information packets, identification badges for PA personnel (to include those for possible augmentation forces), separate identification badges for news media (to include anticipated media from outside the local area), phone listings of emergency force personnel (not for media release), all emergency plans and annexes, and instructions for operation of a JIC.

(2) Local publishers, key editors, broadcast station owners, general managers, news directors, and assignment editors should be invited to visit the installation and observe chemical operations within prescribed safety and security constraints. This should be a regular occurrance (for example, annually).

(3) The PAO should visit local managing or assignment editors and should know the reporters who are likely to be assigned to cover the installation. They should be provided with copies of the emergency response information packets.

(4) The PAO should treat all print media, radio, and television stations as equals, regardless of audience size, when coordinating rapid access procedures with them. Also, Emergency Alert System (EAS) members from radio and television should be briefed and provided messages to use during an emergency.

(5) On specified days, all local media should be invited to observe chemical operations at the installation within prescribed safety and security constraints. As a rule of thumb, this should include media within a 50-mile radius of the installation. In large metropolitan areas this may be increased to a 100-mile radius to provide adequate coverage. This may be a semiannual event.

(6) The commander and/or the PAO should repeat visits and invitations to local media when major chemical operations change, when there are leadership changes at the installation or within the media, or when sufficient time passes that refresher coordination seems in order.

(7) Make prior arrangements with the local telephone company to install phone lines for local calls only, as well as lines for credit card calls.

(8) Coordinate with all persons who would be asked to participate in briefings, press conferences, or interviews with the media. The local PA staff should prepare and train those individuals who would normally participate in media interviews so that they will be accepted as credible sources during a crisis. These individuals should participate in a mock press conference or interview as part of the training process prior to a CAI. Emphasize explaining technical information in layman's terms and appearing poised before the television camera while disseminating factual data and avoiding conjecture. The mock events should be videotaped and played back to the individual for critique.

d. Senior command relations program. When a CAI occurs, there is always the potential for it to expand beyond the resources and/or purview of the IRF. If the SRF is called, it must be informed of the potential hazards and the response that may be necessary. PAOs must design a senior command relations program to help inform and prepare those forces. (See app E for recommended checklist guidance for the senior command relations elements below.)

(1) Commander and/or PAOs must coordinate plans with senior headquarters as to when a PA augmentation force may be required, how many will be needed, and from where they will come. Included in the plan should be a delineation of responsibilities and seniority assumed when the SRF's PAO arrives.

(2) There must be an MOU with the nearest military installations for initial response assistance in an emergency.

(3) Place duplicates of all PA plans and any other materials that would help prepare augmentation forces with higher headquarters.

(4) Include higher headquarters in any installation-wide emergency response exercises to test alert and communications procedures.

(5) Make liaison with the nearest FEMA and EPA offices to establish MOUs for coordinating and operating a JIC in the event of an emergency requiring their participation.

(6) Ensure that MOUs address the media center/JIC spokesperson role, which must be retained by the commander or installation PAO or the SRF commander or SRF PAO for all matters pertaining to DOD, the U.S. Army, the installation, and all response forces and operations.

8–4. Execution

The Army must sustain public confidence in its ability to respond to a throughout an emergency with PA programs that provide timely, accurate information about the event and response force operations.

a. Initial response. The public must be informed quickly when a chemical agent emergency has occurred and must be assured that the Army's response actions will mitigate or minimize any threat to life and property. This section outlines procedures for providing that assurance at the onset of an emergency. (See app E for recommended checklist guidance.)

(1) *Installation commander.* The installation commander has final responsibility for information released to the public about the installation and the technical aspect of the emergency. While it is desirable to involve higher headquarters in the release process, this should not delay action to ease fears or prevent panic in the local community during the early stages of the emergency. To assist the PAO, the commander—

(a) Ensures that the PAO understands all aspects of the emergency and is present at all staff meetings. Individual meetings with the PAO may be needed to plan PA strategy.

(b) Ensures that the PAO has support of the installation staff and that staff members understand their responsibilities to support the PAO.

(2) *PAO duties.* The PAO ensures that no information is released without the commander's prior approval. A review by the legal counsel is also recommended. The PAO alerts the nearest military installation that PAO assistance may be needed, notifies HQDA and MACOM Chiefs of Public Affairs, and assembles a PA staff.

(a) Per prior agreements, the PAO enlists a staff of personnel from other offices that may not be directly involved in emergency response operations. These personnel would be used to make and receive phone calls, copy press releases, and perform other associated PA tasks.

(b) If needed, the PAO requests initial assistance from nearby military installations under the MOU.

(c) Other sources for initial PA assistance are other Federal agencies in the local area. Consideration may also be given to preparing a contract with area public relations firms that could be implemented in an emergency.

(d) The PAO coordinates with the off-post public information offices, as needed.

(3) *Senior command.* It is important for all senior commands to know of any emergency event so they can initiate required actions.

(a) When an emergency is declared, the installation immediately notifies HQDA AOC and MACOM EOC. HQDA and MACOM Chiefs of Public Affairs are notified through AOC/EOC notification procedures. The HQDA Office of the Chief of Public Affairs (OCPA) determines if HQDA or the MACOM will coordinate PA activities and serves as the POC for the installation PAO. The MACOM PA office notifies other PA offices as necessary.

(b) Communications with OCPA or the MACOM PAO POC are maintained to provide releases not involving public safety, any releases made or anticipated, and to receive senior PA guidance.

(4) *Command information.* During an emergency, pressure to provide information to the off-post public will mount rapidly, but the installation personnel must be included. The off-post public can help or hinder PA activities according to what they know or don't know. As insiders, they will become the focus for media, civic leaders, or citizens looking for honest information. The off-post public must be kept accurately informed on both the current situation and current command PA policy. PAOs should provide—

(a) A bulletin on the emergency to installation personnel with information on who will respond to queries from news media and others.

(b) Information updates as the situation changes. These updates should provide as much work status information as possible. Printing information papers for each employee to take home should be considered.

(5) *Community relations.* Local leaders will be the focus for community concerns during an emergency and must be kept continuously informed of response activities. It is paramount that they be a part of any PA operation.

(a) The commander should inform key local political leaders of the emergency and response measures being taken and keep them informed as activities progress.

(b) Key leaders in safety, law enforcement and medical support, or their PA representatives, should be in the JIC. Include these officials in any group meetings with the news media.

(6) *Media relations.* In an emergency, news media, pressured by local and outside competition, will rush to get the most immediate information available. They may use the materiel previously provided, but they will still want timely information from the site and quotes from knowledgeable sources.

(a) Prepare to establish a JIC on or off the installation based upon safety and security considerations, accessibility, and availability of a building large enough to accommodate media and PA staff requirements. The JIC should not be placed within the IRZ. (See app E for recommended checklist guidance.)

(b) If the JIC is on the installation, arrange with security forces to control entry to the JIC.

(c) Arrange with the transportation motor pool for dedicated vehicles to transport media personnel from the JIC to an area near the CAI site, from which the media can observe operations, if feasible.

(d) Alert emergency communications teams to provide sufficient telephones at the JIC for expected PA and news media influx.

(e) Alert emergency audiovisual teams to provide radio or television equipment and personnel to document the emergency and monitor news reports. Audiotapes should be made of all news briefings and press conferences. Videotapes should also be made of all television news programs dealing with the event.

(f) Alert emergency photo teams to provide visual documentation of the emergency in coordination with the EOC.

(g) Determine schedule for providing periodic media updates, specifically the scheduling of briefings.

(h) Give news media timely and accurate information about the CAI, hazards to the community, if any, and response measures being taken, along with information on when updates may be expected.

(i) Limit information released to matters within the purview of the installation commander or cleared by higher headquarters or other appropriate agencies.

b. Service Response Force. If the IRF commander requests SRF assistance, the AOC should immediately notify the Office of the Assistant Secretary for Defense (Public Affairs) (OASD(PA)) and OCPA that an SRF has been requested. The installation PAO will then notify the Public Affairs Chief of the organization given SRF responsibility and then notify OCPA and MACOM PAO of the direction. The installation PAO will take action to provide for a JIC and be prepared to transfer all PA activities to the SRF commander PAO. (See app E for recommended checklist guidance.)

(1) The SRF will assume PA responsibilities for all DOD emergency response activities on arrival at the scene. The SRF commander will ensure that the SRF PAO is represented at all meetings about the emergency and that all SRF staff members understand their responsibility to assist the PAO. This will not preclude individual meetings with the PAO to plan PA activities. The SRF commander will also ensure that the PAO receives augmentation as the situation warrants. The SRF commander is responsible for all DOD releases made to the public.

(2) FEMA, EPA, HHS, local, State, and other civilian officials will probably be at the CAI site. These officials will have a separate agenda from the SRF commander and may want to address their own issues in dealing with the media. The SRF commander must meet with the officials quickly to establish the SRF PAO as the primary spokesperson for

releasing DOD information. This is critical in regard to CAI site operations and other matters under management of the SRF commander and within the confines of the installation.

(3) The SRF PAO will be the primary spokesperson for all on-post emergency response activities and will be coordinator of the JIC military component.

(4) The SRF PAO will apprise the coordinating senior command of the situation, give assignments to the SRF PA staff, ensure all support equipment is available, meet with PA representatives of any government or local agencies, ensure the JIC is represented at all SRF staff meetings, and develop a schedule for releases and briefings.

(5) The SRF PAO as the JIC coordinator will ensure—

(a) All information releases are factual, verifiable, and coordinated with all agencies at the CAI site, as necessary.

(b) All SRF personnel addressing a media conference are briefed prior to the conference and all on-post agencies are offered time to make statements and answer questions at the conference.

(c) News media are continuously monitored and all reported inaccuracies are promptly corrected.

(d) The local commander is informed of all PA activities and the coordinating senior command is kept abreast of the situation.

(6) When the emergency has ended—

(a) The SRF commander will return PA responsibilities to the installation commander.

(b) The SRF PAO briefs the installation PAO on the status of PA activities, provides guidance for follow-up activities, and provides copies of all materiel generated during the service response phase of the emergency.

(c) Within 30 days, the SRF PAO provides to the installation commander and higher headquarters an after-action report, highlighting lessons-learned and recommendations for future service response JIC operations.

c. Media relations.

(1) Invite the media to interview key officials on the known facts about the emergency, the facts yet to be determined, and CAIRA operations underway.

(2) As soon as feasible, and within safety and security boundaries, invite news media to view the CAI and ongoing CAIRA operations.

(3) As CAIRA operations progress, send updated releases to the news media.

8–5. Recovery

In the post-emergency period, many questions will remain as to what happened, what will be done to preclude recurrence, and what is being or will be done to deal with any medical, legal, or environmental repercussions. Installation personnel may need to respond to friends and neighbors. The community will want leaders to get answers. Senior commands need to know what actions are underway so they can respond to military, technical, political, media, and public inquiries at their level. News media will want to examine and reexamine the emergency, its implications for the future, and the effects of remedial or compensatory actions on the community. (See chap 14 for additional guidance.)

a. Command information.

(1) Prepare an in-depth article for the command newspaper, detailing verifiable facts leading up to the emergency, discussing matters yet to be determined, explaining emergency actions that were taken, and discussing investigations, risk assessments, and potential remedial actions to be taken.

(2) Provide bulletins to all personnel, discussing remedial actions to be taken.

(3) Consider dramatized videotape for orientations and classes to show what happened and how it will be prevented in the future.

b. Community relations.

(1) The installation commander, after the necessary coordination, must meet with local community leaders to advise them that all is being done to determine the cause of the emergency (if not yet known); update them on actions taken to preclude its recurrence; and inform them of remaining ongoing corrective operations.

(2) The commander (or representative) and the PAO and other emergency officials and their PAOs should attend the next local community meeting or critique to discuss the emergency, the response measures taken, the actions to prevent its recurrence, and the status of current operations.

(3) The PAO should solicit opportunities to address any issues or concerns raised by community organizations.

(4) As soon as possible, safety and security permitting, invite local community leaders to tour installation chemical facilities and observe current operations in progress.

c. Senior command relations.

(1) The installation PAO must prepare and forward through command channels an after-action report on all PA activities taken during the emergency and a plan for PA activities in the post-emergency period.

(2) The installation PAO must prepare a release pertaining to CAIRA operations, with questions and answers, for senior headquarters to use in responding to inquiries.

d. Media relations. The commander and/or the PAO should visit publishers and radio and television station owners to maintain working relationships and regain community confidence (if necessary) in Army CAIRA operations.

Chapter 9
Logistics Support

9–1. Overview

This chapter provides guidance for executing logistics operations in support of forces responding to a CAI. The IRF will conduct emergency response operations to include logistics support. The SRF will augment installation logistics support capabilities.

9–2. Concept of operations

a. Operations magnitude. Tailor logistics operations to correspond to the magnitude of the CAI. Prepare specific plans to provide appropriate logistics support to the IRF and SRF during CAIRA operations.

b. Categories of logistics operations. In the event of a CAI, there are three categories of logistics operations: immediate, contingency, and deliberate. Executing these categories will be dictated by the magnitude of the CAI and available assets. IRF and SRF command and control personnel must ensure logistics support requirements are provided to logistics operators, so they can advise on supportability of plans and requirements.

(1) *Immediate operations.* During this category, stockpiled and immediately available supplies, equipment, and personnel are used to support operations conducted by the IRF. This category may be the only one that needs to be implemented, if the CAI does not have far reaching consequences. (Immediate operations is used until the contingency category can be organized. The decision to go into the contingency category is made during the immediate response category, based on the commander's assessment of the situation.) The impact on normal, day-to-day installation logistics operations should be minimal depending on the magnitude of the CAI.

(2) *Contingency operations.* During this category, required installation assets continue to be used and reinforced in support of the IRF and SRF. The installation and the SRF staff jointly plan contingency support logistics operations. SRF response requirements are tailored according to installation capabilities. This category may severely strain normal day-to-day installation logistics operations. The planning to implement the next category, deliberate operations, takes place during contingency operations.

(3) *Deliberate operations.* During this category, SRF, MACOM, and HQDA supplied assets are used to provide logistics support to a provisional organization tasked to complete the CAI recovery operations. Expended installation assets are replaced. Assets requiring continued logistical support for CAIRA operations are provided by HQDA or MACOM. Day-to-day installation logistics operations resume, although this will depend on the magnitude of the CAI.

c. Logistics activities. Logistics activities are those actions that must be accomplished to provide supplies, maintenance, transportation, and services to personnel responding to the CAI. During immediate logistics operations, predesignated IRF personnel carry out activities using supplies and equipment stockpiled or identified for IRF response. During contingency operations IRF personnel augmented by SRF personnel and by installation logistics support personnel carry them out. Conduct deliberate operations as an additional mission for the installation, separate installation activity, or a combination of both.

d. Push package concept. Installations with a chemical agent material mission are required to maintain certain contingency stocks for CAIRA operations if a CAI occurs at that installation. These same stocks, along with appropriate operators and/or materiel handling personnel can be used as follow-on contingency push packages for CAIRA operations at other installations. The composition of these follow-on contingency push packages will vary from installation to installation due to the unique surety mission of the installation where the follow-on contingency push packages are located. However, a listing of these contingency push packages should be distributed to other chemical agent material mission installations and their MSC for IRF and SRF CAIRA planning.

9–3. Logistics activities

a. Supply activities.

(1) Carry out supply activities in the readiness phase and during CAIRA operations execution. Requirements are identified as a result of exercises and response planning. These requirements are analyzed and acquired or identified for acquisition in the event of a CAI. During the response phase, previously unidentified requirements will be passed to logistics operators for acquisition or distribution.

(2) Where possible, acquire items identified in the readiness phase as critical for response efforts or coordinate to ensure timely acquisition. Identify and list the sources of other items in the IRF or SRF plans.

(3) Store and distribute supplies and equipment in the readiness phase and during CAI operations execution.

(4) Coordinate on-post transportation, service, and maintenance requirements for supplies and equipment that have been ordered, are in storage, or will be distributed to the IRF or SRF.

b. Maintenance activities. The maintenance activities required during all phases of CAIRA operations are categorized as follows:

(1) Monitor equipment readiness.

(2) Determine work requirements.

(3) Perform maintenance and repair of vehicles and equipment.

(4) Coordinate supply, service, and transport requirements with the appropriate activity to ensure maintenance activity is carried out effectively to support the IRF and SRF.

c. Transportation activities. Transportation activities may include the following:

(1) Moving personnel on-installation.

(2) Determining transportation requirements for incoming and outgoing equipment and supplies.

(3) Coordinating transportation requirements with other logistics activities.

(4) Controlling personnel, equipment, and supply movements.

(5) Coordinating, scheduling, and acquiring transportation assets

d. Service activities. Service activities that may be required as directed by the installation consist of the following:

(1) Constructing facilities, billeting, plumbing, equipment shelters, and power generation equipment.

(2) Acquisition of real estate with help of the Chief of Engineers (COE), if required.

(3) Acquisition of billets and shelters (Harvest Eagle assets or contracting with local hotels). An Air Force asset, Harvest Eagle kits can be included in SRF billeting planning, if appropriate. The kits are air transportable and have tents, field kitchens, collapsible cots, and other housekeeping items. Harvest Eagle packages are designated war reserve materiel and are maintained by Headquarters, Air Combat Command (HQ ACC/LGX) in a ready deploy status at Holloman AFB, NM; Osan AB, ROK; and Sembach AB, GE. A complete package requires 12 C–141 aircraft for transport. Each package is configured to support 550 people. Direct requests for deployment of all or any part of a package electronically must be made by the OSC through the AOC to HQ ACC/LGX. For additional information contact HQ ACC/LGX, DSN 574–5228 or 49th Materiel Maintenance Group/LGX, Holloman AFB, NM, DSN 867–5015.

(4) Property disposal. Control of contaminated property must be maintained pending disposition instructions. This includes all supplies and equipment taken forward of the hotline.

(5) Fire protection.

(6) Food service.

(7) Sanitary facilities. Sanitary facilities including bath, laundry, and clothing exchange when no local facilities are available, and laundry for contaminated clothing and protective equipment must be provided. Where required, sanitary facilities should be located in close proximity of the hot line for use by response force personnel.

(8) Contracting. Contracting (including using the IMPAC card) for goods and services is implemented when the installation has to meet requirements that cannot be filled in a timely manner using military standard requisitioning and issue procedures (MILSTRIP). The IRF or SRF commander has authority to contract for goods and services.

(9) Mortuary services. Contaminated remains should remain under Government control until declared safe for release to next-of-kin by competent medical and safety authorities.

(a) Processing of fatalities. Generally, the remains of deceased CAI victims should be treated with the same respect and procedures that would be used in any accident. The examining authorities determine whether decontamination is to be done before an autopsy, if performed, should be made by the examining authorities. Service procedures for handling remains are contained in AR 600–8–1. When there is no longer a risk of chemical exposure, civil authorities must be notified of any civilian fatality as rapidly as possible and, if required, to aid in identifying the deceased.

(b) Decontamination of fatalities. CAI related fatalities should be monitored and, when required, decontaminated to a level that permits returning the body to the families for funeral services. This should be performed as soon as monitoring equipment is available. Until monitoring is conducted, seal fatalities in double body bags and hold them at a single collection point inside a mortuary, morgue, or hospital. If any remains cannot be decontaminated sufficiently for unrestricted burial or cremation, special assistance may be required in embalming and obtaining an appropriate casket or in making arrangements for cremation. Joint Pub 4–06 and FM 10–63 contain procedures for decontaminating fatalities.

(10) Maps, plans, and charts for the installation and the surrounding areas must be kept on hand and current. State agencies and private companies can also supply maps, some in the form of digitized data that is easily displayed and updated by computer and can be overlaid with a variety of other information.

(11) Operating an in-processing center for SRF personnel and visitors is required. Security, protocol, and logistics operators confirm a need to enter the site. Security, protocol, and logistics sections organize and provide support operations to the response effort. Compiled information is then used to publish a staff directory with telephone numbers as soon after SRF arrival as possible to help ensure a smooth transition.

9–4. Resources

a. Immediate logistics support is planned and resourced at the installation level. During the immediate logistics

support phase, notify the installation mission support organizations and transition from normal mission operations to contingency logistics operations. Plan and implement deliberate operations after the SRF has responded to the CAI site and all removal and remedial action requirements have been identified.

b. Contingency operations supply activities will be carried out by the installation, augmented by the SRF staff as agreed upon during the readiness phase, with subsequent modifications as required to meet the needs of actual CAIRA operations.

(1) Installations will develop abbreviated ordering procedures to expedite the acquisition process during these emergencies.

(2) Local procurement will be considered when and where appropriate.

(3) Requisition of supplies through channels will be on a priority basis, unless directed otherwise by the IRF or SRF commander.

(4) All supplies and equipment will be ordered by the supply activity designated to support the contingency, reported to the EOC upon arrival, and delivered as directed by the EOC.

(5) Assets taken beyond the hotline will not be released from Government control until appropriate decontamination has been ensured.

(6) POCs for MACOM/HQDA contingency support will be kept current and used when appropriate.

c. Contingency operations transportation activities will be carried out by the installation that transports supplies and equipment. The installation will schedule and coordinate transport of personnel on post and distribution of supplies and equipment on arrival at the installation.

(1) For safety considerations, routes and movement on the installation will be coordinated with the EOC.

(2) Assets taken beyond the hotline or found to be contaminated will not be released from Government control without MACOM approval. (Further guidance can be found in DA Pam 385–61.)

(3) Transportation equipment required, but not on hand, will be referred to the supply activity for acquisition or service activity for contracting.

9–5. Specific priorities

a. Priority logistic taskings for contingency operations.

(1) Set up JIC.

(2) Set up SRF inprocessing center.

(3) Publish or update staff directory as soon as possible after SRF arrival.

(4) Locate SRF billets.

(5) Arrange food service.

(6) Establish sanitary facilities.

(7) Establish fuel points.

(8) Implement shift operations and monitor work and rest cycle.

(9) Confirm augmentation requirements with SRF.

(10) Implement personnel support plans for pay, childcare, and so forth.

b. Priority logistics taskings for deliberate operations.

(1) Review logistics annex to recovery and restoration plan.

(2) Develop logistics requirements.

(3) Obtain required logistics support for the recovery as soon as possible.

c. Logistics plans for IRF or SRF support. Logistics plans for IRF or SRF support will contain listings of the HQDA, MACOM, and local POCs for logistics support. The lists will also identify the type of support available, such as communications, transportation, food service, request procedures, and other required information.

Chapter 10
Legal

10–1. Overview

a. This chapter identifies legal resources, legal actions which the legal staff may be required to take, and relevant legal authorities for on-scene reference.

b. The release of chemical agent material into the environment, whether the atmosphere or subsurface, gives rise to legal problems similar to those at commercial industrial release sites. Upon discovery, chemical agent material releases usually give rise to pressing demands for immediate action and monetary reimbursement for property damage and personal injury. Clean-up costs may be processed under tort procedures but are usually not. They are usually paid from the Defense Environmental Restoration Account, under the Defense Environmental Restoration Program (DERP), or out of installation operation and maintenance funds, depending on the facts and circumstances of the event. After

consulting AR 200–1, chapters 3 and 11, obtain assistance and guidance from the Environmental Law Division, Office of The Judge Advocate General. If and when tort damages are delineated, the following problems emerge because of limitations in Federal law.

(1) Within the United States, claims based on negligence fall under the Federal Tort Claims Act. The designee of the Attorney General of the United States must approve a settlement if the total amount of claims from one incident is over $200,000. In absence of negligence, the claim may be considered under the Military Claims Act (MCA) as arising out of noncombat activity. TJAG or TAJAG must approve a settlement over $25,000; the designee of the Service Secretary must approve a settlement over $100,000.

(2) Outside the United States, claims may be considered under the MCA if the claimant is a United States citizen normally residing in the United States or under the Foreign Claims Act (FCA), if claimant is a foreign national and circumstances similar to those above are applicable. However, if the claim arises in a country in which a Status of Forces Agreement (SOFA) exists, (for example, North Atlantic Treaty Organization (NATO) countries, Japan or Korea), the claim will be the responsibility of the foreign government as discussed in *c* below.

(3) Generally, each claimant can be paid only once. In certain circumstances, however, property damage can be paid immediately and personal injury dealt with later when the personal injuries, if any, are more clearly defined. Additionally, advance payments may be made under the MCA and FCA, if warranted. Recent experience has shown that persons exposed to hazardous agents usually are unwilling to give up their potential personal injury claims. Therefore, payment of one claim per person on an immediate basis is very difficult.

c. Within the United States, processing and investigating tort claims is an Area Claims Office responsibility under the supervision of the United States Army Claims Service; outside the United States, the United States Claims Service is responsible, with assistance from the command claims service. Usually this is the SJA of a large Army post. Disaster claims plans are already drafted to deal with CAI and should be followed. These include provisions for immediate response and setting up a special claims processing office on-location. The claims database, through JAGCNet (the JAGC Community of Knowledge), www.JAGCNET.army.mil, or through the communities' section of the Army Knowledge OnLine (AKO) Web site, contains additional material on claims disaster plans and considerations. In many countries outside the United States, tort claims are assigned to the Army, Navy, or Air Force on a single Service basis. A listing of single Service responsibility is in DA Pam 27–162. In many of these countries, tort claims arising from CAI would be processed by the receiving state under a SOFA on a reimbursable formula; for example, 75 percent paid by one state and 25 percent by the other. This means that U.S. claims personnel usually would assist with the investigation, but processing and payment would be performed by the receiving State. In other single Service countries, with no such treaty arrangement, U.S. claims personnel under the claims regulation of the particular Service responsible would process tort claims. In countries where there is no single Service responsibility delineated, the Commander, USARCS would be responsible for Army-generated tort claims.

d. Normally, the U.S. does not pay tort claims caused by an independent contractor; for example, a Government-owned contractor-operated (GOCO) plant or a carrier transporting chemical agent material. However, each applicable contract needs to be consulted since it may indemnify the contractor for liability involving chemical agent material. In cases where the United States may pay, the United States should be the secondary payer.

10–2. Specific requirements

The IRF or SRF commander will represent the U.S. Army in relations with the general public and with State and local government officials. To assist this individual, the principal legal advisor—

a. Provides legal advice and assistance to the IRF or SRF commander and his or her staff.

b. Organizes and supervises the performance of the legal element at the CAI site, including the operations of the special claims processing facility. While the commander exercises command supervision over claims activities, the head of an area claims office for the affected area is responsible for the immediate investigation of all potential claims and establishing a special claims processing office for processing claims on a priority basis (AR 27–20, para 1–11 and 1–17*b* and para *c*(4)(c)). Where single service responsibility has been established, the Armed Service designated will carry out this responsibility. In areas in which no single service responsibility has been established, the Commander, USARCS will be contacted for such assistance.

c. Establishes channels for coordination of technically complex legal matters with higher headquarters and the principal legal advisors of other Federal departments and agencies.

d. Establishes liaison with State and local legal and law enforcement agencies.

e. Provides legal advice and assistance to other Federal officials on request.

f. Reviews operational plans to ensure that they are sufficient to meet legal requirements. Particular emphasis will be placed on security, environmental safety, and documentation of facts for use in potential claims or litigation.

10–3. Resources

a. The legal function is heavily dependent on personnel. Specifically, the legal element of the response force should include, at a minimum, two attorneys and one legal clerk. The principal legal advisor must have the experience and maturity to advise the IRF or SRF commander on the myriad of complex legal problems that may arise. To ensure that

adequate claims personnel are available, the principal legal advisor will notify the head of the area claims office and provide information on the extent and nature of the potential claims exposure. The principal legal advisor and area claims office will reach a joint determination, with concurrence of Commander, USARCS, as to the implementation of the disaster claims plan and the establishment of a special claims processing office. If necessary, the head of the area claims office will send an advance party to aid in such a determination. The legal element of the SRF may be expanded depending upon the nature of and circumstances surrounding the CAI.

b. Other Federal departments and agencies may also include one or more attorneys as part of their on-scene response force.

c. In appropriate cases, or when requested, counsel from higher headquarters may be deployed to the scene to provide expert advice and assistance to the principal legal advisor.

10–4. Concept of operations

The concept of operations presented here is directed toward the actions of the principal legal advisor and other personnel assigned to that legal element. In the discussion that follows, recommended actions are presented in as near to sequential order as possible.

a. Readiness phase actions. The principal legal advisor must be thoroughly familiar with the authority and responsibility of the various Federal departments and agencies participating in the response, the relationship with State and local authorities, jurisdictional principles, security requirements, and claims administration. Inasmuch as requests for legal advice will require immediate response, and adequate research facilities are not likely to be available on site, potential principal legal advisors should prepare a handbook for use at the CAI site. Issues may include problems stemming from security, evacuation of civilians, and damage to public or private property. The handbook should be tailored to the expected needs of the preparing force, Service, or agency. Appendix F, paragraph f–3, contains a list of some of the appropriate legal references.

b. Initial actions.

(1) The IRF or SRF commander and his or her staff must have immediate access to legal advice and assistance. Accordingly, the principal legal advisor should be located near the EOC.

(2) The special claims processing office should be staffed with a claims judge advocate with delegated authority to pay claims in the amount of $25,000 or less for MCA claims and $50,000 or less for FTCA claims. The special claims processing office should have adequate investigatory, administrative, and logistical support, to include damage assessment and finance and accounting support. The principal legal advisor should ensure that scientific advice concerning the chemical hazard is immediately available. He or she also should ensure that the office is properly located—near the CAI site, but away from congested areas.

(3) The availability of claims assistance will be publicized to include the location of the claims office and the correct procedures to follow (DA Pam 27–162, para 1–14*e*(3)).

(4) Early coordination with State and local legal and law enforcement authorities is essential to establishing and maintaining an effective response effort.

(5) If principal legal advisors from more than one HQDA agency are present at the CAI site, all legal advice and assistance must, to the extent possible, be jointly coordinated to assure clarity and consistency.

(6) Visual documentation, for example, photographs, maps, diagrams, and so forth, of the CAI site and response activities must be collected and maintained as they may be required during subsequent litigation.

c. Follow-on actions. The principal legal advisor or designated representative should remain at the scene until the response operations are complete. The principal legal advisor will advise the IRF or SRF commander when the claims processing facility should cease operation.

d. Public affairs. A chemical agent material release is going to generate adverse publicity simply by its occurrence. Should PA be mishandled, particularly with regard to legal matters, the results could be devastating. Therefore, PA will need to be afforded separate, special treatment. As a minimum, take the following considerations into account:

(1) Legal and claims personnel must be made aware of the sensitive nature of issues surrounding a CAI. Controls should be implemented to ensure that information provided by the claims office is in accordance with established policy and that queries for additional information are referred to PA personnel.

(2) The IRF or SRF commander makes or approves the dissemination of information to the public concerning DA actions at a CAI site. It is essential that such press releases be coordinated with the principal legal advisor.

(3) Additional guidance in this sensitive area may be found in chapter 8. Further, the IRF or SRF commander establishes additional guidance at the CAI site, as required.

10–5. Legal annex

Installations with a chemical agent mission should have a legal annex to the CAIRA plan. As a minimum, the legal annex should include—

a. Procedures for establishing and operating a claim center. (See app F.)

b. Requirements for coordinating with other staff elements.

c. Procedures for the documenting physical evidence that may be significant to resolving claims or litigation.

d. A description of the interrelationship between the principal legal officer and other Federal, State, and local officials.

e. References to applicable statutes and regulations, such as the FTCA, MCA, FCA, AR 27–20, and DA Pam 27–162.

Chapter 11
Environmental Monitoring

11–1. Overview

a. General.

(1) This chapter delineates the rationale and procedures for monitoring in the event of a CAI, describes how this information will be evaluated, and discerns potential response actions and decision points. While some of the common equipment used to identify chemical agent releases to the environment are described in chapter 13 of this document, this chapter will provide a practical assessment of what data to obtain and what to do with it.

(2) Chemical agents differ from most materiel encountered within the general public and private sectors with respect to their effects. Generally, these agents are quite toxic, with exposure to a very small quantity sufficient to cause harm to human health and the environment. This, combined with the fact that many of these agents are present in a vapor form, makes them potentially very difficult to identify and quantify in the environment. Conversely, the ban enforced on open-air testing/training with this military-unique materiel, and the current prohibition addressing all modes of transportation, considerably limit the possible scenarios and locations for release.

b. Health-based criteria and environmental screening levels.

(1) HQDA has developed health-based criteria for different environmental media, to include water and soil. Some of the criterions are for general use throughout the Army and others are for site-specific response actions. HQDA periodically updates these health-based criteria and environmental screening levels as more recent data becomes available. They are not standards, but represent levels above which more detailed assessment should occur. The values developed provide a very conservative assessment of chemical agent materials found in the environment, which is critical for the protection of the public health.

(2) The most immediate threat during a CAI results from transporting/migrating the chemical agent in an aerosol or vapor form. Decisions to notify workers, other personnel on the installation, and neighboring communities, as well as whether to implement evacuation or shelter-in-place measures, are based on data depicting this information. Human exposure values for chemical agents in air are contained in AR 385–61.

(3) Although emergency operations will generally be determined by detected airborne contaminants, extensive CAIRA operations may require collecting and analyzing samples from other environmental media (soil and surfaces). The information provided by these analyses may prove critical in determining further response actions. For example, commanders may decide that evacuation is unnecessary based on soil and surface sampling and analysis. For the most, however, this information will be used with issues involving potential receptor exposures, reentry decisions, and remedial operations. Delineating health-based criteria and environmental screening levels remains a dynamic activity, as toxicological and exposure information is reassessed and revised. A list of pertinent health-based criteria and environmental screening levels for environmental media can be acquired from the Office of the Assistant Secretary of the Army for Installations and Environment (Environment, Safety, and Occupational Health) (ASA(IE)(ESOH)).

c. Data assessment. Obtaining environmental measurements establishes a body of data that describes the CAI and its affect on human health and the environment. Following notification of a CAI, the ensuing monitoring data must be compared to pertinent exposure limits and assessed using current toxicological data. This information, in conjunction with data provided by supporting models, may then be used to assess the possible extent and magnitude of the CAI. IRF personnel can determine the appropriate response actions based on the particular scenario conditions, model input, and predetermined response recommendations. Environmental health personnel should be available for consultation and integration into the IRF/SRF operations.

11–2. Procedures

a. General. Initially, monitoring should focus on defining the hazard and its extent in both geography and time. Hot spots and zones of maximum concentration should be clearly delineated with times of each reading and the estimated times when the contaminant materiel may have been present. For near real time measurements, estimate and record the time the sample was taken, as well as the time the data were provided. Factors such as local wind patterns and terrain anomalies should be noted. Monitoring and emergency response actions will continue until the CAI source has been contained/controlled and the threat no longer exists.

b. Background data. An important step in predicting the possible impact of a CAI (primarily at stationary/stockpile sources) involves collecting information/data during non-emergency conditions. Prevalent seasonal meteorological conditions should be used to estimate the basic direction and magnitude of contaminant dispersion during a potential CAI. Aerial photographs and terrain analysis should be used to identify potential receptors for each likely pathway. See

table 11–1 for a more complete list of the background information that should be obtained during non-emergency conditions. Collecting baseline data should be coordinated with the adjacent communities through CSEPP. Outside of previously coordinated CSEPP plans, Army personnel cannot conduct off-post surveying and sampling without the ASA(I&E)'s approval.

c. CAIRA activation.

(1) The operational CAIRA plan will be instituted immediately upon notification of a CAI. Notification may occur via monitoring devices and/or alarms, visual evidence, or discovery of a release. Available monitoring data will be assessed and compared to the airborne exposure limits presented in AR 385–61 to determine the potential immediate threat to activity personnel.

(2) Data should be obtained from other stationary monitors in the general area to help determine the relative presence and dispersion of the contaminant plume. In addition, portable monitors should be transported to installation areas/boundaries to assess the projected path of the contaminant plume. All data sources should be recorded (including date, time, location, and information provided) in an official incident log. In many cases, the amount released to the environment will be relatively small and the plume will move and disperse quicker than CAIRA resources can activate and effectively intercept. The source of the release must be identified and contained as quickly as possible, and the areas originally affected reassessed. To reassess the status and prioritization of CAIRA actions, the IRF commander uses the updated data (including model predictions).

(3) Decisions regarding reentry into workplace or residential areas should be carefully considered and founded on technical information. The absence of a cloud or plume does not mean that personnel can move back and re-establish routine activities. Limited access may be allowed initially, with personnel using the appropriate protective clothing/equipment. Environmental sampling should be accomplished to discern the presence (and possibly extent) of contaminant residue that may have deposited on vegetation or equipment. Personnel will be allowed back into the CAI area only when there is no evidence of residual chemical agent contamination or analytical results do not exceed health-based action levels.

(4) The CAI response area should be checked with low-level monitors supplemented by low-level alarms prior to allowing anyone back into the CAI area. This equipment should detect levels down to the airborne exposure limits (AEL) specified in AR 385–61, table 2–3. Personnel performing these checks should be in the appropriate level of personnel protective equipment specified by DA Pam 385–61.

(5) Qualified laboratory facilities should be used to evaluate baseline and emergency samples of chemical agent materials or byproducts. A listing of the available laboratories is available from the Soldier Biological Chemical Command (SBCCOM). Prearranged coordination and agreements facilitate a quick response time in emergency situations.

Table 11–1
Listing of relevant background data

Parameter	Pertinent factors
Meteorological characteristics[1]	Precipitation (type, amount, season) Temperature (air, ground, water) Wind speed and direction Unusual/regional patterns
Land use[2]	Residential Agricultural (pasture, crops) Manufacturing Retail stores Recreational/athletic fields Vegetable gardens Wildlife refuges/parks Wooded/forested Storage
Terrain characteristics[3]	Soil types Geologic formations Elevations (hills, valleys) Types of plants/trees
Hydrologic characteristics[4]	Surface waters Ground waters Potable supply sources Water treatment facilities Wastewater treatment facilities Flood areas Wetlands Recreational waters (fishing, swimming, boating)

Table 11–1
Listing of relevant background data—Continued

Parameter	Pertinent factors
Buildings and structures[5] (locations, use, occupancy)	Residential (single/multiple) Industrial operations Institutional (schools, hospitals) Commercial Administrative
Food of animal origin[6]	Dairy/beef cattle herds Sheep/pig/goat herds Poultry farms (meat/eggs) Game birds and mammals Fish and shellfish operations

Notes:

[1] Potential Sources of Information: National Weather Service, airports, universities, natural resources personnel (on installation).

[2] Civilian: Tax assessor, court clerks, emergency services.
Military: Engineering Plans & Services Office, buildings and grounds, environmental management.

[3] Civilian: Soil Conservation Service, U.S. Geological Survey (and State equivalents), universities.
Military: NPDES and RCRA permit applications, installation PA or RFA, environmental management office.

[4] Civilian: Water and sewer departments, county planning commission, natural resource offices.
Military: Environmental management office, natural resource office, DEH/PWC office.

[5] Civilian: HUD, local zoning boards, housing commissions, emergency services operations.
Military: Engineering Plans & Services, DEH/PWC office.

[6] Civilian: Agriculture extension offices, 4–H organizations, dairy association, natural resources office (or whoever maintains agricultural leasing agreements).
Source: CSEPP Reentry/Restoration Sourcebook/Workbook.

11–3. Stationary sources

a. Installation monitoring. Stockpile locations pose the greatest risk for a CAI occurrence due to the volume of chemical agent materials present and the storage/handling/disposal operations conducted. Monitoring equipment and alarms should be sited throughout chemical storage and operational areas. The data obtained from these instruments will be used to define the CAI source(s) and magnitude. This information base can be augmented through deployment of portable monitoring equipment and reference to the baseline data obtained during non-emergency periods.

b. Hazard assessment. The assessment of CAI sites will consider the health and welfare of personnel and the protection of government and civilian property. This information should be obtained or action taken as follows:

(1) Incident information.

(a) Type of release (instantaneous, intermittent, or continuous).

(b) Materiel identification (mustard, GB, VX, lewisite, or specific chemical name).

(c) Estimated volume (type of container(s)).

(d) Agent behavior (persistent, volatile, readily degradable).

(e) Local factors (wind speed and direction at the source location, presence of atmospheric inversion, terrain).

(2) Assessment of potential impact.

(a) Review of baseline data and information for specific site/area to discern topographic, demographic, and geographic features.

(b) Identify possible pathways of migration/impact.

(c) Determine potential receptors (humans, animals, or crops).

(3) Special considerations.

(a) Immediate activation of the CAIRA plan.

(b) Recurring coordination with on-post and off-post authorities regarding actions taken and proposed (potential activation of CSEPP).

(c) Potential contamination of food or potable water resources.

(d) Need for decontamination and the handling of decontamination waters/residues.

c. Reentry/recovery.

(1) *Reentry evaluation.* The point at which reentry may occur and the method(s) used to discern when safe levels have been achieved are not easily determined. Selective environmental monitoring and analysis should precede a return to normal operations on a DOD facility. These results should be assessed by environmental/public health personnel who will provide recommendations to the IRF/SRF commander regarding unlimited or restricted reentry. Reentry occurring at off-post locations must be coordinated with local emergency operations authorities (and/or FEMA and EPA) via the CSEPP. Verification sampling and assessment should be undertaken in a manner similar to that described

for installation CAIs. USACHPPM maintains an environmental health risk assessment and risk communications program for onsite, consultative, and training regarding recovery, remedial investigation, and risk assessment.

(2) *Transition to recovery.* Residual chemical agent materials (or degradation by-products) may remain in the environment at the conclusion of emergency response activities. The location, to include the extent and magnitude, of any remaining chemical agent contamination must be defined through environmental sampling. Remediation operations are detailed in chapter 14.

11–4. Transportation emergencies

a. Off-post transportation. In the event of a CAI involving off-post transportation of chemical agent material, the technical escort officer (TEO) will assume immediate control until the emergency has ended or until relieved by the IRF. The region located immediately downwind of the transport vehicle should be sealed off, to the highest degree possible, until the source of the release can be determined and contained. Response personnel and equipment will be staged in the upwind direction. If time and personnel allow, portable agent monitors should be deployed in a pattern described in figure 11–1.

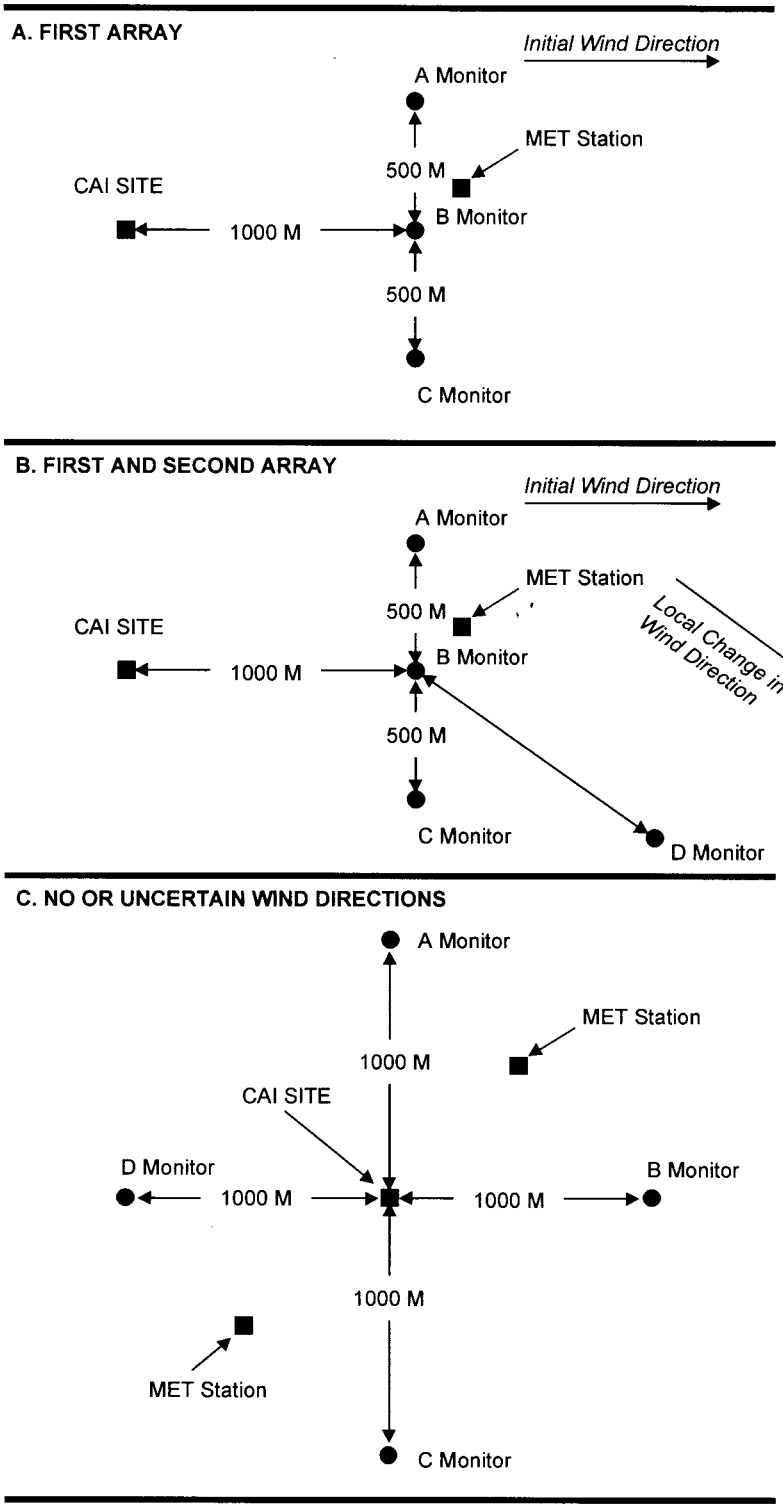

Figure 11–1. Monitoring network for a transportation CAI

b. Transition to recovery. The need to address recovery issues will depended on the respective scope of the CAI. Relatively minor incidents, where little materiel may have been released and/or the materiel was well contained, may require no further action. However, Army officials should be sensitive to reasonable requests from local authorities to perform basic sampling and analysis of potentially affected soils, crops, and vegetation, where concerns for long-term public health and welfare exist. Such projects, along with subsequent remedial actions, would be referred to the appropriate Army Corps of Engineers office. Legal implications of inappropriate and/or inadequate data collection, assessment procedures, and documentation must also be considered.

c. Transport emergency on a DOD facility. A transportation CAI occurring on an Army/DOD installation may be handled similarly to that described for stationary sources in paragraph 11–3. However, special considerations should be made to address the potential proximity of resident/employee populations and geographic features that may differ from those delineated during baseline assessments that focused on normal storage and handling locations. Chemical munitions and bulk agents must be packaged in accordance with container specific LOIs and applicable special packaging instructions (SPI) if it becomes necessary to transport these items on other than Federal property.

11–5. Technology

a. Requirements. The term *monitoring* has been used in an all-inclusive sense in this publication. The intent of all environmental monitoring is to detect, warn, identify, and track the presence of hazardous substances. It is also desirable to continuously measure these substances at critical locations (for example, around stockpile storage sites). A list of the monitoring equipment available is presented in chapter 13 of this document. The equipment should improve over time, as technology advances and detection sensitivity increases. It is important to upgrade monitoring capabilities, as technological advancements become available. To provide a defensible assessment of relative risks posed to workers and residents potentially exposed during a CAI, use monitoring or analytical equipment/procedures that will achieve detection limits below those presented in DA Pam 385–61. Personnel reentry will not be allowed until concentrations of the released materiel(s) are detected below the levels presented or in accordance with the assessment information provided by those tasked with these actions.

b. Calibration. All monitoring and analytical equipment used must be periodically inspected and calibrated to ensure proper operation and results. Calibrating such equipment (whether permanent, portable, or in a laboratory) should be accomplished in accordance with manufacturer's specifications and applicable Army regulations. The dates of inspection or calibration, findings, and any necessary actions/work should be noted in a dedicated maintenance logbook.

11–6. Passive biomonitoring

Additional information may be gained by observations of domestic and wild animal populations. These observations may prove particularly useful in situations where appropriate monitoring equipment cannot be deployed in a timely manner. Historically, observing birds (for example, chicks or canaries), sheep, and insects (for example, a honeybee) populations have been instrumental biomonitors that provide information regarding the effects of released agent materiel. The information garnered from such observations should be considered when addressing the issues of how to define the path of contaminant migration, whether conditions that may be considered immediately dangerous to life and health were achieved, if reentry is advisable, and where future investigative efforts should be focused.

Chapter 12
Meteorology

12–1. Overview

a. Weather variables. The field behavior of chemical agents depends on weather variables, such as wind, temperature, air stability, humidity, and precipitation. The influence of each variable depends on the synoptic situation and is locally influenced by topography, vegetation, and soil type.

b. Appearance in the field. As a result of a CAI, chemical agents may appear in the field as vapors, aerosols, or liquids. To understand the impact of chemical agents in the environment, the commander must also understand how weather and terrain affect these agents. The best way to be prepared to cope with a chemical hazard is by the following:

(1) Establishing a network of meteorological sensors.

(2) Using meteorological and hazard assessment models.

c. In the atmosphere. FM 3–6 gives an overview of the basic characteristics of chemical agents in the atmosphere, while this chapter provides guidance on how meteorological factors may help mitigate the harmful effects of a CAI.

d. Basic considerations. Meteorology is the science of weather and its many variables such as atmospheric motion,

solar radiation, precipitation, temperature, and pressure. Meteorology governs the path, motion, and evolution of chemicals released into the atmosphere.

12–2. Factors affecting CAIRA operations

Meteorological factors that impact on CAIRA operations can be classified as synoptic and local. Both classifications are important for understanding the development of an atmospheric chemical hazard.

a. Synoptic meteorology. Synoptic meteorology is large-scale meteorology comprised of the overall weather systems that move through an area and is governed by large scale atmospheric changes in pressure, temperature, moisture, and wind velocity. A specific synoptic system may be a high- or low-pressure system that lasts for several days. Typically, one or two synoptic systems may affect the course of chemical releases and environmental effects occurring over several days and should be forecast on a routine basis.

b. Local meteorology. Local meteorology includes mesometeorological and micrometeorological influences.

(1) Mesometeorology includes the effects of mountains, valleys, rivers, and forests. The specific effects of mesometeorology are difficult to forecast, but experienced meteorologists using modern meteorological models can predict the changes of wind directions and cloud paths over the complex terrain with improved accuracy over synoptic meteorological forecasts.

(2) Micrometeorology includes the smaller scales of the meteorological process, such as those of the size of chemical source releases. Micrometeorological influences and measurements are local and need to be integrated into a larger scale picture for large releases of chemicals or releases and effects that are not at the exact position of the meteorological measurements.

c. Meteorology affecting atmospheric chemical release. It is necessary to quantitatively determine the direction and extent of an atmospheric chemical hazard. To do so, the meteorological variables affecting such travel must be measured accurately and plotted on the synoptic, mesometeorological, and micrometeorological scales. Horizontal wind velocity, pressure, temperature, humidity, and precipitation must be recorded on all three scales.

d. Meteorological station. A large chemical storage or demilitarization facility should have a manned meteorological station and associated meteorological network to provide the necessary data in a timely manner.

e. Meteorological system. An adequately equipped system would include at least the following sensors, systems, and maintenance capabilities:

(1) Meteorological network covering areas at risk, including receipt of satellite-transmitted synoptic meteorological information.

(2) Automatic real-time transmission of meteorological information to a hazard assessment system.

(3) Hazard assessment system including computers, meteorological, and hazard assessment models.

(4) Maintenance and quality assurance program.

f. Meteorological models. The meteorological model provides timely and accurate information for real-time hazard assessment.

(1) Ideally, a meteorologist with hazard assessment training, called the hazardous meteorological specialist (HAZMET), will provide the hazard assessment. The HAZMET will use the meteorological and hazard assessment models to forecast the potential or existing toxic corridor. The meteorology governing such transport of chemical agents is very complicated and is a current area of research. Because of this, models are constantly improved and will be revised for the foreseeable future. It is important that once approved, up-to-date training and models be used in these hazard assessments.

(2) The meteorological models must include the effects of the wind, temperature, mixing layer height, stability, terrain, and meteorological trends. The models must be able to resolve those scales of features that are important for that particular location, as a function of realistic meteorological conditions. Until newer models are tested and approved, the Edgewood Chemical and Biological Center (ECBC) D2PC model must be used (strictly, this is a hazard assessment model but contains some meteorological features; it does not contain complex terrain and meteorological forecast information).

g. Forecasting for hazard duration. During a large release exposed to the atmosphere, it is likely that the direction and speed of the wind will change. Therefore, to predict the best evacuation route, it is important to be able to predict the resulting direction of travel of the toxic cloud.

(1) It is critical that personnel are not evacuated to a zone into which the toxic cloud will follow. The meteorological forecast must be sufficient for making accurate plans.

(2) When insufficient information is available, the forecast will be presented in terms of probability of occurrence of the possible outcomes.

(3) Forecasts must be made, posted, and communicated to the command and important elements at least daily. Forecasts should include hourly values of winds, diffusion stability, temperature, precipitation, cloud cover and type, humidity, and severe weather warnings for a 72-hour period.

(4) Forecasts must be timely.

12–3. Operations at a CAI site

Each chemical agent material installation should have the daily services of a professional forecast meteorologist. This meteorologist will be responsible to provide operational support, guidance, and advice on the safety of operations. This meteorologist should be available for assistance in cases of nonroutine operations and CAIs.

a. Manpower requirements (qualification, training, certification). A forecast-qualified meteorologist or staff weather officer with hazard assessment training and certification should run the meteorological section. Training and certification should be provided by recognized professionals. At least semiannually, commanders will inspect meteorological operations and hazard assessment capabilities. CAIRA exercises and drills should include an inspection by a qualified meteorologist to determine the quality of the meteorological support provided. Detailed after action reports should be provided and followed up to ensure capabilities and operations meet appropriate standards.

b. System needs (sensors, computers). Large chemical agent storage or demilitarization facilities should be surveyed by an organization (Army or non-Army) with the capability and knowledge of meteorological, transport and diffusion, and hazard assessment systems. Although needs vary depending on climate, terrain, operations, and population proximity, a depot typically needs information provided by sonic detection and ranging (SODAR) (remote acoustic) wind and mixing height sensors, towers with wind and temperature sensors appropriately placed in the region, radiometers, lightning sensors, and lightning protection. A computer is required to perform the model calculations. Suitable communications must be available to send the data from the sensors to the model calculation computer. Independent uninterruptible power sources should be used to enhance reliability of operation and equipment.

c. Routine procedures. The HAZMET should establish an SOP, which will include daily briefings to the command or command representative (command briefings). These routine operations will establish familiarity with the type of meteorological influences in the local area. These operations will also provide operational support for moving and testing chemicals, to minimize the potential for severe accidents. For example, transfer exercises and drills and toxic materiel movement should be rescheduled during weather periods that would minimize atmospheric hazards in case of leaks. The degree and dosage hazard may change by more than a factor of 100 due to variation of the meteorology.

d. Nonroutine procedures. Plans should make provisions for nonroutine operations and CAI procedures. The IRF or SRF commanders and designated hazard specialists should coordinate these actions.

Chapter 13
Contamination Control

13–1. Overview

This chapter provides guidance for contamination control during a CAI and procedures and techniques for limiting chemical hazards. It describes methods for locating, identifying, reducing, and eliminating chemical contamination.

13–2. Hazard determination

a. When it is unknown whether or not explosives are involved in a CAI, or the types or numbers of munitions cannot be determined, an initial restricted area of 450 meters in radius should be established around the CAI site. The CP must be located upwind and outside of the restricted area. Since the contamination reduction area will cover approximately 50 linear meters, the CP should be located a minimum of 500 meters upwind of the CAI site. See figure 13–1 for a typical CAI site layout. Chapter 7 contains procedures for chemical agent and munitions operations.

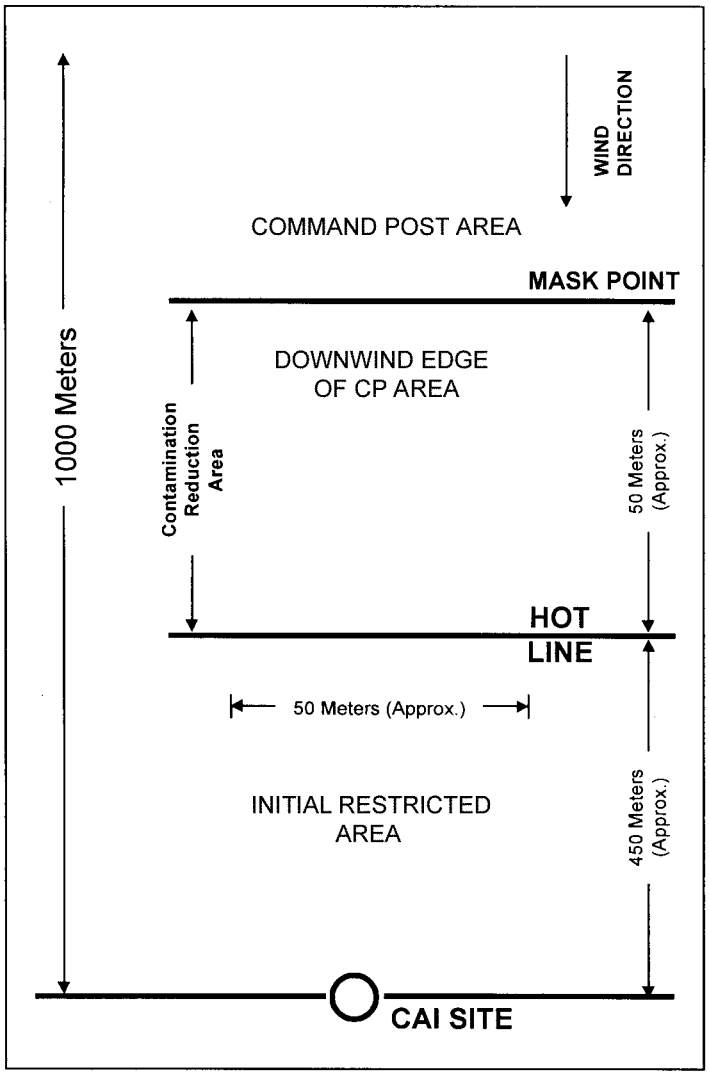

Figure 13–1. Typical site layout for a CAI (not to scale)

b. If there is no explosive potential, the restricted area may be reduced to an area no less than 50 meters in radius, with the center or source of contamination representing the origin of the radial.

c. Upon entry into the restricted area, detection teams will be concerned primarily with confirming if a downwind hazard exists and if any liquid contamination is present. Two detection teams should begin at the hotline at zero degrees (based on initial wind direction) from the CAI site. The detection teams should then proceed in a straight line toward the contamination source, if known. When liquid contamination is encountered, the detection teams should mark it with the appropriate hazard sign or a stake with engineer tape. The team should not proceed farther into their area but should return to the boundary of the restricted area, proceed a few degrees clockwise and counterclockwise, as appropriate, around the restricted area, and then remonitor toward the contamination site until contamination is again found. Repeat this procedure all the way around the restriction area. This is known as the "in-and-out method"; it provides a means of determining the extent and dispersion of contaminants. If appropriate meteorological equipment can determine wind conditions, the CP/hotline should be located based on the prevailing wind and not on the more time-consuming "in-and-out method."

d. The plotting team predicts and plots the downwind hazard area. See the example at figure 13–2. Detection teams should conduct aerosol, vapor, or liquid tests to confirm if a downwind hazard exists and to establish the extent of travel.

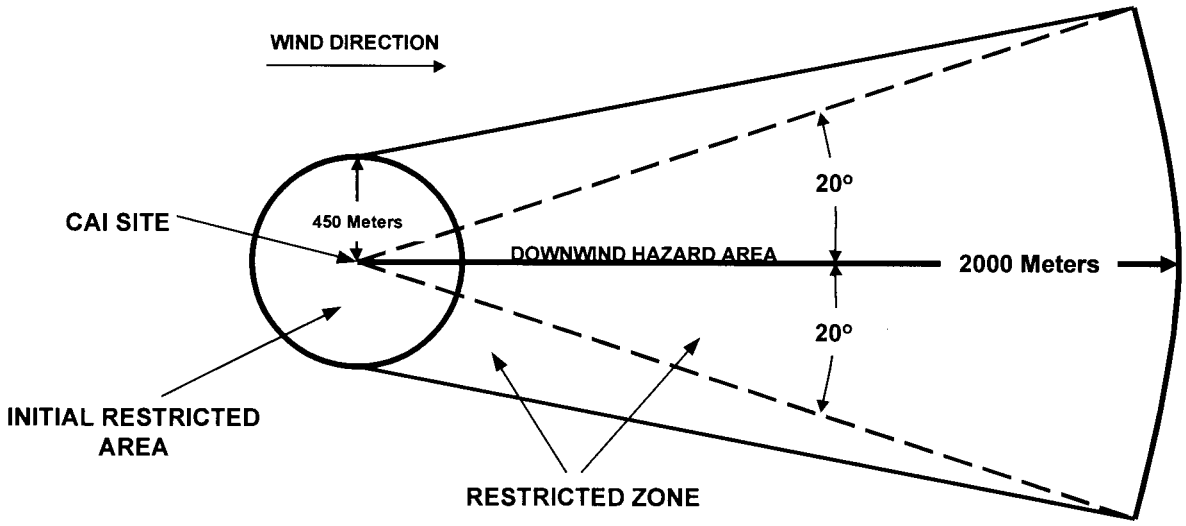

Figure 13–2. Downwind hazard area

13–3. Reduction of contamination

a. Procedures to reduce or stop agent leakage and contamination should begin as soon as possible. The hazards from contamination can be reduced for a time by covering the contamination. Other ways to control and reduce contamination are encapsulating, overpacking, or containerizing the agent source.

b. Ground spills can be covered for a short time with dirt, plastic sheets, wood mats, or other materiel soaked with decontaminant. The ground absorbs liquid contamination and also reduces vaporization. On hot, sunny days, a decontaminant soaked cover can aid in slowing the amount of escaping toxic vapors. Dry particulate contamination can be shielded from the wind that, even at low speeds, can cause a secondary hazard, contaminating a large area. One disadvantage of covering is that it allows liquid contamination to penetrate deeper into the absorptive media and further complicates removal operations.

13–4. Identification of chemical agents

The kits and items described below are available to detect, identify, and sample chemical agents. Normally, the installation ammunition directorate, chemical surety office personnel, technical escort unit personnel, the shipper, or the shipping documents can identify chemical materiel. DOT regulations require all carriers of HAZMAT to be appropriately marked and all shipping documents to be accurately annotated.

a. Detector paper.

(1) The VGH–ABC, M8, chemical agent detector paper will detect liquid chemical agents. The detector paper—

(a) M8 paper detects and identifies liquid V- or G-type nerve agents or H-type blister agents. The sheets are impregnated with chemical compounds that turn dark green, yellow, or red upon contact with a liquid chemical agent. A color chart in the booklet helps determine the type of agent contacted. As it does not detect vapor, the paper must touch liquid agent. It is best suited for use on nonporous materials. Because some solvents also cause it to change color, the paper is unreliable for determining the completeness of decontamination; for example, DS2 mimics a positive V agent reaction, a black/green color change (FM 3–4).

(b) Is a component of both the M18A2 and M256A1 detector kits described in *b* and *c* below.

(c) Available as a separate item.

(2) M9 chemical agent detector paper is a separate stock fund item of issue. It detects small droplets (greater than 50 microns) of liquid agent. The paper is gray/green and turns red when in contact with agent droplets or liquid. It does not distinguish between mustard or nerve agents. (M8/M9 paper is subject to interference and should not be used as a sole verification of the presence of an agent.)

b. The ABC–M18A2 chemical agent detector kit. The M18A2 kit is designed primarily for detecting dangerous concentrations of vapors, aerosols, and liquid droplets of the agents listed below. (Items (1), (3), (4), (5), (7) and (8) are considered to be industrial chemicals or are not controlled under the chemical surety program.) The kit's components provide for the sampling of unknown agents. If a chemical agent is suspected but cannot be detected with the kit, vapor samples can be collected in sampling tubes for forwarding to a laboratory for identification. This kit may be used for

testing the presence of gross level chemical agent after decontamination. Do not consider a negative read from this detector kit as final clearance of decontamination; a negative read only indicates that acutely dangerous levels of the agent are no longer present. The kit contains blue band tubes and white band tubes. The blue band tube is also a separate stock item that will detect mustard agent vapor at concentrations as low as 0.5 mg/m^3 and GB as low as 1.0 mg/m^3. The sensitivity decreases with lowering temperature. Upon addition of reagent, the tube will turn to a purple-blue in the presence of mustard vapor and yellow-orange or blue-green in the presence of GB vapors (depending upon the reagent used). Using the blue band tube is preferred over the M256A1 detector kit sampler for detecting mustard. The white band tube may also be used for detecting GB. The expiration date of the white and blue band tubes can be disregarded when used with the reagent indole for GB detection.

(1) Cyanogen Chloride (CK).
(2) Mustards (H, HD, HN, and HT).
(3) Phosgene oxime (CX).
(4) Hydrocyanic acid (AC).
(5) Phosgene (CG).
(6) Lewisite (L).
(7) Ethyl dichloroarsine (ED).
(8) Methyl dichloroarsine (MD).
(9) Nerve agents (V and G agents).

c. M256A1 chemical agent detector kit. Use this kit to detect and identify field concentrations of nerve, blister, or blood agent vapor. The plastic detector component has all the reagents self-contained in finger-crushable glass ampoules. Testers should follow the instructions printed on the outside of the heat-sealed protective envelope. In the presence of mustard agent, the detector changes color to a distinctive purple-blue. In the absence of GB/VX, the detector turns a distinctive blue color. The sampler will detect agent vapors at concentrations of 3.0 mg/m^3 for mustard, 0.005 mg/m^3 for GB, 0.02 mg/m^3 for VX. The response time of the sampler increases as the temperature decreases. Gloves and protective masks are required when breaking the heater ampoules used for mustard detection.

d. Absorption air sampling. An absorption air sampling system (commonly referred to as a bubbler) provides a reliable method for detecting low level concentrations of agent vapors; however, this system has no capability for providing an alarm response when agent is present.

(1) The bubbler unit is usually a vessel packed with glass beads and filled with a scrubbing solution. The air sample is bubbled through the scrubbing solution that absorbs the chemical agent from the air sample. After sampling for a predetermined time and flow rate, the unit is removed and sent to a chemical laboratory for processing to determine the presence, type, and quantity of agent in the sample.

(2) Utilizing proper analytical techniques, the system can detect average agent vapor concentrations of 0.003 mg/m^3 for mustard and lewisite, 0.0001 mg/m^3 for GA and GB, 0.00003 mg/m^3 for GD, and 0.00001 mg/m^3 for VX. Lower average concentrations can be detected by increasing the sampling time and/or the rate of the sampled air.

(3) When bubblers are used in place of real-time monitoring and to provide necessary feedback concerning conditions of the area monitored, samples should be analyzed as soon as possible after the sample is drawn.

(4) Where bubbler samples are not used as a substitute for real-time monitoring and immediate analysis is not required, samples may be stored (or shipped if necessary) provided that temperature and length of storage are strictly controlled. Laboratory SOPs should outline temperature and storage requirements for these samples. Since samples are subject to agent degradation (such as hydrolysis) when subjected to high temperatures or long periods of storage, bubbler samples should be aspirated and stored at controlled temperature conditions (21 °C (70 °F) or less) right up to the time they are analyzed (within 36 to 48 hours). If the length of time between sampling and analysis will exceed 48 hours, temperatures should be maintained at or below 2 °C (36 °F) to minimize degradation. Water based samples should not be subjected to freezing temperatures.

e. Depot Area Air Monitoring System (DAAMS). DAAMS is a portable air-sampling unit that is designed to draw a controlled volume of air through a glass tube filled with a solid collection materiel. As the air is passed through the collection materiel, the agent is collected. After sampling for the predetermined period of time and flow rate, the tube is removed from the vacuum line and sent to a chemical laboratory for analysis to determine the presence, type, and quantity of agent collected in samples. This technique will sample down to the AEL and is intended to provide low-level detection capability.

f. The ACAMS and MINICAMS®. ACAMS and MINICAMS® are types of automated gas chromatographs that are currently available for real-time agent detection and alarm capability at various levels. They can detect and alarm at the AEL. The ACAMS is capable of detecting agents GB, VX and HD at low level (GB at 0.0001 mg/m^3, VX at 0.00001 mg/m^3, and HD at 0.003 mg/m^3), and gross levels (up to 100 mg/m^3 when using the Low Volume Sampler). The ACAMS can detect an agent at concentrations as low as 0.00002 mg/m^3 for GB, 0.000002 mg/m^3 for VX, and 0.0006 mg/m^3 for HD. The ACAMS can detect agent present in the ambient air, furnace exhaust stacks, filter stacks, and highly contaminated areas. The ACAMS can also be used, and is available, for mobile monitoring operations. The ACAMS gives a local audible and visible alarm in addition to sending an analog signal to a remote location. The response time for the ACAMS may vary from 3 to 5 minutes depending on the agent being monitored, 2 minutes for

gross levels, and 5 to 10 minutes for furnace exhaust stack monitoring, depending on the agent. The MINICAMS® is a lightweight, portable, real-time, low-level monitor with alarm capability, designed to respond to 0.0001 mg/m^3 for GB in less than 5 minutes, 0.00001 mg/m^3 for VX in less than 15 minutes, and 0.003 mg/m^3 for mustard in less than 5 minutes.

g. Detector ticket. The detector ticket is a stock item that will detect nerve agent vapor at concentrations as low as 0.1 mg/m^3 (GB) and 0.4 mg/m^3 (VX). It is included in the M18A2 kit and the M30A1 refill kit. The sensitivity of the ticket decreases with lower temperature. Using a reagent (substrate), the square end of the ticket will turn blue in the absence of agent and will turn light red-orange or have no color change in the presence of agent. The ticket will not distinguish between GB and VX agent vapor or any other nerve agent. The detector ticket can be used for point source sampling using the ammunition-peculiar equipment (APE) 2053 or aspirator bulb for confirming positive M8 paper tests (GB only), and for area air sampling using the procedures similar to the card in the M256A1 kit. The detector ticket continues to detect agent for 24 minutes without re-wetting the ticket and up to 30 minutes (provided the ticket is rewet once during the 30-minute period). The extended sampling period is approved only for use in magazines or structures where exposure to sunlight or heat will not occur. When confirming positive M8 or M9 paper tests for VX, a negative detector ticket reading will not be considered to invalidate the positive detector paper test. A second ticket test must be conducted using a different detector paper lot number.

h. Real-Time Analytical Platform (RTAP). The RTAP combines a vehicle with a HP 5890 dynatherm gas chromatograph with an automatic continuous environmental monitoring system. The low level monitor in the RTAP is designed to respond to 0.0001 mg/m^3 for GB, and 0.00003 mg/m^3 for GD, 0.00001 mg/m^3 for VX, and 0.003 mg/m^3 for HD in less than 15 minutes with alarm capability. The RTAP is especially useful in clearing igloos and other suspect agent contaminated sites, as well as determining the boundaries of downwind hazards.

i. Real-time monitor (RTM). The RTM is a nonportable continuous air-sampling device normally used in operational facilities for the detection of low levels of nerve agent. The RTM will detect agent vapor concentrations of 0.0001 ~mg/m^3 (GB) and 0.00001 mg/m^3 (VX) and will provide an alarm response in 8 to 12 minutes. The M8A1 or M22 ACADA detection alarm system is used in work areas to supplement the RTM and provide rapid alarm response to high-level concentrations. The RTM is not currently manufactured.

j. M8A1 automatic chemical agent detection alarms. These alarms are portable/fixed alarms using the M43 and M43A1 detectors, respectively. They are capable of detecting nerve agent concentrations as low as 0.2 mg/m^3 (GB) and 0.4 mg/m^3 (VX) with an alarm response of 2 to 3 minutes for the M43 and 1 to 2 minutes for the M43A1. The M43A1 has a much faster response time at higher concentrations.

k. Chemical agent monitor (CAM). The chemical agent monitor (CAM) is designed to determine and indicate the hazard from nerve (GB, VX) or blister (H) agent vapors present in the air. It is a point source detector. The CAM may be used to search out clean areas, to search for and locate contamination on personnel, equipment, ship's structures, aircraft, land vehicles, buildings, and terrain and to monitor for the effectiveness of decontamination.

l. The M34 chemical, biological, radiological (CBR) agent sampling kit. The M34 chemical, biological, radiological (CBR) kit is used to sample soil, surfaces, and water for the presence of chemical agents. It may also be used to perform preliminary processing of soil samples.

m. The M272 chemical agents water testing kit. The M272 kit detects and identifies chemical agents when present in raw or treated water. The kit will detect hydrocyanic acid (AC), mustard (HD), lewisite (L), and nerve (G/V) agents.

n. Demilitarization chemical agent concentrator (DCAC). The DCAC, along with the M8A1 alarm system, can detect GB agent vapor concentrations of 0.001 mg/m^3 in 33 minutes and 0.2 mg/m^3 within 2 minutes. (The DCAC cannot be used for VX monitoring except at the 0.4 mg/m^3 level provided by the basic M43 detector.) The DCAC does not detect mustard.

o. The hydrogen flame photometric emission detector (HYFED). HYFED is a real-time monitoring device that can be configured for detecting agents GB and VX at a concentration of .001 mg/m^3 and mustard agents at concentrations of 0.003 mg/m^3, both in 1 to 2 minutes. The equipment can be equipped with an audible alarm response and a permanent record chart. Since a HYFED is actually monitoring phosphorous and sulfur (respectively for nerve and mustards), it is highly susceptible to interference and is most useful in a laboratory.

p. Visual inspection. A thorough visual inspection of accessible agent filled munition items and containers is necessary and extremely beneficial for detecting leaking agent. Special attention should be given to any wet or damp areas and painted surfaces since agent may cause blistering, peeling, or discoloration of painted surfaces. All suspect liquids observed during the inspection should be tested with M8 or M9 detector paper for confirmation. Agent leakage sometimes occurs at the juncture between the fuse or lifting plug and projectile and then, due to chemical reaction and evaporation, self-sealing of the leak may result. Inspecting personnel should be aware of this condition and recognize that any built-up area between the fuse or lifting plug and projectile or presence of a dry residue may be an indication of agent leakage.

q. Olfactory. The fact that mustard has a recognizable odor at low concentrations is useful to augment conventional monitoring methods. Personnel who detect the characteristic garlic odor of mustard must immediately mask and/or evacuate the area. Do not remain unprotected in the area after smelling mustard even if the odor disappears. Exposure

to mustard vapors can impair the continued ability to smell its odor. Absence of odor should never be relied upon alone to indicate absence of agent.

r. Capabilities, sensitivities, and response times. The capabilities of most of the detector equipment listed in *a* through *o* above are shown in DA Pam 385–61, table 3–1.

s. Gross level detectors and alarms. Gross level detectors are those detection devices that can provide a response within 3 minutes for high agent concentrations. Examples include blue band tubes, detector tickets, M8A1alarms, M22 ACADA, and CAM. A gross-level configured ACAMS can also provide rapid response, although it would not provide AEL sensitivity in this configuration. As a general rule, gross level detectors have a trigger point, a level at which they function; they do not quantify the agent concentration detected, nor indicate the agent concentration level present above the set trigger point.

t. Low-level detectors and/or alarm. Low-level detectors are those detection devices that can provide detection capability and/or alarm for concentrations of 0.003 mg/m^3 for mustard, 0.0001 mg/m^3 for GB, and 0.00001 mg/m^3 for VX. Examples include the bubbler, DAAMS, ACAMS, and RTMs.

13–5. Decontamination

a. Basics.

(1) Decontamination can be achieved by neutralizing or removing the contaminant. Allowing the contaminant to weather may not be acceptable at a CAI site, depending on the agent and the amount of contamination.

(2) Decontamination must begin as soon as possible after the discovery of contamination. Decontamination must not wait for completion of the detailed plan. Once the sources of agent contamination have been eliminated, contained, or reduced to limit any off-post hazard, decontamination must start. Off-post contamination will have priority over on-post residual contamination if it is the real or threatening source for an off-post downwind hazard plume. For information on specific decontaminants, see FM 3–5.

(3) Initial decontamination will be minimal to permit the quickest overall decontamination of the largest area. In general, decontamination activities must be ranked in priority order. The order is—

(a) contamination sources.

(b) land or water surfaces.

(c) vehicles.

(d) buildings.

(5) As stated in (2) above, contamination sources have the highest priority for decontamination. However, judgment must be used in establishing priorities. For example, M55 rockets should be decontaminated as soon as possible since they present the most immediate danger to a population that is the least familiar with the hazards involved.

(3) Decontamination will usually require large quantities of water. Local CAIRA plans will include provisions for obtaining additional quantities from local sources if necessary.

(6) The run-off from decontamination operations must be contained, as it may be classified as a hazardous waste.

b. Personnel decontamination.

(1) One of the first priorities at the CAI site is to ensure that personnel found in or leaving the suspected contaminated area are properly decontaminated. It is of prime importance to set up the personnel decontamination station (PDS) and to determine if any personnel in the area at the time of the CAI may have left the scene prior to the arrival of the decontamination team and thus, risk agent effects and spread of contamination. The PDS should be set up and operated in accordance with FM 3–21 and local SOPs or procedures.

(2) Before the PDS becomes fully operational, casualties should be taken to the hotline and their clothes cut off. The casualties should be lifted (leaving the outer clothing on the stretcher) by individuals on the cold side of the hotline and placed on another stretcher. Casualties should then be carried to the contamination control line and all remaining clothing cut off (including bandages that would not produce a life-threatening situation). The casualty should be checked for contamination and, if contaminated, decontaminated with a 0.5 percent sodium hypochlorite solution (if liquid mustard or VX) or copious amounts of water and/or soap (if liquid GB exposure).

Note. See chapter 6 on patient decontamination. If the level of contamination, or lack thereof, cannot be determined, treat all casualties coming from the CAI site as contaminated.

The casualty should then be lifted up by individuals on the clean side of the contamination control line and placed on another stretcher to be taken to the treatment facility. Bandages should be replaced at this time. Medics will be located on the clean side of the contamination control line. Trained medical personnel dressed in appropriate chemical protective gear may be dispatched across the hotline to save life or limb and assist in casualty movement to the hotline of critically injured casualties.

c. Equipment decontamination.

(1) Some equipment such as electronic and optical equipment is extremely vulnerable to damage when subjected to decontamination. Decontamination of absorbent surfaces is extremely difficult, if not impossible. Decontaminants are highly corrosive and cannot be used on certain materiel without damaging effects.

(2) Equipment should be checked with M8 paper or the CAM. If a positive reading is found, a decontaminant

should be applied and the appropriate contact time allowed. The equipment should then be rinsed and rechecked for contamination. When decontaminant is applied or equipment is rinsed, it should be done from top to bottom. Runoff must also be contained.

(3) Following decontamination, equipment should be placed in an igloo or other airtight facility so that low level monitoring can be conducted. Levels of decontamination are explained in DA Pam 385–61.

(4) Decontaminating nonmilitary vehicles will be conducted using the least hazardous decontaminant listed in FM 3–5. Chemical sampling of the vehicle combined with consideration for the type of possible contamination (gross liquid versus vapor) will be used to determine the extent of decontamination needed if released for public use.

(a) Vapor contamination will be considered as limited to exposed surfaces. Therefore, surface decontamination followed by monitoring to an approved level will be used to certify a vehicle for release without restriction.

(b) Gross liquid contamination by highly volatile agents (such as GB) will be treated similarly to vapor contamination. The difference will involve raising the air temperature around the vehicle to a temperature above 70 °F. This may be done in a field tent with a heater in the winter or by parking in the sun during the summer. Vehicles should be periodically monitored while airing and certified agent free when results are negative.

(c) Gross liquid contamination by low volatility agents such as VX and HD presents a long-term decontamination problem. In this case, mechanical means, such as brushing, will be needed to work decontaminant into all exposed surfaces. The brushing will be combined with long exposure times (5 hours or more) to ensure adequate reaction time between agent and decontaminant. Partial disassembly of the vehicle may be necessary. Most vehicles have unit body construction that maximizes welded seams and minimizes bolted seams. Gaskets such as those sealing windshields should be replaced, since they represent a penetration and retention hazard. Local motor pools should be consulted for removal techniques. Reinstallation can be service contracted to automobile window replacement shops.

(5) Surface sampling such as swabs, chloroform extraction, and/or AEL level sampling under plastic sheets fastened to the surface of the building will precede the decontamination procedure. Decontaminating buildings will require the use of high pressure and heat producing decontamination equipment (such as steam cleaning devices) to cover the large areas and vertical surfaces found on structures. A rinse combined with a vacuum technique, such as is used on carpets, would present the least threat to the environment, since it would collect most of the decontaminant. The system and decontaminant should be delivered to the sites (walls and roof) by commercial cherry picker cranes. Time, wind, and rain (weathering) may be sufficient for eliminating the chemical contamination. After weathering, monitor and determine if contamination is present before decontaminating. For low volatility agents (such as VX and HD), mechanical means combined with elevated temperature and high pressure will be needed to remove contamination.

d. Terrain decontamination.

(1) Terrain decontamination is a time and resource intensive operation. Neutralization procedures should begin at the farthest point of contamination from the CAI site and proceed inward, moving back-and-forth or in a circular direction. To ensure complete decontamination of the area, operations should begin several meters from known contaminated locations.

(2) Decontamination by removal consists of physically removing the contaminant from the surface. With heavy liquid contamination on porous soil, this method may involve removal of several inches or possibly several feet of soil. This method may be preferred in cases where particulate or frozen HAZMAT cannot be feasibly decontaminated or when the materiel may have been absorbed by the surface. The contamination removed will still require decontamination by some other means at a later date.

(3) Weathering is the easiest method of decontamination. It acts on chemical agents through evaporation and decomposition. The effects are variable. Weathering depends on the persistency of the agent, the climatic conditions, and the type of surface. This option may be used temporarily in areas that are not inhabited, where decontamination is not of an immediate concern or necessity.

(4) Decontaminating surfaces, to include grass, bushes, trees, macadam, and concrete, presents too large a problem for using field decontamination procedures or decontaminant of choice. The decontaminant would destroy all vegetation and would also present a runoff threat to sewage systems and nearby waterways.

(5) Most small-scale land decontamination can be performed using installation assets such as M12A1 power-driven decontamination apparatus (PDDA). For large-scale land decontamination, local planning should make provisions for lease-to-purchase commercial spray equipment, such as tree spraying units, fertilizer spreaders, and water supply chlorinates for pond, small lake, and stream decontamination. Such planning will require surveying the areas around chemical agent material storage sites.

e. Additional information. See FM 3–5 for additional information and guidance.

13–6. Sampling and analyses

a. There are four types of samples that must be used to determine the extent of contamination and the effectiveness of decontamination.

(1) Air samples may be taken using liquid-filled bubblers, DAAMS tubes, and real-time monitors (such as ACAMS and MINICAMS®). A brief description is provided in paragraph 13–4.

(2) Water samples may be tested using the M272 water test kit, laboratory testing by Army, EPA, or contractor laboratories.

(3) Army or contractor laboratories may test soil samples.

(4) Swab samples may be tested using installation monitoring laboratory assets.

b. All laboratories analyzing samples must be in compliance with Army standards and procedures that include a quality control plan that delineates operator and equipment certification criteria. Precision and accuracy studies are necessary to verify that the laboratory is in control before analytical data is acceptable.

c. Analytical procedures are at appendix G. Questions concerning analytical procedures should be directed to Technical Director, ECBC, Aberdeen Proving Ground, MD 21010–5423.

d. Environmental monitoring will be in accordance with chapter 11. As a minimum, the monitoring methods in appendix H will be used.

Chapter 14
Restoration Operations

14–1. Overview

A point is achieved during the CAI when the emergency response phase is completed, yet further study and/or restoration may be required to return the area to normal, or unrestricted, activity. The end of emergency operations has historically been considered as achieved when the source of the CAI has been effectively contained and the acute hazards posed by the contaminant in the environment have been dissipated or mitigated. Contamination of the environment that can have an adverse impact on human and/or ecological well-being may still be present after a successful emergency response operation. Restoration operations may encompass not only the physical restoration of the site(s) in question, but also issues involving unconditional site reentry and the disposition of residual wastes (for example, soils and decontamination solutions). Such activities may occur in a non-emergency atmosphere and tend to be relatively long-term in scope. The basic goal of restoration operations is to return the CAI site to technically achievable and acceptable conditions. This requires considerable interaction with regulatory and local authorities, as well as populations effected by these activities. Onsite restoration activities are, generally, the responsibility of the installation commander. Site cleanup for transportation or FUDS emergencies (see app I) would be delineated as line-item projects listed under the Corps of Engineers' area of responsibility.

14–2. Installation remedial operations

a. Responsibilities.

(1) *Installation commander.* Installation commanders are ultimately responsible for all restoration operations within their purview. Although day-to-day oversight and actual execution of this program may be delegated to others, the commander remains the final authority for all decisions and actions. The commander maintains responsibility for considering the technical and environmental health input and making decisions regarding restricted/unrestricted reentry. The commander must—

(a) Ensure adequate funding to accomplish the requisite remedial/corrective actions.

(b) Approve projected remedial/corrective actions associated with the CAI and ensure their accomplishment.

(c) Participate in negotiations with regulatory authorities regarding restoration activities or decisions that may affect the mission of the installation.

(d) Submit notifications and reports to regulatory authorities and to the public.

(e) Approve and implement Public Involvement and Response Plans (PIRPs) (as warranted).

(2) *Remedial Program Manager (RPM).* The RPM represents the installation commander when interacting with program execution, contractor, regulatory, and public representatives. The designated RPM generally acts with the authority of the commander and is responsible for routine oversight and accomplishment of program goals and activities. The RPM may oversee program executors or contract the necessary work themselves.

(3) *Corps of Engineers (CE).* Corps of Engineers (CE) personnel also maintain primary responsibility for remedial operations at off-post transportation and FUDS CAI locations. Further, they may provide support to installation personnel through contractual and execution oversight for remedial operations.

(4) *Technical Escort Unit (TEU).* TEU personnel can provide support in the form of personnel, equipment, and overall expertise regarding the handling of chemical agent materials, within the scope of their resource availability. The TEU, which is responsible (and trained) for field response during the emergency phase of a CAI, does not possess the personnel and resources necessary to continue such responsibility during the recovery phase. These personnel may provide invaluable technical assistance and equipment on an as-requested basis but cannot fulfill the role as executor of remedial operations.

(5) *Office of the Surgeon General (OTSG).* All assessments of relative impacts to human health and the environment associated with the CAI remedial operations require the approval of the Office of the Surgeon General (OTSG).

USACHPPM serves as the functional agency of the OTSG in such matters. Coordination with environmental health personnel (for example, engineers, scientists, toxicologists, and physicians) should be accomplished early in the remedial operations to ensure adequate coverage of health concerns associated with chemical agent materials during sampling and assessment phases.

(6) *DA Steering Committee for Standards in Emergency Response, Restoration, Remediation, and Demilitarization of Chemical Warfare Materiel (Steering Committee for Standards).* This steering committee is chaired by the DASA(ESOH). Its mission is to identify, prioritize, and recommend establising critical standards for health, safety, environment, monitoring, and personal protective equipment (PPE) for the protection of workers, people in the surrounding communities, and environment for Army activities in emergency response, remedial operations, demilitarization, or treaty implementation and compliance.

b. Requirement under the NCP. Generally, the steps required for implementation of the remedial operations process include the following:

(1) *Discovery.* Discovery requirements will be met during the initial notification stages of the CAI as outlined in this publication. In most cases, the discovery notification will be immediately followed by removal operations to mitigate (contain or neutralize) any threat to the health and welfare of personnel and significant threats to the environment.

(2) *Preliminary Assessment (PA)/Site Investigation (SI).* A preliminary assessment by the RPM, encompassing a review of all CAIRA documentation, will be accomplished to discern the scope and siting of SI activities. A carefully planned SI will acquire data from environmental samples that will facilitate a determination of whether further remedial actions are warranted. Sampling required to be done outside of Army installation boundaries would require approval from the DASA(ESOH), after coordinating with MACOM and local environmental/public health authorities.

(3) *Remedial Investigation (RI)/Feasibility Study (FS).* The RI is used to discern the full nature and extent of contamination through appropriate site sampling and characterization. The need for further removal actions may become evident during this phase, if sufficient contamination warrants immediate action. The RPM will closely coordinate with TEU and regulatory personnel throughout this process. The data acquired will be used to develop a baseline risk assessment that serves as the basic justification for undertaking further remedial activities (or not). Procedures to conduct baseline risk assessment and assumptions to consider are contained in *Derivation of Environmental Health-Based Screening Levels for Chemical Warfare Agents* (USACHPPM, March 1998, endorsed by HQDA May 1998). (To obtain a copy, contact USACHPPM). At a minimum, a baseline risk assessment, accomplished at this juncture, must receive OTSG approval before the remedial operations may proceed. The feasibility study phase encompasses an iterative analysis of available remedial alternatives based on factors such as reliability of the technology, cost, engineering implementation, and the degree of protection provided to public health and the environment.

(4) *Record of Decision (ROD).* An administrative record detailing the decision-making process and supporting data must be made available for public review. The Record of Decision (ROD) will be developed by the Army and submitted to the appropriate EPA and/or State environmental regulatory agencies. The ROD details the recommended remedial alternative(s) selected, provides the supportive background data and rationale used to arrive at these solutions, and delineates the final disposition of the site(s) in question. The actions and conditions agreed upon in this document must be effectively implemented. Such a document may prove beneficial for CAI remedial operations because it would indicate the notification and concurrence of regulatory personnel.

(5) *Remedial Design (RD)/Remedial Action (RA).* This is the actual execution of site remediation activities agreed upon by the Army and regulatory authorities. It is important that factors addressing the potential health and safety of site workers and neighboring residents/workers (if warranted) are considered in the implementation of these activities.

(6) *Monitoring/Validation.* It may be necessary or warranted to allow some residual contamination to remain in place, predicated upon the results of the baseline risk assessment or conditions delineated in the ROD. In such instances, the site(s) may be capped or contained or may remain undisturbed. Generally, such actions will require some form of recurring monitoring for a period of time to ensure that contaminant migration does not occur at levels in excess of those estimated during the remediation process. Despite the considerable conservatism incorporated into risk assessments and the selection/design of remedial alternatives, regulatory authorities probably will call for such monitoring to further minimize the potential for any future exposures. Similarly, remedial operations completed at locations other than DOD installations will likely require long-term monitoring and/or verification sampling and analysis to validate that the cleanup defined in the ROD has indeed been accomplished. This may be insisted upon by local populations or political influences, if not by the prevalent regulatory authorities.

14–3. Special considerations

a. Action levels. The basic goal of the remedial operations is to return the site to a condition where it may be releasable for unrestricted use. The determination of remediation goals may be accomplished in two distinct phases. Initially, site-sampling data may be compared to the health-based environmental screening levels endorsed by HQDA. The most current listing can be obtained from the DA Steering Committee for Standards in Emergency Response, Restoration, Remediation, and Demilitarization of Chemical Warfare Materiel by contacting the DASA(ESOH) at (703) 695–1020 (DSN 225–1020) or via facsimile at (703) 614–5822 (DSN 224–5822). These criteria have been developed using relatively conservative exposure assumptions for several common exposure scenarios, and may be used to screen

site sampling data to discern the need for further analyses and assessment. The values presented are based on the most current toxicological information available and may be periodically updated with the advent of additional data. Should these health-based environmental screening levels be exceeded, those sites may be targeted for an additional assessment that would reflect site-specific conditions more accurately. Future land-use scenarios, which will impact the requisite remedial action levels, may differ significantly from site to site and must be considered. For example, the site of a FUDS or transportation CAI located proximate to civilian populations may require significantly more stringent remediation goals than would a stationary/stockpile site located in a restricted area of an Army installation. The potential exposure pathways and receptor populations may be vastly disparate, as would the ability to control site access over an extended period of time. These, and additional, factors would be addressed in the development of a site-specific, baseline risk assessment.

b. Site access. Common sense dictates that site access during remediation efforts would be limited to authorized personnel required for the execution and management of site restoration activities only. However, this may prove difficult for sites located off of DOD properties. Site access must be closely controlled to protect the health and safety of adjacent residents, onlookers, and news media personnel. The potential for a subsequent CAI may remain during remediation operations at FUDS locations, which may endanger anyone in the vicinity. Site workers should be prepared for such occurrences and trained to use appropriate PPE. Military and public emergency operations authorities must ensure that site security is maintained throughout the duration of cleanup activities.

c. Scope of monitoring. Site sampling may address more than the soils (or whatever media exists) prevalent immediately at the CAI location. The potential for chemical agent materiel to migrate in a vapor phase and deposit at points along the plume pathway, along with its inherent toxicity, necessitates considering a larger scope of sampling sites during restoration activities. This is particularly true at public or inhabited sites. Samples should be collected from areas where populations may come into contact with the deposited materiel, for example, children playing on fields or playgrounds. Further, crop, livestock, feedstock, and potable and recreational water sources/supplies may be encompassed in such remedial/corrective investigations. DA, installation, local, and State authorities, as warranted, will make decisions involving the decontamination, treatment, and disposition (for example, whether or not to throw out crops, milk, or beef). Field sampling results, health risk assessments, and toxicological information should form the primary basis of such decisions.

d. Reentry. The IRF/SRF commander may allow restricted reentry to authorized personnel on DOD installations subsequent to the emergency phase of the CAIRA, if the immediate threat to life and health no longer exists. This information may be extracted from the air monitoring data, plume dispersion model results, and operations and environmental health input provided at that time. However, a return to normal operations (that is, unrestricted reentry) should not be allowed unless it can be proved that the scope of a CAI has been so small or localized, or until supportive air and/or environmental monitoring can be accomplished and adequately assessed, to warrant such designation. This may occur at the conclusion of the emergency response phase or during the early stages of remedial operations, when such decisions would become the responsibility of the installation commander. The assessment of public facilities or properties using Army/DOD resources must receive prior approval from the DASA(ESOH). All pertinent data and consultative services should be readily provided to local/State authorities that possess full jurisdiction over actions taken outside of the installation boundaries. In addition, CSEPP authorities should coordinate and provide input to proposed actions. Unrestricted reentry should not be permitted until cleanup efforts meet or fall below the public health-based action levels acquired from the Steering Committee for Standards, unless a site-specific risk assessment is accomplished and approved by representatives of the OTSG. (The term "unrestricted" means an absence of limitations regarding time of exposure, preclusion/limitation of certain activities, or administrative limitations.) Additional assistance may be obtained from the Steering Committee for Standards.

e. Public participation. Activities intended to promote two-way communication between communities that may be affected by releases incurred during a CAI and the Army should be initiated as early as possible. The specific requirements for these activities are well defined in the germane guidance documents published by the EPA and Army. The specific circumstances and requirements may vary for each CAI situation. The installation environmental coordinator or the COE offices may be contacted for further information. The overall objectives of such interaction are to—

(1) Collect information about the community in which the CAI site is located.

(2) Present citizens with the opportunity to comment on and provide input to technical response decisions.

(3) Supply the public with accurate and timely information regarding planned or ongoing operations and progress.

(4) Focus and resolve potential conflict.

f. Documentation. The type and scope of documentation required for remedial operations falls into three primary classifications:

(1) A comprehensive administrative record detailing all input considered at each decision point throughout the remediation process must be maintained and made available for review upon request.

(2) All RODs and decision documents must become a part of the official record to demonstrate that the response action(s) undertaken are consistent with and meet the requirements of the NCP regulations.

(3) The installation PA office is required to establish an information repository at or near installations where remedial operations last for longer than 120 days. This repository may be the base library, the PA office, or another

publicly accessible location. If security requirements or isolated location limits public access, the repository may be established at a public library within the community. All documents and plans delineated in the restoration guidance must be available at these sites.

Chapter 15
Contractor Operations

15–1. Overview

This chapter provides guidance for developing CAIRA plans for both contractor-owned, contractor-operated (COCO) and GOCO laboratories and other facilities maintaining, storing, or demilitarizing chemical agent material. Direct contractor involvement in developing CAIRA plans and in CAIRA operations is essential for protecting facility personnel and the public.

15–2. Concept of operations

a. Operational detail at the levels of the contracting officer, contracting officer's representative, contractor personnel, and SRF commander. This section provides the details for contracting officers (KOs), contracting officer's representatives (CORs), responsible contractor personnel, and the SRF commander to provide for the safety of personnel, the security of chemical agent material, and the preservation of property at all COCO and GOCO facilities. This chapter applies to all contractor facilities involved with chemical agent material including, but not limited to, COCO and GOCO labs, and GOCO demilitarization facilities.

b. Operation levels.

(1) *SRF commander.* The SRF commander—

(a) Knows the chemical agent material contractor operations at GOCO and/or COCO facilities.

(b) Knows the scope of contractor responsibilities in the event of a CAI.

(c) Knows the legal and pecuniary ramifications, as well as proper procedures, to ensure the KO gives appropriate direction to the contractor.

(d) Implements standard CAIRA operations described elsewhere in this publication.

(e) Serves as the OSC at all GOCO facilities.

(f) Assists the OSC if the EPA or USCG provides the OSC for non-DOD COCO facilities.

(2) *Contracting officer.* The KO—

(a) Is a member of the SRF staff for a CAI at a contractor-operated facility.

(b) Provides the SRF commander with the necessary information to properly communicate with the contractor.

(c) Knows the terms and conditions of the contract between the government and the contractor. The KO will provide the SRF commander with specific contract clause and data item descriptions, as required.

(d) Provides the SRF commander with specific information relative to the facility and adjacent jurisdictions.

(3) *Contracting officer's representative.* CORs—

(a) Serve as the liaison between the SRF staff and the contractor.

(b) Assist the KO in providing detailed information regarding the contractor operations to the SRF commander.

(4) *Contractor.* Contractors—

(a) Maintain a current Facility Security and Safety Plan (FSSP) and CAIRA plans.

(b) Ensure that the FSSP and CAIRA plans are consistent with local government emergency response plans.

(c) Coordinate the FSSP and CAIRA plans and response actions for CAI at GOCO facilities with the installation at which they are located. The CAIRA plan for GOCO facilities will be integrated with the installation CAIRA plan.

(d) Become part of the IRF/SRF staff during CAIRA operations at GOCO facilities.

(e) (At COCO facilities) incorporate provisions for notifying the AOC and the NRC and implementing the NCP into their CAIRA plan, to include supporting the OSC.

(f) (At GOCO facilities) coordinate with the installation commander to integrate provisions for OSC support into the installation CAIRA plan.

c. Functions.

(1) *CAI assessment.*

(a) CAI assessment is determining the scope and potential impact of a CAI.

(b) COCO facilities should establish a capability to conduct a timely CAI assessment for all potential CAIs.

(c) CAI assessment functions for GOCO facilities should be integrated into the CAI assessment procedures of the installation CAIRA plan.

(2) *CAI classification.*

(a) The standardized chemical event emergency notification system for CAI is explained in chapter 3.

(b) COCO facilities will adopt the HQDA classification system.

(c) CAI classification for GOCO facilities will be a joint function of the contractor and the installation commander and his or her emergency response staff.

(3) *Notification.*

(a) COCO facilities should establish and maintain procedures for notifying off-post response agencies and appropriate Army authorities identified in their FSSP and CAIRA plan.

(b) COCO facilities should establish and maintain procedures for notifying the AOC and the NRC identified in their CAIRA plan.

(c) GOCO facilities will establish and maintain procedures for promptly notifying installation emergency response forces. The installation commander should notify off-post response agencies, the AOC, and the NRC.

(4) *Protective action recommendation.*

(a) COCO facilities should establish procedures by which recommendations for protective actions by civilian populations and facility staff are determined and communicated to appropriate parties. These procedures should be integrated into their CAIRA plan.

(b) Procedures for protective action decisionmaking at GOCO facilities should be integrated into the installation CAIRA plan. Contractor personnel should participate in protective action decisionmaking through a composite command group.

(5) *Protective action implementation.*

(a) COCO facilities should integrate provisions for protective actions by facility staff into their FSSP and CAIRA plan.

(b) COCO facilities should coordinate plans with local jurisdictions and response agencies to ensure that provisions exist for the implementation of protective actions for potentially affected civilian populations.

(c) Protective actions in response to CAI occurring at GOCO facilities should be integrated into the installation CAIRA plan and local jurisdiction emergency response plans.

Chapter 16
OCONUS Operations

16–1. Overview

a. OCONUS CAI operations are those that occur on or off a DOD installation outside the continental United States and not on a U.S. territory or possession.

b. Regardless of the CAI location, the U.S. maintains full ownership and custodial rights over U.S. chemical agent material that might be involved. Recovery of chemical agent material discovered in foreign areas previously used by the U.S. but returned to their previous owners is the responsibility of the owning nation.

c. The U.S. policy is to ensure adequate response and lifesaving actions in the event of a CAI anywhere in the world. Reaction to a CAI is of the highest national priority and will normally take precedence over all other operations.

d. This chapter describes the overall responsibilities of the United States, the U.S. Territories, and the host nation during a CAI that is generated by U.S. chemical munitions in the host nation or U.S. Territory/Possession. This chapter is a guide only; it does not represent or extract materiel from a U.S.–host nation MOA or other bilateral agreements in response to a CAI.

16–2. OCONUS unique factors

a. U.S. forces have no jurisdiction off DOD installations located OCONUS and not located in a U.S. Territory or Possession, except for the continuing obligation to maintain custody of chemical agent material.

b. The SOFA is a bilateral agreement that defines the legal guidelines for U.S. forces abroad. The SOFA is different for each host nation. The inter-Service support agreement (ISA) is a joint agreement between DOD agencies that defines the level of support provided by or for each agency during both routine and contingency operations. The ISA is normally used at DOD installations where tenant organizations are from different Services.

c. With the exception of U.S. Territories, DOS will be involved in a CAI. DOS must be integrated into the decisionmaking process concerning CAIRA operations. The U.S. Ambassador exercises political control over a U.S. response to a CAI. The response elements will remain under DOD control. The Ambassador or his or her chief of missions is senior to any DOD representative at the CAI site. DOD representatives on location will be responsible to any directives issued by the Ambassador. Within U.S. Territories, total control of the CAI rests with the DOD unified or specified command. Coordination will be made with other appropriate Federal or territorial government officials.

d. The U.S. Ambassador must approve PA releases that confirm the presence of OCONUS chemical weapons, surety materiel, or a CAI. Bilateral agreements may prohibit PA releases without prior consent from the host nation. The DOD PA representative from the appropriate unified or specified command will approve releases involving U.S. Territories.

e. Minimal U.S. CAIRA expertise exists outside CONUS. Excluding the custodial unit and demilitarization facilities, few individuals within the host nation or U.S. Territory/Possession have experience in CAIRA operations. In most cases, an immediate request would be made to the HQDA for AMC assets to assist in the response effort.

f. In any non-English speaking country or territory, a significant language barrier may hinder the entire CAIRA operation.

16–3. Specific requirements

a. Host nation.

(1) The host nation ministry of defense or equivalent national agency normally has the responsibility for developing policy, the concept for operations, and response capabilities for CAI occurring within the country. Other host nation agencies such as civil defense may have this responsibility depending on the country involved. Consistent with this responsibility is the authority to exercise overall command and control of host nation military resources during a CAI. The host nation may establish a staff section or agency that has a CAI advisory group and/or civilian and military interministerial working groups to accomplish this mission. One of these groups will act as the focal point for U.S. Government involvement.

(2) The response to a CAI site, on or off a DOD installation, will likely be accomplished by two separate but parallel organizations. Civilian authorities assure the safety and security of the public and associated property. The DOD response, under the direction of the designated DOD representative, provides the technical element to perform initial CAIRA operations. The DOD representative advises the local civilian authorities on matters regarding associated hazards to the public. Recommended precautions and actions to return the CAI site to a technologically feasible and acceptable condition will also be provided.

b. Department of State.

(1) Under the direction of the Secretary of State, DOS exercises political control over any U.S. response to a CAI within a host nation. The Ambassador (or in his or her absence, the chief of mission) to the host nation will serve as the diplomatic and political focal point within the host nation. The Ambassador will voice and implement any decision made by the President of the United States or the National Security Council.

(2) Authorities of DOS and DOD within the host nation are responsible for successful resolution of the CAI. Regardless of the extent of U.S. involvement, the U.S. Ambassador will serve as the senior U.S. official in communication with the host nation authorities. The Ambassador will consult with and provide guidance to the unified or specified command and coordinate all CAIRA operations with the host nation.

(3) DOS will activate its crisis management team in the DOS EOC and send liaison officers to DOD. DOD and other technical personnel who can advise the Ambassador on the progress of CAIRA operations may augment the U.S. Embassy within the host nation. The U.S. Embassy may provide liaison officers to the host nation CAI information and advisory group.

c. Department of Defense.

(1) DOD is charged with the safe handling, storage, maintenance, and transportation of chemical agent material under DOD custody. Inherent in this responsibility is the requirement to protect personnel and property from any health or safety hazards that could ensue from a CAI. To fulfill these responsibilities, HQDA has issued guidance requiring the development of CAI response elements.

(2) The appropriate unified or specified command has the direct responsibility for the safety and security of all U.S. chemical weapons in theater. The command will designate an SRF commander to handle the DOD response to a CAI. This commander will assume command and control of the CAI site.

(3) On a DOD installation, the unified or specified command is responsible for all aspects of the DOD response to a CAI. Off a DOD installation, the command is responsible for DOD support to the host nation. All actions will be made in close coordination and approval of the host nation DOS representative and in accordance with any existing bilateral agreements. If no such agreements exist, negotiations thereof will be undertaken in accordance with DOD Directive 5530–3 and implementing regulations.

(4) Normally, the unified or theater command will activate a crisis management team to manage CAIRA operations. The command will provide the OSC and any other required Service support forces. Until the OSC arrives at the CAI site, the senior DOD official at the scene is responsible for all military forces responding to a CAI, to include security personnel.

d. Specialized teams.

(1) The SRF or their equivalent will be deployed to the CAI site to render lifesaving actions as required, retain custody of the chemical agent material, provide security, render safe, contain the weapon/hazard, and restore the site.

(2) Off-post monitoring and survey teams will determine the extent of any downwind chemical contamination.

(3) All efforts will be made to minimize hazards to nonessential personnel and the public by evacuating personnel

from potentially contaminated areas; activating any collective protection facilities; maintaining contingency stocks of protective equipment, providing first aid items, and releasing information in a timely manner.

Chapter 17
Training

17–1. Overview

a. This chapter defines the spectrum of training available to personnel who may be tasked to respond to a CAI, to include State or local government personnel, as well as Army personnel.

b. Formal training to be provided the various response elements should be structured to accomplish the following:

(1) Provide an overview to individuals who have no prior experience with chemical agent material or CAIRA operations.

(2) Provide refresher training to individuals who have prior experience.

(3) Standardize procedures and doctrine to be used by the various response elements in the event of a CAI.

17–2. Army training

Well-organized and -conducted training will develop and sustain the response organization as a smoothly operating unit with group solidarity and discipline. To accomplish this goal, individual skills must be mastered and then integrated into effective teamwork. The commander must make use of all training opportunities.

a. The Army has sufficient opportunities available for formal schooling in CAIRA operations (see table 17–1). There is also informal schooling presented by members of the command, as well as on-the-job training.

b. For team building, the commander can use battle drills to sharpen individual skills and integrate these skills into an effective response.

c. On a larger and more complex scale, exercises and tests provide training opportunities. As with training, exercises and tests can be conducted in a variety of ways depending on the resources available to the commander.

(1) A field training exercise (FTX) or full-scale exercise is the most productive tool for validating the plan and determining the command's state of training. A CAIRA FTX should involve all supporting agencies, whether military or civilian, and all levels of response from local community to the national command element. Obviously, the resources for conducting an FTX must be adequate, and the FTX must be conducted in as realistic a setting as possible.

(2) If available resources preclude an FTX, the exercise can be reduced to CP exercise (CPX), a functional exercise, or a tabletop exercise. Each requires fewer resources to execute; however, each produces less than what the commander needs to ensure that the command is ready to execute the CAIRA mission.

d. A broad spectrum of training and exercise activity is necessary if emergency response capability is to be realistically assessed and developed to an effective level of response.

Table 17–1
DA CAIRA courses

Title	Length	CAI responsibility	Synopsis	Prerequisites	Source
Service Response Force Commander (SRFC)/On-Scene Coordinator (OSC)	16 Hrs	Service Response Force Commander, Deputy SRFC, or On-Scene Coordinator	Provides an overview of Chemical Warfare, Munitions/Containers, AR 50–6, CAIRA, DOD (National Response Team), FEMA, FORSCOM (EOD/Security), Public Affairs Office, and EPA.	Nominee should be assigned or have a planned assignment as a potential SRFC, Deputy SRFC, or On-Scene Coordinator.	USADAC[1]

Table 17–1
DA CAIRA courses—Continued

Title	Length	CAI responsibility	Synopsis	Prerequisites	Source
Chemical Accident/Incident Response and Assistance	29 Hrs	SRF Commander's staff and State/local government officials	Provides a general overview of Chemical Warfare Agents, Chemical Ammunition, Protective Clothing, Agent Detection, Decontamination, Chemical Surety, Safety Criteria, Downwind Hazard, Public Affairs, Security, and CAIRA. This course may be provided by a USADAC Mobile Training Team.	This course is intended only for individuals without any prior or current chemical agent experience. Nominees should be assigned to the IRF or SRF commander's staff or be identified as having a State/local government response tasking in the event of a chemical accident/incident evolving from a DOD installation.	USADAC[1]
Emergency Management Information System (EMIS)	24 Hrs	SRF/IRF Commander's staff, EOC personnel and State/local government officials.	Acquaints attendees with the automated emergency management information system used in an Emergency Operations Center (EOC)	Enrollee should have or anticipate an assignment in chemical agent emergency response, and must have a basic proficiency in Microsoft Windows and the use of a mouse.	USADAC[1]
Chemical Emergency Information For Managers	8 Hrs	Commanders, Surety Officers, Operations Officers, planners, and hazard analysis personnel at the installation and their off-post counterparts	This course is designed to provide managers with the background information necessary for making protective action decisions in the event of a toxic chemical agent release. The course stresses the elements of the response phases of CAIRA and applications within EMIS to be used as decision making tools. The course also discusses the role of key response personnel and their responsibilities.	Prospective enrollees need to be familiar with EMIS.	USADAC[1]
Technical Escort Course Annex A - NBC Materials and Decontaminants 2E–SI5J/494–ASIJ5	22 Hrs	IRF, TEU, and EOD personnel	Although this course touches on biological and nontoxic chemical agents, the majority of the course addresses the identification of toxic chemical agents according to their characteristics, physiological action, symptoms, and first/self-aid measures. The selection, preparation, and use of chemical decontaminants is also discussed.	The requirements of AR 614–200 must be met.	USAOMMCS[2]
Annex B - NBC Protection, Detection, and Control Equipment/Materiels	39 Hrs	Same as annex A above.	Course addresses the inspection and donning of protective clothing, inspection and use of the chemical agent detectors and alarms, the identification of chemical munitions and their associated agent hazards, and the set-up and operation of a PDS.	Same as annex A above.	USAOMMCS[2]

Table 17–1
DA CAIRA courses—Continued

Title	Length	CAI responsibility	Synopsis	Prerequisites	Source
Annex C - CAIRA Operations and Planning	37 Hrs	Same as annex A above.	Course addresses the calculation and plotting of the downwind hazards, leak sealing and containerization procedures, disposal of chemical agents and munitions, and a comprehensive review of CAIRA operations.	Same as annex A above.	USAOMMCS[2]
Annex D - Escort Operations	45 Hrs	TEU personnel	Course addresses the movement of chemical agent material by rail, road, air, and sea.	Same as annex A above.	USAOMMCS[2]
Medical Management of Chemical Casualties 6H–F25/323–F25	40 Hrs	Medical Response Teams	This course provides advanced instruction concerning physiological and pharmacological effects of chemical agents. Medical chemical defense and medical management practices are emphasized. Students are required to translate concepts from the classroom instruction into hands-on application in both laboratory and field exercises. Graduates are uniquely equipped with skills and confidence to save lives and ensure return to duty of chemical casualties.	Intended primarily for physicians, but is also open to nurses, physician assistants, and qualified experienced senior medical corpsmen. Qualified medical personnel (military and civilian) from other Government agencies are eligible.	USAMRICD[3]

Table 17–1
DA CAIRA courses—Continued

Title	Length	CAI responsibility	Synopsis	Prerequisites	Source
Toxic Chemical Training Course for Medical Support Personnel	40 Hrs	Medical Response and Augmentation Teams	This course is designed for healthcare providers supporting the chemical stockpile storage and disposal programs. Topics include: the location and composition of the stockpile; the toxicity, diagnosis, and treatment of nerve and vesicant agent exposures; the nature of storage and disposal operations and how workers are potentially exposed to chemical agents; occupational health standards in place to protect workers; chemical agent monitoring and detection; potential exposure evaluations; patient decontamination concepts; evaluation of workers to wear PPE; prevention and treatment of heat illnesses; triage; prehospital and hospital emergency management; chemical terrorism; and chemical accident/incident response. Special tracks are provided for Army healthcare providers on medical surveillance, personnel reliability program, and substance abuse prevention and control issues. The course concludes with a field exercise illustrating concepts talked about in the classroom.	None. Open to physicians, nurses, PAs, NPs, EMTs, and CSEPP planners.	SBCCOM

Notes:

[1] Further information regarding this course may be obtained by contacting Director, U.S. Army Defense Ammunition Center, ATTN: SIOAC–AST, McAlester, OK 74501–9053. Quotas are also available through the Army Training Requirements and Resources System (ATTRS).

[2] Further information regarding this course may be obtained by contacting Commandant, U.S. Army Ordnance Missile and Munitions Center and School, ATTN: ATSK–ME, Redstone Arsenal, AL 35897–6790, DSN 746–1703 or commercial (205) 876–1703. Quotas are also available through ATTRS.

[3] Further information regarding this course may be obtained by contacting Commander, U.S. Army Medical Research Institute of Chemical Defense, ATTN: SGRD–UV–ZM, Aberdeen Proving Ground, MD 21010, DSN 584–2230/3276 or commercial (301) 671–2230/3276. Quotas are also available through ATTRS.

17–3. Other governmental agency training

a. On 17 October 1986, the President signed SARA into law. One part of this new law is Title III: The Emergency Planning and Community Right-to-Know Act of 1986. Title III establishes requirements for Federal, State, and local governments and industry regarding emergency planning and community right-to-know reporting of hazardous chemicals. A comprehensive discussion of SARA and the requirement for Federal, State, and local government emergency preparedness planning is addressed in the NRT publication NRT–1. This publication, along with its companion, NRT–1A, may be obtained by writing to: HAZMAT Planning Guide (WH–562A), EPA, 401 M Street, SW, Washington, DC 20460, or on the Internet at www.nrt.org.

b. The Office of Emergency and Remedial Response is responsible for EPA's program for responding to the release or potential release of hazardous chemicals. As part of a comprehensive program for protecting the public and the environment from a CAI, the Environmental Response Branch, Emergency Response Division, develops and presents training courses in safety and technical operations related to HAZMAT responses. These free courses are available to response personnel from Federal, State and local agencies. Suggested EPA courses are identified in table 17–2.

c. Through the Emergency Management Institute (EMI) and the National Fire Academy (NFA), the spectrum of courses related to HAZMAT training is integrated and coordinated by FEMA. The EMI focuses on the mitigation of and planning for HAZMAT incidents, as well as testing and exercising. NFA courses lean more toward the chemical and technical understanding of and operational response to HAZMAT incidents. The EMI and the NFA are collocated

at the National Emergency Training Center (NETC) in Emmitsburg, MD. Suggested FEMA courses are identified in table 17–2.

d. Although EPA and FEMA courses address HAZMAT incidents, they do not directly address the unique characteristics of military toxic chemicals and munitions. Therefore, Federal, State, and local officials should consider attending other courses identified in tables 17–1 and 17–2. When considering attendance in these courses, agencies should verify the applicability of the courses with the installation commander within their geographical area of concern.

e. FEMA requires periodic exercises for participants in the Emergency Management Assistance Program. Local jurisdictions that receive funds in this program must alternate these exercises between those with natural, technological, and national security objectives. Participation in Army-sponsored exercises may be credited toward these requirements, if appropriate. Installations scheduling exercises should coordinate with the LEPC and SERC to assure that the greatest benefit may be obtained with the fewest resources.

f. Joint FEMA/Army training specific to CAIRA is available to State and local officials participating in CSEPP. This program has courses designed for emergency managers, civilian responders, and medical personnel. Participating states and counties can arrange training through the State CSEPP exercise and training officer.

g. Under an agreement with the Army, the CDC provides a training course titled *Medical Management of Chemical Exposures* for physicians, nurses and emergency medical technicians (EMTs) in communities near depots.

17–4. Exercises

a. Installations with a chemical agent material mission are required by regulation to conduct CAIRA exercises on a periodic basis. See AR 50–6 for further guidance.

b. An MOU between the Army and FEMA has been signed to increase the readiness posture of the State and local communities adjacent to the eight Federal locations where chemical weapons will be demilitarized. This MOU commits the Army and FEMA to the conduct and evaluation of CSEPP exercises. The Army and FEMA will co-direct the exercises, whose objective is to assist in determining the adequacy of emergency response capabilities at each of the eight CONUS chemical agent material installations and adjacent civilian communities. See AR 50–6 for details of the exercise schedule.

Table 17–2
Other Government agency training courses

Title	Length	CAI responsibility	Synopsis	Prerequisites	Source
Personnel Protection and Safety (165.2)	40 Hrs	Federal, State, and local responders including health, police, and fire personnel.	This course is for relatively inexperienced personnel who respond to accidents involving hazardous substances. Course provides concepts, principles, and procedures for personnel protection, the fundamentals of respiratory protection, the types or respiratory protection, and safety procedures for response operations.	None.	EPA[1,2,5]
Hazardous Materiels Response Operations (165.5)	40 Hrs	Same as above.	Course addresses respiratory protection, field monitoring instruments, hazard analysis, toxicology, response organization, and standard operating safety guides. After completing the course, attendees should be more familiar with selection, use, and limitation of respiratory protection apparatus and protective clothing, site entry, control and decontamination procedures, the use of field monitoring instruments, and response organization and management.	None.	EPA[1,2,5]
Hazardous Materiels Response for First Responders (165.15)	40 Hrs	Same as above.	This course provides response teams with basic information needed to recognize, evaluate, and mitigate an accident/incident involving the release of hazardous materiel.	See note 3 below.	EPA[1,5]

Table 17–2
Other Government agency training courses—Continued

Title	Length	CAI responsibility	Synopsis	Prerequisites	Source
Hazardous Materiel Contingency Planning Course	40 Hrs	Federal, State, and local responders including health, police, and fire personnel.	Topics include Federal, State, and local mechanisms to assist in planning and response. Also tactical requirements, hazardous materiels characteristics, and regulatory compliance are addressed.	None.	FEMA[4,5]
Analysis of Hazardous Materiel Emergencies for Emergency Program Managers	16 Hrs	Same as above.	Abbreviated course of Hazardous Materiel Contingency Planning Course.	None.	FEMA[4,5]

Notes:

[1] Further information regarding this course may be obtained by contacting the U.S. Environmental Protection Agency, 26 West St. And Clair Street, Cincinnati, OH 45268, Commericial (513)569-7537.

[2] Persons wishing to attend both courses (165.2) and (165.5) should discuss this with the registrar as there is some redundancy.

[3] Persons who have attended courses (165.2) and (165.5) should not apply for this course.

[4] Further information regarding this course may be obtained by contacting the National Emergency Training Center, 16825 South Seton Avenue, Emmitsburg, MD 21727, Commercial (301) 447-1000.

[5] Additional courses and regional training and education offices are identified in Digest of Federal Training and Hazardous Materiel, FEMA Publication 134, which may be obtained from the FEMA.

Appendix A
References

Section I
Required Publications

AR 15–6
Procedures for Investigating Officers and Boards of Officers. (Cited in paras 10–4*b*(4), F–2*c*(2)(*a*), F–3*c*(1).)

AR 27–20
Claims. (Cited in paras 10–2*b*, 10–4*b*(4), 10–5*f*, F–2*c*(2)(*d*), F–7*j*.)

AR 50–6
Chemical Surety. (Cited in paras 2–2*f*, 2–4*c*(2), 2–5*b*, 2–8*c*(2)(*a*), 2–9*d*(1), 2–12*b*(3), 3–2*b*, 3–4*b*(2), table 6–4, 17–4*a*, 17–4*b*, table 17–1, B–1, B–4, B–5, E–5*m*(5), I–2*a*.)

AR 75–15
Responsibilities and Procedures for Explosive Ordnance Disposal. (Cited in paras 7–2*g*, B–3.)

AR 190–14
Carrying of Firearms and Use of Force for Law Enforcement and Security Duties. (Cited in para F–2*b*(5).)

AR 190–40
Serious Incident Report. (Cited in para B–7.)

AR 190–59
Chemical Agent Security Program. (Cited in para 5–4*c*(2).)

AR 200–1
Environmental Protection and Enhancement. (Cited in paras 2–2*e*, 2–12*b*(3), 10–1*b*, F–8*d*.)

AR 360–1
The Army Public Affairs Program. (Cited in paras B–4, E–5*m*(5).)

AR 385–10
The Army Safety Program. (Cited in para 3–5*c*(3).)

AR 385–40
Accident Reporting and Records. (Cited in para B–5.)

AR 385–61
The Army Chemical Agent Safety Program. (Cited in paras 2–2*g*, 3–5*c*(9), 11–1*b*(2), 11–2*c*(1), and 11–2*c*(4).)

AR 385–64
U.S. Army Explosives Safety Program. (Cited in paras 2–2*i* and 2–2*q*.)

AR 500–60
Disaster Relief. (Cited in para 2–12*c*(1)(*a*).)

AR 530–1
Operations Security (OPSEC). (Cited in para 5–5*b*.)

AR 600–8–1
Army Casualty Operations/Assistance/Insurance. (Cited in para 9–3*d*(9)(*a*).)

DA Pam 27–162
Claims Procedures. (Cited in paras 10–1*c*, 10–4*b*(2), 10–14*b*(3), 10–5*f*, F–2*a*(2), F–2*c*(2)(*c*), F–7*l*.)

DA Pam 385–61
Toxic Chemical Agent Safety Standards. (Cited in paras 2–2*h*, 7–2*d*(1), 7–2*e*(1), 7–2*f*, 9–4*c*(2), 11–2*e*(4), 11–5*a*, 13–4*r*, 13–5*c*(3), and H–2*b*(3)(*c*).)

DA Pam 385–64
Ammunition and Explosives Safety Standards. (Cited in para 2–2*j*)

DOD 4500.9–R
Department of Defense Transportation Regulation. (Cited in para 7–2*e*(4).)

DODD 4715.1
Environmental Security. (Cited in paras 2–2*d* and F–8*a*(2).)

DODD 5200.8
Security of DoD Installations and Resources. (Cited in para 3–5*c*(10)(*a*) and 5–4*c*(2).)

FM 3–5/MCWP 3–37.3
NBC Decontamination. (Cited in paras 13–5*a*(2), 13–5*c*(4), 13–5*d*(4), and 13–5*e*)

FM 9–20
Technical Escort Operations. (Cited in para 2–6*c*.)

SB 742–1
Inspection of Supplies and Equipment Ammunition Surveillance Procedures. (Cited in paras 7–2*e*(2), 7–2*e*(4), 13–4*b*, and B–2.)

Section II
Related Publications

A related publication is a source of additional information. The user does not have to read a related publication to understand this pamphlet. Unless noted otherwise, DOD publications are available on the Internet at http://www.dtic.mil/whs/directives/ and Executive orders, Public Law, and the United States Code are available on the Internet at http://www.access.gpo.gov/su_docs/locators/coredocs/index.html.

AR 25–400–2
The Modern Army Recordkeeping System (MARKS)

AR 27–40
Litigation

AR 50–5
Nuclear Surety

AR 200–2
Environmental Effects of Army Actions

AR 190–40
Serious Incident Report

AR 614–200
Enlisted Assignments and Utilization Management

AR 740–32/OPNAVINST 8070.1B/AFR 136–4/MCO 4030.25B
Responsibilities for Technical Escort of Dangerous Materials

DA Pam 50–5
Nuclear Accident or Incident Response and Assistance (NAIRA) Operations

DA Pam 385–3
Protective Clothing and Equipment

DOD 6055.9–STD
DOD Ammunition and Explosives Safety Standards

DOD C–5210.41–M
Nuclear Weapon Security Manual (U)

DODD 3025.1
Military Support to Civil Authorities (MSCA)

DODD 5100.76
Physical Security Review Board

DODD 5160.5
Responsibilities for Research, Development and Acquisition of Chemical Weapons and Chemical and Biological Defense

DODD 5160.65
Single Manager for Conventional Ammunition (SMCA)

DODD 5210.42
Nuclear Weapon Personnel Reliability Program (PRP)

DODD 5210.65
Chemical Agent Security Program

DODD 5410.14
Cooperation with U.S. News Media Representatives at the Scene of Military Accidents Occurring Outside Military Installations

DODD 5515.3
Settlement of Claims Under 10 USC 2733 and 2734, as amended

DODD 5515.8
Single-Service Assignment of Responsibility for Processing of Claims

DODD 5530.3
International Agreements

DODD 6055.9
DOD Explosives Safety Board (DDESB) and DOD Component Explosives Safety Responsibilities

DODI 6055.5
Industrial Hygiene and Occupational Health

DODI 6055.7
Accident Investigation, Reporting, and Record Keeping

EO 11514
Protection and Enhancement of Environmental Quality

EO 11991
Relating to Protection and Enhancement of Environmental Quality, amended

EO 12148
Federal Emergency Management; superseded or revoked in part by EO 12919, 3 June 1994, National Defense Industrial Resources Preparedness

EO 12580
Superfund Implementation

EO 12630
Governmental Actions and Interference With Constitutionally Protected Property Rights

EO 12656
Assigmment of Emergency Preparedness Responsibilities. Obtain from Web site http://www.ncs.gov/ncs/html/EO12656.htm.

EO 12919
National Defense Industrial Resources Preparedness. Obtain from Web site http://clinton6.nara.gov/1994/06/1994-06-03-executive-order-12919-on-national-defense-resources.html

FEMA Publication 134
Digest of Federal Training and Hazardous Materiel. Obtain from (source to come).

FM 3–3/FMFM 11–17
Chemical and Biological Contamination Avoidance

FM 3–4/FMFM 11–9
NBC Protection

FM 3–6/AFM 105–7/FMFM 7–11–H
Field Behavior of NBC Agents (Including Smoke and Incendiaries)

FM 3–7
NBC Field Handbook

FM 3–9/NAVFAC O–467/AFR 355–7
Potential Military Chemical/Biological Agents and Compounds

FM 8–285/NAVMED P–5041/AFJMAN 44–149/FMFM 11–11
Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries

FM 9–15
Explosive Ordnance Disposal Service and Unit Operations

Joint Pub 4–06
Joint, Tactics, Techniques and Procedures for Mortuary Affairs in Joint Operations

NATO Basic Documents
Status of Forces Agreement, Article VIII. Obtain at Web site http://www.nato.int/docu/basictxt/b510619a.htm.

NRT–1
Hazardous Materiel Emergency Planning Guide. Obtain from National Response Team of the National Oil and Hazardous Substances Contingency Plan, G–WER/12, 2100 2nd St., SW, Washington, DC 20593.

NRT–1A
Criteria for Review of Hazardous Materials Emergency Plans. Obtain from the above source.

Public Laws
PL 93–288, PL 94–580, PL 96–510, PL 99–499, PL 100–707

Risk Assessment Guidance for Superfund, Volumes I and II
Obtain volume I from http://www.epa.gov/superfund/programs/risk/tooltrad.htm#gp. Volume II has been superseded by Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments-Interim Final. Obtain at www.epa.gov/oerrpage/superfund/programs/risk/ecorisk/ecorisk.htm.

TM 3–250
Storage, Shipment, Handling, and Disposal of Chemical Agents and Hazardous Chemicals

10 USC 331
Federal Aid for State Governments.

10 USC 332
Use of Militia and Armed Forces to Enforce Federal Authority

10 USC 333
Interference with State and Federal Law

10 USC 2672
Acquisition Interests in Land When Cost Is Not More Than $500,000

10 USC 2701
Environmental Restoration Program

10 USC 2733
Property Loss; Personal Injury or Death: Incident to Noncombat Activities of Department of the Army, Navy or Air Force

10 USC 2734
Foreign Claims Act (Property Loss; Personal Injury or Death: Incident to Noncombat Activities of the Armed Forces; Foreign Countries)

10 USC 2735
Military Claims Act

10 USC 2736
Advanced Payment Act

10 USC 4801
Army Maritime Claims Under Reciprocal Agreements (Definition)

10 USC 4806
Settlement or Compromise: Final and Conclusive

18 USC 111
Assaulting, Resisting, or Impeding Certain Officers or Employees

18 USC 231
Civil Disorders

18 USC 241
Conspiracy Against Rights

18 USC 245
Federally Protected Activities.

18 USC 372
Conspiracy to Impede or Injure Officer.

18 USC 641
Public Money, Property or Records

18 USC 1114
Protection of Officers and Employees of United States

18 USC 1361
Government Property or Contracts

18 USC 1362
Communications Lines, Stations or Systems

18 USC 1382
Entering Military, Naval, or Coast Guard Property

18 USC 1385
Use of Army and Air Force as Posse Comitatus

18 USC 2101
Riots

18 USC 2231
Assault or Resistance

18 USC 2381
Treason

18 USC 2384
Seditious Conspiracy

18 USC 3052
Powers of the Federal Bureau of Investigation

28 USC 2671
Federal Tort Claims Act (Definitions)

42 USC 4321
National Environmental Policy Act (Congressional Declaration of Purpose)

42 USC 5122
Definitions

42 USC 5141
Waiver of Administrative Conditions

42 USC 5152
Use and Coordination of Relief Organizations

42 USC 9601
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act of 1986 (SARA) (Definitions)

50 USC 797
Security Regulations and Orders; Penalty for Violation

Course catalog
U.S. Army Defense Ammunition Center. Obtain on the Internet at http://www.dac.army.mil/.

Course catalog
U.S. Army Materiel Command, Safety Field Activity

Course catalog
Emergency Management Institute, Federal Emergency Management Agency. Obtain on the Internet at http://training.fema.gov/emiweb/EMICatalog1/menu/index.html.

Course catalog
National Fire Academy, Federal Emergency Management Agency. Obtain on the Internet at http://www.usfa.fema.gov/dhtml/fire-service/nfa.cfm.

RCS CSGPO 453
Chemical Event Report

Section III
Prescribed Forms
This section contains no entries.

Section IV
Referenced Forms

DA Form 1208
Report of Claims Officer

DA Form 3938
Local Service Request (LSR)

DD Form 428
Communication Service Authorization

DD Form 836
Dangerous Good Shipping Paper/Response Declaration and Emergency Response Information of Hazardous Materials Transported by Government Vehicles/Containers/Vessels

DD Form 1367
Commercial Communications Work Order

DD Form 2271
Decontamination Tag

Appendix B
Reports

B–1. Chemical event report (RCS CSGPO–453)
Oral report with follow-on confirming message—the oral report is submitted within 3 hours by telephone. The follow-on report format with addresses is contained in AR 50–6, chapter 11.

B–2. Leaker report
A Leaker Report, used to capture relevant technical information, identify leaker trends, and assess risks associated with long-term storage, will be submitted immediately by telephone after a confirmed positive agent concentration is detected. After the item or items have been containerized, submit a written Leaker Report. Addresses and format are contained in SB 742–1, chapter 7.

B–3. Report of emergency disposal of chemical munitions
Oral report by telephone and follow up in 1 duty day by electronically transmitted message. Addresses and format are contained in AR 75–15, chapter 3.

B–4. Public affairs releases
Releases will be submitted per procedures contained in AR 360–1, chapter 12.

B–5. Technical investigation and analysis
Upon notification of a class A or B chemical event, or as otherwise determined, the U.S. Army Safety Center (USASC) will assemble a safety investigation team from within the USASC and other agencies or commands and prepare for deployment. The Deputy Director of Army Safety (DASAF), Army Safety Office, Pentagon, Washington, DC 20310, will initiate coordination for a general officer board president, if required. The Service Response Force, under the provisions of AR 50–6 and this publication, will precede the safety investigation team to the event location. The actual deployment time for the USASC team will be coordinated by the Deputy DASAF through HQDA (DAMO–OD) and with the IRF and/or SRF commander. The commander responsible for CAIRA operations will grant access to the event site. MACOM commanders will establish procedures to ensure that their responsibility for technical investigations and

analyses are accomplished for each CAI per AR 385–40. Addresses and format contained in AR 385–40, chapter 8, apply.

B–6. Occupational illnesses

For DA military or civilian personnel, report of illness resulting from chemical accidents/incidents will be sent by the installation MTF commander to HQDA (DASG–HSZ) in the most expeditious manner possible. Information to be reported must include—

a. Type of CAI.
b. Geographic location.
c. Number of persons affected.
d. Number of deaths (if none, state "no deaths").
e. Number of persons hospitalized versus treated as outpatients.
f. DTG of CAI.
g. Units(s) involved.
h. Results of environmental sampling or other appropriate industrial hygiene data.
i. Availability of PPE.
j. Control measures taken.
k. Authorities notified.

B–7. Serious incident reports

These reports will be prepared per AR 190–40, which requires reporting of any chemical accident/incident as a Category I serious incident if, because of the sensitivity or nature of the incident, publicity, embarrassment, or other considerations, it should be brought to the immediate attention of HQDA. Such reports will not be submitted if duplicative of CAI reports, but if an intrusion, attempted intrusion, or other unexpected degradation of the security of the chemical storage areas is involved, notify the local FBI and military intelligence (MI) immediately.

B–8. Discovery of release

All reports of releases are made to the AOC and the NRC in accordance with AR 50–6. The AOC telephone number is (202) 697–0218 or DSN 227–0218. The NRC telephone number is (800) 424–8802.

B–9. Administrative record

Paragraphs 3–5 and 14–3 contain information on the administrative record. An information copy of this record is to be maintained at or near the installation. A duplicate copy will be centrally maintained at the Army Environmental Center (AEC). An Army Automated Environmental Management Information System (AAEMIS) is being formed at AEC.

Appendix C
Points of Contact for CAIRA Operations

C–1. POC

Tables C–1 through C–4 list agencies, office symbols, addresses, and telephone numbers, both DSN and commercial (where known) for national-level offices, State Emergency Response Commissions, chemical surety points of contact, and explosive ordnance disposal units. These contacts should be used in coordinating and/or requesting assistance when developing CAIRA plans.

C–2. Internet Information

a. A number of Federal agencies now post current contact information on the World Wide Web (WWW). Current Internet addresses for select government agencies are—

b. Environmental Protection Agency (EPA) - http://www.epa.gov.
c. Federal Emergency Management Agency (FEMA) - http://www.fema.gov.
d. U.S. Agency for Toxic Substances and Disease Registry (ATSDR) - http://atsdr.cdc.gov.
e. National Weather Service (NWS) - http://www.nws.noaa.gov.
f. National Response Team (NRT) - http://www.nrt.org.

Table C–1
National offices

Agency	Street Address	Telephone
Federal Emergency Management Agency Technological Hazards Division	Federal Center Plaza 500 C Street, S.W. Washington, DC 20472	(202) 646–2861
FEMA National Emergency Training Center	Emmitsburg, MD 21727	(301) 447–8771
U.S. Environmental Protection Agency OSWER CEPP (OS–120)	401 M Street, S.W. Washington, DC 20460	(202) 475–8600 CEPP Hotline: 1–800–535–0202 (479–2449 in Wash DC area)
U.S. Environmental Protection Agency OERR Emergency Response Division	401 M Street, S.W. Washington, DC 20460	(202) 475–8720
Agency for Toxic Substances and Disease Registry Department of Health & Human Services	Chamblee Building 30S Atlanta, GA 30333	(404) 488–4100 (404) 639–0615
Department of Agriculture Forest Service	P.O. Box 96090 Washington, DC 20013–6090	(202) 235–8019
Department of the Interior Division of Natural Resources and Emergency Response Office of Environmental Affairs	18th & C Street, N.W. Washington, DC 20240	(202) 208–3891
Department of Defense ODUSD(I&E)SOH	3400 Defense Pentagon Washington, DC 20301–3400	(703) 604–1628
Department of Labor Occupational Safety and Health Administration Directorate of Field Operations	200 Constitution Ave., N.W. Washington, DC 20210	(202) 523–7741
U.S. Coast Guard (G - MER) Marine Environmental Response Division	2100 2nd Street, S.W. Washington, DC 20593	(202) 267–0435/2611 (info)
National Response Center		1–800–424–8802 (202–426–2675 or 202–267–2675/ Wash DC area)
U.S. Department of Transportation Research & Special Programs Administration Office of Hazardous Materiel Transportation	ATTN: DHM–50 400 7th Street, S.W. Washington, DC 20590	(202) 366–4000
Department of Justice Environmental Enforcement Section	Room 7313 10th & Constitution, N.W. Washington, DC 20530	(202) 633–3646
Department of Commerce NOAA–Superfund Program Coordinator	11400 Rockville Pike Rockville, MD 20852	(301) 443–8465
Department of State Office of Oceans and Polar Affairs	Room 5801 2201 C Street, N.W. Washington, DC 20520	(202) 647–3263

Table C–2
Telephone numbers of State Emergency Response Commissions

State/Territory	Telephone
Alabama	(205) 834–1375 (205) 271–7700
Alaska	(907) 465–2600
American Samoa	011 (684) 633–4116
Arizona	(602) 244–0504
Arkansas	(501) 562–7444
California	(916) 427–4201
Colorado	(303) 273–1622 (303) 331–4600
Connecticut	(203) 566–4856

Table C–2
Telephone numbers of State Emergency Response Commissions—Continued

State/Territory	Telephone
Delaware	(302) 736–4321
Florida	(904) 488–1472
Georgia	(404) 656–4863
Hawaii	(808) 548–5832
Idaho	(208) 342–0031
Illinois	(217) 782–2700
Indiana	(317) 243–5176
Iowa	(515) 281–3231
Kansas	(913) 296–1690
Kentucky	(502) 564–8660
Louisiana	(504) 925–6113
Maine	(800) 452–8735
Maryland	(301) 331–3130
Massachusetts	(617) 727–7775
Michigan	(517) 373–8481
Minnesota	(612) 296–0481
Mississippi	(601) 960–9000
Missouri	(314) 751–7929
Montana	(406) 444–6911
Nebraska	(402) 471–4230
Nevada	(702) 885–5375
New Hampshire	(603) 271–2231
New Jersey	(609) 882–2000
New Mexico	(505) 827–9222
New York	(518) 457–2222
North Carolina	(919) 733–3867
North Dakota	(701) 224–2374
Ohio	(614) 644–2260
Oklahoma	(405) 521–2481
Oregon	(503) 378–3473
Pennsylvania	(717) 783–8150
Puerto Rico	(809) 722–1175
Rhode Island	(401) 421–7333
South Carolina	(803) 734–0425
South Dakota	(605) 773–3153
Tennessee	(615) 252–3300
Texas	(512) 465–2138
Utah	(801) 533–5271 (801) 538–6121
Vermont	(802) 828–2286
Virginia	(804) 225–2635
Washington	(206) 753–2200
West Virginia	(304) 348–2755

Table C–2
Telephone numbers of State Emergency Response Commissions—Continued

State/Territory	Telephone
Wisconsin	(608) 266–3232
Wyoming	(307) 777–7566
Washington DC	(202) 727–6161

Table C–3
Chemical surety points of contact

Agency	Street address	Telephone
HQDA		
Headquarters, Department of the Army	HQDA ODCS, G–3 ATTN: DAMO–SSD Washington, DC 20310–0400	(703) 697–9407/9446 DSN 222–9407/9446
MACOM		
U.S. Army Materiel Command	ATTN: AMCOPS–S 5001 Eisenhower Avenue Alexandria, VA 22333–0001	(703) 617–9842 DSN 767–9842
U.S. Army Test and Evaluation Command	ATTN: AMSTE–SU–SO Aberdeen Proving Ground, MD 21005–5055	(301) 278–4476 DSN 298–4476
U.S. Army Medical Command	ATTN: SGRD–PLE Fort Detrick, MD 21601–5000	(301) 663–7201 DSN 343–2161
U.S. Army Training and Doctrine Command	ATTN: ATCD–N Fort Monroe, VA 23651–5000	(804) 727–4411 DSN 680–4411
U.S. Army, Pacific	ATTN: APOP–NC Fort Shafter, HI 96558	(808) 438–6082 DSN 438–6082
U.S. Army Corps of Engineers	ATTN: CECS–OC 441 G Street, NW Washington, DC 20314–1000	(202) 761–1001 DSN 763–1001
U.S. Army Program Manager for Chemical Demilitarization	ATTN: SFAE–CD–A 4585 Hoadley Rd. Aberdeen Proving Ground, MD 21010–4005	(410) 436–4813 DSN 584–4813
MSC of AMC		
U.S. Army Soldier Biological Chemical Command	ATTN: AMSCB–RA Aberdeen Proving Ground, MD 21010–5423	(410) 671–3982 DSN 584–3982
U.S. Army Industrial Operations Command	ATTN: AMSIO–DMM Rock Island, IL 61299–6000	(309) 782–4815 DSN 793–4815
INSTALLATION/ACTIVITY		
AMC Surety Field Activity	ATTN: AMSSB–ISR Aberdeen Proving Ground, MD 21010–5423	(410) 436–3255 DSN 880–4836
Anniston Chemical Activity	ATTN: AMSSB–OAN–RM Anniston, AL 36201–4199	(256) 235–7577 DSN 571–7577
Chemical Defense Training Facility	ATTN: ATSN–CBD–TF Fort Leonard Wood, MO 65473–5000	(573) 596–0608 DSN 581–0608
Edgewood Chemical Activity	ATTN: AMSSB–OEC–CO Aberdeen Proving Ground, MD 21010–5423	(410) 436–8788 DSN 584–8788
Edgewood Chemical and Biological Center	ATTN: SCBRD–ODR–C–SR Aberdeen Proving Ground, MD 21010–5423	(410) 671–2051 DSN 584–2051
U.S. Army Defense Ammunition Center	ATTN: SIOAC–AST 1 C Tree Road McAlester, OK 74501–9053	(918) 420–8093 DSN 956–8093
Dugway Proving Ground	ATTN: STEDP–SU Dugway Proving Ground, UT 84022–5000	(801) 831–5387 DSN 789–5387

Table C–3
Chemical surety points of contact—Continued

Agency	Street address	Telephone
Fort Leonard Wood	ATTN: ATZT–PTM–CS Fort Leonard Wood, MO 65473–5000	(573) 563–5338 DSN 676–5338
Blue Grass Chemical Activity	ATTN: SCBBG–CSO Richmond, KY 40475–5008	(606) 625–6577 DSN 745–6577
Medical Research Institute of Chemical Defense	ATTN: MCMR–UV–RS Aberdeen Proving Ground, MD 21010–5425	(410) 436–4433 DSN 584–4433
Newport Chemical Depot	ATTN: SCBNE–SR Newport, IN 47966–0121	(317) 245–4374 DSN 369–1374
Pine Bluff Chemical Activity	ATTN: AMSSB–OPR–SR Pine Bluff, AR 71602–9500	(870) 540–2423 DSN 966–2423
Pueblo Chemical Depot	ATTN: SCBPU–CS Pueblo, CO 81001–9330	(719) 549–4143 DSN 749–4143
Deseret Chemical Depot	ATTN: P SDSTE–SO Tooele, UT 84074	(801) 833–4210 DSN 790–4210
Umatilla Chemical Depot	ATTN: AMSSB–OUM–SU Herminston, OR 97838–9544	(541) 564–5202 DSN 790–5202
U.S. Army Nuclear and Chemical Agency	ATTN: ATNA–OP 7150 Heller Loop, Suite 101 Springfield, VA 22150–3198	(703) 806–7855 DSN 656–7855

Table C–4
Explosive Ordnance Disposal Units

Agency	Street address	Telephone
Forces Command (FORSCOM)	ATTN: AFOP–EO Fort McPherson, GA 30330–1062	DSN: 367–5071/5073 COM: (404) 464–5071/5073
52d Ordnance Group	Fort Gillem Forest Park, GA 30050–5238	DSN: 797–5953/3333 COM: (404) 363–5953/3333
63d Ordnance Battalion (EOD)	Fort Dix, NJ 08640	DSN: 944–5940/5357 COM: (609) 562–5940/5357
79th Ordnance Battalion (EOD)	Fort Sam Houston, TX 78234–5000	DSN: 471–1308/9259 COM (210) 221–1308/9259
184th Ordnance Battalion (EOD)	Fort Gillem Forest Park, GA 30050–5000	DSN: 797–7126/7128 COM: (404) 363–7126/7128
3d Ordnance Battalion (EOD)	Fort Lewis, WA 98433–9521	DSN: 357–1972/1973 COM: (206) 967–1972/1973
706th Ordnance Company (EOD)	Schofield Barracks, HI 96857–5200	DSN: 455–5282 COM: (808) 655–5313
716th Ordnance Company (EOD)	Fort Richardson, AK 99505–7340	DSN: 317–7600/7601 COM: (907) 384–7600/7601

Appendix D
Signs and Symptoms of Chemical Agent Exposure

D–1. Casualty signs and symptoms

Table D–1 provides a brief summary of signs and symptoms of chemical agent exposure.

D–2. Medical personnel

Medical personnel should be familiar with chapter 6 and table D–1. Definitive guidance on the treatment of chemical agents casualties may be obtained from FM 8–285.

Table D–1
Signs and symptoms of chemical agent exposure

Items	Agents				
	Nerve agents (GA, GB, GD, VX)	Mustard & nitrogen mustard (HD, HN)	Lewisite & other arsenical vesicants (L)	Mustard & lewisite combinations (HL)	Incapacitating agents (BZ)
Odor	G-Agents—none or faint sweetishness, fruity or paint-like VX—none.	HD—garlic or horseradish, irritating HN—none or fishy, irritating.	Fruity to geranium like, very irritating.	Garlic-like.	None.
Mechanism of Action	Anticholinesterase agents producing cholinergic poisoning.	Vesicants, bone marrow depressant, Aklylating agent, damages cellular DNA.	Vesicants.	Vesicants.	Anti-cholinergic.
Eyes: Pupils	Miosis.	Miosis if other eye symptoms are severe.	Like HD and HN.	Like HD and HN.	Mydriasis.
Eyes: Conjunctival	Redness.	Redness.	Prompt redness, edema, irritation.	Like HD, HN, and L.	
Rest of Eye	Pain (especially on focusing), slight dimness of vision, headache, lacrimation.	Edema of lids, pain, blepharospasm, photophobia, lacrimation, corneal ulceration, and possible scarring.	Immediate burning sensation, may cause iritis, corneal injury.	Like HD, HN, and L.	Blurred near vision.
Nose	Rhinorrhea.	Swelling, irritation, ulceration, discharge, occasional edema of larynx.	Prompt irritation.	Like HD, HN, and L.	Extreme dryness.
Throat	Tightness.	Swelling, irritation, ulceration, discharge, occasional edema of larynx.		Like HD, HN, and L.	Extreme dryness.
Respiratory Tract	Tightness in chest, bronchoconstriction, occasional wheezing, increased bronchial secretion, cough, dyspnea, pulmonary edema, substernal tightness.	Slowly developing irritation, hoarseness, aphonia, cough, tightness, dsypnea, rales, Pneumonia, fever, pulmonary edema in severe cases.	Rapid irritation, hoarseness, aphonia, cough, Pneumonia, fever, pulmonary edema in severe cases, pleural effusion.	Like HD, HN, and L.	
Skin	Sweating, pallor, then cyanosis.	No immediate signs. Minutes to hours, redness, burning. Several hours later large blisters surrounded by redness, itching. Several days later, necrosis limited to epidermis.	Prompt burning redness within 30 min, blisters on 1st or 2nd day. Pain more severe and necrosis deeper than with mustard.	Like HD, HN, and L.	Dry, flush.
GI Tract	Salivation, anorexia, nausea, vomiting, abdominal cramps, epigastric tightness, heartburn, eructation, diarrhea, tenesmus, involuntary defecation.	Pain, nausea, vomiting, diarrhea.	Diarrhea, nausea, vomiting, hepatic failure.	Like HD, HN, and L.	Constipation.
CV	Occasional early transient tachycardia and/or hypertension, followed by bradycardia and hypotension.	Shock after severe symptoms.	Shock after severe symptoms, hemolytic anemia, hemoconcentration.	Like HD, HN, and L.	Tachycardia, elevated blood pressure.
GU Tract Bladder	Frequent involuntary urination.	Renal failure.	Renal failure.	Renal failure.	Urgent: urinary retention.

Table D–1
Signs and symptoms of chemical agent exposure—Continued

Items	Agents				
	Nerve agents (GA, GB, GD, VX)	Mustard & nitrogen mustard (HD, HN)	Lewisite & other arsenical vesicants (L)	Mustard & lewisite combinations (HL)	Incapacitating agents (BZ)
Central Nervous System	Apprehension, giddiness, insomnia, headache, drowsiness, difficulty concentrating, poor memory, confusion, slurred speech, ataxia weakness, coma w/areflexia, Cheyne-Strokes respiration, convulsions.	Malaise, prostration, depression after severe symptoms.	Like HD, HN.	Like HD, HN.	Headache, giddiness, drowsiness, disorientation, hallucination and occasional maniacal behavior.
Muscles	Fasciculation, easy fatigue, cramps, weakness (including muscles or respiration), paralysis.				Ataxia and/or lack of coordination.
Decontamination	Remove contaminated clothing. For skin and individual equipment, use M258A1 kit in accordance with established procedures. A 5 percent bleach solution may be used below face level. Use water for face especially around eyes, nose, and mouth.	For liquid contamination of eyes, initially irrigate with copious amounts of water; then at the FMTF, with a sodium bicarbonate or saline eyewash. Remove contaminated clothing. For skin and individual equipment use the M258A1 kit. A 5 percent bleach solution may be used below face level.		Like HD and HN.	Like HD, HN. For contamination of skin wash with soap water.

Appendix E
Public Affairs Checklist Guidance

E–1. Command information preparedness checklists

The command information (CI) element of the installation public affairs plan should have appendices detailing information or materiel to be used in implementing the plan. The following are outlined recommendations for what should be included in the plan:

a. Welcome packets.

(1) Fact sheets on all chemicals held at the installation, giving (within security guidelines) their developmental histories, physical properties, toxicity, and first-aid treatment. Photographs of storage configurations and bunkers should also be provided if applicable.

(2) List of POCs for updating the fact sheets.

b. Orientation.

(1) POCs who schedule and/or provide orientation and who would invite families and/or regular visitors.

(2) Text of orientation; suspense date for review and update.

c. Classes.

(1) POCs who will conduct refresher classes and who will invite dependents and/or regular visitors.

(2) Text of refresher materiel; suspense date for review and update.

d. Students.

(1) List of on-post schools, with POCs for scheduling orientation lectures. Suspense dates for contacting the POC for the activities should also be established.

(2) Text of orientation lecture; suspense date for review and update.

e. Alert signs.

(1) Text and design of alert signs; suspense date for review and update.

(2) Locations of alert signs with POCs for posting.

f. Internal media.

(1) Names, descriptions, deadlines of internal media with POCs for each.

(2) Text/design for running block of information; suspense date for review and update.

(3) Proposals for materiel to be prepared for each media with suggestions as to timing of placements.

g. Alert exercises.

(1) POCs for conduct of the siren alert exercises with suspense dates to contact them for plans.

(2) Instructions for timing and advertisement of the exercises.

E–2. Community relations preparation checklist guidance

The community relations (CR) element of the public affairs plan should have appendices detailing information or materiel to be used in implementing the plan. The following are outlined recommendations for what should be included in the appendices:

a. Names, telephone numbers, positions of key community leaders on the installation emergency planning team.

b. Names, telephone numbers of public affairs representatives of local civic, safety, and political leaders.

c. Chemical operation sites that may be visited by local leaders; POCs for setting up visits.

d. Names, telephone numbers of members of the local speakers bureau.

e. Area organizations which speakers can address; POCs for each.

f. Text to be used by speakers with suspense date for review and update.

g. Location and schedule for town meetings with POC, including installation commander as a panel member or speaker for town meetings.

E–3. Media relations preparation checklist guidance

The media relations (MR) element of the public affairs plan should have appendices detailing information or materiel to be used in implementing the plan. The following are outlined recommendations for what should be included in the appendices:

a. Electronic and print media within a 50-mile radius, newspaper publishers, executive editors, managing editors, city and suburban editors, radio and television station owners, general managers, news directors, assignment editors and beat reporters.

b. Major electronic and print media in large metropolitan areas within a 100-mile radius; newspaper publishers, executive editors, managing editors, city and regional editors, beat reporters, radio and television station owners, general managers, news directors, assistant news directors, executive producers, and assignment editors.

c. Materiel to be included in a handout information packet; suspense date for review and update.

(1) Fact sheet on installation with unclassified map or aerial photo.

(2) Brief biographies of the commander and other personnel who would be key players in an emergency response.

(3) Fact sheets on chemicals held at the installation, giving, within security guidelines, their developmental histories, physical properties, toxicity, first-aid treatment, and emergency responses to be taken for each.

(4) Fact sheet providing ground rules for news media in the event of an emergency; telephone numbers for public affairs personnel; information on the probable location of the JIC, what will be available at the center, and ground rules for its use.

(5) If feasible and applicable, photographs or videotapes of chemical operations at the installation.

d. POCs for setting up visits by media to view chemical operations with proposed visit agenda. POC list should be updated every 6 months since key personnel change frequently in smaller media markets.

E–4. Senior command relations preparation checklist guidance

The senior command relations (SCR) elements of the public affairs plan should have appendices detailing information or materiel to be used in implementing the plan. The following are recommendations for what should be included in the appendices:

a. Plans with higher headquarters to establish—

(1) What the initial PA response will be.

(2) When an augmentation force will be called.

(3) How the number of personnel needed will be determined.

(4) Where they will come from.

(5) The line of authority/chain of command.

(6) Responsibilities under the SRF.

b. MOUs with the nearest military installations for Federal agencies to establish under what circumstances PA assistance will be provided, how much, and for how long.

c. MOUs with nearest FEMA and EPA offices to establish coordination in the event of an emergency and to establish criteria for operation of a JIC in the event an SRF is required.

d. List of higher headquarters having duplicates of the PA Plan and other materiel so they may receive updates as applicable, including POCs to be contacted for installation-wide alerts and exercises.

E–5. Initial response force checklist guidance

The IRF elements of the public affairs plan should have appendices detailing information or materiel to be used in implementing the plan. The following are recommendations for what should be included in the appendices:

a. Checklist of actions to be taken on notification of the emergency.

b. Names and telephone numbers of personnel (and alternates) who will comprise an emergency support staff.

c. Proposed assignments for PA staff and augmentation personnel.

d. DSN and commercial telephone numbers for OCPA and U.S. Army Materiel Command Public Affairs (AMCPA) during and after duty hours.

e. Proposed generic release (who, what, when, where) to be used initially to inform the internal force, community leaders, the news media, and the public. Cause of the emergency will be referred to in a sentence that states an investigation has begun or will be conducted. All information will be verifiably accurate, without speculation, and will give assurance that the safety of life and property is paramount in the response operations.

f. Locations of bulletin boards in the JIC, to include special requirements such as location of keys for locked boards.

g. Locations of loudspeakers with POC to operate central systems (if available).

h. Names and telephone numbers of division or office chiefs who will provide information to workers.

i. POC at installation radio or television station, if applicable, with special requirements for materiel preparation.

j. POC at printing plant and requirements to expedite sufficient copies of PA guidance for all employees.

k. POC who will disseminate copies of PA guidance to all employees.

l. Names and telephone numbers of public affairs personnel in a telephone tree who would not be notified by the EOC emergency nets.

m. Materiel to be contained in an emergency fly-away kit.

(1) Information packets as outlined in paragraph E–3*c* (sufficient copies for anticipated media and other demands).

(2) Copies of this publication as well as all PA and any other pertinent plans and annexes.

(3) Identification badges for all PA personnel, including augmentation forces; and separate ID badges for news media, including enough for nonlocal media.

(4) Instructions for establishing and operating the predesignated JIC. Primary POC to assist in the operation.

(5) Copies of AR 360–1, chapter 12; DA Pam 50–6.

n. POC to alert emergency communications team. List of all communications equipment that will be needed for the JIC and to assist public affairs personnel in the field.

o. POC to alert emergency audiovisual team. List of all audiovisual equipment that will be needed for the JIC and to assist public affairs personnel in the field.

p. POC to alert emergency photo team. List of proposed assignments for photographers.

q. Names and telephone numbers of personnel who would be called on for interviews or a news conference.

r. Proposed schedule for release of information or conduct of briefings and/or conferences, detailing deadlines and special requirements of media.

s. Names and telephone numbers of key leaders to be invited to participate in the JIC.

t. POCs at nearest military installation to use if additional augmentation is needed.

u. Telephone numbers for emergency net radio/television stations.

v. Telephone numbers for public relations firms that will assist under an emergency contract.

E–6. Joint Information Center checklist guidance

Establishment of a JIC should be based on consideration of the gravity of the event, the anticipated number of media to be served, and the anticipated number of non-Army PAOs to be accommodated. While the following are recommendations for planning JIC operations, the location for the JIC should be predetermined prior to the CAI.

a. Location. Whether to place the JIC inside or outside the confines of the installation must be a local on- and off-post official decision, based on the following:

(1) Availability of adequate facilities.

(2) Considerations for safety, security, and accessibility.

(3) Agreements with community officials (in the event a JIC is required).

b. Facilities. While the size will be dictated by anticipated demands for media coverage of the specific event, the facilities must be large enough to accommodate certain requirements.

(1) Official PA working areas excluded from media or other ordinary traffic.

(2) News media working area excluded from public affairs personnel or other ordinary traffic.

(3) Conference area large enough to accommodate all anticipated media and other participants in media briefings and/or conferences.

(4) Two or three separate areas in which media may conduct personal interviews with response force participants. These areas should be large enough to accommodate a television reporter and video crew of one or more persons in addition to the interview subject.

c. Services. While media should be self-sufficient, some services must be provided to avoid the disruption of responding to media requests for assistance in obtaining those services.

(1) *Electricity.* Sufficient power and outlets to support typewriters, computers, lights, multiple television cameras, recorders, radio equipment, microphones, telex, and other equipment. This is critical during the conduct of news briefings and press conferences.

(2) *Telephones.* As a rule of thumb, one phone for every four media represented. Make arrangements to ensure operators permit only credit card or collect long distance calls by media. Arrangements must be made to ensure the PAO can clear commercial long distance.

(3) *Parking.* Make arrangements to ensure there is a parking area for JIC operations, to include news media and non-Army agencies.

(4) *Food.* There must be an area in which news media and others can obtain food and beverages, at cost, or arrangements should be made to provide them on a reimbursable basis.

d. Operations. While the intent of a JIC is to provide a central location at which news media may meet to obtain information, the focus of the JIC should be to conduct the mission of PA; that is, to assist the general public and community in obtaining information about Army operations.

(1) The JIC should be the point to which the media is directed to find out what is happening in the response operations. Admission to the center should be restricted to persons who can best help in disseminating information to a large segment of the public such as bona fide news media representatives and community leaders. However, arrangements should be made for the center to receive telephone inquiries from the public. For this purpose, a code-a-phone should be set up to provide updated messages similar to what is given to the media. Otherwise, telephone lines may be jammed by the general public seeking information.

(2) The JIC will also serve to assist PAOs from other agencies, Federal or otherwise, in obtaining information and providing the perspective of their agencies to the media and public. Those PAOs should be provided space in which to work alongside Army PAOs to afford the best coordination among all agencies on what will be disseminated to the public.

(3) The JIC conference room should be arrayed with bulletin, message, and picture boards as well as tables for press releases and handouts in order that media may obtain the latest released materiel without having to find a PAO in each case.

(4) The podium should be elevated and, to avoid awkward visual effects, the background should be free of all distractions and a light color.

(5) As feasible, Federal, State, and local agencies should be afforded the opportunity to speak at conferences and briefings to present their individual perspectives of the response operations.

(6) In all cases, it must be remembered that the JIC is exactly what its name implies. It is a forum to be used by all interested agencies for providing their information to the public through the news media.

E–7. Service response force checklist guidance

The SRF elements of the public affairs plan should have appendices detailing information or materiel to be used in implementing the plan. The following are outlined recommendations for what should be included in the appendices:

a. Checklist of actions to be taken if the service response force is requested.

b. DSN and commercial telephone numbers for HQDA (OASD(PA)) during and after duty hours.

c. Checklist of anticipated SRF commander, his or her staff, and other government or civilian officials expected to arrive with an SRF. List positions, allowing room for names to be added later, along with local telephone numbers and locations.

d. Proposed duties to be performed as deputy to the SRF PAO, which will allow the SRF PAO to concentrate on the State, national, international media, political, and public issues.

e. List of anticipated augmentation personnel or their alternates.

f. POCs to provide assistance, information about billeting, commercial travel, and other personnel matters for service force.

g. Proposed outlines for after-action reports to be prepared by SRF or installation PAOs, including sections for lessons-learned and recommendations.

Appendix F
Legal

F–1. Overview

This appendix is designed to—

a. Establish a framework from which legal guidance may be furnished to the IRF or SRF commander to ensure proper command supervision of claims activities.

b. Supplement, support, and assist the area claims office in processing claims arising from CAI occurring at various installations.

c. Ensure that the civilian, as well as installation population, is made aware of the commander's willingness to accept appropriate claims for injuries and damages.

F–2. Principal legal advisor functions

The prime functions of the principal legal advisor in the event of a CAI at the CAI location are to advise the IRF or SRF commander concerning the legal alternatives to problems arising out of the CAI, including, but not limited to, the initiation of processing of any claims against the Government. These should include the information in paragraph 10–1. These responsibilities are further defined in each of the following phases:

a. Deployment. When notified of a CAI at a federally-owned installation, the principal legal advisor will—

(1) Establish contact with the installation's legal advisor or SJA to obtain necessary information and coordinate required procedures.

(2) Obtain a copy of the Disaster Claims Plan from the local Area Claims Office (ACO) or equivalent by the most expeditious means and follow the directions set forth therein. Address lists for these offices are contained in DA Pam 27–162, table 2–1 and figure 7–4. If obtained elsewhere, notify the head of the ACO in accordance with the plan. By agreement with the ACO, the plan may be modified to fit the technical and scientific aspects of a CAI. A model Disaster Claims Plan is in DA Pam 27–162, figure 1–4.

b. Response. Upon arrival at the CAI location, the principal legal advisor will—

(1) Report immediately to the IRF or SRF commander.

(2) Conduct, in coordination with the local legal officer or others, a preliminary survey of the extent of the CAI damage and advise the IRF or SRF commander and claims authorities as to possible Army liability for damage to civilian property or persons.

(3) Advise the IRF or SRF commander of the legal ramifications of the CAI (for example, if the CAI violates Federal or State laws) as soon as such an evaluation can be made. This advice should include Army claims liabilities (appropriate dollar estimate, if possible) and the limitations of military authority to enforce security of the CAI area where any part of that area includes non-federally-owned land.

(4) Provide similar information to the head of the ACO or equivalent (OCONUS) and determine whether to implement the disaster claims plan and in what manner. If an advance claims party is needed to assist in such determination, institute such action.

(5) Provide information to the Commander, USARCS concerning the CAI and the claims plan.

(6) Determine if deadly force was used during the incident. Record the circumstances. Advise the provost marshal of the authority of security personnel to prevent unauthorized personnel from entering the CAI area. Security personnel will also be briefed on the degree of force (deadly vs. nondeadly) that they may apply under the provisions of AR 190–14.

(7) Establish liaison with the PAO at the scene to coordinate release of appropriate announcements regarding the location and functions of any Special Claims Processing Office. If time permits, review the press releases prepared for publication by the public affairs office to ensure that they are not worded so that it appears the Army was culpably negligent in a manner that offers a conclusion or opinion concerning whether any individual's negligence caused or contributed to the CAI until all investigations are complete. If the JIC is located too far from the EOC, it may be advisable to augment the legal staff with an attorney dedicated to screening public affairs office functions.

(8) Maintain a journal (log) of principal legal advisor's activities in performing CAI site emergency action procedures. All other attorneys at the CAI site should keep a log as well.

c. Recovery. During recovery operations, the principal legal advisor will continue to perform basic legal functions for the commander and oversee the operations of the claims office.

(1) *Basic functions.*

(a) After an assessment of responsibility for the CAI is prepared, advise the commander of the assessment. If it is apparent that the responsibility lies with nongovernmental entities (for example, a contractor, GOCO facility, or the transporter of chemical agent material), such advice should include the fact that the payment of claims may not be the responsibility of the United States.

(b) Discuss with the head of the ACO, after obtaining the advice of the head of the Special Claims Processing

Office, whether the immediate payment of claims is feasible. Ensure that the Commander, USARCS is advised of their decision and that authority is obtained to pay the first claim.

(c) If contractor responsibility is apparent, notify the principal office of the contractor and request whether a response to anticipated claims will be made and in what manner.

(d) Press releases are the responsibility of the IRF or SRF commander's PAO. The principal legal advisor will coordinate with the PAO to ensure that press releases contain no statements charging or implying responsibility of the CAI until the cause and responsibility have been determined and announced officially by competent authority. If it has been decided that claims will be accepted but liability cannot be established, ensure that this decision is announced. The principal legal advisor will monitor public claims information disseminated through the media and local officials.

(e) The principal legal advisor shares responsibility with the head of the ACO, or equivalent, to ensure that there is adequate claims support. If a Special Claims Processing Office is established, the principal legal advisor is responsible for liaison between that office and the commander and staff to ensure assistance and dissemination of accurate claims information.

(f) Periodically advise the IRF or SRF commander and members of his or her staff on the legal aspects of the operation including the status of claims.

(g) Maintain a journal (log) of principal legal advisor's activities in performing on-site recovery activities. Instruct other assigned attorneys to do likewise.

(2) *Operation of claims office.*

(a) Assist the Special Claims Processing Office personnel so that a prompt but thorough investigation of the CAI is made. The principal legal advisor, together with the head of the Special Claims Processing Office, will determine whether an AR 15–6 board should be appointed to supplement the claims investigation. If so, advise the commander and, upon his or her concurrence, ensure the membership is properly qualified. Brief the board as to the purpose and extent of their investigation. Normally, their investigation will be to establish the circumstances surrounding the event and its causation. The Special Claims Processing Office will be responsible for obtaining witnesses. The report of this investigation can serve as a master file for processing of all claims arising from the occurrence.

(b) If the Special Claims Processing Office investigators need scientific or technical assistance, the principal legal advisor will take measures to request it. Where indicated, such personnel will assist in the questioning of witnesses and in determining the measurement of the extent and intensity of the CAI, as well as the degree of contamination.

(c) The principal legal advisor will ensure the appropriate distribution of all reports generated outside claims channels during the claims investigation. A periodic claims status report will be provided to the commander. A model form is contained in the model disaster claims plan in DA Pam 27–162 at figure 1–4*c*.

(d) The area claims attorney will report the results of his or her investigation utilizing DA Form 1208 (Report of Claims Officer). A copy of this report will be provided to the principal legal advisor and, in turn, to the OSC. All statements of personnel and witnesses involved, diagrams, and photographs will be listed in and attached to the report as exhibits. (See AR 27–20.)

(e) Advise the commander and PAO to inform claimants and their representatives so they understand that under U.S. Army claims procedures, other than advance payments in certain circumstances, their claims cannot be settled on a piecemeal basis, and that one claim must be submitted for their entire loss or damage. Information concerning processing channels and levels of settlement authority, as well as processing time requirements and methods of payment, should be stated on a realistic and not overly optimistic basis. Where indicated, ensure claimants are directed to appropriate insurance carrier.

F–3. Legislative and Executive authorities

a. Authority for response to accident.

(1) 42 USC 5122

(2) 42 USC 5141 and 5152

(3) 10 USC 332

(4) Executive Order 12656

(5) Executive Order 12148 and Executive Order 12919

(6) Department of Defense Directive 3025.1

(7) Department of Defense Directive 5410.14

b. Authority for military acquisition of land.

(1) 10 USC 2672

(2) Executive Order 12630, Code of Federal Regulations, Title 53, Section 8859 (53 CFR 8859)

c. Authority for just compensation for property.

(1) U.S. Constitution, Amendment V

(2) Case law references

(3) Executive Order 12630 (53 CFR 8859)

d. Authority for payment of claims.

(1) 28 USC 2671
(2) 10 USC 2733
(3) 10 USC 2734
(4) 10 USC 4801 and 4806
(5) 10 USC 2735 and 2736
(6) Article VIII, North Atlantic Treaty Organization Status of Forces Agreement
(7) DOD Directive 5515.3
(8) DOD Directive 5515.8
(9) AR 27–20
(10) AR 27–40
(11) DA Pam 27–162

e. Environmental directives.

(1) 42 USC 4321
(2) Executive Order 11514, as amended by Executive Order 11991
(3) DODD 4715.1
(4) 42 USC 9601
(5) Executive Order 12580
(6) 40 CFR, Part 300
(7) 10 USC 2701
(8) AR 200–1

Appendix G
Analytical Procedures List for Analysis of Samples

G–1. Analytical procedures

The analytical procedures listed in table G–1 are lengthy and may be obtained from Edgewood Chemical and Biological Center (ECBC), ATTN: SCBRD–ODR–C, Aberdeen Proving Ground, MD 21010–5423, or by calling DSN 584–2051 or commercial (301) 671–2051. These procedures will be maintained by ECBC.

G–2. Copies

Installations will include copies of the procedures in CAIRA response documentation and OSC staff plans as appropriate.

Table G–1
Analytical methods for analysis of samples

Sample	Analysis
Sample: Arsenic	**Method:** Quantitative determination of arsenic, which will be used for either lewisite (L) or adamsite (DM)-(diphenylaminochloroarsine)
Sample: Arsenic—Vol	**Method:** Gas chromatographic analysis of lewisite.
Sample: Arsenic—Val	**Method:** Quantitative determination of arsenic trioxide, arsenic pentoxide, arsenilic acid, adamsite, and lewisite.
Sample: BIS	**Method:** Quantitative determination of BIS compound in VX using hydrolysis.
Sample: BZ	**Method:** Quantitative determination of BZ by the tris buffer method.
Sample: Chloroacetophenone	**Method:** Quantitative determination of chloroacetophenone (CN) in the air stream by photometric (colorimetric) method.
Sample: Chloroform	**Method:** Quantitative determination of chloroform ($CHCL_3$) in the air stream by photometric (colorimetric) method.
Sample: Chloropicrin	**Method:** Quantitative determination of chloropicrin (PS) in the air stream by the photometric (colorimetric) method.
Sample: CN–Potas	**Method:** Quantitative determination of chloroacetophenone (CN) using potassium acid phthalate sodium perchlorate.

Table G–1
Analytical methods for analysis of samples—Continued

Sample	Analysis
Sample: CS–DM	**Method:** Quantitative determination of o-chlorobenzylidene malonitrile (CS) and adamsite (DM) mixture.
Sample: CS–NQ	**Method:** Quantitative determination of o-chlorobenzylidene malonitrile (CS) by the napthaquinone ($C_{10}H_6O_2$) method of analysis.
Sample: Cyanide	**Method:** Quantitative determination of cyanide ions in the air stream by the photometric (colorimetric) method.
Sample: Cyanogen Chloride	**Method:** Quantitative determination of cyanogen chloride (CNCl) in the air stream by the photometric (colorimetric) method.
G-agents by gas chromatographic method:	
Sample: GB–Hex	**Method:** Gas chromatographic analysis of XGB in hexane (C_6H_{14}), chloroform ($CHCl_3$), or isopropyl alcohol (C_3H_8O).
Sample: G-agents	**Method:** Quantitative determination of G-agents by dianisidine ($C_{14}H_{16}N_2O_2$) perborate ($NaBO_3$) method.
Sample: GD	**Method:** Quantitative determination of soman (GD) using the indolepyrophosphate reaction and the auto analyzer system.
GC-analysis of VX in Hexane, isopropyl alcohol, and chloroform:	
Sample: HCN–GA	**Method:** Quantitative determination of hydrogen cyanide in GA.
Sample: HCN–PMP	**Method:** Quantitative determination of free hydrogen cyanide using 1-phenyl-3-methyl-5-pyrazolone on the colorimeter.
Sample: HCN–Total-GA	**Method:** Quantitative determination of total hydrogen cyanide in GA.
Sample: Mustard-HD	**Method:** Gas chromatographic determination of mustard (HD) concentration as a confirmation of the colorimetric technicon results.
Sample: Mustard-HD–DEA	**Method:** Quantitative analysis of mustard (HD) with the technicon auto analyzer II using DEA, DB3, and DEP.
Sample: Mustard-Val	**Method:** Quantitative determination of total (H, HN, HN–3) emissions by the technicon method.
Sample: Mustards	**Method:** Quantitative determination of mustards (H, HN, HD) in the air stream by photometric (colorimetric) method.
Sample: Phos-Chl-Mir-8	**Method:** Quantitative determination of phosgene and chloroform by the miran 80 method (also an alternative method for the determination of chloropicrin).
Sample: Phosgene	**Method:** Quantitative determinations of phosgene ($COCl_2$) (CG) in the air stream by photometric (colorimetric) method.
Sample: Phosphites	**Method:** Quantitative determination of low level sarin (GB) by the technicon auto analyzer II anticholinesterase (CHE) method.
Sample: Phosphorus Blu	**Method:** Quantitative determination of organic phosphorus (PH) compounds by the molybdenum blue method.
Sample: Phosphorus-Red	**Method:** Quantitative determination of phosphorus (H_3PO_3) by a gravimetric procedure.
Sample: Sarin	**Method:** Quantitative determination of sarin (GB) in the air stream by photometric (colorimetric) method.
Sample: Sarin-Val	**Method:** Quantitative determination of low level sarin (GB) by the technicon auto analyzer II anticholinesterase (CHE) method.
Sample: Thiol-VX	**Method:** Quantitative determination of total thiol in VX.
Sample: VX–Moly-Blu	**Method:** Quantitative determination of VX isopropanol by molybdenum blue.
Sample: VX–DB3	**Method:** Quantitative determination of VX by the DB–3 method of analysis.

Table G–1
Analytical methods for analysis of samples—Continued

Sample	Analysis
Sample: VS–Hex	**Method:** Gas chromatographic analysis of VX in hexane, isopropyl alcohol, or chloroform.
Sample: VX–Total-Thiono	**Method:** Quantitative determination of total thiono compounds in VX, and the calculation of purity.

Appendix H
Monitoring Methods

H–1. Department of the Army standards

The DA has promulgated monitoring standards and exposure levels for chemical agents in the following documents: DOD 6055.9–STD, Ammunition and Explosive Safety Standards; Army Regulation (AR) 385–61, Army Toxic Chemical Agent Safety Program; DA Pam 385–61, Toxic Chemical Agent Safety Standards; DA Pam 40–8, Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Nerve Agents GA, GB, GD, and VX; DA Pam 40–173, Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Mustard Agents H, HD, and HT; and DA Pam 40–1, Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Lewisite. Federal agencies such as the USEPA and Occupational Safety and Health Administration (OSHA) also require monitoring for the presence of hazardous chemicals in ambient air to ensure that site workers and the surrounding communities are not exposed to hazardous conditions during excavation, transportation, storage, and disposal of chemical materiel and during emergency response activities. OSHA regulations are codified in the Title 29 of the Code of Federal Regulations (CFR), Part 1910.120 (29 CFR 1910.120). Primary USEPA regulations incorporate OSHA standards by reference and are codified in Title 40 CFR Part 311. Additional Army policy and guidance has also been recently documented in DA Memorandum, OASA (I&E) Memorandum for Distribution, Derivation of Health-Based Environmental Screening Levels (HBESL) for Chemical Warfare Agents, 28 May 1999, and in the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Memorandum, Response to State of Oregon Comments on the Utah Chemical Agent Rule (UCAR), 23 October 2000.

H–2. Description of monitoring and sampling equipment

a. Overview. This section summarizes the sampling and analytical equipment to be used to verify control of agent migration in air and in process effluents. Air in and surrounding the monitoring facility is continuously monitored for protection of workers and the public. The analytical methods and instruments described in this section are representative of the systems currently available

b. Near real-time monitoring equipment. Near real-time (NRT) monitoring equipment, such as MINICAMS® and/or the Automatic Continuous Air Monitoring System (ACAMS), will be used as audible-alarming monitors to detect specific chemical materiel at all monitoring levels, with the exception of GPL. An NRT monitor consists of an automated gas chromatograph (GC) that collects chemical materiel from a sampling point through a transfer line to a sample loop or onto a solid sorbent preconcentrator tube (PCT). The collected chemical materiel is thermally desorbed into an analytical column for separation from other sample components and then sent to a detector for quantitation and identification. Proper operation of the NRT monitor should be done in accordance with manufacturer specifications.

(1) *ACAMS.* A direct readout of chemical materiel concentration, in monitoring level units, is given on the gas plasma display (GPD) of the ACAMS at the end of each sample and analysis cycle. Chemical materiel masses associated with monitoring levels are computed by the ACAMS based on calibration of instrument response, the sample collection time, and sample flow rate through the sorbent PCT. A strip chart recorder provides real-time printouts of the ACAMS chromatogram. Audible and visual alarms may be generated for ACAMS monitoring. Audible and visual alarms are also generated directly at the ACAMS station to allow unmasked workers to don protective clothing in the event of potential exposure to chemical materiel. The ACAMS provides internal diagnostic checks to determine the operability of the system. The ACAMS software determines whether various operating parameters are within predetermined limits. If the ACAMS is operating outside the limits, an error message appears on the front control panel, and a malfunction status signal can be sent to the Control Room.

(2) *MINICAMS®.* A direct readout of agent concentration, in monitoring level units, is given on the liquid crystal display (LCD) of the MINICAMS® at the end of each sample and analysis cycle. Agent masses associated with monitoring levels are computed by the MINICAMS® based on calibration of instrument response, the sample collection time, and sample flow rate. Audible and visual alarms are also generated directly at the MINICAMS® station. The MINICAMS® provides internal diagnostic checks to determine the operability of the system. Its software determines if various operating parameters are within predetermined limits. If the MINICAMS® is operating outside the limits, an error message appears on the front control panel. The MINICAMS® mode of operation depends upon the agent being detected. The standard detector for the NRT monitors is a flame photometric detector (FPD) that responds to compounds containing either phosphorus (for example, GA, GB, GD, VX as G-analog) or sulfur (for example, HD

and the HD component of HT, HL, and H). However, the MINICAMS® may be configured with a halogen selective detector (XSD) for monitoring HD, L, nitrogen mustard (HN–1 and HN–3), and industrial chemicals (phosgene (CG), cyanogen chloride (CK), and chloropicrin (PS)). The MINICAMS® is equipped with a mass flow controller that maintains the necessary sample flow rate to the MINICAMS®, to ensure that the correct volume of air is collected during the timed sample period.

(3) *Compact Continuous Confirming Hewlett-Packard Dynatherm.* The Compact Continuous Confirming Hewlett-Packard Dynatherm (C3HPD) is a multi-agent monitoring system that uses the technology of sorbent sample collection and concentration, gas chromatographic separation, and flame photometric detection with the added capability of continuous sampling and self-confirmation of each analysis cycle. Self-confirmation is achieved using dual dissimilar columns, wherein the sample is chromatographed on two columns of differing stationary phases. A positive result occurs only when the target analyte is found in the proper retention time window for both columns. Continuous sampling is achieved by using the Dynatherm thermal desorber design of a sorbent tube and focusing trap set but in a parallel, dual set configuration. This configuration allows the first sorbent tube/focusing trap set to collect a sample, while the second sorbent tube/focusing trap set analyzes the sample it just finished collecting. On the next cycle of the instrument the roles are reversed so that an air sample is always being collected. The C3HPD may be used as an alternative to the other NRT monitors described in this section.

H–3. NRT monitor detectors

Proper operation of the NRT monitor dictates close adherence to the manufacturer's specifications.

a. Flame photometric detector. The NRT monitor can be configured to monitor chemical materiel using an FPD. The FPD is a detector that is specific to phosphorous- or sulfur-containing compounds. This detector uses a hydrogen flame to energize eluted compounds. As the combusted compounds return to ground state, the detector measures the intensity of light emitted within wavelengths specific to the emission bands of these two elements. This signal is compared to the signal from an external standard to determine the sample concentration. The FPD is used in environments that do not contain significant levels of nontarget sulfur- or phosphorous-containing species. Although some chromatographic separation capability is present with the NRT monitor, operation of the NRT monitor in sulfur- or phosphorous-contaminated environments may produce false positive results. The FPD is used in process area monitoring where contamination is not anticipated or the chemical materiel level is comparable to or greater than the levels of potential interfering substances. If contamination by agents is observed, an alarm is required. The following issues should be considered in using an FPD for assay of VX, L, and HD.

(1) For VX monitoring, the sampling line inlet is fitted with a silver fluoride (AgF) impregnated pad that converts the high molecular weight VX to a "G-analog." Unlike the parent VX, the G-analog is a volatile reaction product that easily migrates through sampling lines and is amenable to chromatographic separation. The G-analog is O-ethyl methylphosphonofluoridate.

(2) Application of the FPD to detect HD offers substantial sensitivity but may be prone to false positive responses due to the presence of other sulfur-containing species. An alternate detector may be utilized for the determination of HD.

(3) Detection of the derivatized L can be achieved using an FPD, but due to the high concentration of derivatization products, detection of L is accomplished using an alternate detector.

b. Pulsed flame photometric detector. The pulsed flame photometric detector (PFPD) is an element selective detector that separates compounds according to their elemental content and detects only phosphorous and/or sulfur compounds while completely eliminating hydrocarbon interference. The PFPD is based on a flame source and combustible gas flow rate that cannot sustain a continuous flame operation. A combustible gas mixture of hydrogen and air is continuously fed into the small pulsed flame chamber together with the sample molecules that are eluted in the usual way from the GC column. The combustible gas mixture is also separately flowing to a light-shielded, continuously heated, wire igniter. The ignited flame is propagated back to the gas source through the pulsed flame chamber and is self-terminated in a few milliseconds. The continuous gas flow creates additional ignition after a few hundred milliseconds in a pulsed periodic fashion.

c. Halogen selective detector. The NRT monitor may also use an XSD. The XSD has a very high sensitivity and selectivity for chlorine-containing (chlorinated) compounds. The XSD is designed to accurately quantify chlorinated compounds eluting from the column in the pico-gram chlorine per second to nanogram chlorine per second range. The total cathodic current is measured by the electrometer and converted to an output signal. In addition to its high sensitivity and selectivity, the XSD is a flameless detector that requires only air and an inert chromatographic carrier gas (nitrogen or helium) for routine operation. The reactor assembly of the XSD is operated in an oxidative mode that converts halogens entering the reactor to free halogen atoms. Adsorption of halogen atoms on the probe surface causes increased thermionic emission from the activated platinum surface of the probe assembly. The platinum catalytic surface of the XSD degrades upon contact with contaminants, and the XSD should be replaced when sensitivity is proven to be less than the action level. The XSD is used in HD neutralization process monitoring to minimize false positive responses to sulfur-containing reaction products and also to measure for L derivatized products collected during L neutralization. Derivatization of L generates a compound that is amenable to chromatographic separation and XSD response. The XSD is utilized to monitor all areas of L neutralization that require NRT determinations.

Considerations to using an XSD for assay of L are as follows. A process of derivatization is carried out within a reaction chamber (probe) at the sample line inlet by a flow injection of 1,2-ethanedithiol (EDT). Since L does not have a high sample line transfer efficiency (that is, greater than or equal to 75 percent), it is essential that derivatization of L take place at the distal end of the sampling line. The derivatization product readily adsorbs onto the NRT PCT and can be thermally released into the GC separation process.

H–4. NRT monitor operational components

a. Preconcentrator tube. The PCT is a sorbent bed within a glass tube where compounds may be collected within the NRT. A mass flow controller is used to maintain the necessary flow rate across the PCT.

b. Sample loops. A sample selection system may be used to allow the NRT monitor to sample a wider range of agent concentrations in gas streams. The NRT sample selection system may include a manual controller to allow sampling using the direct mode, a 0.1-milliliter loop, or a 10-milliliter loop. In the loop sampling mode, the gas stream being sampled passes through the loop during the NRT purge period. During the NRT sample period, the contents of the loop are swept into the inlet of the monitor for analysis.

c. Capillary columns. The separation of individual components of a sample is achieved according to how each is uniquely retained by the chromatographic column. The time necessary for a component to elute from the column is termed the absolute retention time. During the chromatographic process, the component is partitioned between the mobile and stationary phases.

d. Support gases. The support gases for the NRT may include hydrogen, air, and nitrogen, which can be supplied by standard gas bottles with regulators or gas generators, when applicable. Compressed gas cylinders are to be handled, stored, and maintained in accordance with the Site Chemical Hygiene Plan (CHP). The CHP will incorporate the guidelines of the Compressed Gas Association Pamphlet P–1; AR 700–68, Storage and Handling of Compressed Gases and Gas Cylinders; the general gas requirements outlined in 29 CFR 1910.101; and applicable OSHA requirements for the materials involved. Replacement of support gases will not cause a negative impact on operations.

H–5. Depot Area Air Monitoring System

a. Overview. The Depot Area Air Monitoring System (DAAMS) is used to confirm NRT monitor alarms and provide historical monitoring of the facility. The DAAMS comprises solid sorbent DAAMS tubes, sample manifolds, sequencers, pumps, flow control devices, and sample lines. Air monitoring with DAAMS employs air aspiration through the DAAMS tube for a predetermined period of time at a controlled air flow rate. Contaminants in the air are adsorbed on the solid sorbent. Aspirated DAAMS samples then are analyzed in the laboratory to detect chemical materiel at the desired monitoring levels (TWA, GPL, and so forth). Laboratory analysis uses thermal desorption of the analytes from the sorbent tubes into a gas chromatograph-flame photometric detector (GC–FPD) or gas chromatograph-mass selective detector (GC–MSD) analytical system. Duplicate and sometimes triplicate DAAMS sampling at sample stations allows for confirmation of chemical materiel readings by analyzing replicate samples on dissimilar analytical columns or on the GC–MSD if sufficient analyte mass is available. DAAMS tubes containing visible moisture will be analyzed in accordance with site procedures.

b. DAAMS categories.

(1) *Historical DAAMS.* Historical samples are DAAMS tubes that are used to maintain documentation of air quality over a specific time period.

(2) *Confirmation DAAMS.* Confirmation samples are DAAMS tubes that confirm an NRT alarm and are used for QC purposes.

c. DAAMS tubes. DAAMS tubes are either 6-millimeter (mm), 8-mm, 10-mm, or 15-mm outer diameter tubes. The different sizes of DAAMS tubes, in conjunction with specific method parameters, allow for DAAMS sample stations to be configured in such a way that the appropriate dynamic sampling range can be achieved. For example, the 15-mm outer diameter DAAMS tube allows for a larger volume of air to be sampled when compared to the 8-mm or 6-mm outer diameter DAAMS tubes.

d. DAAMS manifold. The primary purpose of a DAAMS manifold is to provide a stable support system for DAAMS tubes and associated DAAMS sample equipment. The DAAMS manifold is designed to provide a directional sample flow pattern and distribute the sample flow to the corresponding DAAMS tubes. The DAAMS manifold houses a DAAMS sequencer that is used to direct and control flow patterns among the DAAMS tubes over a validated method time period.

e. Thermal transfer/desorption block. The DAAMS tube analytes are thermally desorbed and transferred to 3-mm transfer tubes. Thermal desorption from the DAAMS and 3-mm transfer tubes is provided by a heated aluminum block. A thermocouple and a controller operate the heating elements. The aluminum block is maintained at a recommended temperature range of 200 °C ±10 °C. Temperature, flow rate, and desorption time will be optimized on a site-specific basis and be documented in the site-specific Quality Control Plan (QCP). Only calibrated flow meters and function-checked thermocouples will be used with the thermal desorption block. Both DAAMS tubes and 3-mm transfer tubes require thermal desorption for conditioning purposes. Temperature-controlled ovens can be substituted for desorption blocks, for conditioning purposes.

f. Nitrogen oxide pre-filters. Nitrogen oxide (NOx) filters, also known as HD pre-filters, may be necessary for HD DAAMS sample analyses in order to retain HD on the DAAMS tubes. NOx pre-filters will be glass or Teflon® tubing packed with treated Chromosorb® P or equivalent packing material. NOx pre-filters may also contain diphenylcarbazide-treated cotton that functions as a moisture indicator. The NOx pre-filter Chromosorb® P treatment, diphenylcarbazide cotton treatment, and tube fabrication must be performed in accordance with Program Manager for Chemical Demilitarization (PMCD) approved procedures.

g. Automated thermal desorption equipment. Automated thermal desorption equipment includes the Dynatherm Automatic Continuous Environmental Monitor (ACEM) 900, multiple tube desorption unit (MTDU) (910 and 916), and the ACEM 980. The Dynatherm ACEM 900 provides a system to combine sample adsorption and thermal desorption techniques. The ACEM is interfaced with a GC for analysis of DAAMS tubes and allows direct transfer of desorbed samples to a focusing tube and onto the GC capillary column. The MTDU may be interfaced with the ACEM to allow unattended automated analysis of multiple tubes. The Dynatherm ACEM 980 dual collection tubes operate in alternate cycles providing continuous, uninterrupted sample concentration and analyses throughout the survey period. Each collection tube is linked in tandem with a focusing trap, enabling efficient chromatographic separation of chemical materiel. The alternating collection scheme and duplicate columns increase the speed of analysis.

(1) *Fast flow vacuum interface.* The GC vacuum interface of the Dynatherm ACEM 900, when configured for NRT sampling, aspirates a sample through a sample introduction area and is transferred onto a sorbent tube in the ACEM 900. The sample on the tube is then transferred by thermal desorption onto the focusing trap.

(2) *Transfer line.* The Dynatherm ACEM 900 transfer line consists of a 1/4-inch outer diameter heated jacket configured for individual GC models to eliminate cold spots. The internal surface of the transfer line is composed of either nickel tubing or fused silica tubing. The transfer line transfers the sample from the ACEM focusing trap to the GC column. An inert fused silica capillary column transfers the sample to the GC column.

(3) *Focusing trap.* The Dynatherm ACEM 900 contains two adsorbent packed tubes, one high-capacity and one capillary-bore focusing tube. Samples are collected on the high-capacity tube that is designed to retain a wide array of compounds from large sampling volumes. The ACEM provides a flow of clean carrier gas through the sorbent tube in the "collect" direction to dry the tube without the loss of sample. Following drying, the sorbent tube is heated and the flow of carrier gas is reversed to transfer the collected sample to the capillary bore focusing tube.

(4) *Sample split.* When the high capacity sorbent tube is heated to desorb the sample and transfer it to the focusing tube, a solenoid valve can be opened to allow a portion of the desorbing sample to be saved on a sorbent tube in a sample saver chamber.

H–6. Gas Chromatograph Analytical Systems

Chromatography is an analytical method that is used for the separation, identification, and determination of chemical components in a sample. No other separation method is as powerful and generally applicable as chromatography. Chromatography utilizes the techniques of stationary phase and mobile phase chemistry. Components of a mixture are carried through the stationary phase by a flow of a gas or liquid mobile phase; the components separate because of differences in migration rates of their interactions with the stationary phase. The mobile phase does not interact with molecules of the analyte; its only function is to transport the analyte through the column and into the detector. The detectors then generate a signal to produce the chromatogram of the sample components. Proper operation of the GC analytical systems should be accomplished in accordance with manufacturer specifications.

H–7. Flame photometric detector

The primary operational components of the flame photometric detector (FPD) are described in the following paragraphs.

a. Sample inlet. The sample inlet is a chamber that allows for sample introduction to the GC column. In a heated sample inlet, a liquid sample is vaporized before proceeding to the GC column. The GC–FPD inlet may be modified to accept 3-mm transfer tubes, connected to a Dynatherm ACEM 900, or linked to another means of sample injection to focus samples for introduction into the GC–FPD analytical system. The combination of heating and purging the analyte in the focusing tube in the modified inlet allows for components to be carried into the GC–FPD analytical system. Fabrication, QC, and acceptance testing criteria for focusing tubes are identified in the PMCD LQAP, along with GC–FPD performance specifications.

b. Capillary columns. GC–FPD capillary columns function on the same principle as those described in paragraph H–4*c*. Columns are connected to one another with a ferrule butt connector or similar means. The connection must demonstrate low dead volume and minimal chromatographic bleed. Capillary columns used in the GC–FPD system may include-—

(1) *Guard column.* The guard column is a 1-meter (approximately) deactivated column used to prevent high molecular weight and high boiling point compounds from reaching the pre-column and analytical column. The guard column provides little separation because of the absence of a stationary phase.

(2) *Pre-column.* The pre-column is an activated column, which may vary in size, that provides initial separation of compounds within the GC–FPD system when connected to a switching system.

(3) *Analytical column.* The analytical column provides the final compound separation before compound elution into the FPD. The PMCD support laboratory will incorporate dissimilar columns in its DAAMS GC–FPD monitoring strategy. A positive or false positive reading is confirmed using dissimilar columns by separating the sample on a column with a stationary phase of differing polarity. An example of the dissimilar analytical column technique would be to use the nonpolar DB–5 column versus the highly polar DB–210 column in the confirmation analysis.

c. Column switching system. A column switching system may be used within the GC–FPD to support sample analysis. The column switching system contains an assortment of hardware components, including pressure regulators, pressure gauges, solenoids, needle valves, flow controllers, and necessary pneumatic and electrical controls required to operate the automated column switching system. The column switching system allows the compound(s) of interest (analyte(s)) to enter the analytical column while higher boiling compounds (artifacts) are back-flushed away from the analytical column back through the pre-column, and more volatile compounds are front flushed to vent. This back-flushing and front-flushing of artifacts protects and prolongs analytical column and detector life. Artifact reduction reduces interferences and also reduces the amount of compounds allowed to enter the analytical column and detector. Column switching minimizes the amount of maintenance and potential instrument downtime and also significantly reduces analysis times.

d. Cryofocusing. Cryofocusing greatly improves peak shapes and resolution by reducing sample band width. Cryofocusing takes place on a short length of deactivated, uncoated, fused silica tubing that is cooled to -160 °C using liquid nitrogen or carbon dioxide. Cryofocusing is used to concentrate the sample at the head of the column during the desorb step. After desorption is complete, the cryofocusing module is rapidly heated, and the sample is evaporated into the GC column.

e. Support gases and gas generators. The GC–FPD system and column switching system require the use of support gases. Cryofocusing uses liquid nitrogen or liquid carbon dioxide. Support gases can be supplied by standard gas bottles with regulators or gas generators, when applicable. Compressed gases will be handled, stored, and maintained in accordance with the site-specific CHP.

f. Integration system. The GC–FPD analytical system is connected to an integration system that must have the capability of storing, calculating, and reprocessing chromatographic peak data. Specific capabilities can be added to an integration system to perform basic programming. Integration systems can be connected to an interface system to allow for integration of data into a Laboratory Information Management System (LIMS).

g. Thermal Transfer System. Thermal desorption from the DAAMS tube is provided manually to a 3-mm transfer tube using a heated aluminum block or automatically transferred to a focusing trap using the Dynatherm ACEM 900. Temperature, flow rate, and desorption time will be optimized on a site-specific basis and documented in the site-specific QCP. Only calibrated flow meters and function-checked thermocouples will be used with the desorption block.

h. Exhaust. Drip tubes may be connected to the exhaust and resulting condensate captured in a labeled flask or beaker and disposed of in accordance with PMCD support laboratory site-specific requirements. If the GC is utilizing a split injection or purge system, the split or purge will be vented to appropriate engineering controls. Exhaust generated from DAAMS tube and focusing tube conditioning will be routed to a fume hood and the vacuum line will be filtered through a carbon bed.

H–8. Mass selective detector

Gas chromatograph/mass spectrometer (GC/MS) is the combination of a chromatographic and spectral method that produces pure fractions from a sample (chromatograph) and yields qualitative information about a pure component (mass spectrometer). The GC–MSD may be used to confirm collocated NRT monitor results. Chemical materiel captured on the DAAMS tube is transferred to a focusing tube and thermally desorbed into the GC–MSD pre-column. The agent passes through the pre-column and enters the analytical column where it is separated from additional ambient compounds and desorption artifacts. The ionization source fragments the chemical agent into characteristic ions by electron ionization (EI) or chemical ionization (CI). The electron source is sufficiently energetic to cause a good deal of fragmentation of molecules, leading to a large number of positive ions of various masses. The complex mass patterns that result are useful for identification. CI uses a reagent ion (ammonia or methane) to react with the analyte molecules to form ions by either a proton or hydride transfer. The reagent ions are produced by introducing a large excess of methane into an ion source. An advantage of EI is that a spectral library match can be performed to tentatively identify an unknown compound. Mass selective detector (MSD) analysis can be performed in selective ion monitoring or full scan monitoring. Selective ion monitoring provides greater sensitivity, as compared to monitoring a broad atomic mass range (full scan). The GC–MSD data station is a software and hardware package used to quantify/qualify chemical agent detected from MSD assay. MSD quantification/qualification of chemical agent is based on initial calibration responses, ion ratios, and retention time. The capillary columns, column switching system, support gases and gas generators, integration system, and thermal transfer system for the GC–MSD operation function similarly to those described for the FPD.

a. Roughing pump. The GC–MSD includes a rotary mechanical pump known as a roughing pump. The pump is used to reduce the vacuum in the GC–MSD system to 10–1 to 10–2 torr to support the MSD internal high vacuum pump.

b. Exhaust. The exhaust from the MSD enters the roughing pump and is vented through appropriate engineering controls. Exhaust contaminants may become entrapped in the roughing pump oil, and precautions should be taken

during roughing pump oil changeout. Roughing pump oil will be disposed of in accordance with site-specific regulations.

H–9. Ion trap mass spectrometer

The operation of the ion trap mass spectrometer (ITMS) is similar to the operation of the GC–MSD with the exception that the MSD has a mass analyzer for separation and that the ion trap uses an ion trap mass separator. The ITMS offers the advantage of additional fragmentation of the characteristic ions to further enhance specificity.

H–10. Flame ionization detector

The gas chromatograph-flame ionization detector (GC–FID) will be used for Chemical Agent Standard Analytical Reference Material (CASARM) agent analyses and internal standard purity assays. The flame ionization detector (FID) is less sensitive than the FPD and provides acceptable ranges for detecting high-level agent and internal standards. The FID utilizes a hydrogen/air flame to combust organic compounds and produce ions. An ion collector with polarizing voltage near the flame attracts the ions and produces a current proportional to the amount of combustible organic compound in the flame. The current is detected by the electrometer and amplified to indicate the concentration of organics present in the initial sample. The FID is a very broad spectra detector, responding to all organic compounds in the GC effluent. Its response is proportional to the total mass of analyte in the GC effluent. Organic compounds separated using a GC are identified based on their retention times within the GC. The capillary columns, column switching system, support gases and gas generators, and integration system for the GC–FID operation function similarly to those described for the FPD. A thermal transfer system normally is not used to introduce samples into a GC–FID system. The sample inlet for a GC–FID system is typically a split/splitless injection port, which is often paired to an autosampler for unattended operations. Chemicals being analyzed via GC–FID analyses are destroyed in the flame. However, because the FID is used for analysis of potentially high levels of agent, ventilation of the GC–FID exhaust to a fume hood is recommended.

H–11. Electron capture detector

The gas chromatograph-electron capture detector (GC–ECD) responds to organic and inorganic compounds that are capable of forming stable anions in the gas phase. Electron capture detector (ECD) response is not as selective as ion mobility spectroscopy; however, it has an extended linear operating range of sensitivity. The ECD utilizes a shielded radiation source to ionize a small fraction of the carrier gas stream from the GC column and produces a burst of electrons. This ionization process produces a constant standing current in the detector. However, when organic molecules that tend to capture electrons elute from the column, the intensity of the current decreases, and the change in current produces a signal. The inlet, capillary columns, column switching system, support gases and gas generators, integration system, and thermal transfer system for the GC–ECD operation function similarly to those described for the FPD. Chemicals being analyzed via GC–ECD analyses are not destroyed by the process, and the GC–ECD exhaust should be routed to a fume hood or charcoal filter when hazardous materials are being analyzed.

H–12. High performance liquid chromatography

High performance liquid chromatography (HPLC) separates L from other analytes by differences in adsorption to the solid phase, which is packed in the column. The compound of interest is detected by measuring the ultraviolet or visible light absorbed as the sample passes the radiation source. The sample is then measured via ultraviolet and visible light absorbencies with a diode array detector and an ultraviolet variable wavelength detector. The diode array detector is capable of collecting the entire absorption spectra of each compound as it flows through the detector. This enables the operator to distinguish the L acid (chlorovinyl arsonous acid) from other interferences. The variable wavelength detector is used in conjunction with the diode array detector to provide quantitative results of the analysis. If a confirmation is necessary, a column switching valve switches the flow of the mobile phase from the analytical column to the confirmation column. The sample then is re-analyzed using the confirmation column.

H–13. Ion chromatograph

Ion chromatography is a general term used for liquid column chromatographic techniques. Sample components are separated on a low capacity ion exchanger and detected. Detection of the analyte ions is enhanced by selectively suppressing the conductivity of the mobile phase through post separation ion exchange reactions. The ion chromatograph (IC) is used to analyze for MPA, IMPA, and fluorine (F) to characterize the composition of neat agent being fed to the Liquid Incinerators (LICs). The quantitative results must combine to give 100 percent ±5 percent of the mass of the original agent sample. The IC is used primarily for samples that have undergone hydrolysis due to the presence of water. Methylphosphonofluoridic acid (MPFA) is also analyzed, since it was found to be the major organic acid impurity in a number of GB samples.

H–14. Lewisite Bubbler and Lewisite DAAMS/Impinger

a. Lewisite bubbler. The lewisite bubbler (L-bubbler) absorption system is capable of detecting low-level concentrations of L; however, it has no capability for providing an alarm response when the agent is present. The bubbler unit is

a vessel packed with glass beads and filled with a scrubbing solution that absorbs L from the air for a predetermined time and rate of flow.

b. Lewisite DAAMS/impinger. The lewisite-DAAMS (L–DAAMS) system consists of solid sorbent DAAMS tubes, sample manifolds, sequencers, pumps, critical orifices or needle valves, and sample lines. The impinger is used to provide historical monitoring for L, HN–1, HN–3, and HD. The impinger sampling assembly consists of an impinger, impinger vials, and a sample pump. Most L methods utilize some type of derivation for analysis. The two major reactions that occur during the process are oxidation and hydrolysis. Hydrolysis converts L to chlorovinyl arsonous acid and is a reversible reaction. Oxidation converts L to chlorovinyl arsonic acid through a chlorovinyl arsonous acid intermediate and is a nonreversible reaction. Because the systems may be subject to degradation, it is recommended that the systems be stored at controlled temperatures of 21 °C or less until they are ready to be sampled. L-bubbler and L–DAAMS/impinger sample collection and handling will be performed in accordance with PMCD approved procedures. L-bubbler and L–DAAMS/impinger samples will be retrieved from field sampling locations and brought to the appropriate laboratory. Sample analysis will be performed in accordance with site-specific requirements. Samples will be analyzed within 72 hours of their collection or as soon as possible if the sample is needed for confirmation.

H–15. M8A1 monitor

The M8A1 monitor may be used to monitor personnel entry and agent handling operations. The M8A1 consists of the M43A1 detector unit and the M42 alarm unit. The M43A1 unit detects GA, GB, and VX at or above IDLH concentrations, and the M8A1 unit provides a rapid alarm in less than 30 seconds if nerve agent is detected. The M43A1 detector operates by ion mobility spectroscopy. The detector automatically samples air from the surrounding atmosphere through an inlet on top of the unit. The air is pulled into the detector cell, where it is ionized by a radioactive source and electronically analyzed for the presence of nerve agents. Although highly subject to interferences by other non-agent-related compounds (smoke, fuels, cleaning fluids) the M8A1 monitor provides a screening tool for initial indication of major releases.

H–16. M256 chemical agent detector kits

The kit is used to detect and classify chemical agents present in vapor or liquid form. The kit can detect the presence of nerve, blood, and blister agents within 20 minutes, providing the operator with colorimetric responses. Each kit consists of a carrying case, 12 single-use sampler/detectors, one book of M8 detector chemical agent paper with 25 sheets, and instructions for use. M8 paper may produce false positive results when used in the presence of sodium hydroxide, ethylene glycol, trichloroethylene, chloroform, monoethyl ether, or oils and greases. Additional information on the kit is available in the DA Technical Manual (TM) 3–6665–307–10, *Operator's Manual for Chemical Agent Detector Kit*. Expended detector kit components are considered "hazardous waste" and must be managed appropriately.

Appendix I
Formerly Used Defense Sites (FUDS)/Nonstockpile Emergencies

I–1. Overview

a. CAIs can occur at locations other than stockpile or demilitarization facilities. Nonstockpile chemical materiel is usually discovered during remediation/corrective action efforts or through accidental discovery by construction/utility personnel. These CAIs are significant because of the following:

(1) Increased potential for exposure to local population.

(2) Increased distances to trained response personnel.

(3) Lack of experience and technical knowledge by local installation commanders and their staffs.

b. Many nonstockpile sites have been identified through significant research of Army historical records by the Program Manager-Nonstockpile Chemical Materiel. These sites will be addressed as resources, equipment, and procedures are developed and become available.

c. The magnitude of the response to a CAI in one of these situations will be dependent on the amount of materiel discovered and the potential impact on the surrounding area. Obviously, the response to the discovery of a single vial of dilute chemical agent from a Chemical Agent Identification Set (CAIS) would be significantly less than the remediation operation conducted at Spring Valley near Washington, DC, 12–28 January 1993. (For more information on the Spring Valley Incident, see Memorandum, HSHB–ME–SH, U.S. Army Environmental Hygiene Agency, 21 May 1993, subject: Final Report, Hazardous Waste Study No. 37–26–J1F0–93, Analytical Results, Soil Samples, Spring Valley Site, Operation Safe Removal, Emergency Response Phase, 12–28 January 1993).

I–2. Responsibilities

a. AR 50–6, chapter 12, outlines the initial procedures to be followed by installation commanders/project managers.

b. AMC maintains a Recovered Chemical Warfare Materiel Emergency Response Plan (RCWM–ERP) that can be activated at different levels to support CAIs in both these situations.

c. The Army Corps of Engineers has responsibility for remediation of CAIs at FUD Sites.

d. Installation authorities maintain responsibility for the accomplishment and assessment of remedial operations on Army facilities.

Appendix J
CAIRA Plans

J–1. Overview

a. CAIRA planning is a continuous process in preparation for a CAI. It involves a detailed and systematic examination of all aspects of CAIRA operations. Planning and preparing plans, integral parts of the decision-making process, ensure that future CAIRA operations can be successfully executed. A comprehensive CAIRA plan permits rapid and coordinated actions by the various staff elements and other organizations and activities (military and civilian) involved in CAIRA operations and provides the commander and staff the essential information needed to execute a CAIRA operation. Foremost, it ensures responding elements and activities are informed of possible requirements, and keeps the command in a better posture to respond to rapidly changing situations. Therefore, comprehensive, practical planning is essential to the success of CAIRA operations.

b. The extent of planning will vary with the level of command. In planning, each staff element, activity, or member considers those features of CAIRA operations that are in their area of staff responsibility and expertise. Planning also ensures that the features of the operation that are in the staff element's area of interest are coordinated with other staff sections. CAIRA plans, which are fully developed, staffed, and coordinated, provide comprehensive guidance for emergency response to a variety of CAI situations.

J–2. Characteristics

a. A CAIRA plan represents the command's preparation and capability to respond to and recover from a CAI, both on-post and off-post. The essential elements of a plan are a definite course of action and a method for execution. Although a CAIRA plan is to be based on specific conditions or assumptions, it is not static. A CAIRA plan must be continually reviewed, exercised, changed, refined, and updated.

b. A good CAIRA plan—

(1) Provides for accomplishing the mission.

(2) Is based on facts and valid assumptions.

(3) Provides for the use of existing resources (includes resources organic to the command and those available from higher military headquarters and other Federal, State, and local agencies). Specifically, it provides for personnel, materiel, and other resources for the full period of a CAIRA operation. Since all resources may not be readily available for use, all available resources must be economically planned for and used to achieve a maximum return for the effort expended.

(4) Provides for the necessary response organizations. Most importantly, it clearly establishes relationships and delineates fixed responsibilities.

(5) Provides for decentralization. It delegates authority to the maximum extent consistent with the necessary operational control.

(6) Provides for direct contact permitting coordination during execution between all levels.

(7) Is simple and clear, yet comprehensive. A good plan minimizes possibilities for misunderstanding. Commonality of terms is a must. It must also be specific in pointing out the extent and direction of the role responding organizations play, but at the same time does not preclude initiative when appropriate. This is especially critical when unplanned events occur.

(8) Is flexible. It leaves room for adjustments because of operating conditions and, where necessary, stipulates alternate courses of action.

(9) Provides for control. Adequate means exist, or have been provided for, to carry out the plan according to the commander's intent.

(10) Is coordinated and integrated. All elements (higher military headquarters, subordinates, tenants, adjacent elements, and off-post Federal, State, and local agencies) must fit together. Plans consolidation and integration must occur at the installation (IRF Command) level. Also, control measures must be complete and understandable and mutual support requirements must be identified and provided for. As such, the Regional Response Team (RRT) Plan (Federal) must be considered. Further, the LEPC and the SERC are agencies that must also be coordinated with to ensure complete understanding.

J–3. Form and content

a. The purpose of the plan is to provide the essential information and guidance needed to carry out a CAIRA

operation. This includes the situation, the mission, the assignment of tasks, and the support and assistance to be provided.

b. There is no prescribed format for a CAIRA plan, although several annexes are required. It should address the following areas:

(1) Task organization.
(2) Intelligence.
(3) Notification procedures.
(4) Fire and rescue support.
(5) EOC operations.
(6) Requests for assistance procedures.
(7) Evacuation procedures.
(8) Information system support (see para 4–8).
(9) Security (see para 5–6).
(10) Medical support.
(11) Agent and munition operations (see para 7–4).
(12) Public affairs (see paras 8–2 and E–7).
(13) Logistics support (see para 9–5).
(14) Legal (see para 10–5).
(15) Environmental monitoring.
(16) Meteorology.
(17) Contamination control.
(18) Removal operations.
(19) Remedial operations.

Glossary

Section I
Abbreviations

ACAMS
Automatic Continuous Air Monitoring System

AFSATCOM
U.S. Air Force Satellite Communication Systems

AMC
U.S. Army Materiel Command

AOC
Army Operations Center

AR
Army regulation

ATSDR
U.S. Agency for Toxic Substances and Disease Registry

ATTRS
Army Training Requirements and Resources System

CAA
Competent Authority Approval

CAI
chemical accident/incident

CAIRA
chemical accident/incident response and assistance

CAM
chemical agent monitor

CBR
chemical, biological, radiological

CDC
Centers for Disease Control and Prevention

CE
Corps of Engineers

CEOI
Communication-Electronics Operations Instructions

CERCLA
Comprehensive Environmental Response, Compensation, and Liability Act of 1980

CHPPM
U.S. Army Center for Health Promotion and Preventive Medicine

COCO
contractor-owned, contractor-operated

COE
Chief of Engineers

CONUS
continental United States

CP
command post

CSEPP
Chemical Stockpile Emergency Preparedness Program

CWA
Clean Water Act

DA
Department of the Army

DASA(ESOH)
Deputy Assistant Secretary of the Army (Environmental Safety and Occupational Health)

DCS
Defense Communications System

DCS, G–3
Deputy Chief of Staff, G–3

DCSIM
Deputy Chief of Staff for Information Management

DDESB
Department of Defense Explosives Safety Board

DERP
Defense Environmental Restoration Program

DOC
Department of Commerce

DOD
Department of Defense

DODD
DOD directives

DOE
Department of Energy

DOI
Department of Interior

DOIM
Director of Information Management

DOJ
Department of Justice

DOL
Department of Labor

DOMS
Directorate of Military Support

DOS
Department of State

DOT
Department of Transportation

DOT–E
DOT exemptions

DSN
defense switch network

EAS
Emergency Alert System

ECBC
Edgewood Chemical and Biological Center

EEFI
essential elements of friendly information

EMS
Emergency Medical Services

EO
Executive order

EOC
Emergency Operations Center

EOD
Explosive Ordnance Disposal

EPA
Environmental Protection Agency

EPZ
Emergency planning zone

ERB
Emergency Response Branch

FBI
Federal Bureau of Investigation

FCA
Foreign Claims Act

FCO
Federal coordinating officer

FEMA
Federal Emergency Management Agency

FM
frequency modulated

FOA
field operating agency

FRP
Federal Response Plan

FSSP
Facility Security and Safety Plan

FUDS
formerly used defense sites

GB
chemical agent symbol for the nerve agent Sarin

GOCO
Government-owned, contractor-operated

GSA
General Services Administration

HAZMAT
hazardous materiel

HHS
Department of Health and Human Services

HMRB
Hazardous Materiel Response Branch

HQDA
Headquarters, Department of the Army

IEP
initial entry party

IMPAC
International Merchant Purchase Authority Card

INA
installation medical authority

IRF
Initial Response Force

IRZ
Immediate Response Zone

JIC
Joint Information Center

LEPC
local emergency planning committee

LOI
letter of instruction

LSR
Local Service Request

MACOM
major Army command

MAT
medical augmentation team

MCA
Military Claims Act

MCAT
medical chemical advisory team

MCE
maximum credible event

MEDCOM
U.S. Army Medical Command

MEDCEN
U.S. Army Medical Center

MEDDAC
medical department activity

MILSTRIP
military standard requisitioning and issue procedures

MINICAMS®
Miniature Continuous Air Monitoring System

MOA
memorandum of agreement

MOU
memorandum of understanding

MPE
most probable event

MR
Munitions Rule

MRT
medical response team

MSC
major subordinate command

MTF
medical treatment facility

NATO
North Atlantic Treaty Organization

NCEH
National Center for Environmental Health

NCP
National Contingency Plan

NDA
National Defense Area

NIOSH
National Institute for Occupational Safety and Health

NOAA
National Oceanic and Atmospheric Administration

NRC
National Response Center

NRS
National Response System

NRT
National Response Team

NSEP
National Security Emergency Preparedness

OASD(PA)
Office of the Assistant Secretary for Defense (Public Affairs)

OCONUS
outside the continental United States

OCPA
Office of the Chief of Public Affairs

OPSEC
operations security

OSC
on-scene coordinator

OSHA
Occupational Safety and Health Administration

OTSG
Office of the Surgeon General

PAO
public affairs officer

PAZ
Protective Action Zone

PDS
personnel decontamination station

PL
public law

PMCD
Program Manager for Chemical Demilitarization

POC
point of contact

PRP
personnel reliability program

RCRA
Resource Conservation and Recovery Act of 1976

RDTE
research, development, test, and evaluation

ROD
Record of Decision

RPM
remedial project manager

RRC
Regional Response Center

RRT
Regional Response Team

RSP
render safe procedure

RSPA
Research and Special Programs Administration

SARA
Superfund Amendments and Reauthorization Act of 1986

SERC
State Emergency Response Commission

SJA
Staff Judge Advocate

SMART
Special Medical Augmentation Teams

SODAR
sonic detection and ranging

SOFA
Status of Forces Agreement

SOP
standing operating procedure

SRF
Service Response Force

TEU
technical escort unit

USACHPPM
U.S. Army Center for Health Promotion and Preventive Medicine

USAMRICD
U.S. Army Medical Research Institute of Chemical Defense

USARCCO
U.S. Army Commercial Communications Office

USARCS
U.S. Army Claims Service

USARPAC
U.S. Army Pacific

USCG
United States Coast Guard

USDA
U.S. Department of Agriculture

UTC
unit type code

UTM
Universal Transverse Mercator

VHF
very high frequency

VX
chemical agent symbol for the nerve agent O-ethyl S

VX2
chemical agent symbol for the binary nerve agent O-ethyl S

Section II
Terms

(Some of the terms in this section are taken directly from various legal sources. These sources are placed in parenthesis following the term.)

Access
Close physical proximity to a chemical agent, container, or munition under circumstances that could provide an opportunity to acquire, release, tamper with, damage, or come in direct contact with the chemical agent.

Accountability
The obligation to keep accurate records of property, documents, or funds. Accountability is concerned primarily with records and does not imply actual possession.

Buddy-aid
The administration of a chemical agent antidote to a person exhibiting symptoms of severe chemical agent poisoning when that person is unable to administer self-aid.

Chemical accident/incident (CAI)
Unintentional chemical events where chemical agent is released into the ambient atmosphere and either threatens unprotected personnel or has the potential to threaten unprotected personnel.

a. Chemical accident. An event resulting from nondeliberate acts where safety is of primary concern

b. Chemical incident. An event resulting from deliberate acts (terrorism or criminal) where security is of concern.

Chemical agent
A chemical substance listed in appendix B of AR 50–6 that is intended for use in military operations to kill, seriously injure, or incapacitate a person through its physiological properties. Excluded from consideration are industrial chemicals, riot control agents, chemical herbicides, smoke, and flame.

Chemical agent material
Chemical agents and their associated weapon systems, or storage and shipping containers that are either adopted or being considered for military use. Chemical agent material is listed in appendix B of AR 50–6.

Chemical event
A chemical event encompasses chemical agent material accidents, incidents and other circumstances where there is a

confirmed or likely release to the environment, exposure of personnel, leaking munition, threat to the security of chemical agents, or incident of concern to the local commander. The anticipated response to a chemical event is the activation of all or select portions of the Initial Response Force (IRF), with possible Service Response Force (SRF) deployment, as necessary.

Chemical surety
A system of safety and control measures designed to provide protection to the local population, workers, and the environment by ensuring that chemical agent operations are conducted safely; that chemical agents are secure; and that personnel involved in those operations meet the highest standards of reliability.

Contracting agency
The organization that has primary responsibility for monitoring, administering and ensuring compliance with a contract, especially pertaining to the chemical surety program.

Custody
Responsibility for the control, transfer, and movement of, and access to chemical agent material. Custody may or may not include accountability.

Deadly force
That force which a person uses with the purpose of causing, or which the person knows, or should know, will create a substantial risk of causing death or serious bodily harm.

Decontamination
The process of decreasing the amount of chemical agent on any person, object, or area by absorbing, neutralizing, destroying, ventilating, or removing chemical agents.

Demilitarization
The mutilation, destruction, or neutralization of chemical agent material, rendering it harmless and ineffectual for military purposes.

Dilute solutions
Chemical agents that have been reduced in strength (less than neat) by admixture (dilution). (See RDTE dilute solution.)

Emergency disposal
Immediate transportation and disposal of chemical agents or munitions when the senior explosive ordnance disposal person determines the health or safety of any person is clearly endangered. Emergency disposal operations will be conducted in accordance with the EPA Military Munitions Rule (40 CFR 260).

Environment (NCP)
The navigable waters, the waters of the continuous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson Fishery Conservation and Management Act; and any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.

Exclusion area
A designated area immediately surrounding one or more receptacles in which chemical agents are contained. Normally, the boundaries of an exclusion area are the walls, floor, and ceiling of a storage structure, secure container, or a barrier that establishes the boundary of the exclusion area (such as an igloo or a fence). The inside of a chemical agent secure container is an exclusion area. In the absence of positive preventive measures, access into the exclusion area constitutes access to chemical agents.

Explosive ordnance disposal (EOD)
The detection, identification, field evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance or munitions.

Explosive ordnance disposal procedures
Those particular courses or modes of action for access to, recovery, render safe, and final disposal of explosive ordnance or any hazardous materiel associated with an EOD incident.

Exposure potential
Refers to workplace conditions in which nerve or mustard agents may be present in a liquid or vapor form, in varying quantities and concentrations, due to the nature of industrial, training, or laboratory operations.

Facility (NCP)
Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

Feasibility study (FS) (NCP)
A study undertaken by the lead agency to develop and evaluate options for remedial action. The FS emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation, using data gathered during the remedial inspection (RI). The RI data are used to define the objectives of the response action, to develop remedial action alternatives, and to undertake an initial screening and detailed analysis of the alternatives. The term also refers to a report that describes the results of the study.

First aid
Any one-time treatment, and any follow-up visit for the purpose of observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care. Such one-time treatment, and follow-up visit for observation, or the use of (up to three) atropine sulfate auto-injectors (MK–1 nerve agent antidote kit), is considered first aid, even though provided by a physician or registered medical professional personnel.

First Federal official (NCP)
The first Federal representative of a participating agency of the National Response Team to arrive at the scene of a discharge or a release. This official coordinates activities under the NCP and may initiate, in consultation with the OSC, any necessary actions until the arrival of the predesignated OSC. A State with primary jurisdiction over a site covered by a cooperative agreement will act in the stead of the first Federal official for any incident at the site.

Full-scale exercise (FEMA)
An activity intended to evaluate the operational capability of emergency management systems in an interactive manner over a substantial period of time. It involves the testing of a major portion of the basic elements existing within emergency operations plans and organizations in a highly stressful environment. This type of exercise includes mobilization of personnel and resources, the actual movement of emergency personnel and resources, and the actual movement of emergency workers, equipment, and resources required to demonstrate coordination and response capability.

Hotline
The inner boundary of the contaminated area, marked with tape or line. The inner side of the line is considered contaminated, and the side away from the CAI is an area of reduced contamination.

Industrial chemicals
Chemicals developed or manufactured for use in industrial operations or research, by industry, government, or academia. These chemicals are not manufactured primarily for the specific purpose of producing human casualties or rendering equipment, facilities, or areas dangerous for use by man. Hydrogen cyanide (AC), cyanogen chloride (CK), and phosgene (CG) are considered industrial chemicals.

Initial response force (IRF)
An emergency actions organization tasked to provide first response to a CAI at an installation assigned a chemical surety mission or in the public domain. Under the command of the installation commander or the commander of the nearest Army installation, the IRF is comprised of command and control elements and emergency teams capable of providing emergency medical services and initiating those actions necessary to prevent, minimize, or mitigate hazards to public health and safety or to the environment. Depending on the severity of the CAI, the IRF is capable of initiating environmental restoration activities for completion under the installation restoration program.

Joint Information Center (JIC)
A facility established at the scene of a CAI to coordinate all PA activity. A media information center for SRF Commander's PAO.

Lead agency (NCP)
Agency that provides the OSC/RPM to plan and implement response actions under the NCP. EPA, the USCG, another

Federal agency, or a State (or political subdivision of a State) operating under a contract or cooperative agreement executed by section 104(d)(1) of CERCLA, or designated a Superfund Memorandum for Agreement entered into under Subpart F of the NCP or other agreements may be the lead agency for a response action. In the case of a release of a hazardous substance, pollutant, or contaminant, where the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of Department of Defense or Department of Energy, then DOD or DOE will be the lead agency. Where the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of a Federal agency other than EPA, the USCG, DOD, or DOE, then that agency will be the lead agency for remedial actions and removal actions other than emergencies. The Federal agency maintains its lead agency responsibilities whether the remedy is selected by the Federal agency for non-NPL sites or by EPA and the Federal agency or by EPA alone under CERCLA section 120. The lead agency will consult with the support agency, if one exists, throughout the response process.

Limited area
The area immediately surrounding one or more exclusion areas. Normally, the area between the boundaries of the exclusion area and the perimeter boundary, such as the inner fence at a storage depot or inside of a laboratory room where chemical agent material is stored in chemical secure containers.

Maximum credible event (MCE)
The worst single event which could occur at any time with maximal release of chemical agent from a munition, bulk container, or process as a result of an unintended, unplanned, or accidental occurrence. The event must be realistic with reasonable probability of occurrence.

Most probable event (MPE)
The worst potential mishap most likely to occur during routine handling, storage, maintenance, or surveillance operations, which results in the release of agent and exposure of personnel.

National Defense Area
An area established on non-Federal lands located within the United States, its possessions or territories, for the purpose of safeguarding classified defense information, or protecting DOD equipment or materiel.

National Response Center (NRC)
A joint EPA and USCG Communications Center which takes the legally required reports of oil or hazardous substance spills/releases at or above the reportable quantities and communicates these to the predesignated OSC for action.

Neat chemical agent
A nondiluted, full-strength (as manufactured) chemical agent. A chemical agent manufactured by the binary synthesis route will also be considered a neat agent regardless of purity.

Neutralization
The act of altering chemical, physical, and toxicological properties to render the chemical agent ineffective for use as intended.

Off-post
The area outside the boundaries of a military installation or facility.

Off-site
The area surrounding the on-site area.

On-scene coordinator (OSC)
The Federal official predesignated by EPA or the USCG to coordinate and direct Federal responses under subpart D of the NCP, or the official designated by the lead agency to coordinate and direct removal actions under subpart E of the NCP. DOD and DOE are included as OSC under subpart E. The IRF or SRF commander is the Army OSC for a CAI.

On-post
A military installation or facility.

On-site
An area around the scene of a chemical event under the operational control of the OSC, technical escort officer, or the commander of the Initial Response Force, or the Service Response Force. It includes any area established as a National Defense Area.

Preliminary assessment (PA) (NCP)
Review of existing information and an off-site reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A PA may include an on-site reconnaissance, if appropriate.

Release (NCP)
Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant). For purposes of the NCP, release also means threat of release. Excluded will be any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons; emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, release of source, byproduct, or special nuclear materiel from a nuclear incident, as those terms as defined in the Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act, or, for the purposes of section 104 of CERCLA or any other response action, any release of source, byproduct or special nuclear materiel from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and the normal application of fertilizer.

Remedial design (NCP)
The technical analysis and procedures which follow the selection of remedy for a site and result in a detailed set of plans and specifications for implementation of the remedial action.

Remedial investigation (RI) (NCP)
A process undertaken by the lead agency to determine the nature and extent of the problem presented by the release. The remedial investigation emphasizes data collection and site characterization, and is generally performed concurrently and in an interactive fashion with the feasibility study. The remedial investigation includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for remedial action and to support the evaluation of remedial alternatives.

Remedial project manager (NCP)
The official designated by the lead agency to coordinate, monitor, or direct remedial or other response actions under subpart E of the NCP.

Remedy or remedial action (NCP)
Those actions consistent with permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection using dikes, trenches, or ditches, clay cover, neutralization, cleanup of released hazardous substances and associated contaminated materiel, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, on-site treatment or incineration, provision of alternative water supplies, and any monitoring reasonably required to assure that such actions protect the public health and welfare and the environment. The term includes the costs of permanent relocation of residents and businesses and community facilities (including the cost of providing alternative land of equivalent value to an Indian Tribe pursuant to CERCLA section 126(b)) where EPA determines that, alone or in combination with other measures, such relocation is more cost-effective than, and environmentally preferable to, the transportation, storage, treatment, destruction, or secure disposition off-site of such hazardous substances, or may otherwise be necessary to protect the public health or welfare. Also included will be off-site transport and off-site storage, treatment, destruction, or secure disposition of hazardous substances and associated contaminated materiel. The term also includes enforcement activities related thereto.

Remove or removal (NCP)
Removal of oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health, welfare, or to the environment. As defined by section 101(23) of CERCLA, remove or removal means the cleanup or removal of released hazardous substances from the environment; such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment; such actions as may be necessary to monitor, assess, and evaluate the release of threat of release of hazardous substances; the disposal of removed materiel; or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. This term includes security fencing or other measures to limit access, provision of alternative water supplies, temporary evacuation and housing of threatened individuals not otherwise

provided for, action taken under section 104(b) of CERCLA, and any emergency assistance which may be provided under the Disaster Relief Act of 1974. The term also includes enforcement activities related thereto.

Render safe procedure
The portion of EOD procedures involving the application of EOD methods and tools to provide for the interruption of functions or separation of essential components of unexploded explosive ordnance to prevent an unacceptable detonation (AR 75–15). These procedures are to be performed only by properly trained EOD personnel in accordance with AR 75–15.

Reportable quantities (NCP)
The reportable quantity for any CERCLA hazardous substance is established in table 302.4 of 40 CFR, Part 302. For any other substances, the reportable quantity is 1 pound. (For chemical surety agents it is 1 pound.)

Research, development, test, and evaluation (RDTE) dilute solution
Solutions of chemical agents in concentrations and quantities reduced by admixture (dilution) to levels that present significantly reduced hazards. (See AR 50–6, table 6–1 and app B.)

Respond or response (NCP)
Remove, removal, remedy, or remedial action, including enforcement activities related thereto, as defined by section 101(25) of CERCLA.

Self-aid
Administration of a chemical agent antidote to oneself upon experiencing early symptoms of chemical agent poisoning.

Service response force (SRF)
A DA-level emergency response organization, commanded by a general officer, capable of performing and sustaining the CAIRA mission. The SRF is comprised of the IRF and follow-on forces consisting of a staff and specialized teams from various agencies and organizations involved in the response to and recovery from a CAI.

Site inspection (NCP)
An on-site investigation to determine whether there is a release or potential release and the nature of the associated threats. The purpose is to augment the data collected in the preliminary assessment and to generate, if necessary, sampling and other field data to determine if further action or investigation is appropriate.

Size classes of releases (NCP)
Refers to the following size classifications which are provided as guidance to the OSC for meeting pollution reporting requirements in subpart B of the NCP. The final determination of the appropriate classification of a release will be made by the OSC based on consideration of the particular release (size, location, impact).

a. Minor release means a release of a quantity of hazardous substance(s), pollutant(s), or contaminant(s) that poses minimal threat to public health or welfare or the environment.

b. Medium release means a release not meeting the criteria for classification as a minor or major release.

c. Major release means a release of any quantity of hazardous substance(s), pollutant(s), or contaminant(s) that poses a substantial threat to public health or welfare or the environment or results in significant public concern. (For more information, see CAI.)

Tabletop exercise (FEMA)
An activity in which elected or appointed officials and key staff with emergency management responsibilities are gathered together informally, usually in a conference room, to discuss various simulated emergency situations. The exercise is designed to elicit constructive discussion by the participants without time constraints as they examine and then attempt to resolve problems based on existing emergency operations plans. The purpose is for participants to evaluate plans and procedures and to resolve questions of coordination and assignment of responsibilities throughout the exercise in a nonthreatening format and under minimum stress (2 to 4 hours).

Technical escort
Individuals technically qualified and properly equipped to accompany designated materiel, which requires a high degree of safety and security during shipment.

Time weighted average
A time-integral of the instantaneous exposure (such as, the cumulative concentration) divided by the length of time for the exposure period. There are basically four methods for estimating time weighted average exposure. Adequate

distribution models must be used to represent the exposure to the target populations using all methods. The four methods are as follows:

a. Full period single samples.
b. Full period consecutive samples.
c. Partial period consecutive samples.
d. Grab samples.

Two-person rule
A system designed to prohibit access by an individual to chemical agent by requiring the presence at all times by at least two authorized personnel, each capable of performing first aid in case of exposure to chemical agent or detecting incorrect or unauthorized procedures with respect to the task being performed. Each person must be familiar with applicable safety and security requirements.

Section III
Special Abbreviations and Terms
This section contains no entries.

USAPD

ELECTRONIC PUBLISHING SYSTEM
OneCol FORMATTER WIN32 Version 196

PIN:	056043–000
DATE:	03-14-03
TIME:	14:40:51
PAGES SET:	130
DATA FILE:	C:\wincomp\p50-6.fil
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SECURITY:	UNCLASSIFIED
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