Guide to Non-Stockpile Chemical Warfare Materiel

OCTOBER 2003

FINAL DRAFT

Non-Stockpile Chemical Materiel Program

The mission of the Non-Stockpile Chemical Materiel Product (NSCMP) is to dispose of non-stockpile chemical materiel in a safe, environmentally sound and cost-effective manner, ensuring compliance with the Chemical Weapons Convention. In order to do so, the NSCMP stresses the importance of engaging a spectrum of individuals and organizations that are involved in and potentially affected by the disposal of chemical materiel.

Non-Stockpile Chemical Materiel Program Core Group

To further facilitate stakeholder involvement, the NSCMP established the Core Group. The objectives of the Core Group include promoting cooperative working relationships between the Non-Stockpile Chemical Materiel Product, citizens, regulators, the U.S. Department of Defense, the U.S. Army, and civic, community, and environmental advocacy groups, as well as exchanging information about non-stockpile issues.

The Core Group includes members from state regulatory agencies, U.S. Environmental Protection Agency Headquarters and regional offices, U.S. Department of Defense, the U.S. Army, and civic, community and environmental advocacy groups.

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- Pine Bluff Arsenal, Arkansas
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- Umatilla Chemical Depot, Oregon

The Five Categories of Non-Stockpile Chemical Materiel

The Non-Stockpile Chemical Materiel Program is responsible for the five categories of non-stockpile chemical warfare materiel (CWM) that are not part of the U.S. chemical weapons stockpile. These five categories are: binary chemical weapons; former production facilities; miscellaneous chemical warfare materiel; recovered chemical warfare materiel; and buried chemical warfare materiel. The final two categories, recovered CWM and buried CWM, are the main focus of this guidebook.

Binary Chemical Weapons form lethal chemical agents by mixing two less toxic chemicals during flight. Army policy directed that the second binary component be loaded into the munition only at the battlefield. As a result, binary components were manufactured, stored, and transported independently.

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Recovered Chemical Weapons include items recovered during range clearing operations, from chemical burial sites and from research and development testing. When suspected recovered CWM is found, specially trained personnel are called to the site to assess the content and condition of the materiel and determine if it is safe for storage or transportation. Recovered CWM is currently stored at eight locations throughout the United States and on Johnston Island in the Pacific Ocean. See Table 2.2 for a list of the recovered CWM storage sites.

Buried Chemical Warfare Materiel include any chemical warfare materiel currently buried. Land burial had been practiced as a means of disposing of hazardous materials for several years. Records indicate that CWM was disposed of by land burial until the late 1950s. In most cases, the CWM was first treated (burned or chemically neutralized) prior to burial. In addition, ocean dumping was an acceptable means to eliminate CWM until the late 1960s.

Recovered Chemical Weapons

- Aberdeen Proving Ground, Maryland
- Camp Bullis, Texas
- Deseret Chemical Depot, Utah
- Dugway Proving Ground, Utah
- Fort Richardson, Alaska
- Johnston Island, Pacific Ocean
- Pine Bluff Arsenal, Arkansas
- Redstone Arsenal, Alabama

Suspected Buried Chemical Warfare Materiel Locations

Alabama
Alaska
Arizona
Arkansas
California
Colorado
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maryland
Massachusetts
Michigan

Mississippi
Missouri
Nebraska
Nevada
New Jersey
New Mexico
New York
North Carolina
Ohio
Oregon
Pennsylvania
South Carolina
South Dakota
Tennessee
Texas
Utah
Virginia
Virgin Islands
Washington
Wyoming

GUIDE TO NON-STOCKPILE CHEMICAL WARFARE MATERIEL

Editor's Note: This guidebook includes a number of acronyms. We will do our best to ensure that the meaning of the acronyms is clear in the context of the surrounding text, but given the length of some of the names given to military and civilian offices, regulations and technologies, acronyms play a vital role in limiting this guidebook to a reasonable number of pages. We hope you will bear with us. A complete list of acronyms can be found in Appendix 1.

This guide was written to provide the reader with basic information about non-stockpile chemical warfare materiel and the U.S. Army's program to safely manage and ultimately destroy this materiel. This information may be helpful to a wide range of potentially interested individuals and groups. The intended audience includes citizens, elected officials, local and state governments, tribes and tribal governments, federal regulators and military personnel. The intended audience is large and diverse due to the nature of the Non-Stockpile Chemical Materiel Product (NSCMP). A basic definition of non-stockpile chemical warfare materiel, which will be given more detail throughout this guide, is a wide variety of munitions, containers, equipment, and facilities that contain, are contaminated with, or have possibly come into contact with chemical agent but are not part of the current U.S. stockpile of chemical munitions. This non-stockpile materiel is either recovered and currently stored at military installations, or may be recovered in the future from more than 100 potential burial sites or test and firing ranges throughout the U.S. and its territories. Because of the wide range of potential non-stockpile sites, including sites near civilian population centers, it is important that those who find themselves confronted with non-stockpile chemical warfare materiel located near them have the ability to become educated on the who, what, when, where and how of the non-stockpile recovery and cleanup process. This guide will help in that education.

The non-stockpile CWM recovery and cleanup process is not set in stone. This guide attempts to identify the different regulations (military, federal, state and local), and guidance documents that govern non-stockpile CWM actions, while at the same time emphasizing that the different agencies, installations and programs involved in these operations and options available to them before and during non-stockpile recovery and cleanup. These options include decisions around the use of technologies, emergency responses and planned cleanups, and the

involvement of citizens, regulators, and a range of military personnel. The guide highlights the options available and gives information on how individuals or groups can become informed of and involved in the recovery and cleanup process. It is intended to help a variety of stakeholders to better understand what happens from the start of the NSCMP's involvement (i.e., when a site is suspected) through to final destruction of non-stockpile CWM.

To meet the needs of a very diverse audience, the first chapter of the guidebook contains questions and answers on the principal issues and themes in the guidebook. Many readers may get all the information they need from the first chapter, but others may want more detail and the first chapter will direct them to the chapters and sections within the guide that will provide that detail or direct them further to the original regulations and guidance documents.

This guidebook was developed under the auspices of the NSCMP Core Group, facilitated by The Keystone Center, a non-profit organization specializing in the facilitation and mediation of national and international environmental policy issues. The Core Group was formed to address the cost-effective, safe and environmentally sound destruction of non-stockpile CWM. Core Group membership is composed of Army personnel, state and federal regulators and community and environmental advocates. The objectives of the Core Group include:

- supporting the development of safe, environmentally sound, cost-effective, and publicly acceptable NSCMP destruction technologies, policies and practices;
- promoting cooperative working relationships among citizens, regulators, NSCMP and other related organizations within the U.S. Department of Defense (DoD); and
- exchanging information and opinions about areas of high concern to NSCMP and other stakeholders within the scope of NSCMP responsibilities.

CHAPTER 1

KEY QUESTIONS AND INSTRUCTIONS FOR USING THIS GUIDEBOOK

This chapter addresses frequently asked questions about non-stockpile chemical warfare materiel and will direct you to the sections of the guidebook that are most related to your area(s) of interest or concern.

1.1. What is (non-stockpile chemical materiel) NSCM?

Non-stockpile chemical materiel is a broad category of warfare items remaining from the military's production, testing and destruction programs. It's called non-stockpile because this is materiel that is not included in the designated stockpile storage facilities at eight Army installations in the U.S. It's called chemical warfare materiel because it is more than chemical weapons.

Figure 1.1a. Examples of Recovered Munitions

There are five different categories of NSCM (non-stockpile chemical warfare materiel). The five categories are binary chemical weapons; former production facilities; miscellaneous chemical warfare materiel; recovered chemical warfare materiel; and buried chemical warfare materiel. NSCM does not include chemical agent contaminated soil, water or debris. The last two categories of NSCM, recovered and buried NSCM, are the focus of this guidebook. The cleanup of binary chemical weapons, miscellaneous NSCM and former production facilities operations essentially has been completed or makes up a very small fraction of NSCM.

Figure 1.1b. Examples of CAIS sets and pigs

Three types of buried and recovered NSCM that are most likely to be encountered are chemical munitions, chemical containers and chemical agent identification sets (CAIS). Munitions are categorized by the method of their delivery to a target. These categories are shown in Table 1.1a. Most buried chemical munitions have been in the ground for decades. Records indicate that NSCM was disposed of by land burial until the late 1950s. Therefore, these munitions may be in a physically weakened condition that makes identification difficult and the NSCM dangerous to move. Figure 1.1a shows some examples of recovered munitions.

Chemical containers used to store or transport chemical agent included bottles, drums and containers of various sizes. CAIS were used by the military to train soldiers to identify chemical agents in the field and agent was contained in ampoules or bottles in small quantities. Figure 1.1b shows some examples of CAIS sets and pigs (larger containers with several CAIS items enclosed). In addition to the variety of chemical

For more information refer to Sections 2.1 & 2.2 of this guidebook

munitions and containers, there are a number of chemical warfare agents that could be found in buried and recovered NSCM. Table 1.1b lists those chemical agents. NSCM may contain industrial chemicals in addition to chemical warfare agents.

Table 1.1a. Types of Non-Stockpile Chemical Munitions

Type	Method of Delivery
Projectiles or mortar shells	Fired from artillery, tanks, or mortar tubes
Bombs	Dropped from aircraft
Rockets or missiles	Fired from launchers on the ground, on ships, or suspended from aircraft
Placed munitions	Put in location by hand (for example, a land mine)
Submunitions or bomblets	Carried inside other types of munitions (for example, a cluster bomb)
Spray tanks	Suspended from aircraft or placed on vehicles

Table 1.1b. Chemical Warfare Agents that Could Be Encountered in Buried and Stored Non-Stockpile Chemical Warfare Materiel

Designation	Chemical	Use	State
H	Levinstein mustard	Blistering agent	Oily liquid
HD	Mustard-distilled	Blistering agent	Oily liquid
HL	Mustard-lewisite mixture	Blistering agent	Oily liquid
HT	Mustard-T mixture	Blistering agent	Liquid
HN-1	Nitrogen mustard 1	Blistering agent	Oily liquid
HN-2	Nitrogen mustard 2	Blistering agent	Oily liquid
HN-3	Nitrogen mustard 3	Blistering agent	Liquid
L	Lewisite	Blistering agent	Oily liquid
GA	Tabun	Nerve agent	Liquid
GB	Sarin	Nerve agent	Liquid
GD	Soman	Nerve agent	Liquid
VX	VX	Nerve agent	Liquid

1.2. Is there a possibility that there is non-stockpile CWM in my area?

As of this writing, there are 229 suspected chemical warfare materiel burial sites at 101 locations in 38 states, the District of Columbia and the U.S. Virgin Islands. DoD controls 54 of the locations while the other 47 locations are formerly used defense sites (FUDS).

States with Suspected Non-stockpile CWM

Alabama	Indiana	North Carolina
Alaska	Iowa	Ohio
Arizona	Kansas	Oregon
Arkansas	Kentucky	Pennsylvania
California	Louisiana	South Carolina
Colorado	Maryland	South Dakota
District of Columbia	Massachusetts	Tennessee
Florida	Michigan	Texas
Georgia	Mississippi	Utah
Hawaii	Missouri	Virginia
Idaho	Nebraska	Virgin Islands
Illinois	Nevada	Washington
	New Jersey	Wyoming
	New Mexico	
	New York	

DoD believes that 56 additional burial sites require no further action (for example, no buried CWM was discovered during site investigation or the buried materiel has been removed). Additional burial sites could be discovered in the future. In addition, recovered CWM items**,** including CAIS items, explosive and non-explosive weapons and bulk items are currently being stored at eight military installations. Seven of these eight installations also have burial sites (a list of the seven non-stockpile CWM storage sites is found on page 6 of this guidebook).

Not all buried non-stockpile CWM is found on active military installations. Some burial locations have been found on Base Realignment and Closure (BRAC) installations, in public domain and on FUDS, a land area that was under the jurisdiction of DoD but is now either privately owned or under the jurisdiction of another local, state or federal agency. Of the 101 locations with potential burials, 54 are on DoD installations and 47 are FUDS.

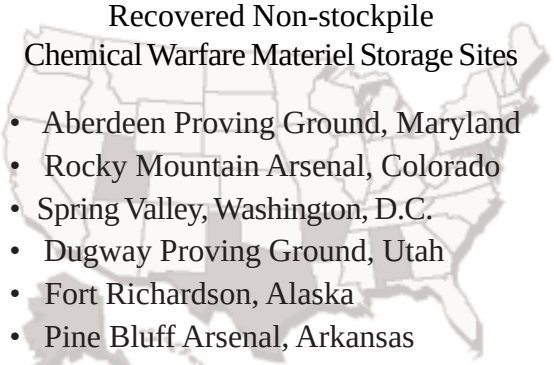
For more information refer to
Section 2.3 of this Guidebook
NSCMP Web-Site
NSCMP Survey and Analysis Report (1996)

1.3. What laws and regulations deal with non-stockpile CWM?

The U.S. must destroy most non-stockpile CWM to comply with the *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*, an international treaty commonly referred to as the Chemical Weapons Convention (CWC). The treaty was signed by the U.S. on January 13, 1993 and ratified by the U.S. Congress on April 25, 1997. The convention is an international arms control agreement designed to destroy all chemical weapons and chemical weapon production facilities that meet the criteria set forth in the treaty, eliminate the threat of chemical warfare and enhance global stability. While CAIS are not declared under the CWC, the Army is committed to treating and destroying CAIS in a safe and timely manner.

Domestically, The *National Defense Authorization Act of 1993* (Public Law 102-484) required the Army to submit a report to congress setting forth the Army's plan for destroying non-stockpile CWM after U.S. ratification of the treaty. Congress instructed the Army to (1) identify the locations, types, and quantities of non-stockpile CWM, (2) discuss destruction options, and (3) estimate the cost and schedule for its destruction.

Recovered Non-stockpile Chemical Warfare Materiel Storage Sites



- Aberdeen Proving Ground, Maryland
- Rocky Mountain Arsenal, Colorado
- Spring Valley, Washington, D.C.
- Dugway Proving Ground, Utah
- Fort Richardson, Alaska
- Pine Bluff Arsenal, Arkansas
- Redstone Arsenal, Alabama

In general, most recovered non-stockpile CWM will be managed as hazardous waste and either under the requirements of the Resource Conservation and Recovery Act (RCRA) or classified as hazardous substances and managed under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as the Superfund Program. The U.S. Environmental Protection Agency (EPA) and RCRA-authorized states are responsible for implementation of the regulations and requirements associated with these statutes. In addition, Occupational Safety and Health Administration (OSHA) regulations give oversight regarding the safety and health of military and civilian non-stockpile CWM personnel.

For more information refer to
Chapter 3: The Key Players in the Recovery and Destruction of Buried CWM
Chapter 5: Emergency Response
Chapter 6: Planned Removal/ Remediation Procedures

DoD and U.S. Department of the Army (DA) regulations, policies, pamphlets and other documents provide a framework to guide military decision-makers and coordinate non-stockpile CWM activities that include many participants from different DA/DoD commands and programs, private contractors, and others. This is a complex process that continues to evolve. Buried CWM is managed under programs within each military service that are responsible for managing and cleaning up sites contaminated with hazardous materials.

1.4. What kind of actions can be taken to recover buried CWM?

Recovery of buried CWM can occur either as part of the planned cleanup of burial sites conducted in accordance with the requirements of CERCLA, RCRA and similar state laws or as an emergency response action. An emergency response action can take place during a planned cleanup if potential unstable and/or leaking CWM is found.

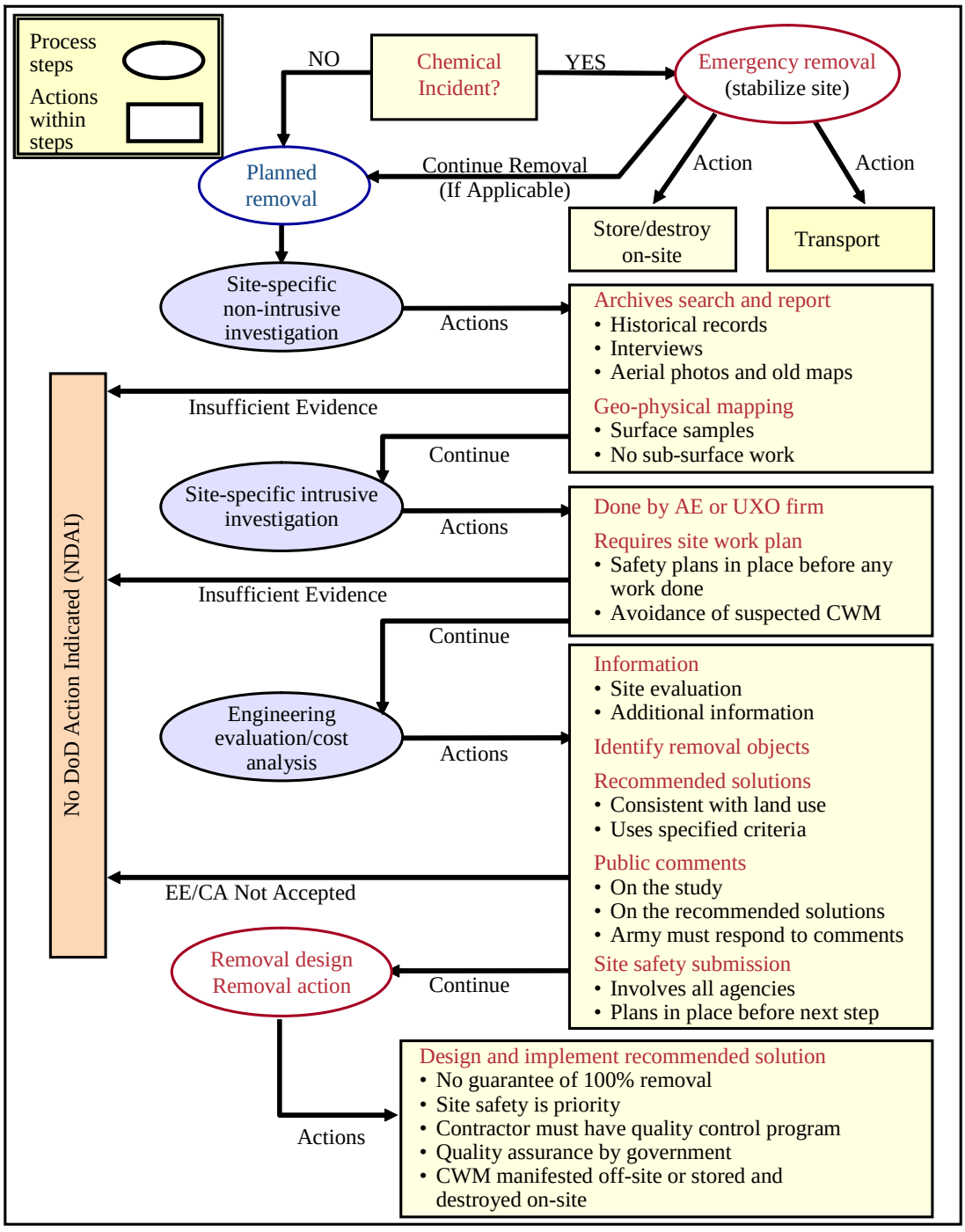
In a planned cleanup, reviews of historical information, along with the assessments described above, are conducted as part of the decision process to help determine the possible types of CWM that may have been disposed of at the site. Prior to undertaking cleanup actions at a burial site that may contain CWM, the U.S. Army Corps of Engineers (USACE), Huntsville (at a FUDS) or the host (at active and BRAC installations) will prepare work plans and site safety submissions detailing the recovery operations to be undertaken. Prior to implementation, these plans require approval by several federal, state and/or local government agencies, DoD/Army agencies, with the

For more information refer to
Chapter 5: Emergency Response
Chapter 6: Planned Removal/Remediation Procedures

Department of Defense Explosives Safety Board (DDESB) being the final approval authority. Generally, the USACE, Huntsville or an installation contractor will locate and unearth the buried CWM.

Sometimes, CWM is discovered quite by surprise. These situations are likely to trigger an emergency response. If the item is suspected of being military in origin, first

Figure 1.4. Recovered CWM Removal Procedures



responders normally request assistance from a local military explosive ordnance destruction unit. If the explosive ordnance destruction team all of whom receive CWM recognition training suspects the discovered item is a CWM item, the explosive ordnance destruction team reports the incident to the Army Operations Center; the USACE also is notified if the discovery is made at a location not on an active installation. U.S. Army Technical Escort Unit personnel (specialists in chemical and biological materiel) are dispatched to assist in determining whether an item is CWM and how it can be stabilized.

1.5. What are the options available for dealing with non-stockpile CWM once it is found?

A DA document called *Interim Guidance for Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activities* lists the general preferences for the interim final disposition of recovered non-stockpile CWM. In order of preference, they are:

1. On-site treatment
2. On-site storage
3. In-state storage at the nearest military facility while awaiting future disposition
4. Out-of-state storage at a permitted stockpile facility while awaiting future disposition

For more information refer to
Sections 3.1-3.3
Chapter 7: Research, Development, and Operation of Transportable Chemical Materiel Assessment and Destruction Technologies

These storage options are temporary measures and off-site transportation of non-stockpile CWM is highly regulated and limited. The decision regarding the interim/final disposition of CWM will be site specific and based on agreements among DoD, state and/or federal regulators and local governments with input from the public. Site security, the interim storage time frame, CWM location and safety considerations are important criteria when determining both interim and final CWM disposition. Design and location of interim CWM storage facilities require significant safeguards to ensure public protection and require agreement between DoD, State and/or federal regulators and local governments with input from the public.

In order to increase the capacity for on-site treatment, the Army implemented the NSCMP to develop safe methods and systems to destroy non-stockpile CWM. The NSCMP is responsible for treating non-stockpile CWM.

In addition to mobile analytical laboratories, NSCMP continues to develop treatment systems that can be moved from one location to another to process non-stockpile chemical munitions, chemical agent containers and CAIS on-site.

1.6. Where does the funding for cleaning-up non-stockpile CWM come from?

Funding for suspected CWM site investigation, removal and cleanup activities, as with funding for cleanup of

For more information refer to
Section 6.4

other (non-CWM) Army sites, comes from two main sources. For suspect CWM at FUDS and at active DoD installations conducting installation restoration programs, funding comes from the Defense Environmental Restoration Program through its Defense Environmental Restoration Account. These funds are managed by the Assistant, Chief of Staff for Installations Management.

If the DoD installation is scheduled for closure through the BRAC program, then funds for suspect CWM removal and cleanup activities come from the Base Closure Account funds. These funds are managed by the Assistant Chief of Staff Installation Management BRAC Office.

Budgetary limits for environmental restoration means not all sites can be cleaned up immediately. Generally speaking, sites that involve a transfer of real property out of DoD control (FUDS and BRAC sites), sites listed on the National Priorities List or proposed for listing by the EPA, or sites determined to have other characteristics that require action will have priority and funding will be distributed accordingly.

In most instances, costs for suspect CWM investigation, removal and cleanup activities will come from existing budgets within the individual active/BRAC DoD installation and FUDS. There is not a separate DoD budget to deal with unexpected discoveries of CWM. CWM investigation, removal and cleanup activities are usually expensive and time consuming due to the high risks associated with potential public and worker exposure.

1.7. How can the public and their representatives become informed and provide input?

Installation commanders, as the executive agent on active DoD installations, and the USACE, as executive agent at FUDS, are required to conduct public outreach and involvement activities. The main mechanisms established for this purpose include

- Public affairs offices at DoD installations and USACE district commands
- Installation Web-sites
- USACE Web-site (Figure 1.7)
- Technical Review Committees, Citizen Advisory Commissions (CAC), or Restoration Advisory Boards (RAB), when applicable, to allow the local community an opportunity to participate in the remedy selection process. A RAB is formed at all BRAC installations where closure involves the transfer of property to the community. RABs are also formed at FUDS where the public shows an active interest in environmental remediation. CACs are formed only at CWM stockpile sites.
- Public involvement and comment requirements were established within the DoD/Army non-stockpile CWM removal and cleanup procedures. (These requirements vary depending upon the nature of the response action.)

CERCLA and RCRA public review and commenting procedures also apply when suspect CWM activities fall under either of these federal/ state laws. More information regarding the CERCLA or RCRA requirements for suspect CWM removal and cleanup activities at a specific site can be found through the EPA regional public

affairs offices and individual state regulatory agencies.

Finally, citizens often form grassroots groups for people who want to have some input into environmental restoration. These groups can provide their communities with information regarding potential non-stockpile CWM and the actions being undertaken by the installation or the USACE, Huntsville. They also provide a process by which citizens can voice their opinions.

The issue of how to involve the public continues to be a debate with no clear answers. Citizens generally believe government agencies' efforts to involve the public can make for more efficient cleanups.

For more information refer to
Section 3.7
Chapter 4: Citizens and Environmental Groups' Perspectives

Figure 1.7. USACE Web Site
http://www.usace.army.mil

CHAPTER 2

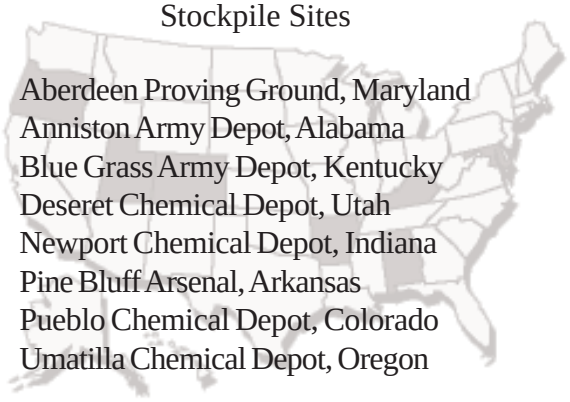
OVERVIEW OF NON-STOCKPILE CHEMICAL MATERIEL

2.1. Stockpile and Non-Stockpile Chemical Materiel

The U.S. produced chemical warfare agents from 1917 until 1968. Chemical agents typically were stored in large bulk containers or loaded into munitions. Such materiel makes up the nation's chemical weapons "stockpile," and is stored at eight Army installations in the U.S. The U.S. Army was directed to destroy the chemical weapons stockpile under the Department of Defense (DoD) Authorization Act of 1986. In addition, the U.S. has signed and ratified the Chemical Weapons Convention (CWC), an international treaty that requires the destruction of chemical weapons and chemical weapons production facilities by April 2007.

The Non-Stockpile Chemical Materiel Product (NSCMP) is under the Program Manager for Elimination of Chemical Weapons (PM ECW) which is part of the new U.S. Army Chemical Materials Agency (CMA). NSCMP was established to provide centralized management and direct to the DoD for the destruction of non-stockpile chemical materiel in a safe, environmentally sound and cost-effective manner.

Stockpile Sites



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The Product Manager for Non-Stockpile Chemical Materiel (PM NSCM) is charged with ensuring that the program identifies actual and potential locations of non-stockpile chemical warfare materiel (CWM). Additionally the PM NSCM has responsibility for researching, developing, acquiring and operating systems that are capable of characterizing, storing and treating non-stockpile chemical materiel; developing schedules and cost estimates for storage, treatment and destruction plans; and supporting U.S. treaty obligations.

2.2. The Five Types of Non-Stockpile Chemical Materiel

The NSCMP is responsible for the five categories of non-stockpile chemical warfare materiel that are not part of the U.S. chemical weapons stockpile. These five categories are binary chemical weapons; former production facilities; miscellaneous chemical warfare materiel; recovered chemical warfare materiel; and buried chemical warfare materiel. The final two categories, recovered CWM and buried CWM, are the main focus of this guidebook.

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2.3. Locating Buried Chemical Materiel

A significant challenge associated with buried CWM is the lack of available information concerning the condition, content, and exact location of the materiel. Even with the most sophisticated geophysical procedures, positive identification and assessment operations cannot be performed until the items are excavated from the site.

The *Non-Stockpile Chemical Materiel Product Survey and Analysis Report* dated October 1995 lists the suspected sites, quantities, types and contents of munitions at each potential location. A location may have one or more sites. Each site was assessed based on certain criteria including current and previous usage, possible type of chemical warfare materiel, site population and previous remediation efforts. After careful analysis of the available data the sites were labeled as known burial, likely burial, suspected burial, possible burial, and no further action (note: "no further action" simply means no CWM was discovered or that known CWM was removed.)

Table 2.3 lists the states with suspected non-stockpile CWM.

If a site has the potential of containing buried CWM, the NSCMP *Survey and Analysis Report* further divides that site into four categories: chemical agent identification set (CAIS) sites; small quantity, non-explosive sites; small quantity, explosive sites; and large quantity sites. CAIS items, training devices once used to help soldiers identify chemical warfare agents in combat, can be uncovered in metal or wooden containers. Small quantity, non-explosive sites have less than 1,000 CWM items and have no potential for explosives or propellants. Small quantity, explosive sites also have less than 1,000 CWM items, but items contain explosives or propellants. Large quantity sites have more than 1,000 CWM items.

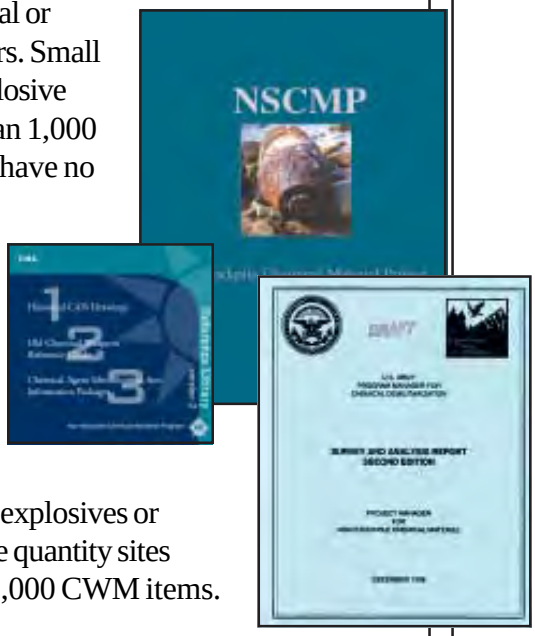


Table 2.3. Suspected Buried Chemical Warfare Materiel locations by State and Territory

Alabama	Idaho	Mississippi	Pennsylvania
Alaska	Illinois	Missouri	South Carolina
Arizona	Indiana	Nebraska	South Dakota
Arkansas	Iowa	Nevada	Tennessee
California	Kansas	New Jersey	Texas
Colorado	Kentucky	New Mexico	Utah
District of Columbia	Louisiana	New York	Virginia
Florida	Maryland	North Carolina	Virgin Islands
Georgia	Massachusetts	Ohio	Washington
Hawaii	Michigan	Oregon	Wyoming

CHAPTER 3

THE KEY PLAYERS IN THE RECOVERY AND DESTRUCTION OF BURIED CHEMICAL WARFARE MATERIEL

Any buried chemical warfare materiel (CWM) investigation, recovery and cleanup activity involves a number of local governments, tribes and tribal governments, state and federal organizations and agencies whose roles range from site security to site management and remediation to the physical removal of CWM. The destruction of non-stockpile CWM is a coordinated effort and every participant has specific integrated roles and responsibilities.

It is highly recommended that anyone who finds or digs up munitions, or any unfamiliar containers that cannot be positively identified, promptly call 911. Do not handle the item or items.

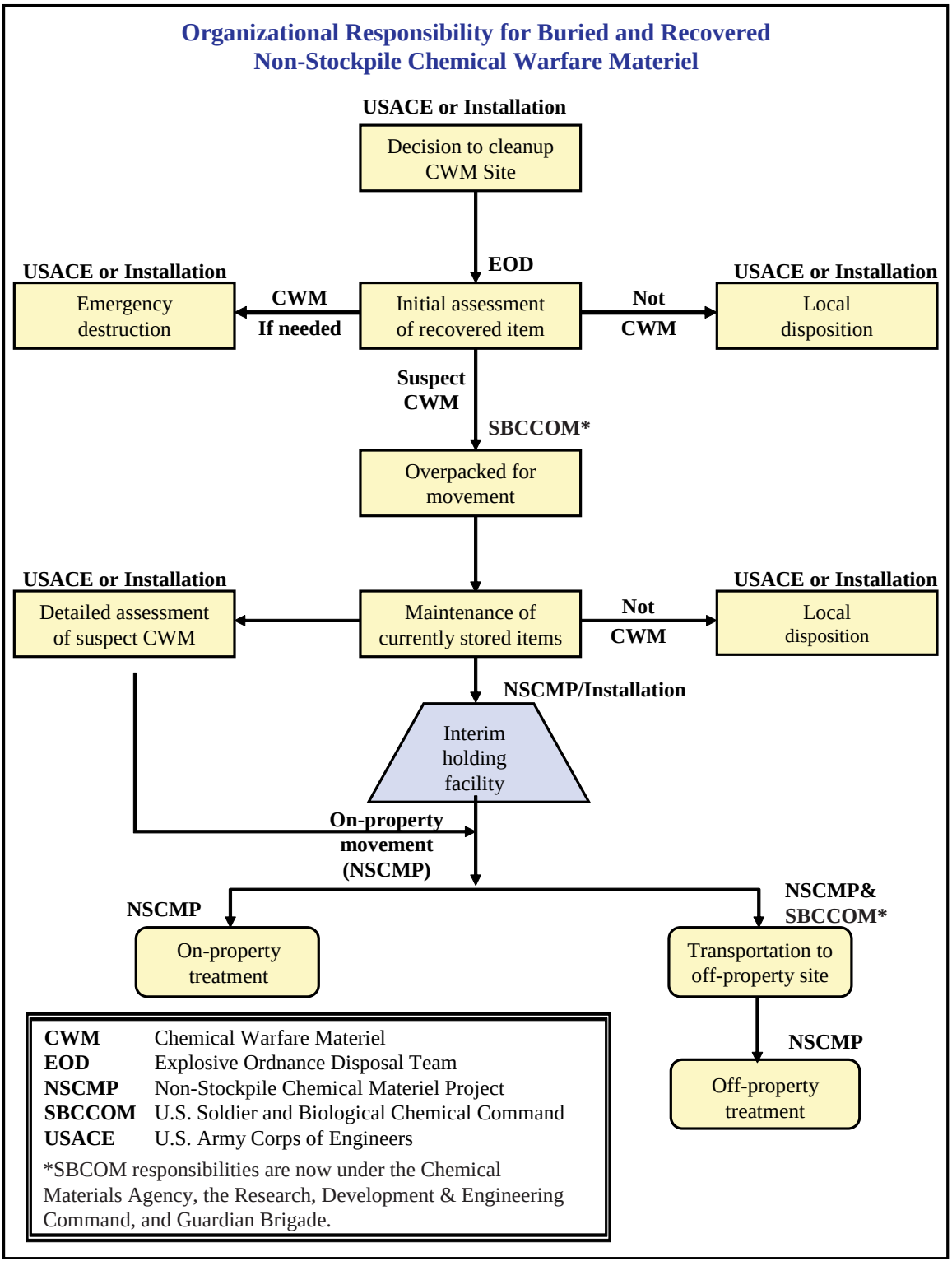
Key federal government participants in a non-stockpile CWM project include active installation commanders, Base Realignment and Closure (BRAC) installation commanders, the U.S. Army Corps of Engineers (USACE) Huntsville, the U.S. Department of Health and Human Services, and the Non-Stockpile Chemical Materiel Product (NSCMP). Until very recently, the Soldier and Biological Chemical Command (SBCCOM) was a also a key participant. As of October 9, 2003, SBCCOM has been re-designated and its functions have been transitioned to other organizations including: the Research, Development & Engineering Command (RDECOM), the Chemical Materials Agency (CMA), and the Guardian Brigade (see also Chapter 6). In addition, federal and state regulatory agencies have particular oversight responsibilities depending upon the laws regulating the non-stockpile CWM activity. Absent direct involvement in decision-making, citizens play an important role in raising health concerns unique to each community and providing input to decision-makers on improving cleanup activities. Citizens and their representatives have different mechanisms for receiving information and providing input into decisions regarding the planning and implementation of non-stockpile CWM recovery and cleanup activities.

Major organizations involved in the recovery and cleanup of suspected CWM burial sites and the destruction of the recovered chemical materiel are depicted in Figure 3.0 and briefly described below.

3.1. Military Installations

As stated in Section 1.2, about half of the locations with known or suspected buried CWM sites are on active/BRAC military installations. This means that the responsibility and authority for planning and carrying out any chemical materiel remediation activities at active/BRAC military installations rest with the installation commander, the regional office of the Installation Management Agency (IMA), and that installation's higher

Figure 3.0. Organizational Responsibilities



headquarters, along with state and federal regulators. This is true regardless of the military branch that owns and operates that installation. This does not mean, however, that an installation commander has complete discretion in determining whether and how to conduct a buried chemical materiel remediation effort.

There are state, federal, local and military regulations, guidance documents and memorandums of understanding/agreement with other entities that impact the decision to address a site, the remedy chosen, and the process that can be used to conduct the action.

Within the installation command structure, the two offices that generally have authority over planning and implementing any planned environmental restoration activity, including buried CWM recovery and cleanup activities, are the environmental and safety offices. The installation commander may choose to turn over management responsibility to the USACE, in which case the installation environmental and safety offices work closely with the USACE managers. The installation public affairs office also has a crucial role in planning for and implementing public information and involvement activities that, at the very least, conform to state and federal regulations.

3.2. U.S. Army Corps of Engineers

The USACE has a vast amount of institutional knowledge regarding cleanup activities for buried ordnance and explosives. This experience extends to chemical materiel as well. The U.S. Army Engineering and Support Center in Huntsville, Alabama, is the designated USACE office for chemical warfare materiel operations. The center is the only USACE command authorized to execute non-stockpile CWM projects, regardless of category of project. The USACE Huntsville is the executive agency for non-stockpile CWM recovery and cleanup activities at FUDS. As the executive agency it has overall management responsibility including site security, chemical and explosive safety, environmental compliance, medical support, quality assurance, public affairs and other necessary activities. The USACE Huntsville also develops all plans and procedures in coordination with SBCCOM (RDECOM, CMA, or Guardian Brigade), NSCMP and outside contractors. USACE Huntsville also may support installations in CWM projects in several ways: public affairs support, contractor support in preparing the site safety submission, providing contractor support for the CWM response action and coordinating with SBCCOM (RDECOM, CMA, or Guardian Brigade) and NSCMP for their services in conjunction with the CWM project actions.

3.3. Non-Stockpile Chemical Materiel Product

The NSCMP mission is to provide centralized management and direction to the Department of Defense (DoD) for the destruction of non-stockpile chemical materiel in a safe, environmentally sound, and cost-effective manner.

In 1991, Congress directed the DoD to destroy CWM that is not part of the U.S. chemical weapons stockpile. The U.S. Army Program Manager for the Elimination of Chemical Weapons (PM ECW), instituted as DoD's executive agent for demilitarization of all U.S. chemical warfare-related materiel, subsequently created the Office of the Product Manager for Non-Stockpile Chemical Materiel (PM NSCM) to carry out this effort. NSCMP is the DoD

umbrella organization responsible for the destruction of non-stockpile CWM on military installations or FUDS.

The primary function of NSCMP in a site cleanup is to plan, manage and execute the destruction of CWM. This includes providing assistance in remediations and plan development and ensuring coordination across all levels

throughout the process. NSCMP coordinates the handling, interim storage, transport to permitted DoD installations, and/or ultimate destruction of CWM.

Another important activity of the NSCMP is to develop systems that can be moved from one location to another to assess and process non-stockpile chemical munitions, containers of chemical agents other than munitions and on-site CAIS. A number of technologies and methods are under study by NSCMP and descriptions of these technologies can be found in Chapter 7.

3.4. Soldier and Biological Chemical Command Related Organizations

Until recently, SBCCOM provided DoD and other federal agencies with expertise in chemical and biological responses. As of October 2003, the CMA, RDECOM, and Guardian Brigade are responsible for assisting the Army in formulating chemical and biological risk management policies. These organizations also provide technical support and assistance to all DoD organizations in evaluating the risk management plans and performing safety management evaluations for site specific operations. The Technical Escort Unit (TEU) a hazardous materiel rapid response team operates in support of projects to provide physical recovery, the identification, packaging, transportation and monitoring of CWM. When requested, the unit may be asked to provide emergency removal and destruction support to the designated site program manager. In addition, the CMA, RDECOM, and Guardian Brigade provide staff and specialized support and procures and maintains specialized equipment for recovered CWM emergency response actions.

3.5. Federal, State, Tribal and Local Regulatory Agencies

Federal, state, tribal, and local environmental and public health regulatory agencies will likely be involved in virtually all phases of removal/cleanup actions related to non-stockpile CWM. The level of involvement of each regulatory agency will vary from site to site but will typically be in the form of review and approval of plans and reports, issuance of permits, consent agreements/orders and oversight of remediation activities. It is the responsibility of these agencies to ensure that the identification, storage, transportation and destruction/treatment of CWM is done in a manner that is protective of human health and the environment and complies with all applicable state, federal and local regulations, statutes and laws.

3.6. Military and Civilian Emergency Response Personnel

There are many levels of emergency response personnel that might be involved in the discovery of CWM

Figure 3.6a. EOD Teams

or in the release of chemical agent. Below is a listing and brief description of those personnel.

Explosive Ordnance Disposal Teams

The military trains and maintains personnel for the express purpose of responding to and destroying unexploded ordnance (UXO), whether the UXO is found on or off military land. Explosive Ordinance Disposal (EOD) personnel are also trained to identify potential CWM. If it is suspected that the object or objects found might be CWM, EOD personnel immediately notify Army TEU personnel.

Figure 3.6b. TEU

Technical Escort Unit

The Army TEU consists of personnel specifically trained in the identification, handling, transport and emergency destruction of CWM. They are the only military personnel authorized to perform these CWM functions.

For more information refer to Chapter 5: Emergency Response

In addition to EOD and TEU personnel, an emergency response to a chemical incident might involve military and civilian police, fire and medical personnel. For a more detailed explanation of when and how these emergency response forces might be called to action, see *Chapter 5: Emergency Response*.

3.7. The Public and their Representatives

Decision-makers often wonder, "which 'public' should I listen to?" While no individual or organization can claim to speak for an entire community, some civic groups, grassroots organizations and advisory boards can represent what certain segments of the community want and need. Therefore, these and other local, state and federal organizations can play an important role in the public involvement process including dispersing information, providing feedback to decision-makers and contributing ideas for cooperative decision-making. General descriptions of these entities are listed below.

Federal, state and local governments

Elected officials at all levels of government are important resources for citizens wishing to gather information regarding any cleanup operations in and around their communities. Ideally, these officials are also open to receive input and opinions from their constituents when these constituents are impacted by cleanup operations. Letters, phone calls and personal interaction with these officials are some of the means by which citizens can gather information and have their voices heard.

Tribal Governments

The U.S. Army recognizes its federal trust responsibility in protecting the rights and resources of Native American tribal governments and the communities they represent. The U.S. Army also recognizes the unique sovereign status of Native American tribal governments. NSCMP has developed procedures to identify potential or perceived effects to environmental justice populations and

Native American tribal governments in order to determine appropriate interactions to gain their participation at those sites prior to major decisions in technology, treatment, destruction or transportation.

Citizen and Environmental Groups

Over the decades, many grassroots and not-for-profit groups have been formed on local and national levels to deal with the safe and environmentally sound cleanup of hazardous waste. Some of these groups are exclusively local and address a particular site of concern. Others are larger groups with a national or even global reach.

Citizens can find out about groups working on CWM cleanup issues through local directories, library resources, internet searches, and talking with others in their area.

Note that some advisory boards operate under federal directive; their scope may not include non-stockpile CWM issues.

Citizens Advisory Board (CAB)
Citizens Advisory Commission (CAC)
Restoration Advisory Board (RAB)
Site-Specific Advisory Board

CACs, Site-Specific Advisory Boards, RABs, and CABs are formal committees that address a variety of issues that impact communities around military facilities and FUDS. Some boards for instance, RABs for military installations under the BRAC program are mandatory. Others such as CACs at CWM stockpile sites are at the discretion of that state's governor. The purpose of the boards and commissions is to provide public input into all phases of cleanup while acting to facilitate the distribution of information and communication between military installations and the surrounding communities.

For information regarding advisory commissions or boards, their structure and their scheduled meetings, contact the PAO of the military installation in the area.

3.8. Others

Materiel Assessment Review Board

The purpose of the Materiel Assessment Review Board (MARB) is to assess and evaluate information obtained through non-intrusive investigation of each suspect CWM item, thus ensuring that CWM is not prematurely dismissed from the storage, handling, and treatment processes for CWM. The MARB can require specific items to be reassessed after reviewing the identification and assessment information.

This board is chaired by the Commander of the U.S. Army TEU. Board membership comprises (1) three explosive ordnance disposal technicians, of whom two must be master explosive ordnance disposal technicians; (2) a certified radiographer (X-ray technician); (3) a portable isotopic neutron spectroscopy expert; (4) a chemical specialist; (5) a representative from the NSCMP; and (6) a historian from the SBCCOM (RDECOM, CMA, or Guardian Brigade). Representatives from an affected installation are invited as ad hoc non-voting members for items under their jurisdiction and additional representatives with specialized expertise may be invited by the chairperson of the board.

Edgewood Chemical and Biological Center

This center is responsible for research in the area of the characterization and monitoring of non-stockpile CWM.

CHAPTER 4

CITIZEN AND ENVIRONMENTAL GROUPS' PERSPECTIVES

This section of the Guidebook does not presume to represent every citizen at an affected site, nor does it represent any official statements or policies of the Non-Stockpile Chemical Materiel Product (NSCMP). The chapter has been compiled from the ongoing work of many different citizen groups working on non-stockpile chemical warfare materiel (CWM) issues in different impacted communities. It seeks to outline some common concerns and frustrations voiced by non-stockpile impacted communities. The chapter also attempts to explain life experiences which are the context for these concerns.

4.1. Introduction

Why bother talking to and working cooperatively with community members?

- It is the right and respectful thing to do;
- It may build trust between all stakeholders;
- Safer, more efficient and more acceptable solutions to cleanup and destruction issues may be found; and
- It is often a legal requirement.

4.2. Community Responses to Non-Stockpile CWM Cleanup

While reading the local paper one morning, community members find out there are old chemical weapons buried in their neighborhood. By the time local residents learn of a public availability session, basic questions may or may not have been answered. However, the "shock" of the weapons discovery still exists. Thus, decision-makers may be met with a range of concerns from the public, including

- Suspicion and anger: "Why didn't we know about this earlier? What else is out there that we don't know about?"
- Fear: "My daughter's school is right next to where they found these weapons. These are lethal chemical agents, right?"
- Mistrust: "The military base messed up on its last cleanup effort here. What makes me think they'll do a good job this time around?"
- Doubt: "The federal and state regulators always let industry and the military do what they want, no matter what we think. Just look at all the other pollution here! It doesn't matter what I say; they never listen."

Some folks simply will be overwhelmed. Maybe last year it was revealed that a local housing development in that same community was built on a leaching landfill, and the residents had to be relocated. The EPA posted fish consumption advisories due to

mercury contamination in nearby lakes and streams. Last week there was a public meeting on a chemical release from a local industry. Yesterday the local health agency linked skyrocketing childhood asthma rates to poor air quality.

Pollution of all forms is taking its toll on the environment and public health. Citizens are often forced to spend incredible amounts of time addressing these problems issue-by-issue, pollutant-by-pollutant. Thus, the familiar activist slogan, "We are sick and tired of being sick and tired." Citizens cannot be expected to divorce the danger of CWM from other environmental problems in their community.

Other community members and elected officials may be concerned with property values, effect on local businesses or obtaining cleanup contracts. Still others may be concerned about health and safety issues and have strong opinions but they are so busy with work and family life that you may never hear from them.

4.3. Responding to Critiques from the Community

No matter what an individual or group's opinion, most everyone interested in the non-stockpile program wants access to information, the chance to communicate directly with decision-makers, and the assurance that their input is being taken seriously and may result in positive change.

The manner and degree to which NSCMP, the USACE, federal and state regulators and installation personnel respond to requests and critiques from community members directly affects the level of trust between the parties.

Each military and government agency involved in non-stockpile remediation and destruction performs a different function and reports to a higher level, but each is ultimately accountable to the public. If public health, worker safety and environmental protection are a priority this should be clearly reflected not just in press statements and at public meetings but in every layer of the decision-making process. Gaining trust from the public then, requires "walking the talk," matching action with rhetoric.

If the public knows, or perceives, that information is being withheld; that they are not being offered real opportunity for public involvement; or if their concerns are not being adequately understood or addressed, decision-makers should expect continued criticism.

Criticism from the public should be taken very seriously, but it doesn't have to be taken personally. Admitting that decision-makers and stakeholders can learn from each other, and keeping respectful communication channels open through disagreements, may ease the perception of "personal attacks" from all parties.

4.4. Public Involvement

The terms "public outreach" and "public involvement" hold very different meanings to citizens. Outreach implies information sharing, while "involvement" implies dialogue and consultation of a more consistent, higher level. Arguably, many programs have developed good

public outreach but few examples of effective "public involvement" exist.

Public involvement goes beyond filling out comment cards which is itself an important function but which does not allow for in-depth analysis and consistent dialogue. Citizens are often frustrated and mystified at resistance to public involvement. "Why would they shun my ideas? Do they even want to know what I think?"

4.5. Common Principles Promoted by Citizens and Grassroots Organizations

Albert Einstein said, "The significant problems we face cannot be solved at the same level of thinking we were at when we created them." When it comes to environmental cleanup projects, many citizens subscribe to a much different level of thinking than do officials in the military and regulatory agencies. Taking the time to understand these principles not as meaningless hurdles but as opportunities to conduct better cleanup will help build trust and understanding.

- *Principles of Environmental Justice.* Environmental justice acknowledges that a majority of hazardous waste sites in the U.S. are located in low-income communities and communities of color and articulates the right for people of all racial and economic backgrounds to enjoy a safe, healthy environment. An environmentally just plan for non-stockpile remediation will alleviate to the greatest extent possible any negative impacts on the environment or public health, particularly for communities which have suffered from higher levels of contamination. Environmental justice is an invitation for members of diverse communities to unite to work for protection of public health and the environment for everyone.

- *Precautionary Principle.* The Precautionary principle states that "When an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically." Dr. Peter Montague writes of precautionary actions, "*If you have reason to believe that your building may be on fire, do you estimate the probability that the damage will be 'acceptable' and wait until you see flames shooting into the sky? Or do you take precautionary action based on incomplete evidence and call the fire department?"*

- *Pollution prevention.* Simply, any decisions made regarding cleanup and destruction of non-stockpile materiel should seek to prevent pollution whenever possible. In some cases, decision-makers are required by law to consider pollution prevention measures. With or without a legal mandate, efforts to prevent pollution will benefit us all.

- *Right-to-know.* Due to several federal and state laws, public servants and decision-makers have an obligation and a legal requirement to conduct their business in an open manner. Community members have a right to access information pertaining to the non-stockpile program free of hassels or fees. The supplying of requested information without delay and without questioning the motives of those who ask for the information builds trust and understanding.

- *Alternatives assessment.* The premise of a risk assessment is that some risks are acceptable. The scope of options, and the manner in which these options are framed, are determined before the community members have a chance to comment. Alternatives assessments are based on the premise that with direct involvement from all stakeholders and decision-makers at the beginning, and through a consensus-based process to determine the scope and assumptions around a problem, some risks can be avoided altogether.

4.6. Constructive Participation

Public meetings can be difficult and unpredictable. Lawsuits are no fun. Nobody likes to be left out of important decisions. Personal attacks hurt. Everybody's busy. Finding a way to participate constructively in cleanup efforts is tough. Following are a few suggestions for both decision-makers and citizen stakeholders engaged in non-stockpile activities

- *Listen.* Shutting down communication, even if you disagree with a person or group's viewpoints, seldom builds trust and credibility. The same active listening and response skills necessary for friendships and professional relationships are imperative in communication between citizens and decision-makers. No matter how painful, the time and effort made to listen and understand the core concerns of community members or to decipher explanations given by decision-makers will help in the long run.

- *Take time to stay informed.* Citizens should try, with whatever time is available, to stay informed on the details of a cleanup plan in order to make clear, concrete recommendations. Decision-makers should be constantly aware of other community issues environmental, political and otherwise which affect the climate and nature of non-stockpile activities.

- *Adjust expectations.* Well-intentioned individuals in the military and government regulatory agencies cannot avoid red-tape; even those who would like to implement positive change cannot always do so.

- *Be open to different styles of communication.* Inherent communication styles based on culture, ethnicity, regional dialects and language familiarity will not, and should not have to, adapt to the military style of communication. All parties should be responsible for communicating their ideas as clearly and concisely as possible.

EMERGENCY RESPONSE

Not all excavation/remediation activities are planned activities. In some cases, an emergency response action is necessary. According to Army Regulation (AR) 50-6, *Nuclear and Chemical Weapons and Materiel Chemical Surety (Chapter 4-4)*, an emergency response action is required for chemical events, defined for non-stockpile chemical warfare materiel (CWM) as confirmed releases of agent from non-stockpile chemical munitions or discovery of an actual or suspected chemical munition or container that may require emergency transportation and/or destruction. Sometimes the CWM is discovered while conducting other activities. Another possible trigger for an emergency response action is finding unstable CWM that requires emergency transportation or destruction while conducting a planned remediation of the site. Finally, coordinated discussions between the Army and federal, state and/or local regulatory agencies may result in a decision that an emergency response action is the most appropriate activity for a particular situation.

While emergency response actions at the nation's chemical stockpile sites are governed by AR 50-6, guidance for the response to a non-stockpile chemical event is provided by the *Recovered Chemical Warfare Materiel Emergency Response Plan* (RCWM-ERP), dated September 7, 2000 and by the National Contingency Plan. These documents lay out in great detail the chain of command, the notification and participation requirements for local, state and federal authorities, the operations guidance, and other necessary actions in a larger scale emergency.

> *According to the RCWM-ERP, "Whenever suspected or confirmed chemical warfare materiel is found, the response will be deliberate and tailored for the level of effort required and risks involved. A three tier response concept will be established."*

The most important goal of any emergency response to a chemical event is to prevent a potential release of chemical agent into the surrounding environment or, if a release has occurred, to stop the leak and take the necessary steps to protect the health and safety of the public and installation personnel. Emergency response actions will continue until the commander of the response action, in consultation with response personnel and federal, state and/or local regulatory agencies, determines the chemical event has been stabilized. Usually this means that any leaks have been stopped and/or the CWM has been safely transported to an interim storage facility or destroyed on site.

The most likely scenarios for an emergency response involving non-stockpile CWM is the discovery of buried munitions while conducting other operations or unearthing unstable chemical munitions while conducting a planned remediation. According to the RCWM-ERP, "Whenever suspected or confirmed chemical warfare materiel is found,

the response will be deliberate and tailored for the level of effort required and risks involved. A three tier response concept will be established." Chapter 5 is layed out in the following manner: 5.1 Tier One Reponse, 5.2 Tier Two Response, 5.3 Tier Three Response, 5.4 Completing Emergency Response Operations, 5.5 Initial Identification and Safety Assessment, 5.6 Emergency Destruction, 5.6.1 Interim Storage, 5.6.2 Transportation, 5.7 Decison-making and Notification, 5.8 Response Guidance Principles.

5.1. Tier One Response

In the first tier response the local military EOD responds to a situation by performing a non-intrusive examination of the unearthed munition or munitions and determining the type of munition. This is not always easy, especially with old munitions that have been underground for many years. If there is any potential that the munition may contain chemical agent, then the Army TEU is called to the scene and the Army appoints an Incident Commander (IC). The Army TEU personnel are specifically trained to respond to emergency chemical events. Upon arrival on the site, the TEU team will use equipment designed to gather data on the munition without opening it. This data is then sent back to a MARB. MARB is a committee of technical experts consisting of a variety of areas of skill to include X-ray analysis, neutron spectroscopy analysis, explosive ordnance disposal, chemical munitions history and others. MARB evaluates the data provided and offers a most likely determination as to the type of fill and the munitions explosive configuration. MARB is chaired by the TEU commander. If MARB determines that the munitions are not chemical filled or, if chemical filled, are stable, not leaking, and can be safely stored or destroyed on-site, then the response remains at this first level. If, however, the chemical event occurs in the public sector and the situation calls for the removal of the CWM to a location away from the discovery site, the response moves to Tier Two.

5.2. Tier Two Response

A second tier of response is most likely if the suspected or confirmed CWM needs to be removed from a location in the public sector to a military storage or disposal facility or is determined to be fuzed and armed and cannot be moved from its recovery location. In this scenario, the TEU remains in charge of all handling and transportation duties, and the TEU commander is designated as the initial response force commander/on-scene coordinator (IRFC)/(OSC). The IRFC/OSC coordinates the activities of military and other federal responders with those of the civil authorities. Staff from the nearest installation are also provided to support the operation. The hierarchy of CWM disposition within the Army is 1) on-site treatment, 2) on-site storage, 3) in-state storage at the nearest military facility while awaiting future disposition and 4) out-of-state storage at a permitted stockpile facility while awaiting future disposition. Additionally, a plan for the transportation of the CWM, if necessary, is drafted by the NSCMP.

The NSCMP coordinates with the Office of the Assistant Secretary of the Army (Installations and Environment) to make sure that the plan follows all applicable health, safety and environmental laws and regulations and includes input from public officials and federal, state and local governments.

5.3. Tier Three Response

The third tier of response is triggered by situations such as the discovery of a large amount of CWM, injuries as a result of the chemical event, a chemical event in a highly populated area or any other situation in which it is determined that an integrated service response is necessary. The tier three response creates a Service Response Force (SRF) under the command of a SRF Commander/OSC. The SRFC/OSC is designated by Headquarters, Department of the Army, based upon the recommendation of the Army Materiel Command. The SRF combines military and civilian response teams working in cooperation at the highest levels of federal, state and local governments for a significant amount of time.

5.4. Completing Emergency Response Operations

The ultimate goal of any emergency response to a chemical event, whatever the appropriate level of response might be, is to identify the nature of the threat, contain or eliminate the agent source and, if needed, decontaminate the affected areas. Ideally, all this prevents adverse affects on human health and the environment. Emergency response forces do not conduct site investigation or excavation operations beyond those necessary to eliminate the immediate threat.

All operations performed to clean up a site to acceptable safety and environmental standards in "non-emergency" conditions after a chemical event is stabilized are considered to be planned remediation activities. If a chemical event is the result of an unexpected unearthing or discovery, planned remediation activities would range from a more thorough cleanup of the site, to ensure that all applicable environmental standards are met, to a full site investigation and excavation in search of other suspected CWM. If the chemical event takes place during a planned remediation of a non-stockpile CWM site, the remediation activities will resume following completion of the emergency response.

5.5. Initial Identification and Safety Assessment

When suspected CWM items are discovered, TEU or EOD personnel perform initial identification of such items. The NSCMP has published a document (SciTech, 1998) to assist these personnel in identifying CWM items and to aid decision-makers on methods of munition handling and disposal. SciTech provides information regarding design, markings, and potential hazardous fills of non-stockpile CWM. The first step in the identification process is to determine if a suspected recovered CWM item is military in origin and whether the item is safe to handle. If the item is safe to handle, a more thorough inspection of the item is conducted to determine whether the item is leaking or structurally sound and whether explosive

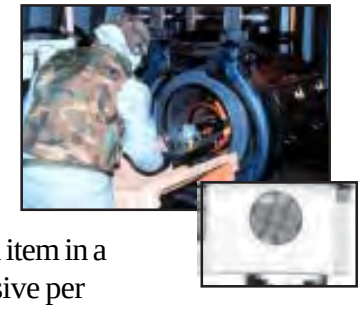
components are present. If the more thorough inspection indicates that the item is leaking, it is sealed using prescribed procedures. These procedures could include

- Using plaster of paris material, typically used to form casts for broken bones, to temporarily seal the leak.
- Using vapor proof containers called multiple round containers to containerize the munition. This is called "overpacking".
- Placing the overpacked munition into an interim holding facility, a transportable storage room which is designed to contain hazardous chemicals, or some other type of structure to further enhance the vapor/liquid containment and security of the item.
- Plaster of paris is also used for the mechanical immobilization of armed fuzes or loose explosive items to render them safer for handling or transport.

If TEU or EOD personnel determine that a recovered non-stockpile CWM munition is not safe to handle (for example, if it has an armed fuze that may cause an unplanned detonation), an attempt is made to render the munition safe. The render-safe procedures to be used are specific to each munition and fuze combination. Once render-safe procedures are successful the CWM munition is further identified as described above.

5.6. Emergency Destruction

Immediate emergency destruction may be required if Army personnel, in coordination with federal, state and/or local regulatory agencies, determine that no render-safe procedures can be done or that the munition is not safe to store after performing the procedures. In these situations, an Emergency Destruction Plan is prepared by NSCMP in coordination with SBCCOM (RDECOM, CMA, or Guardian Brigade.) Upon notification and approval of the state and other appropriate regulators and review by U.S. Department of Health and Human Services, the USACE district commander may authorize the emergency destruction. The final approval of an emergency destruction plan requires multiple agency review with varying time frames. Time frames for emergency destruction plan approval is based on several factors including the severity of the situation, the workload of the reviewing department and the completeness of the plan. Prior to emergency destruction, if time permits, the Army Safety Office and the deputy assistant secretary of the Army, environment, safety and occupational health, are notified. Emergency destruction would not be delayed pending approval of site-specific emergency destruction plans if there were an imminent danger to the public or the environment. In accordance with 50 USC 1518, immediate notification of the destruction of CWM (within 48 hours of the destruction) is provided to Congress. An after action report is also required following any emergency response activities.



Traditionally, emergency destruction meant open burning/open detonation (OB/OD). This involved placing high explosives on an item in a ratio of five pounds of explosive per pound of chemical agent in the item to be destroyed. The practice of OB/OD has come under criticism from citizens and regulators due to the potential for uncontrolled toxic emissions

and residual CWM after detonation. In recent years, other systems have been used to increase protection of the environment and the public in the event of emergency destruction. See examples in Section 7.5.

5.6.1. Interim Storage

In most cases, recovered munitions will be isolated at the recovery site for some time, possibly weeks or months. This is to allow responsible officials sufficient time to adequately weigh the decision to move the item or to destroy it on site. In the case where the munition is to be kept on-site, interim storage is provided. Interim storage for chemical items can take several forms. Where a significant explosive hazard also exists, an item known as a portable magazine may be used. A portable magazine offers both protection from fragmentation and liquid/vapor exposure. In cases where the items are safe to handle, an interim holding facility (IHF) may be provided. An IHF is essentially a transportable room designed for storage of hazardous chemicals. An IHF has a bottom designed to trap any liquids which might accidentally leak inside of it, comes equipped with a chiller for climate control (certain liquids can be frozen at even 50 degrees F, making them safer to store), an optional air filtration system for chemicals which are more of a vapor hazard, and security fencing. Lastly, interim storage sometimes can be provided by structures already available, particularly if the site is a military site. For instance, many military sites have explosive storage igloos or magazines suitable for this use. Some commercial facilities also have this capability and could be used.

5.6.2. Transportation

Sometimes after consultation with the appropriate authorities it is decided that the recovered item should be moved and destroyed in another location, or that it should be temporarily stored at another, more secure, location. In these instances, NSCMP is responsible for preparing a transportation plan. The transportation plan typically lays out, in detail, where the item is to be moved, the route it will take, the mode of transportation (such as UH-1 helicopter, 2½ ton truck, etc.), the responsible parties and their roles, and the timing for the operation. Of obvious necessity, these plans are normally kept at an official level and are not publicized for security. They are coordinated thoroughly with local, state and federal officials (local police or fire professionals, and state environmental regulators) who are involved in the operation. The plan must be approved by both the location from which the items are leaving and the location to which the items are going. In the case of overflights, the states being overflown are notified. Transportation plans also must be approved by the appropriate authorities in the DoD. Notification of Congress is required by public law. (50 USC 1512)

5.7. Decision-making and Notification

Emergency response situation decision-making responsibilities are less dispersed than decision-making during planned cleanups in order to allow for a quicker response and less complex coordination between those involved in the response. This does not mean, however, that the designated authorities can take action without notifying and consulting and in certain situations i.e., those states where CWM is governed by state environmental regulations, receiving approval from federal, state, and/or local regulatory agencies. This includes agencies like the EPA, the U.S. Department of Health and

Human Services, the Federal Emergency Management Agency, and state and local environmental and emergency response agencies that work directly with the impacted community and its citizens.

There may be less likelihood of extensive public involvement mechanisms such as those used for normal CERCLA or RCRA actions due to the need for swift action to stabilize the emergency situation. The PAO of the affected installation or the district office of the USCAE, if the CWM is located at a FUDS site, will, in coordination with federal, state and local regulatory agencies, take the lead to keep citizens in the affected communities informed of emergency response activities. The CMA public outreach and information office (POIO) supports the installation or USACE PAO as needed.

5.8. Response Guidance Principles

In March 2002, after discussing at length the way in which chemical warfare materiel is recovered and what constitutes an "emergency," the Core Group, created by consensus, a list of Response Guidance Principles for consideration by any government agency. The principles are neither a rule, official procedure or policy, but they do clearly state the shared priorities of stakeholders, citizens and government agencies alike and as such, may be helpful when munitions are recovered.

1. Once regulatory mechanisms are identified, alternatives should be explored to determine the optimal framework within which to work. This approach satisfies the intent of the National Environmental Policy Act (NEPA) and other regulations under which government agencies are asked to look at alternatives.

2. The safety of DoD and other response personnel is paramount.

3. The safety of nearby communities is paramount. When determining a destruction technology, communities should expect to be protected from chronic exposure to hazardous contaminants as well as acute exposures in the event of an emergency.

4. Public and regulatory participation will be maximized while recognizing the security of the site. Agencies are required to undertake public participation measures. Furthermore, it is in the best interest of the agencies to conduct meaningful involvement from citizens as it creates the climate in which solutions can be found.

   Meaningful involvement may be defined as instances where two-way dialogue is taking place (as opposed to one-way information sharing); where a diverse cross-section of the public has been asked to participate in the dialogue (with emphasis on environmental justice populations); and where there is clear evidence that the decision-making agencies intend to act on constructive criticism received from citizens and stakeholders.

5. All destruction/treatment options will be fully assessed in an open, transparent manner. An assessment of alternatives should be based on actual technology performance data in a consistent, analytical format. Alternatives assessments should be based on, or at least refer to, technology criteria already developed for assessment of other chemical weapons treatment technologies.

CHAPTER 6

PLANNED REMEDIATION PROCEDURES

The most likely locations of planned remediation activities are on active military installations, Base Realignment and Closure (BRAC) sites or at Formerly Used Defense Sites (FUDS). While the management structure of remediation activities on active installations, BRAC sites and FUDS sites will differ due to the different command structures in place (U.S. Army Corps of Engineers (USACE) executive responsibility at BRAC and FUDS and installation commander executive responsibility at active installations), the procedures for remediation activities basically are the same. This chapter gives an overview of the Army command structure for planning and preparing for non-stockpile chemical warfare materiel (CWM) remediation and the four major steps in the remediation process.

Due to the Army's restructuring in 2003, the roles and responsibilities of many of the agencies have changed or in the process of reorganization. For example, Soldier and Biological Chemical Compound (SBCCOM) duties have just recently been allocated to three divisions, the U.S. Army Research Development and Engineering Command (RDECOM), the Chemical Materials Agency (CMA), and the Guardian Brigade. Although, the general missions of each division are noted below, the specific duties are in the process of being defined. RDECOM's mission is to develop and field technologies for the Army. CMA combines the Army's chemical stockpile demilitarization and storage functions under a single entity. The Guardian Brigade will provide the Army with a specialized and tailored response force in the event of an attack involving the use of weapons of mass destruction. It also will provide a more effective and responsive command and control of chemical and biological operational assets, eliminate redundancies, and more closely manage unique and limited resources. In addition, it will deploy responders supporting DoD, federal, state, and local agencies to prevent, contain, stabilize or terminate a WMD incident.

Table 6.0. Overarching Non-Stockpile CWM Program Responsibilities (as of 9/03)

Assistant Secretary of the Army (Installation and Environment) (ASA(I&E))
• Establish overall Army environment, safety, and occupational health policy. • Oversight of all aspects of environment, safety, and occupational health statutory compliance.
Director of Army Safety, Office of the Chief of Staff, U.S. Army
• Establish safety policy and standards for the Army chemical safety program and for investigation of chemical defense research, development, testing, and evaluation events. • Coordinate and approve safety waivers and exemptions to personnel safety policies. • Approve Site Safety Submissions for non-stockpile CWM activities. • Conduct pre-operational surveys for non-stockpile CWM activities.

Table 6.0. Overarching Non-Stockpile CWM Program Responsibilities (as of 9/03) (Continued)

Army Surgeon General (OTSG)

- Provide policy on health aspects of pollution resulting from Army activities and operations.
- Provide guidance, including educational materials, on
  - Environmental health
  - Mitigation and control of adverse impacts
  - Protection of individuals from hazardous exposure
  - Health risk assessments for environmental restoration
- Develop toxicological profiles concerning military-unique chemicals and unregulated hazardous substances.
- Establish environmental standards for chemical agents and weapons demilitarization.
- Develop and prepare chemical exposure and drinking water criteria for environmental contaminants.
- Conduct toxicity studies and develop health advisories and standards, criteria, and protocols for chemical exposure and drinking water.
- Approve health risk assessments.
- Establish public health criteria and standards for Army use.
- Recommend standards for the safe storage, use, discharge, and disposal of hazardous materials.
- Monitor the public health and environmental aspects of the Army's waste management programs.
- Advise the USACE on the health aspects of managing hazardous and solid waste.
- Provide guidance to the Army Staff, Major Area Commands, and executing agencies to promote compliance with the occupational health requirements.
- Serve as the Army liaison with the U.S. EPA and the Agency of Toxic Substances and Disease Registry of the Department of Health and Human services regarding health related issues in the installation restoration (IR) and Formerly Used Defense Sites (FUDS) programs.
- Evaluate and provide consultation on installation restoration (IR) and FUDS program proposals affecting human health.
- Provide assistance in development of relevant and appropriate requirements for installation restoration (IR) and FUDS program activities and develop or review removal criteria for remedial actions.

Table 6.0. Overarching Non-Stockpile CWM Program Responsibilities (as of 9/03) (Continued)

Assistant Chief of Staff for Installation Management (ACSIM)

- Provide guidance on the application of environmental policy for non-stockpile CWM response and recovery activities (the U.S. Army Environmental Center will provide program oversight for the Assistant Chief of Staff for Installation Management (ACSIM)
- Oversight responsibility, through the Director of Environmental Programs, for all aspects of planning, programming, budgeting, and execution of Army Defense Environmental Restoration Account funds administered through the Defense Environmental Restoration Program.

Deputy Chief of Staff for Logistics (DCSLOG)

- Develop policy and guidance for transporting chemical agents, related materiel, and recovered non-stockpile CWM.
- Develop policy and guidance for EOD support for non-stockpile CWM operations.

Responsibilities formerly under SBCCOM, now under CMA, RDECOM, and Guardian Brigade

- Provide technical support and assistance to all DoD elements in evaluating the risk management posture of an operation and assist the Army in formulating chemical risk management policies.
- Provide the Technical Escort Unit (TEU) for intrusive operations in accordance with established procedures.
- Provide the Edgewood Chemical and Biological Center for characterizing and monitoring non-stockpile CWM.
- Provide air transport for recovered non-stockpile CWM if needed.
- Provide the chemical response force commander/federal on-scene coordinator for a tier two emergency response where no other Army official exists.
- Provide the chemical response force commander/federal on-scene coordinator for a tier three emergency response.
- Provide for the emergency destruction of recovered non-stockpile CWM.
- Provide technical assistance on non-stockpile CWM safety.
- Assist in performing non-stockpile CWM safety management evaluations.
- Provide expertise on chemical safety and health, chemical agent operations, and accident incident response.

Table 6.0 gives an overview of the major Army agencies involved in overall CWM oversight along with the responsibilities of those agencies. When operations are being conducted at a specific non-stockpile CWM site, the agency with overall project responsibility and the support agencies must coordinate their activities with the Army agency responsible for oversight in those operations being conducted. For example, at a FUDS non-stockpile CWM site the USACE prepares a Site Safety Submissions. This document is coordinated with all of the agencies that are involved in the project such as the USACE Geographic District, NSCMP, the Edgewood Chemical and Biological Center and the Army TEU. Once everyone has agreed to the content of the document, it is sent to the U.S. Army Technical Center for Explosive Safety for review and concurrence. It is then sent to the Army Safety Office for approval and staffing with other Army agencies.
It then goes to the DoD Explosive Safety Board for final approval before any earth is turned.

Readers will also find below, and within each subsection, charts that list the different responsibilities of NSCMP, SBCCOM (RDECOM, CMA, or Guardian Brigade), *USACE, and installation personnel when CWM is found at an active installation and a FUDS site. Those readers interested in CWM cleanup at a particular FUDS or active installation site will find these charts helpful.*

In addition to these key military agencies and offices with overall non-stockpile CWM program responsibilities are the agencies and military programs given the responsibilities of actually carrying out the non-stockpile CWM recovery and remediation operations. The USACE, and their higher headquarters/ installation commanders, SBCCOM (RDECOM, CMA, or Guardian Brigade) and the NSCMP are the main parties with either overall operations or major support responsibilities during non-stockpile CWM activities.

6.1. The Planned Remediation Process

In general, most recovered non-stockpile CWM will be managed under the requirements of the RCRA and/or the CERCLA. The EPA and the authorized states are responsible for implementation of the regulations and requirements associated with these statutes. The goal of both programs is basically the same, the cleanup of contaminated environmental media (i.e., soils, water and air) to levels that are protective of human health and the environment and to minimize or eliminate the future release of hazardous waste or substances to the environment. The RCRA program deals with the management of hazardous waste at industrial/ military sites that were generated after 1980 while the CERCLA program typically deals with closed, inactive, abandoned or pre-RCRA (pre-1980) disposal sites. Some active military bases have both RCRA and Superfund actions going on simultaneously at various sites around the installation. In addition, other types of approvals and/or permits may be required from other environmental programs (e.g., air, water) and by other governmental authorities (e.g., city, county) depending on the type of action planned.

Most states are authorized to implement the RCRA program in lieu of the EPA, so they will have the lead role in any RCRA permitting related matters that need to be addressed at a site within their jurisdiction. The CERCLA program is not a federally delegated program, but many states have a similar program to address the cleanup of abandoned waste sites.

Figure 6.1. General Program Responsibilities for a Planned Removal at a Military Installation/ FUDS Site – Coordination Between USACE/IMA, SBCCOM*, and PM ECW/NSCMP (as of 9/03)

KEY
(F) - responsibility at FUDS Site only
(MI) - responsibility at Active Military Installation only
(USACE/F)- US Army Corp responsibility at FUDS site only
(IMA/MI) - IMA responsibility at Military Installation only
SBCCOM*-Responsiblity may fall under CMA, RDECOM, or Guardian Brigade

	USACE / IMA	Formerly under SBCCOM	PM ECW/NSCMP
Primary Responsibilities	• Overall project and on-site management • Coordinate with PM ECW/NSCMP to establish a comprehensive occupational health program in compliance with applicable Occupation Safety and Health Act and Department of Army standards • Develop formal safety and health programs • Develop and coordinate all plans and procedures, including environmental monitoring plan, for the site characterization, recovery, remediation, and site closure • Responsible for reporting chemical events/significant activities. • Provide overall physical security • Coordinate non-stockpile CWM response activities with USACE • Notification to and liaison with regulatory agencies • Develop environmental documentation • Public affairs activities • Budgeting • Manage real property rental requirements of both NSCMP and SBCCOM* • Obtain rights of entry onto private property	• Develop formal safety and health program for SBCCOM* operations • Ensure that all chemical treaty compliance activities are in agreement with Chemical Weapons Convention provisions • Provide expertise on chemical safety and health, chemical agent operations, and accident/incident response (MI)	• Design and procure equipment to be used to treat (destroy) excavated/recovered CWM on-site • Develop formal safety and health program for PM ECW/NSCMP CWM operations • Develop and coordinate all plans and procedures, including a quality assurance program, required for the treatment, temporary holding, and transportation of CWM • Coordinate with the U.S. Department of Health and Human Services all plans and documentation relating to excavation, treatment, and off-site transport of CWM • Coordinate with USACE to establish a comprehensive Occupational Health Program in compliance with applicable Occupational Safety and Health Act and Deptartment of the Army standards (F) • Provide real property rental requirements to the USACE (F)
Support Responsibilities	• Assistance in maintaining and securing CWM holding area, as designated by PM ECW/NSCMP. • Develop a participant quality assurance program plan (PQAPP) in coordination with P.M. ECW/NSCMP Quality Assurance (QA) Program Plan.	• Provide USACE with consultative support for public affairs activities (F) • Review technical adequacy of OHP for plans involving SBCCOM* personnel (F) • Overall technical support for monitoring excavation, CWM removal, packaging, security, transportation, and escort • Direct support in the event of emergency response requirements, including notification requirements • Develop a PQAPP in coordination with PM ECW/NSCMP QA program plan • Coordinate with USACE/IMA on plans and procedures, including environmental monitoring plan, required for site characterization, recovery, remediation, and site closure to ensure compliance with Federal, state, and local policies and regulations	• Support notification and reporting of chemical events/significant activities, including notification to the U.S. Department of Health and Human Services. • Coordinate with USACE/IMA on plans and procedures, including environmental monitoring plan, required for site characterization, recovery, remediation, and site closure to ensure compliance with federal, state, and local policies and regulations.

Most remedial actions for non-stockpile CWM will involve very small quantities of materiel and will be addressed from an environmental regulatory standpoint as a Superfund Emergency Response, Superfund Remedial Action, under a RCRA Emergency Permit, or in accordance with some type of Consent Agreement/Order. Once it has been decided to address nonstockpile CWM under Superfund authority at a site, no RCRA permit will be required. However, applicable RCRA requirements for the transportation, treatment, storage or destruction of hazardous waste or waste residues will have to be followed.

In a situation where non-stockpile CWM is discovered at an active military installation that already has a RCRA permit or is undergoing other remediation activities under CERCLA, it may be possible to address the materiel by modifying the existing RCRA permit or expanding the CERCLA action.

The planned remediation process, whether it be RCRA or CERCLA, normally has four distinct phases with specific procedures that must be followed before and during each phase. The four phases in a planned remediation are listed below and described in the following subsections:

1. Site investigation/Assessing risk
2. Developing remedial aternatives
3. Selecting, designing and implementing cleanup action
4. Long-term monitoring/Site close-out

6.1.1. Planning for Site Remediation

The first phase of the remediation process includes research into past operations to gain as much information about potential contamination as possible. This usually involves a records search and surface and subsurface characterization to identify the areas of potential CWM contamination. Based on data obtained from the site characterization, an assessment of risk is developed. This phase also begins a targeted effort to inform and involve local citizens of the potential for non-stockpile CWM remediation activities at that site.

The field investigation included in the site investigation usually involves some sub-surface excavation or other assessment activities, but before any earth is turned the agency with overall project responsibility for the remediation must have site safety and health plans and procedures in place. In addition, a site safety submission (SSS) must be coordinated with and submitted to the appropriate military offices along with appropriate federal, state and/or local government agencies before the site investigation is initiated. An SSS serves as the specifications for conducting work activities on site. Any proposed change in the responsibilities, procedures and controls outlined in an SSS during remedial activities must be approved.

The order of the four options above are preferences expressed in the regulations. Ultimately, the decision on what to do with the recovered non-stockpile CWM is site specific and includes input from different military and civilian entities to the military installation or the U.S. Army Corps of Engineers authorities responsible for managing and cleaning-up the non-stockpile CWM burial and storage sites.

Figure 6.1.1 Phase One Responsibilities–Preliminary Assessments and Site Investigations to Identify Potential Contamination and Determine the Extent and Nature of Contamination. (Non-intrusive) (as of 9/03)

KEY
(F) - responsibility at FUDS Site only
(MI) - responsibility at Active Military Installation only
(USACE/F)- US Army Corp responsibility at FUDS site only
(IMA/MI) - IMA responsibility at Military Installation only
SBCCOM*-Responsiblity may fall under CMA, RDECOM, or Guardian Brigade

	USACE /IMA	Formerly under SBCCOM	PM ECW/NSCMP
Primary Responsibilities	• Develop site characterization and remediation plans and award contracts. • Execute site characterization work. • Responsible for conducting public meetings and meetings with regulators and public officials. • Coordinate public affairs activities with PM ECW/NSCMP on matters associated with CWM. • Conduct archival searches for site-specific information and reports on suspected CWM and provide reports to PM ECW/NSCMP and SBCCOM*.		
Support Responsibilities		• Review USACE/IMA site plans. • Review USACE/IMA plans for the site characterization effort, as requested. • Provide consultative support to USACE/IMA for meetings with regulators and officials. • Provide consultative support to USACE/IMA for archival document searches and during preparation of site remedial studies.	• Review and Comment on USACE/IMA site plans. • Provide public affairs support and support for meetings with regulators and officials as required for site characterization. • Provide support for retrieving CWM archival info and reports on suspected CWM.

Figure 6.1.2 Phase Two Responsibilities–Engineering Evaluation/Cost Analysis to Include a Field Investigation and Evaluation of Removal Alternatives (as of 9/03)

KEY
(F) - responsibility at FUDS Site only
(MI) - responsibility at Active Military Installation only
(USACE/F)- US Army Corp responsibility at FUDS site only
(IMA/MI) - IMA responsibility at Military Installation only
SBCCOM*-Responsiblity may fall under CMA, RDECOM, or Guardian Brigade

	USACE /IMA	Formerly under SBCCOM	PM ECW/NSCMP
Primary Responsibilities	• Develop risk assessment for intrusive site characterization activities and recovery of the CWM. • Coordinate the submittal of the SSS with appropriate agencies. • Prepare site remedial studies with input from PM ECW/NSCMP and SBCCOM*. • Develop medical support, emergency response, and safety plans for field investigation stage.	• Provide monitoring for chemical agents at the site during all field investigation operations in direct support of USACE/IMA and PM ECW/NSCMP, if requested.	• Identify and develop requirements for an on-site temporary holding facility for recovered CWM. • Develop the environmental monitoring requirements for treatment, storage, and transportation operations that involve CWM. • Develop on-site lab requirements to support treatment and/or storage of CWM. • Develop the risk assessment for the treatment and/or off-site transportation of CWM. • Develop public affairs plan and provide, in support of USACE/IMA, public affairs support associated with the temporary holding, disposal, and off-site transport of CWM.
Support Responsibilities		• Provide USACE/IMA with consultative support in development of risk assessments. • Provide PM ECW/NSCMP with consultative support in the development of environmental documentation. • Provide USACE/IMA and PM ECW/NSCMP with consultative support in the development and implementation of monitoring plans. • Provide USACE/IMA with consultative support in the development of emergency preparedness plans. • Provide USACE/IMA and PM ECW/NSCMP with consultative support in the preparation of treatment plans.	• Support and assist USACE/IMA in developing the risk assessment for intrusive site characterization activities and recovery of CWM. • Support USACE/IMA in developing environmental and associated lab requirements for the site characterization phase of on-site operations.

6.1.2. Developing Remedial Alternatives

The second phase involves identifying appropriate response actions to address a CWM risk at a project site. The determination of the recommended response action alternatives occurs following the completion of a site investigation/assessment of risk of CWM hazards present at the site.

6.1.3. Selecting, Designing and Implementing Cleanup Action

Following approval by federal, state and local regulatory agencies, and the Army Safety Office, a proposed remedy is described in a RCRA Closure Plan or a CERCLA Record of Decision. The decision document details a choice of action that ultimately results in either containing and treating the CWM on-site or removing the CWM from the site for treatment or destruction. A Department of the Army document–titled *Interim Guidance for Biological Warfare Materiel (BWM) and CWM Response Activities* lists the general preferences for the final disposition of recovered non-stockpile CWM. In order of preference, they are:

1. On-site treatment
2. On-site storage
3. In-state storage at the nearest military facility while awaiting future disposition
4. Out-of-state storage while awaiting future disposition.

Both of the storage options are temporary measures and off-site transportation of non-stockpile CWM is highly regulated and limited. In order to increase the capacity for on-site treatment, the Army implemented the NSCMP to develop safe methods and systems to destroy non-stockpile CWM. The NSCMP is responsible for processing and treating non-stockpile CWM.

Actual operations require additional plans for each day's activities. These plans include the location of activities, the planned use of available resources, coordination of contractor activities, the daily sampling plan and other day-to-day operational activities.

6.1.4. Long-Term Monitoring/Site Closeout

The final phase of a CWM remediation operation comes when a decision has been made that all actions necessary or available to protect public health and the environment have been taken. Long-term monitoring can include additional field investigations, additional clearance, changes in land use controls and/or five-year reviews. The site closeout phase may actually be implemented after any of the other three phases if it is determined that no further action is necessary for example, no buried CWM was discovered during site investigation. The decision that no further action is required is documented and federal, state, and/or local authorities are given the opportunity to approve or disapprove of the decision. A public notice of the closeout is also posted.

6.2. Funding For Planned Recovery/ Remediation Operations

Funding for non-stockpile CWM removal and cleanup activities comes from two main sources. For non-stockpile CWM activities at FUDS and at active DoD installations conducting installation restoration programs (IRP), funding comes from the Defense Environmental Restoration (DERP) through its Defense Environmental Restoration Account (DERA). DERA is a DoD transfer account which funds DERP. DERA funds may be transferred from the central DoD

Figure 6.1.3 Phase Three Responsibilities – Removal Design / Removal Action (as of 9/03)

KEY
(F) - responsibility at FUDS Site only
(MI) - responsibility at Active Military Installation only
(USACE/F)- US Army Corp responsibility at FUDS site only
(IMA/MI) - IMA responsibility at Military Installation only
SBCCOM*-Responsiblity may fall under CMA, RDECOM, or Guardian Brigade

	USACE /IMA	Formerly under SBCCOM	PM ECW/NSCMP
Primary Responsibilities	• Develop medical support, emergency response, and safety plans for recovery/remediation stage. • Excavate the site to remove the CWM (if selected plan). • Coordinate with SBCCOM* for direct support to provide packaging of CWM into protective containers. • Conduct pre-operational surveys prior to excavation of the CWM site. • Treat any chemical agent contaminated soil or groundwater (USACE/F). • Place and operate sampling wells in and around sites (IMA/MI). • Develop work plan (IMA/MI).	• Maintain capability to respond to emergency situations involving CWM upon request. • Approve containers used to transport chemical agents and CWM. • Recover, package, and secure CWM for transport in direct support of USACE and PM ECW/NSCMP if requested. • Provide transportation and escort for CWM in direct support of PM ECW/NSCMP. • Provide monitoring for chemical agents at the site during all recovery operations in direct support of USACE / IMA and PM ECW/NSCMP, if requested. • Assist in developing the on-site lab requirements and provide the lab and necessary equipment for the recovery of CWM.	• Obtain the necessary federal, state, and local approval for temporary storage of CWM on-site and provide the necessary structures at the designated site, if necessary. • Develop an environmental monitoring plan for chemical agents and CWM during treatment, holding, and if required, transport, assuring compliance with federal, state, and local regulations. • Provide lab to support treatment and/or storage of CWM. • Provide containers for overpacking CWM. • Conduct pre-operational surveys prior to destruction of CWM on-site. • Develop medical support requirements and emergency response plans for on-site movement, treatment, or off-site transport of CWM.
Support Responsibilities	• Participate in pre-operational surveys. • Assist SBCCOM* with developing container design criteria (USACE/F). • Assist PM ECW/NSCMP with procurement of protective containers. • Provide support, as requested for transporting the CWM to an off-site location (if selected) (USACE/F). • Assist PM ECW/NSCMP, as requested, in developing the risk assessment for the treatment phase (if selected). • Assist PM ECW/NSCMP in developing on-site laboratory requirements. • Assist PM ECW/NSCMP in construction maintenance and security of a CWM holding facility (USACE/F).	• Participate in emergency response exercises. • Participate in preoperational surveys for assigned operations. • Support PM ECW/NSCMP, as requested, in developing environmental documentation and supporting studies to determine the method of transport and destination of CWM if off-site transport selected.	• Assist the USACE/IMA in locating a satisfactory site for CWM temporary holding facilities at the FUDS location. • Provide technical input to USACE/IMA site remedial studies. • Review and comment on USACE/IMA developed medical support, emergency response, monitoring, and safety plans for CWM recovery. • Coordinate and provide technical support to USACE on activities to excavate CWM (F). • Approve final packing of excavated CWM prior to storage or transport. • If transport selected, assist the selected storage location in obtaining federal, state, and local permits. • Support USACE in developing environmental and associated lab requirements for the recovery phase of on-site operations (F).

Figure 6.1.4 Phase Four Responsibilies – Site Closeout (as of 9/03)

KEY
(F) - responsibility at FUDS Site only
(MI) - responsibility at Active Military Installation only
(USACE/F)- US Army Corp responsibility at FUDS site only
(IMA/MI) - IMA responsibility at Military Installation only
SBCCOM*-Responsiblity may fall under CMA, RDECOM, or Guardian Brigade

	USACE /IMA	Formerly under SBCCOM	PM ECW/NSCMP
Primary Responsibilities	• Document the decision that all actions necessary or available to protect public health and the environment have been taken. • Inform federal, state, and local authorities of the decision and serve public notice of the closeout. • Restoring sites at close of remediation activities (IMA/MI).	• Provide technical escort functions for off-site shipment of recovered CWM.	• Provide transportation of recovered CWM to final disposal site.
Support Responsibilities	• Provide means for periodic monitoring for recovered CWM awaiting final transportation (USACE/F). • Provide necessary logistics support (USACE/F).		

account to any appropriations account. These funds must be used for the approved environmental restoration work plans.

The DERP provides for the cleanup of DoD hazardous waste sites except where funded by the BRAC program, consistent with the appropriate provisions of the CERCLA, National Contingency Plan, Executive Order 12580, and the RCRA. Detection and clearance of unexploded ordnance on active or inactive DoD military ranges is not eligible for the DERP unless it can be verified to present an imminent threat to human safety and is specifically approved for inclusion in the program by the Deputy Undersecretary of Defense (Environmental Security) (DUSD(ES)).

The DERP-FUDS program addresses contamination from hazardous and toxic materiels, including abandoned ordnance and explosive waste, chemical, biological, and low-level radioactive wastes at FUDS. The DUSD(ES) establishes the overall program policy and budget guidance. Regardless of which military service formerly controlled the property, the Army has been designated by DUSD(ES) to administer this program. The Assistant Secretary of the Army (Installation and Environment) (ASA(IL&E)) and Assistant Chief of Staff for Installation Management (ACSIM) are, respectively, the Army Secretariat and Army Staff proponents for the FUDS program. The FUDS program is managed and executed by the USACE. It is separate from the Army's IRP for active sites.

The IRP-active sites addresses contamination from hazardous and toxic materiels including chemical, biological, and low-level radiological wastes at active installations from past operations. The ASA

(IL&E) and the ACSIM are, respectively, the Army Secretariat and the Army Staff proponents for the IRP. Specific policy and guidance on management and execution of the IRP is provided in the current *Installation Restoration Program Management Plan* and the *Installation Restoration Program Guidance and Procedures Manual*.

If the DoD installation is scheduled for closure through the BRAC program then funds for non-stockpile CWM removal and cleanup activities come from the base closure account (BCA) funds. At closing installations, cleanup requirements consist of previously identified DERA requirements plus those cleanup actions required for property transfer. DERA funds transferred to meet previously identified DERA requirements plus additional funds from the Army's total obligation authority for the additional requirements constitute the BCA. BCA funds are managed by the Assistant Chief of Staff Installation Management BRAC Office.

The reality of budget limitations is that clean up of some sites will get priority over others. Generally speaking, sites that involve a transfer of real property out of DoD control (FUDS and BRAC sites), sites listed on the National Priorities List or proposed for listing by the EPA or sites determined to have other characteristics that require action will have priority and funding will be distributed accordingly. As an example, the BRAC cleanup program must comply with the Deputy Under Secretary of Defense (Environmental Security) policy guidance for Fast Track Cleanup. Other technical evaluations are used to prioritize clean up activities, including the Relative Risk Site Evaluation (RRSE) framework and the Risk Assessment Code (RAC) framework. For responses to address military munitions (i.e., unexploded ordnance or military munitions, to include CWM) additional factors such as the availability of technology to detect, discriminate, recover, and destroy these munitions is also considered.

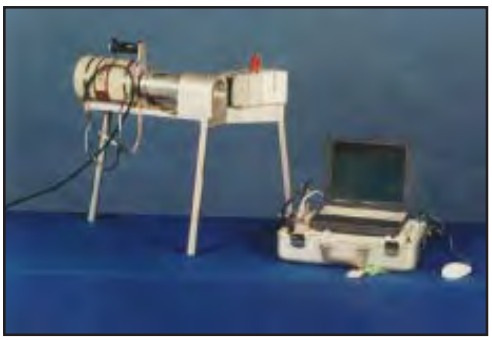
RESEARCH, DEVELOPMENT AND OPERATION OF CHEMICAL WEAPONS MATERIEL ASSESSMENT AND DESTRUCTION TECHNOLOGIES

The question of how to get rid of chemical weapons safely is as old as the weapons themselves. Antiquated approaches such as land or ocean burial fortunately abandoned decades ago have given way to more sophisticated and environmentally sound alternatives. Processes involving open burning and incineration have raised serious health concerns from citizens and the scientific community. The desire for ways to contain and control chemical agents have resulted in the development of a set of technologies that are more acceptable to the general public.

The technology development world is constantly changing; that is, some technologies that show initial promise turn out to be not as effective, while other chemical agent destruction methods are emerging. This section describes non-incineration technologies that are 1) currently being used or tested by Non-Stockpile Chemical Materiel Product (NSCMP) to detect or treat non-stockpile chemical materiel; or 2) are being tested and/or considered for treatment of secondary wastes associated with non-stockpile materiel.

7.1. Portable Isotopic Neutron Spectroscopy

The Portable Isotopic Neutron Spectroscopy (PINS) system is a non-intrusive instrument that analyzes recovered munitions without opening or disturbing them. This portable identification technology allows for the safe handling and analysis of munitions with unknown contents.



The PINS system uses three components to identify elements inside a munition: (1) a neutron source; (2) a gamma ray detector; and (3) a multi-channel analyzer. The neutron source is placed near the item being analyzed. As the neutrons penetrate and interact with the munition, gamma rays, which are similar to x-rays, are produced. A gamma ray detector then monitors the energies and intensities of the gamma rays. A multi-channel analyzer receives electrical impulses from the gamma ray detector and also serves as a power source to the other equipment.

Information received by the analyzer is sorted and converted into an energy spectrum that is analyzed. Since different elements produce characteristic energy spectra, the analysis can predict the presence and relative concentration of specific chemical elements.

7.2. Mobile Munitions Assessment System

The Mobile Munitions Assesment System (MMAS) is a transportable truck and trailer system equipped to analyze and provide on-site information about the contents of unidentifiable munitions without opening them. It is designed to take equipment and instruments to the field,

provide analyses and communicate information to response personnel.

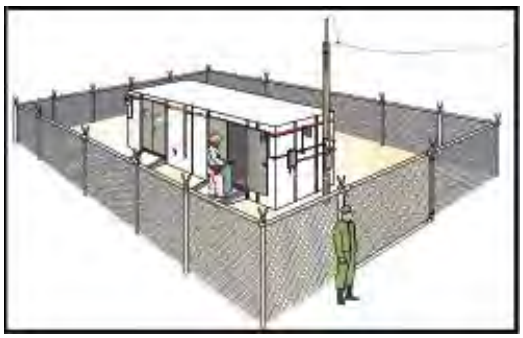
The MMAS uses the PINS, as well as a portable x-ray device, to assess conventional or chemical-filled munitions. An on-board darkroom can rapidly process x-ray film. Two large masts equipped with meteorological sensors constantly monitor weather conditions, and cameras monitor all activity around the site. The MMAS includes a portable electric generator which allows it to remain at a site for months with a constant power supply.

Data generated by the MMAS is stored in redundant computer systems, which have battery backup to ensure that no data are lost. A satellite link, cellular phone and short-wave radio ensure that proper officials and local emergency responders have access to all information. The MMAS is also equipped to decontaminate personal protective gear and suits if necessary.

The MMAS can be transported by a C-141 cargo aircraft, if necessary, and then driven to a site. The system is equipped to provide access to sites with varying types of terrain. Once at a site, the MMAS can be set up in as little as 25 minutes.

7.3. Interim Holding Facility

IHFs provide safe, secure, environmentally acceptable temporary storage for recovered and packaged chemical warfare materiel. These



reusable, portable structures are used whenever conventional munitions storage facilities, such as ammunition bunkers or magazines, are not available. Each IHF is constructed of corrosion-resistant, fireproof material and has a secondary containment area below the floor to safely hold leakage should it occur. An air conditioning system maintains or reduces internal temperatures to reduce vapor hazards of stored materials. Light switches and fixtures, outlets and air conditioners meet strict, non-explosive design requirements to reduce the risk of fire inside the IHF.

The IHF has double-locked security that includes a fenced area. Security and agent monitoring are maintained until the recovered materiel is relocated for treatment.

7.4. Explosive Destruction System

The Explosive Destruction System (EDS) is a transportable system designed to safely detonate munitions inside a sealed pressure vessel and neutralize their chemical agents while maintaining worker and public safety. The EDS is specifically designed to handle World War I and World War II era munitions that are explosively configured and unsafe for transport or storage. Its versatility provides promise that it will be useful for treatment of other types of CWM.

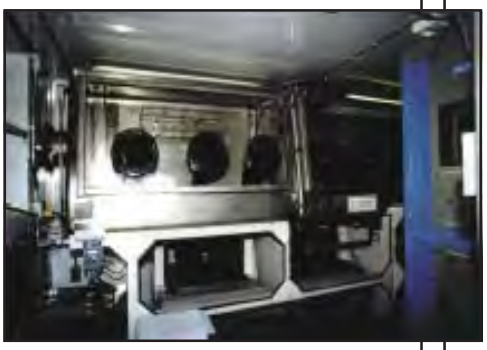
The EDS pressure vessel contains all agent and waste from the munition. A cylinder-shaped fragment suppression system allows the EDS to withstand repeated explosions without damage to the pressure vessel, while totally containing old agent and waste from munitions. A munition is placed inside the fragment suppression system and sealed inside the EDS pressure vessel.

Explosive charges placed on the munition break it open and detonate the burster. After the munition is opened, a sample is taken to verify the type of chemical fill. If agent is present, neutralization chemicals are added to the vessel and it is heated and rocked to mix the contents. After the neutralization process is complete the vessel is emptied. Only small pieces of the munition, the fragment suppression system, and the cradle remain after detonation. All waste from the vessel is disposed of according to applicable federal, state and local laws.

The EDS Phase I, the first version of the Explosive Destruction System, was fabricated and accepted for systems testing in 1999. This system has the capacity to handle all mortar shells and small artillery projectiles. Fabrication of the EDS Phase II, for larger artillery shells, began in 1999. The first operation of the EDS was successfully completed in March 2001 to dispose of M139 Bomblets Filled with GB (Sarin, a non-persistent chemical nerve agent) at Rocky Mountain Arsenal, Colorado.

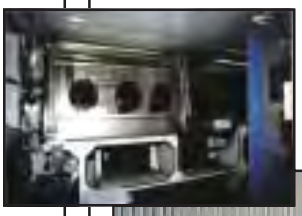
7.5. Rapid Response System

Rapid Response System (RRS) is a transportable treatment system that provides the capability to receive, contain, characterize, monitor, repackage and treat Chemical Agent Identification Sets (CAIS) recovered at burial or storage sites. CAIS were once used to train soldiers in the safe handling, identification and decontamination of chemical warfare agents. The sets consist of small quantities of chemical agents or industrial chemicals in glass ampules, vials or bottles.



The RRS uses two trailers: an operations trailer, where the glass containers are processed using a glovebox apparatus; and a utility trailer, which provides electrical power for the equipment. CAIS enclosed in steel overpack containers are first moved to the airlock station, where a sealed

environment is created. The overpack containers are cut open at the unpack station and the bottles and vials are removed and identified. At the neutralization station, chemical agent from the bottles and vials is mixed with a decontamination solution. Wastes are placed in drums, sampled and analyzed before they are transported to a permitted waste treatment and destruction facility. Air inside the glovebox passes through a dual redundant carbon filtration system to capture any contaminants before it is discharged. Air inside the operations trailer is continuously monitored for the presence of chemical agents and industrial chemicals to ensure worker and public safety. Whenever possible, the operations trailer is enclosed in a tent-like environmental closure as an added measure of protection.



7.6. Other Systems

The EDS and the RRS both use decontamination solutions to neutralize the chemical agents. The neutralization process is very effective in breaking apart the chemical bonds of the agent and significantly reducing its toxicity. This, however, is not the final step in the cleanup process. Mixing the chemical agent with the neutralent creates a waste stream that, while much less toxic than the original chemical agent, is still regulated as a controlled waste. Carbon filtration media is a secondary waste stream that has to be dealt with as well. The standard means of destruction of this waste stream is to ship it to a permitted waste treatment and destruction facility. NSCMP in keeping with its commitment to develop safe, environmentally sound, cost-effective and publicly acceptable destruction technologies, policies and practices is currently conducting research and development testing of multiple technologies that have the potential to process on-site and render safe the neutralent (secondary) wastes that are produced in the EDS and the RRS. Development of transportable secondary waste treatment technologies will reduce, and perhaps eliminate, the need to ship secondary waste streams off-site.

Another part of the research and development program being conducted by the NSCMP deals with finding technologies to either improve or replace existing systems, or to supplement them with systems which might handle items either smaller or larger than can be handled by the current systems. As of 2003, some examples of this are the Single Chemical Agent Neutralization System (SCANS), a small man-transportable combined chemical reactor and overpack, which can be used to destroy individual CAIS bottles or vials. The SCANS, if successful, will allow the Army to deal with small numbers of CAIS items without having to send out the entire RRS, greatly increasing speed of response and greatly reducing cost.

Another class of items being tested includes technologies for destroying larger numbers or larger sized chemical items (larger than a 155mm artillery projectile). A commercial item known as the Transportable Detonation Chamber (TDC) uses explosives to open the chemical round and destroy the chemical agent with the help of sophisticated pollution abatement technology. They will be tested during the year 2003 for

possible inclusion in the "tool box" of systems which are available for use to destroy recovered chemical munitions.

NSCMP is also testing the Batch Super Critical Water Oxidation (Batch SCWO) technology for use against individual CAIS or munition recoveries. In this case, the item would be placed into a pressure vessel similar to an EDS but even more substantially sealed, and heated to temperatures far beyond the boiling point of water known as the supercritical temperature range. In this temperature range, all chemical agents will break down in the presence of water into very simple and harmless compounds, which can be sent to a commercial water treatment facility. This technology, if it can be made to work, may replace other technologies for neutralization but it is at least several years away from practical application.

APPENDIX 1

NSCMP ACRONYMS THAT ARE FOUND IN THIS GUIDEBOOK OR IN MILITARY AND CIVILIAN REGULATORY, GUIDANCE AND PROCEDURES DOCUMENTS

5x	The state of agent decontamination after heating to 538° C (1,000° F) for 15 minutes, signifying that the material is clean of chemical agent and may be released from government control.
ACSIM	Assistant Chief of Staff for Installation Management
ACWA	Assembled Chemical Weapons Assessment
AE	Architectural Engineering
AFB	Air Force Base
ALT	Acquisitions Logistics and Technology
AMSAA	Army Materiel Systems Analysis Agency
APG	Aberdeen Proving Ground
APG CAC	Aberdeen Proving Ground, Citizen's Advisory Committee
APG RAB	Aberdeen Proving Ground, Restoration Advisory Board
APGSCC	Aberdeen Proving Ground Superfund Citizens Coalition
AR	Army Regulation
ASA (I&E)	Assistant Secretary of the Army (Installation & Environment)
ASARC	Army Systems Acquisition Review Council
ATSDR	Agency for Toxic Substances and Disease Registry
BCA	Base Closure Account
BRAC	Base Realignment and Closure
BWM	Biological Warfare Materiel
CAB	Citizens Advisory Board
CAC	Citizens Advisory Commission
CAIS	Chemical Agent Identification Set
CBDCOM	U.S. Army Chemical & Biological Defense Command
CBDCOM - ALT	U.S. Army Chemical & Biological Defense Command – Acquisitions Logistics & Technology
CEHNC	Huntsville Engineering and Support Center [Ordnance and Explosives Center of Expertise (CEHNC-OE-CX)]
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CEROX	Cerium metal oxidation process
CG	Phosgene, a nonpersistent chemical choking agent
CK	Cyanogen Chloride, a nonpersistent chemical choking agent
CMA	Chemical Materials Agency
CRA	Continuing Resolution Act
CSDP	Chemical Stockpile Demilitarization Plant
CWC	Chemical Weapons Convention

CWM	Chemical Warfare Materiel
DA	Department of the Army
DAAMS	Depot Area Air Monitoring System
DAB	Defense Acquisition Board
DAC	Defense Ammo Center
DCD	Deseret Chemical Depot
DCSLOG	Deputy Chief of Staff for Logistics
DDMT	Defense Depot Memphis Tennessee
DDOU	Defense Depot Ogden Utah
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DHHS	U.S. Department of Health and Human Services
DoD	U.S. Department of Defense
DD ESB	Department of Defense Explosives Safety Board
DOT	U.S. Department of Transportation
DUSD (ES)	Deputy Under Secretary of Defense (Environmental Security)
ECBC	Edgewood Chemical and Biological Center
EDS	Explosive Destruction System
EECA	Engineering Evaluation/Cost Analysis
EIS	Environmental Impact Statement
EJ	Environmental Justice
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FUDS	Formerly Used Defense Site
GA	Tabun, a nonpersistent chemical nerve agent
GB	Sarin, a nonpersistent chemical nerve agent
GD	Soman, a nonpersistent chemical nerve agent
GPCR	Gas Phase Chemical Reduction
H	Levinstein Mustard, blistering agent
HD	Distilled Mustard, a persistent chemical blister agent
HHS	U.S. Department of Health and Human Services
H/HS	Levinstein Mustard, a persistent chemical blister agent
HL	Mustard-lewisite mixture, blistering agent
HN-1	Nitrogen mustard 1, blistering agent
HN-2	Nitrogen mustard 2, blistering agent
HN-3	Nitrogen mustard 3, blistering agent
HT	Mustard-T mixture, blistering agent
HTW	Hazardous and Toxic Waste
IC	Incident Commander
IHF	Interim Holding Facility
IMA	Installation Management Agency
INEEL	Idaho National Engineering and Environmental Laboratory
IRFC	Initial Response Force Commander

IRP	Installation Restoration Programs
L	Lewisite, a chemical blistering agent
LAMS	Large Area Maintenance Structure
MACOM	Major Command
MAPS	Munitions Assessment and Processing System
MARB	Materiel Assessment Review Board
MEA	Monoethanolamine
MINICAMS	Miniature Continuous Air Monitoring System
MMAS	Mobile Munitions Assessment System
MOU	Memorandum of Understanding
MRC	Multiple Round Container
NCP	National Contingency Plan
NDAI	No DoD Action Indicated
NEJAC	National Environmental Justice Advisory Council
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NRC	National Research Council
NSCM	Non-Stockpile Chemical Materiel
NSCMP	Non-Stockpile Chemical Materiel Product
OB	Open Burning
OD	Open Detonation
OHP	Occupational Health Program
OSC	On-Scene Coordinator
OSHA	Occupational Safety and Health Administration
OT	Operational Testing
OTSG	Office of the Surgeon General
PAO	Public Affairs Office
PBA	Pine Bluff Arsenal
PBNSF	Pine Bluff Non-Stockpile Facility
PINS	Portable Isotopic Neutron Spectroscopy
PM NSCM	Product Manager for Non-Stockpile Chemical Materiel
PM ECW	Program Manager for Elimination of Chemical Weapons
POC	Point of Contact
POIO	Public Outreach and Information Office
PQAPP	Participant Quality Assurance Program Plan
QA	Quality Assurance
R&D	Research and Development
RAB	Restoration Advisory Board
RAC	Risk Assessment Code
RCRA	Resource Conservation Recovery Act
RCWM-ERP	Recovered Chemical Warfare Materiel Emergency Response Plan
RFP	Request for Proposal
RMA	Rocky Mountain Arsenal

ROD	Record of Decision
RRS	Rapid Response System
RRSE	Relative Risk Site Evaluation
SARA	Superfund Amendments and Reauthorization Act of 1986
SBCCOM	Soldier Biological Chemical Command
RDECOM	Research, Development & Engineering Command
SCANS	Single Chemical Agent Neutralization System
SCWO	Super Critical Water Oxidation
SECARMY	Secretary of the Army
SRF	Service Response Force
SSS	Site Safety Submission
TC	Ton Container
TDC	Transportable Detonation Chamber
TEU	U.S. Army Technical Escort Unit
TOA	Total Obligation Authority
TSDF	Treatment, Storage and Disposal Facility
UPE	Ultrasonic Pulse Echo
USACE	United States Army Corp of Engineers
UXO	Unexploded Ordnance
VCS	Vapor Containment Structure
VX	Persistent nerve agent

APPENDIX 2

DOCUMENTS RELATING TO NON-STOCKPILE CWM

ORDNANCE REMEDIATION DIRECTIVES

SARA SEC 211

- Directs the Secretary of Defense to establish a Program for Environmental Restoration
- States that the program shall be known as the Defense Environmental Restoration Program (DERP)

GUIDANCE FOR INVOLVED ENTITIES

OASA (I,L & E) Memorandum, Dated 4 September 1997, *Interim Guidance for Biological Warfare Materiel (BWM) and Non-stockpile Chemical Warfare Materiel Response Activity*. (Ray Fatz Letter)

Office of the Director of Army Safety Memorandum, Dated 19 March 1998, *Applicability of Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activity Interim Guidance*.

USACE Memorandum Date 13 April 1998, *Applicability of Biological Warfare Materiel and Non-stockpile Chemical Warfare Materiel Response Activity Interim Guidance*.

MOU among PMCD (NSCMP), USACE, and U.S. Army Chemical and Biological Command (CBDCOM), dated 15 August 1996.

AR 50-6—Chemical Surety Regulations (Chap. 4,10,11) and DA Pamphlet 50-6

Installation Restoration Program Management Plan and the *Installation Restoration Program Guidance and Procedures Manual*

SAFETY REGULATIONS - MILITARY

AR 385-61—Chemical Safety

- Worst Case Scenario
- Assumptions are used that Result in More Severe Consequences Rather than Assuming Operational Controls will Function as Designed
- Realistic or Believable Occurrence
- Basis for Developing Public and Worker Safety Procedures & Medical Support Requirements

AR 385-xx—Draft changes to AR 385-61

AR 385-10—Probability rankings for suspected CWM sites

ENVIRONMENTAL REGULATIONS - MILTARY
AR 200-1 and AR 200-2—Environmental Protection and Enhancement
AR 405-90 Disposal of Real Estate

SECURITY
AR 190-11—Category II ammunition

USACE
ER 1110-1-8153—Ordinance and Explosives Response

ENVIRONMENTAL REGULATIONS - CIVILIAN
"CERCLA/Superfund Orientation Manual", EPA Pub 542/R-92/005, October 1992
"Guidance to Conducting Non-TCRAs Under CERCLA", EPA Pub 540/R-93/057, August 1993
National Contingency Plan 40 CFR 300

RCRA—40 CFR Parts 260-270

SciTech, 1998

APPENDIX 3

LETTER FROM NON-STOCKPILE CHEMICAL MATERIEL PROGRAM CORE GROUP

To: The Product Manager, Non-Stockpile Materiel Program
From: Non-stockpile Materiel Program Core Group Participants
(List of Names and Affiliations attached)
Date: December 13, 2002
Subject: Guide to Non-Stockpile Chemical Warfare Materiel

In 2000, the Core Group* identified the need for a document to provide basic information about Non-Stockpile Chemical Warfare Materiel and the Army's program to safely manage and ultimately dispose of this materiel. With particular encouragement from NSCMP and Office of the Secretary of Defense members on the Core Group, a sub-committee was formed to draft language at the request of the full group.

After nearly two years of intensive review, the Core Group has reached consensus in guidebook language with input from Army, federal and state regulators, and citizen members. In producing the Guidebook, we recognize there are a series of options and decision-making points in each circumstance that could be influenced by a variety of technical, regulatory, or community based issues and all aspects of any actions. Recognizing such, we emphasize that the views expressed in the Guidebook are not official government policy or position, nor was that its original intent. Rather, this meets the need for a document that provides overview information about Non-Stockpile CWM and the Army's program to safely manage and ultimately dispose of this materiel.

The information detailed in the Guidebook represents the supportive efforts of the Core Group, and we believe it will be helpful to a wide range of individuals and groups including citizens, elected officials, tribes and tribal governments, local, state and federal regulators, as well as military personnel.

** The Core Group members include DOD, DA, HQ EPA, State EPA, Native Americans, and Stakeholders.*

APPENDIX 4

NON-STOCKPILE CHEMICAL MATERIEL PROGRAM (NSCMP) CORE GROUP FACT SHEET

NSCMP asked The Keystone Center, a non-profit organization that works as a third-party neutral facilitator, to develop a public involvement mechanism that brings together various individuals who can share their perspectives with the NSCMP as it moves toward disposal of chemical materiel now located at non-stockpile sites. This effort is called the NCSMP Core Group.

CORE GROUP OBJECTIVES

The Core Group's objectives are to:

1) Support development of safe, environmentally sound, cost-effective, and publicly acceptable NSCMP disposal technologies, policies, and practices;

2) Promote cooperative working relationships among citizens, regulators, NSCMP, and other related Department of Defense Offices; and

3) Exchange information and opinions about areas of high concern to NSCMP and other stakeholders within the scope of NSCMP responsibilities.

The Core Group does not have the authority to make decisions for NSCMP. Rather, the Core Group provides input, exchanges information and views and undertakes initiatives to promote cooperative working relationships among stakeholders.

CORE GROUP MEETINGS ARE OPEN TO THE PUBLIC

Core Group meetings are held two to four times each year at different locations around the country. The meetings are open to the public. Opportunities for members of the public to address the Core Group are provided at designated times during Core Group meetings.

Core Group Subcommittees

Subcommittees are formed by the Core Group from time to time, to address specific issues. Subcommittees report to the Core Group and may include individuals who are not on the Core Group.

PARTICIPATION IN THE CORE GROUP

Core Group Membership

Core Group members are selected by The Keystone Center.

In order to provide a balanced perspective, the following types of interests are represented on the Core Group:

- The Program Manager for the Non-Stockpile Chemical Materiel Program and other NSCMP staff;
- State regulators with a particular interest in NSCMP issues;
- Environmental Protection Agency representatives concerned with NSCMP issues;
- Community and environmental activists concerned with non-stockpile chemical materiel issues, particularly those who live near a non-stockpile site; and
- Other Department of Defense programs such as the Corps of Engineers and Installation personnel.

Mission: The mission of the Non-Stockpile Chemical Materiel Program is to dispose of non-stockpile chemical materiel in a safe and effective manner. In order to do so, the NSCMP stresses the importance of engaging a spectrum of individuals and organizations that are involved in and potentially affected by the disposal of chemical materiel.

For information regarding the Core Group or other NSCMP activities, Please contact:

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Louise Dyson
Non-Stockpile Chemical Materiel Program
SFAE-CD-P
Building E4585
APG, MD 21010-4005
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For More Information about the NSCMP Core Group in particular contact The Keystone Center:

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