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CHEMICAL WEAPONS
STORAGE

Communities Are Not
Prepared to Respond to
Emergencies

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Mr. Chairman and Members of the Subcommittee:

I appreciate this opportunity to discuss the preliminary results of our ongoing work on the federal government's efforts to help local communities prepare for possible chemical agent accidents at its eight storage sites. This assistance is provided under the Army's Chemical Stockpile Emergency Preparedness Program (CSEPP). The Army established CSEPP in 1988 to improve emergency response in communities near the eight sites in the continental United States where chemical weapons are stored. Enclosure I shows these communities and their nearby populations. Over the next 10 years, the Army plans to build facilities at the storage site locations to destroy those weapons. Under a memorandum of understanding (MOU), the Federal Emergency Management Agency (FEMA) shares portions of CSEPP's program management with the Army.

State and local officials, in accordance with state law, have the primary responsibility for protecting the health and safety of the local communities in the event of an emergency involving chemical agents. Emergency management in any situation is made up of three phases: planning and preparation, response, and recovery. During the planning and preparatory phase, hazards are identified and mitigated and the resources needed to respond to an emergency are identified and obtained. In the response phase, resources are used to respond to an emergency situation. This phase may include such actions as alerting the community to the emergency and evacuating some portion of the population from the threatened area. Lastly, during the recovery phase, damage is assessed and repaired and people return to the area affected by the emergency.

In an emergency associated with chemical weapons, the substances released have the potential for great harm, and quick reaction is exceedingly critical. Chemical agents can move with the ambient air and, at some sites, can travel off the installation boundaries in minutes. For this reason the alert and notification systems, protective actions, protective gear, and automation appropriate to such an emergency may differ from those required to cope with other potential local emergencies.

My remarks today will address our review of CSEPP and, more specifically, our concerns regarding (1) the limited impact of CSEPP's assistance on communities' emergency response preparations and (2) the program's overall management weaknesses. Before I address our specific findings let me first summarize the results of our work.

RESULTS IN BRIEF

Even though CSEPP has used \$187 million in funding, the program has made little progress in achieving its main objective of

helping communities prepare for emergencies involving chemical agent release. The lack of progress is partly because of program management weaknesses such as fragmented authorities and responsibilities and weak controls over funds, leading to missed program milestones and delays in issuing guidance. As a result, communities near the eight chemical warfare agent storage sites are not prepared to respond to a chemical emergency. While participating communities have developed emergency response plans and participated in major emergency response exercises, they lack several important capabilities.

- They cannot quickly and effectively notify residents of a chemical accident and provide instructions on how the residents should respond.
- They can neither evacuate nor shelter-in-place those residents who would be immediately affected by a chemical accident.
- They cannot provide protective equipment to those emergency responders who would be expected to assist in evacuation, render aid and conduct decontamination, re-entry, and restoration operations.
- Finally, the participating communities cannot provide the medical response needed to handle and treat chemical casualties.

Local emergency planning and response officials repeatedly expressed concern over their communities' lack of readiness to respond to a major chemical accident. For example, one official told us that his county has no more response capability now than it did when CSEPP began.

The absence of emergency response capabilities in the communities we visited is due in part to weaknesses in CSEPP management. For example, approximately 5 years into the program, critical studies, such as the Chemical Agent Deposition Study, needed to develop definitive guidance on required emergency response actions and equipment have not been completed. In addition, many program tasks are behind schedule. Further, because of a lack of adequate financial controls, the Army and FEMA do not have reasonable assurance that CSEPP funds provided to the states and counties have been used for their intended purposes.

Improving the management of this program is critical to ensuring that communities can respond to a chemical accident, if one should occur. Better management is also needed to ensure the effective and efficient use of federal funds. According to a recent preliminary Army estimate, the CSEPP program will cost approximately \$696 million through 2003, the anticipated time when all unitary chemical weapons will have been destroyed. This

is an increase of \$582 million from the Army's original 1988 estimate of \$114 million.

PROGRAM OBJECTIVES AND RESPONSIBILITIES

The Defense Authorization Act of 1986 (P.L. 99-145) mandates that, in destroying the unitary chemical weapons stockpile, maximum protection should be provided for the general public. Such protection requires the coordination and cooperation of many federal, state, and local agencies and organizations at the eight sites in the continental United States where the Army stores-- and plans to destroy--chemical munitions.¹ While the Army considers the likelihood of a chemical release at one of its storage sites to be extremely small, the health effects of an accident can be very severe. Some of these munitions contain deadly nerve agents, which can disrupt the nervous system and lead to loss of muscular control and death. Others contain mustard agents, which blister the skin and can be lethal in large amounts.

Communities near the chemical weapons storage sites had little capability to respond to a chemical emergency when CSEPP funding began in 1988. Originally, the Army scheduled emergency preparedness improvements to support the beginning of weapons destruction at each of the eight storage sites. In 1988, when an Army study indicated that weapons storage posed a greater possibility of a catastrophic chemical release than did their destruction, the Army decided to provide emergency response capability as soon as possible at all sites.²

To do this, the Army sought FEMA's assistance because FEMA already had the infrastructure and experience needed to provide federal emergency response funds and assistance to states and counties. Under an August 3, 1988, memorandum of understanding worked out between the Army and FEMA, the Army is responsible for providing technical assistance and required resources in developing emergency response plans and related preparedness capabilities; integrating the on-site and off-site planning processes; ensuring that all emergency plans are adequate and can be readily implemented; and conducting site-specific hazard analyses for planning. FEMA is responsible for administering CSEPP funding to the states and localities, taking the lead in

¹The eight storage sites are Aberdeen, Maryland; Anniston, Alabama; Lexington, Kentucky; Newport Indiana; Pine Bluff, Arkansas; Pueblo, Colorado; Tooele, Utah; and Umatilla, Oregon.

²Final Programmatic Environmental Impact Statement, Chemical Stockpile Disposal Program, Aberdeen Proving Ground, Maryland, January 1988.

working with state and local governments in upgrading community response capabilities, and conducting training.

CSEPP was established to provide a framework of cooperation between FEMA and the Army. Its organization consists of a steering committee and six subcommittees organized by functional area, such as planning and exercises. The organization of CSEPP is depicted in enclosure II. CSEPP's overall objectives are to provide guidance, assistance, a variety of equipment, and training so communities can adequately respond to a chemical emergency. In the case of an emergency associated with chemical weapons, communities are dealing with an unusual hazard and need special assistance.

FEMA and the Army provide financial and technical assistance to support local preparedness, but state and local governments are responsible for developing and implementing emergency response programs for the local communities. Because of this, and because of the complex issues affecting the program, action under CSEPP requires the coordination of numerous federal, state, and local entities. CSEPP officials believe that the need to obtain consensus among the many program participants has contributed to program delays.

Funding for localities flows from the Army to FEMA Headquarters, through the FEMA regions, to the states and then to counties. Of the \$187 million in funding used by CSEPP through late June 1993, approximately \$57 million has been allocated to the Army. An additional \$130 million has been allocated to FEMA, including \$97 million that FEMA has released to the 10 states participating in the CSEPP program.

In CSEPP, defining emergency planning zones is an important preparatory step. CSEPP's emergency planning zones are the Immediate Response Zone, which includes areas most immediately affected by a possible release, and the Protective Action Zone, which lies beyond the Immediate Response Zone. In case of an emergency, immediate action must be taken to protect the lives of persons in the Immediate Response Zone. These preparations, including equipment, procedures, and actions, will be different than for the Protective Action Zone where people have a little more time to respond to an emergency. Enclosure III is a stylized illustration of the zone concept.

**DESPITE CSEPP, COMMUNITIES LACK
ESSENTIAL ELEMENTS OF EMERGENCY
RESPONSE TO CHEMICAL ACCIDENTS**

Our review determined that CSEPP has made some progress in assisting communities by helping to improve local planning for chemical emergencies and by establishing and implementing a series of emergency response exercises to test and improve

response capability. However, little progress has been made in other areas of the program. Our review indicates that communities near chemical storage sites are not adequately prepared to respond to a chemical emergency. Specifically, their preparedness did not include the essential elements described in general emergency response standards and in CSEPP program plans, standards, and guidance.

To illustrate these conditions I will discuss the lack of progress that has been made in four elements of effective preparedness: alert and notification systems, protective actions, protective gear, and medical response capability.

Communities Lack Alert and Notification Capability

In a chemical emergency the surrounding community must be alerted and protective actions must be taken, often within minutes. Sirens and tone alert radios can quickly alert officials, responders, and residents and tell them what protective actions to take.

As early as October 1989, program documents such as the Emergency Response Concept Plans identified the need for such alert-and-notification devices; current CSEPP planning guidance continues to stress the need for alert-and-notification systems. CSEPP's initial milestone was that alert-and-notification equipment would be installed and tested by October 1992 at all locations. Yet, as of March 1993, CSEPP-funded sirens and tone alert radios for alert and notification of the public were not in place in any of the nine Immediate Response Zone counties we reviewed.³ Officials at some sites, such as Pine Bluff and Tooele, expect to begin installing such equipment by the end of 1993.

Delays in acquiring and fielding sirens and tone-alert radios have occurred for several reasons. For example, disputes between some Immediate Response Zone counties and the state and/or FEMA over the numbers and placement of the sirens have disrupted attempts to field alert-and-notification equipment. In March of this year, Tooele County--an Immediate Response Zone County in Utah--refused to participate in a major CSEPP exercise until high-level CSEPP officials resolved an impasse with FEMA regarding the number of sirens to be located in the county. At the time of this controversy, Tooele County's Commissioners expressed their frustration in the following words: "FEMA's rejection and seemingly arbitrary and capricious decision on the

³These Immediate Response Zone counties were: Morrow and Umatilla Counties, Oregon; Benton County, Washington; Jefferson and Grant Counties, Arkansas; Tooele County, Utah; Pueblo County, Colorado; and Talladega and Calhoun Counties, Alabama.

IRZ/PAZ boundaries and the Alert and Notification System has clearly crossed the threshold of public safety." Also, local officials state that CSEPP's specifications for the tone-alert radios have contributed to delays in fielding equipment. For example, they said that specifications call for using a 7-year battery although few, if any, domestic manufacturers make radios that meet this specification.

Protective Action Options Are Insufficient

In an emergency, local officials must act quickly to decide what actions are appropriate to protect the community. Evacuation and sheltering-in-place are two basic protective action options. Although the CSEPP Management Plan of March 1990 stated that development of computer evacuation models for local policy makers to use in making protective action decisions would be completed by October 1990, this work is still ongoing.

Numerous documents, including the 1987 Emergency Response Concept Plan and the 1989 site-specific emergency response plans, have recognized that evacuation may not always be effective and that the option of sheltering-in-place may be needed.⁴ Nonetheless, CSEPP continues to emphasize evacuation over sheltering, has done little to help localities plan for sheltering, and has not supported it with CSEPP funds. The program has funded three evacuation-related computer models, but has given very little attention to sheltering-in-place.

Local officials in many counties have repeatedly reaffirmed the need for sheltering in place. These officials note that the proximity of residences and schools to the chemical storage sites may make evacuation impossible. For example, there are 34 schools within 9 miles of the Pine Bluff Arsenal and officials state that the closest dwellings are only about half a mile from the bunkers containing chemical agent. Likewise, officials of Morrow and Umatilla Counties in Oregon say that they would not have time to evacuate many residents near the depot because of a combination of proximity to the depot, lack of notification-and-alert equipment, and lack of transportation.

Further, our observations of CSEPP emergency response exercises indicated that sheltering-in-place was frequently the only available option. For example, during a CSEPP decision and control exercise at the Tooele site in Utah, county officials chose to tell residents nearest to the Army installation to stay inside rather than to evacuate because of insufficient time and means to evacuate.

⁴See Emergency Response Concept Plan, Chemical Stockpile Disposal Program, Aberdeen Proving Ground, MD, July 1987 and the site specific emergency response concept plans.

Lack of Protective Gear
Limits Response Capability

Protective gear consists of clothing for skin protection and masks for respiratory protection. The Army's 1987 Emergency Response Concept Plan acknowledged the need to provide emergency responders with protective gear. Also, CSEPP's draft guidelines for medically screening the population exposed to chemical agents state that emergency response and medical personnel should wear protective clothing. And, although the 1990 CSEPP Management Plan affirmed that CSEPP would complete its evaluation of the need for protective gear for civilian workers in October 1990, CSEPP is still studying this issue. CSEPP's evaluation of these two components of protective gear has followed separate lines of effort.

CSEPP program officials have acknowledged the need to provide first responders with some type of respiratory protection. In September 1991 CSEPP asked the Centers for Disease Control and Prevention (CDC) to determine what would be appropriate gear for civilian emergency responders.⁵ CDC began its examination of this issue in January 1992, and results are expected to be available in December 1993.

However, CSEPP is still studying the need for skin protection for first responders at the eight storage sites and has not issued guidance on the use of such gear, despite the evidence of earlier studies. According to CSEPP officials, they have not done so because the Army has not completed its ongoing study of the risk of chemical agent exposure for populations outside installation boundaries. CSEPP officials estimate that the study will be complete in October 1993.

Ultimately, the people in the affected communities would suffer most if first responders did not have protective gear because, without it, first responders could not protect and serve the public in the event of an accident. County and state officials in Oregon, Arkansas, Utah, and Washington have said that the lack of protective gear would hamper their response capabilities.

⁵Military gear is tested and approved for protection against chemical agent, but is not approved by the Occupational Safety and Health Administration (OSHA) for occupational use by civilians in the event of a chemical emergency. Therefore, CSEPP could not provide this readily available gear to civilian communities without a waiver from OSHA; this was not obtained. Rules regulating the safety and health of civilian employees in responding to incidents involving hazardous substances are contained in 29 CFR Part 1910.

We estimate that protective gear ensembles, consisting of clothing for skin protection and breathing devices for respiratory protection would cost about \$1.6 million for the first responders and other persons (e.g., public works staff) who need such gear in the Immediate Response Zone counties associated with Tooele, Pine Bluff, and Umatilla.⁶

Adequacy Of Local Emergency
Medical Services Is Uncertain

Although having adequate plans for providing medical response will be critically important in a chemical emergency, our review indicates that adequate plans and resources may not be available. Local officials cite limited hospital capability, inadequate resources, lack of guidance on and equipment for decontamination and protective gear, and difficulties enlisting the support of neighboring communities as hindering local medical readiness.

Some CSEPP communities have acknowledged that they do not have the capability to deal with large numbers of casualties during a chemical emergency. For example, Tooele County officials have stated that the county has limited capability to handle mass injuries from a chemical accident. Like many CSEPP counties, in planning for their response to a chemical emergency, they have sought support from hospitals in a neighboring protective action zone county. In Tooele's case, persons involved with several neighboring area hospitals have expressed concern that "allowing persons exposed to toxic agents into their facilities could contaminate their facility, other patients and employees."

Hospitals, in general, have neither decontamination capabilities nor protective gear. Without protective clothing, it will be impossible for medical personnel to render first aid or to decontaminate without possibly spreading the contamination further. Officials in Benton County, Washington, and Salt Lake County, Utah, told us that some hospitals and ambulance companies in their communities are unable to be fully incorporated into the CSEPP program or to provide support during emergency response exercises because of the lack of guidance and resources needed to perform decontamination.

Some hospitals and other medical providers do not have adequate supplies of antidote should an accident of any magnitude occur.

⁶The estimated number of first responders was provided to us by each IRZ county. The cost of various types of protective gear ensembles was provided by an official in the office of the Assistant Secretary of the Army for Installations, Logistics, and the Environment. We calculated the total cost by taking a middle-range value of protective gear cost and multiplying it by the number of first responders identified by the counties.

For example, during Tooele's full-scale exercise, the depot's supply of antidote was found to be out of date. In addition, Umatilla County officials have requested that the CSEPP program fund and provide large stockpiles of antidote kits to local hospitals, nursing homes, clinics, and ambulance services.

The area of medical services is another instance where CSEPP has not provided any detailed guidance on how communities should go about preparing to meet this need. CSEPP guidance on emergency medical services is awaiting completion of the Army's ongoing risk assessment study. Indeed, since the study began in early 1992, CSEPP guidance on protective action decision making and response, emergency worker operations, emergency medical services, decontamination, and re-entry has been delayed. Further, CSEPP training courses for medical first responders lack content on decontamination and protective gear because this study is not completed.

CSEPP MANAGEMENT LACKS CONTROLS AND FOCUS

We believe that weaknesses in CSEPP's program management have contributed to delays in program action. CSEPP's fragmented program structure lacks adequate controls and a clear focus of responsibility. CSEPP has also met few of its goals for the accomplishment of large-scale tasks, and does not have adequate management information.

CSEPP Management Is Fragmented

The basic CSEPP program structure, established under an Army/FEMA Memorandum of Understanding, has resulted in fragmented authorities and responsibilities. CSEPP is not a standing, continuous organization, but is instead a collection of committees. Although the Army is ultimately responsible for the program, CSEPP's Joint Steering Committee and six subcommittees generally set policy and manage activities. Each committee has co-chairs from the Army and from FEMA, and some co-chairs have changed frequently. For example, in the 14 months preceding May 1993, four of the six subcommittees had one or more changes in leadership. Further, not until the spring of 1993 did all CSEPP co-chairs begin holding combined monthly meetings as a means of promoting communication across committee boundaries.

In addition to the previously indicated problems, the history of CSEPP's automation also shows how the fragmented structure hampers program effectiveness. To date, funding for CSEPP's automation efforts has totalled \$32 million--approximately 17 percent of CSEPP's funding. In recent months, the Army took over leadership of CSEPP automation activities in an attempt to improve and consolidate their management. Until that time, FEMA was CSEPP's lead agency for acquiring automation to help CSEPP sites manage resources, communicate, and obtain hazard and other

status information in a chemical emergency. Development of requirements for this system began in 1989. Moreover, an expert review panel has pointed out technical flaws in the system's atmospheric diffusion model used to project the path of released chemical agent.

CSEPP Has Met Few of the Goals Set In Its Management Plan

The gaps and delays we have discussed so far illustrate the program's failure to meet its own milestones. CSEPP's Management Plan of March 1990 set goals for the accomplishment of numerous large-scale tasks. According to the updated plan of January 1993, 22 out of 37 tasks have milestones, and the program has completed four tasks on time. Another 4 were late in completion, 10 are behind schedule, and 4 others are new additions to the plan. Further, many of the tasks in the management plan address management-level activities but do not tie them to local readiness.

Program Information and Controls Are Weak

Although basic internal control principles require such documentation, CSEPP program officials are hampered by a lack of adequate information on status of funds. FEMA is unable to provide the Army full and adequate current financial data on which to base program management and associated decisions. For example, a February 1993 report by FEMA's Inspector General found that the reporting system that FEMA uses to track CSEPP funds is not accurate, consistent, or timely. Although FEMA has administered 70 percent of the allocated CSEPP funds--\$130 million out of a total of \$187 million--the agency is not able accurately to account for how funds were spent. Instead, FEMA managers can only provide the amounts originally designated for a particular purpose.

Although FEMA administers and disperses CSEPP funds provided to the states, FEMA officials told us that they make no decisions in the program. Such statements raise questions regarding just who is responsible for ensuring that those funds are spent efficiently and effectively. The Army asked FEMA to work with states because of FEMA's expertise and existing funding mechanisms, and the Army relies on FEMA to administer all program funds and assistance for the states and localities. However, FEMA officials insist that the agency does not have responsibility for, or control over, program activities. This is despite the fact that CSEPP funds the salaries and benefits of 41 FEMA personnel to oversee those activities. FEMA officials believe that once CSEPP funds are released to the states, FEMA cannot control how CSEPP funds are spent.

Contrary to FEMA's position, FEMA legally retains certain oversight responsibilities once CSEPP funds have been distributed to states and counties. CSEPP funds fall under the provisions outlined in 44 CFR (Code of Federal Regulations), including FEMA's implementation of the Single Audit Act of 1984, 31 USC Section 7501.⁷ As such, these reporting and accounting requirements are binding on FEMA and on FEMA's grantees.

SUGGESTED AGENCY ACTION

We are currently completing our field work on the CSEPP program, and in the fall, we plan to release a final report to you containing our recommendations on these issues. However, based on our work to date, we believe that there are actions the Army can initiate now to address the problems we have outlined today by restructuring CSEPP. Specifically:

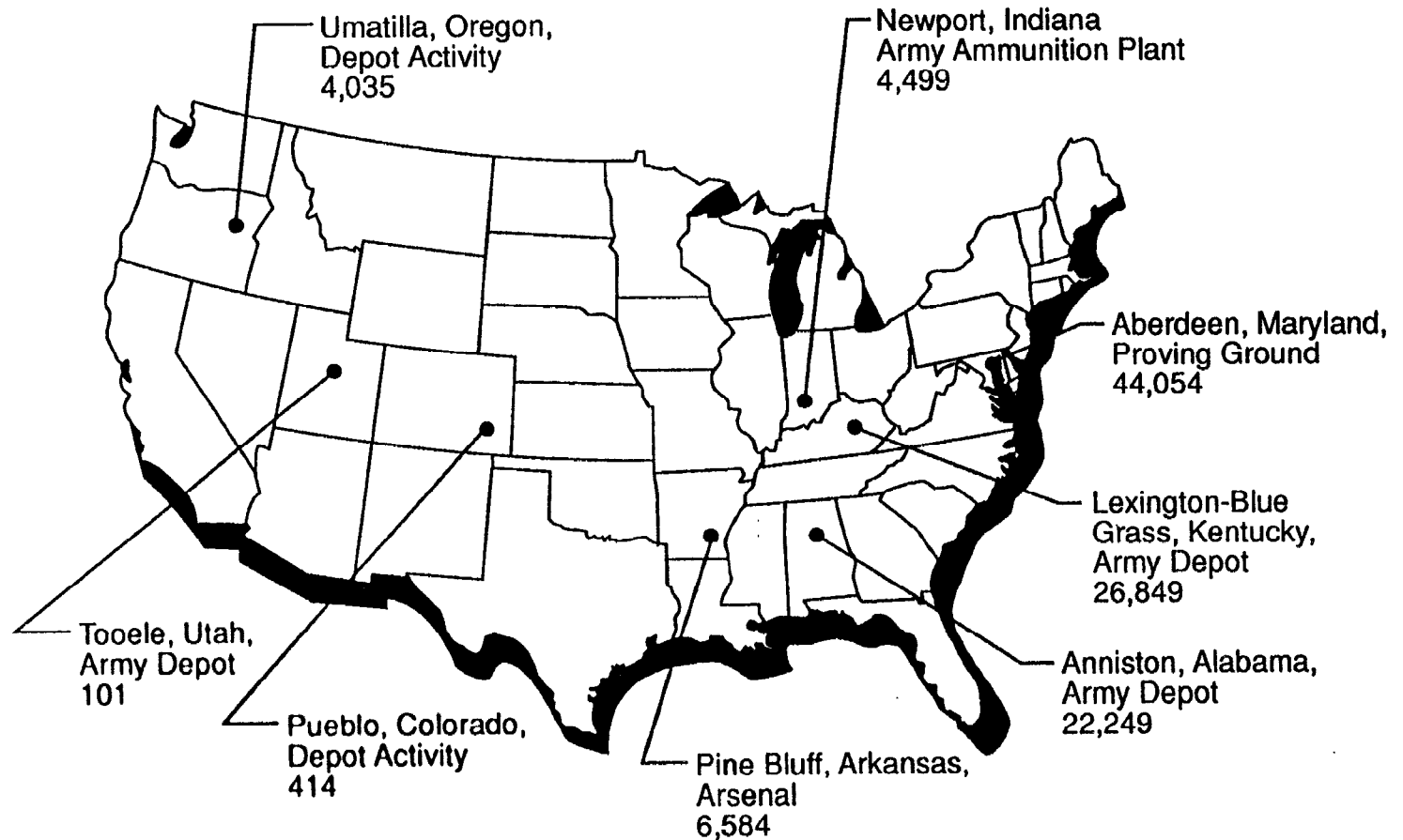
- Establish a management structure, with a single accountable focal point, within the Department of the Army to implement the program and coordinate and draw on the expertise of FEMA, and other organizations, as needed.
- Reevaluate FEMA's role in the program and, if necessary, renegotiate the memorandum of understanding to clearly delineate FEMA's responsibility.
- Establish target dates to provide critical guidance and equipment necessary to prepare local communities to respond to a chemical emergency.
- Establish strict controls over the accountability of program funds.

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Mr. Chairman, that concludes my prepared remarks. I would be glad to respond to any questions you or other members of the subcommittee might have.

⁷Specifically, CSEPP funds are covered by the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments, 44 CFR, chapter 1, part 13 and by the Administration of Grants, 44 CFR, chapter 1, part 14.

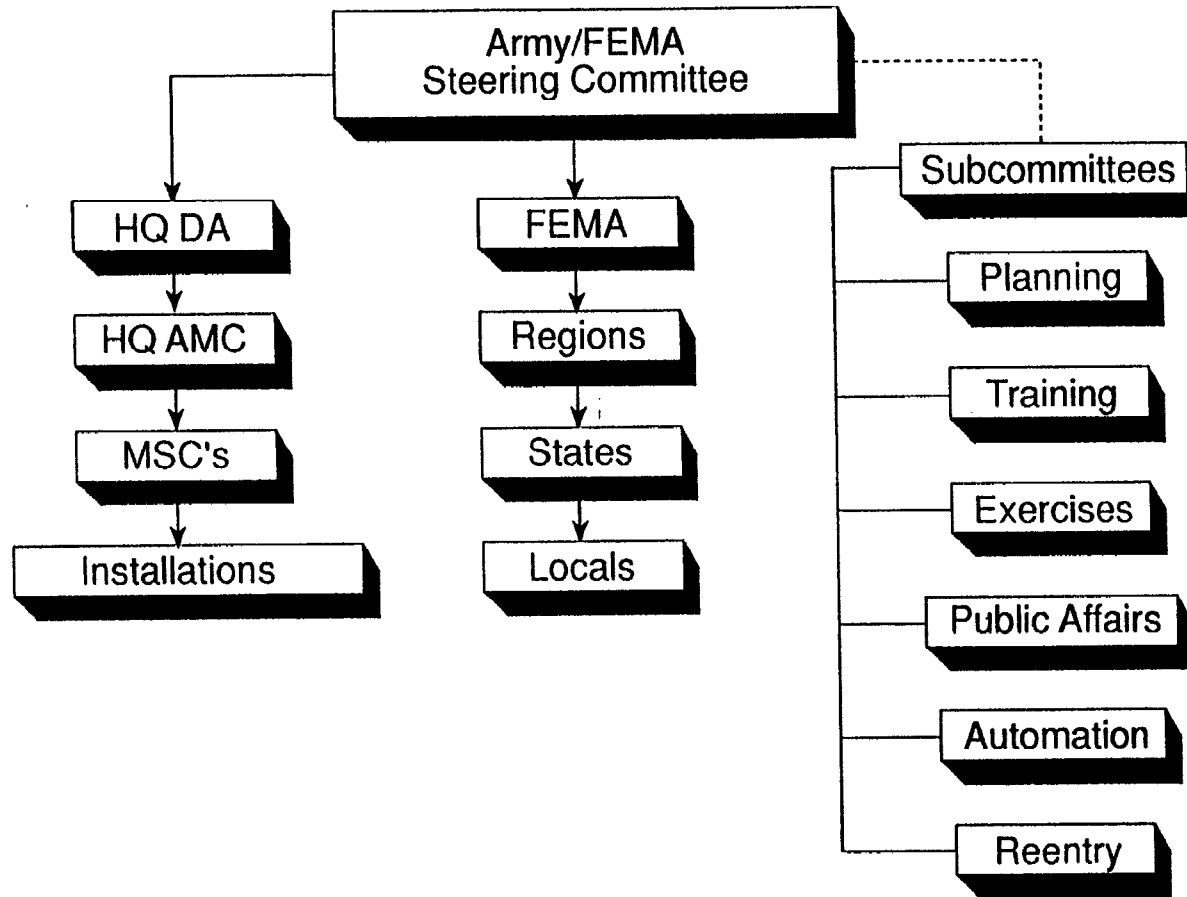
GAO Storage Locations & Population Within 6.2 Miles of Demilitarization Plants



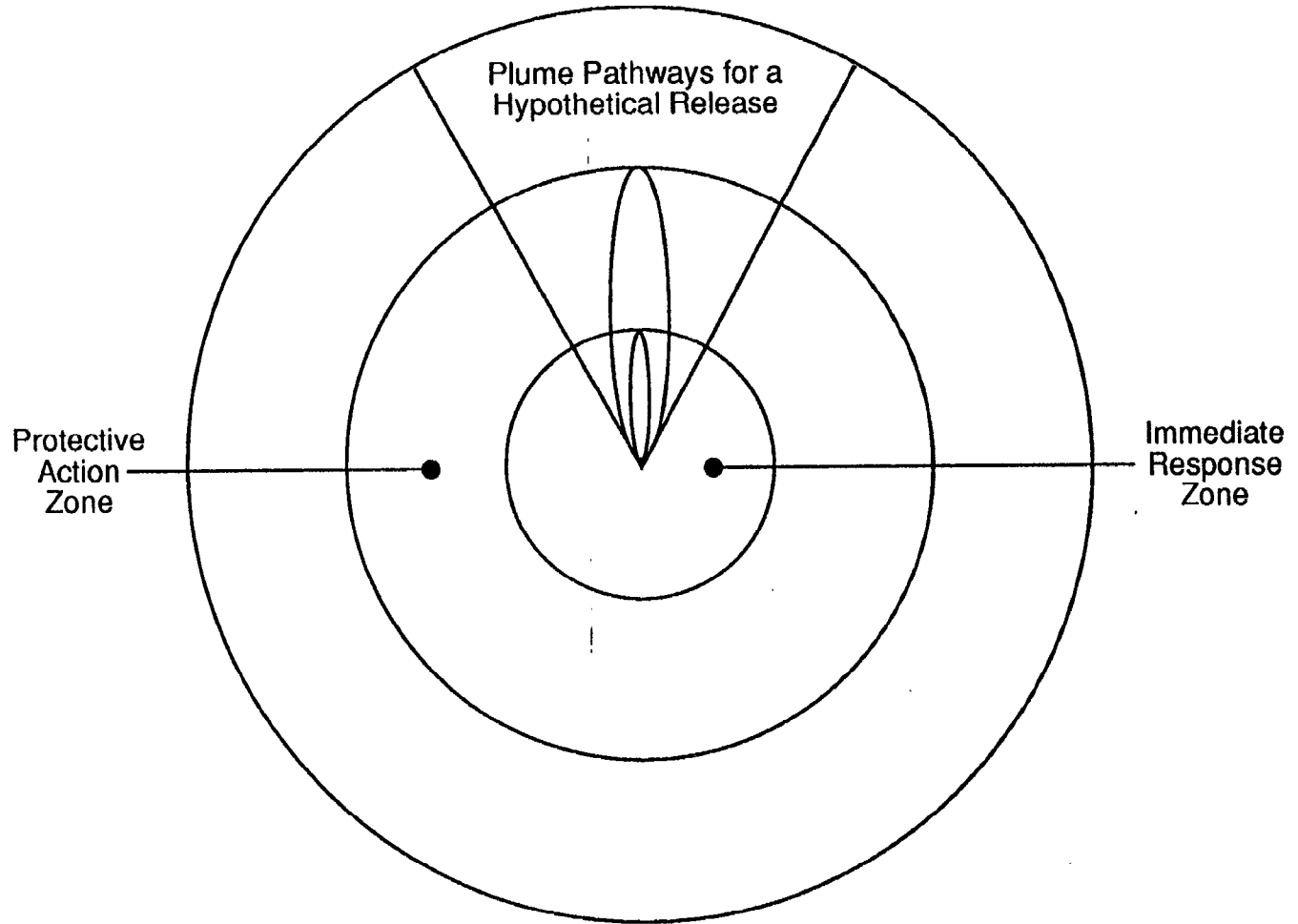
Population Data Derived From Site-Specific Emergency Response Concept Plans, Oak Ridge National Laboratory, October 1989. 6.2 Miles Roughly Corresponds to the Area Included in the General Definition of an Immediate Response Zone. Actual Zones Vary in Size.

GAO Chemical Stockpile Emergency Preparedness Program

Program and Policy Implementation



GAO CSEPP Emergency Planning Zones



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