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GAO

Report to the Honorable Bill Chappell,
Chairman, Subcommittee on Defense,
Committee on Appropriations, House of
Representatives

February 1987

CHEMICAL WARFARE

Planning for Protective Chemical Shelters Needs to Be Improved



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United States
General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

B-223814

February 13, 1987

The Honorable Bill Chappell
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

Dear Mr. Chairman

In response to your March 1986 request, we reviewed the Air Force's plans to acquire certain chemical protection shelters at overseas locations. Our objectives were to evaluate the Air Force's requirements and its planning for chemical protection shelters, particularly for long-term rest and relief, and to determine if overall cost could be reduced. The Air Force has a need for chemical protection shelters at its overseas bases in high threat areas, including shelters for its fixed installations, that provide protection against chemical as well as conventional weapons.

While the Air Force has been diligent in its efforts to obtain hardened chemical shelters to protect its forces, we believe it needs to improve its planning for its requirements and to finalize the plans for the operations of the survivable collective protection system (SCPS) for rest and relief. A detailed presentation of our findings is provided in appendix I, and the objectives, scope, and methodology of our review are described in appendix II.

The SCPS is a chemical shelter for long-term rest and relief. It weighs over 600 tons and requires 15,000 square feet of land for installation. The SCPS is constructed of steel reinforced concrete modules and provides protection against both chemical and conventional weapons. It is semiburied, with the above-ground portion covered with compacted soil. It is capable of providing 84 shelter spaces, each of which is designed to support two people daily on alternating 12-hour shifts. The SCPS is designed to be self-sustaining with its own generator, water supply, and sewage system. The current cost for each SCPS is \$493,000. The Air Force has established requirements for over 1,700 SCPSs to be installed at its bases overseas, about 1,400 SCPSs are planned to be installed in Europe. Our work was performed only at the European sites.

We found that as of May 1986 when the first production SCPS was being installed at Spangdahlem Air Base in the Federal Republic of Germany, the Air Force was still in the process of identifying the necessary support items to be procured with it and establishing the policies and

requirements for the operations of the SCPS. We also found that the Air Force had not determined what equipment and supplies were necessary to operate the SCPSS once they were constructed. In addition, training and personnel requirements for the operations of SCPSS had not been identified for peacetime and wartime maintenance and operations. Moreover, the total SCPS program cost was not known.

The Air Force established requirements for over 1,400 SCPSS in Europe based on half of the assumed personnel at work stations and the other half in the SCPS. This was done by calculating 50 percent of the maximum wartime population for each main and collocated base and dividing by the number of shelter spaces (84) in a SCPS. However, these calculations did not take into consideration mobile units that could use transportable chemical shelters instead of SCPSS and thus they may have resulted in overstating SCPS requirements.

In addition, the Air Force overstated its long-term SCPS requirements at three ground-launched cruise missile bases. Air Force officials calculated the number of SCPSS needed at these installations based on anticipated growth rather than deployment data. Based on Air Force plans and force authorizations at the time of our review, our calculations indicated that the three bases could eventually receive a total of 19 SCPSS in excess of what would be needed for the estimated maximum wartime population. DOD, in commenting on a draft of our report, agreed that the SCPSS requirements were overstated but said that a recent review of force authorizations indicated that only eight SCPSS are excess.

We recommend that the Secretary of Defense reevaluate the SCPS and mobile units requirements based on specific base and unit information and ensure that the plan for managing, operating, and maintaining SCPS is finalized.

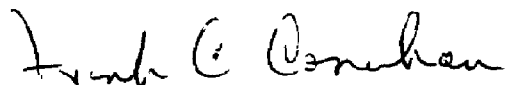
We provided a draft of this report to the Department of Defense (DOD) for its review and comment. DOD agreed that the SCPS requirements for the three ground-launched cruise missile bases requirements were overstated and stated that action would be taken to adjust current requirements based on the latest force authorization. However, it disagreed that SCPS requirements should be adjusted for mobile units having transportable shelters since the intent is to provide these units with SCPS protection while the units are at fixed sites. It further stated that the Air Force views transportable collective protection shelters as complementary systems to the SCPSS rather than mutually exclusive systems.

We recognize that the Air Force wants to provide mobile units with protection in SCPSS; however, we question whether SCPSS must be provided for all mobile units. Mobile units could use SCPSS intended to protect augmentation forces until they arrive. Once the augmentation forces arrive, most mobile units should already be deployed; thus making the SCPSS available to the augmentation forces

The DOD noted that the Air Force will conduct annual reviews of SCPSS and transportable shelters to ensure that they are current in relation to any planned changes at the base level. Also, DOD provided information on the Air Force's efforts to finalize the plans for managing, operating, and maintaining SCPSS. We have included this information in the report. Our evaluation of DOD's comments is contained in appendix I, and its comments are included in appendix III.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of issuance. At that time, we will send copies to the Chairmen, House Committee on Government Operations, Senate Committee on Governmental Affairs, and the House and Senate Committees on Appropriations and Armed Services, the Secretaries of Defense and the Air Force, and the Director, Office of Management and Budget. Copies will be made available to others upon request.

Sincerely yours,



Frank C. Conahan
Assistant Comptroller General

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Abbreviations

DOD	Department of Defense
GAO	General Accounting Office
GLCM	ground launched cruise missile
SCPS	survivable collective protection system
USAFE	United States Air Force in Europe

Air Force Plans to Acquire Chemical Protection Shelters

The Air Force currently has plans for at least three types of chemically protected structures at overseas bases. These are (1) existing facilities, generally work centers, (2) transportable systems, which can provide chemical protection for forces that are highly mobile or that operate in locations where no shelters are available, and (3) rest and relief facilities called the survivable collective protection system (SCPS). For fiscal years 1987-91, the Air Force plans to spend over \$1 billion to modify existing facilities and procure transportable shelters and SCPS for its worldwide forces, about \$636 million of this amount is for SCPS. The total cost for over 1,700 SCPS will be in excess of \$800 million.

We reviewed the Air Force's plans to acquire SCPS and to use other shelters for its forces in Europe. Our review found that a plan for supplying, maintaining, and operating these shelters had not been finalized. In addition, we found that requirements were based on questionable analyses, resulting in an overstatement of the requirements.

Why Chemical Shelters Are Needed

According to the Defense Intelligence Agency, the Soviet Union has demonstrated a formidable capability to carry out offensive chemical warfare and represents the major chemical weapons threat to U.S. forces. Air Force targets for Soviet chemical weapons include facilities that have units that deliver nuclear weapons, airfields, command and control facilities, storage depots, and supply routes.

To operate in a chemical warfare environment, personnel must be protected from chemical agents either in individual protective suits or in chemical shelters. The individual protective suits reduce combat efficiency when worn for more than several hours. Therefore, in an area where chemical agents remain effective for more than several hours, chemical shelters are needed to allow personnel to work and rest.

Types of Chemical Shelters

The Air Force has plans for three types of chemically protected facilities. First, the Air Force has been adding chemical protection to some of its work facilities since the 1970s. Second, the Air Force has developed the SCPS, a concrete protective shelter for rest and relief. Third, transportable protection systems are planned for forces that require a high degree of mobility or are deployed to areas where other forms of chemical shelters are not available or appropriate.

Existing Facilities

Existing facilities with chemical protection are generally work centers but can also be used for rest and relief. At the time of our review, the Air Force had 69 North Atlantic Treaty Organization facilities that provide chemical protection. They include squadron operation facilities; wing command posts, and other mission-essential facilities to protect pilots, aircrews, and other personnel primarily with tactical flying or reconnaissance missions.

The Air Force also has procured equipment to add chemical protection to existing facilities such as aircraft shelters and squadron operations facilities. For example, in 1979 it procured the KMU-450 shelter modification kit. As of March 1986, 50 of over 70 KMU-450s sent to Europe had been installed; however, most of the remaining kits need repair.

Capacities of the shelters vary with the size of the facility.

Survivable Collective Protection System

A SCPS is a chemical shelter used for long-term rest and relief. It weighs over 600 tons, and requires 15,000 square feet of land. The SCPS is constructed of steel reinforced concrete modules and provides protection against both chemical and conventional weapons. It is semiburied, with the above-ground portion covered with compacted soil. (See figs. I 1 and I 2.) The SCPS is designed for relocatability from one site to another. In a test exercise, a SCPS was moved approximately 70 miles in 37 days at a cost of about \$150,000.

Each SCPS currently costs \$493,000 and is capable of providing 84 shelter spaces, with each space designed to support two personnel on alternating 12-hour shifts. It is designed to be self-sustaining with its own generator, water supply, and sewage system, although it can be connected to utility lines. The SCPS also has storage space for 96 hours of continuous operation between servicing.

Transportable Shelters

Some shelter systems that are available are also transportable. Such shelters would provide rest and relaxation for forces that are highly mobile or that operate in locations where no other shelters are available. These systems could also be used to provide for work space, and their capacities vary.

The Air Force is to begin procurement of these systems in fiscal year 1987. One shelter the Air Force is considering—the Army's XM-20—costs \$7,000 and can protect 10 people in a modified existing room.

Appendix I
Air Force Plans to Acquire Chemical
Protection Shelters

Figure I.1: SCPS

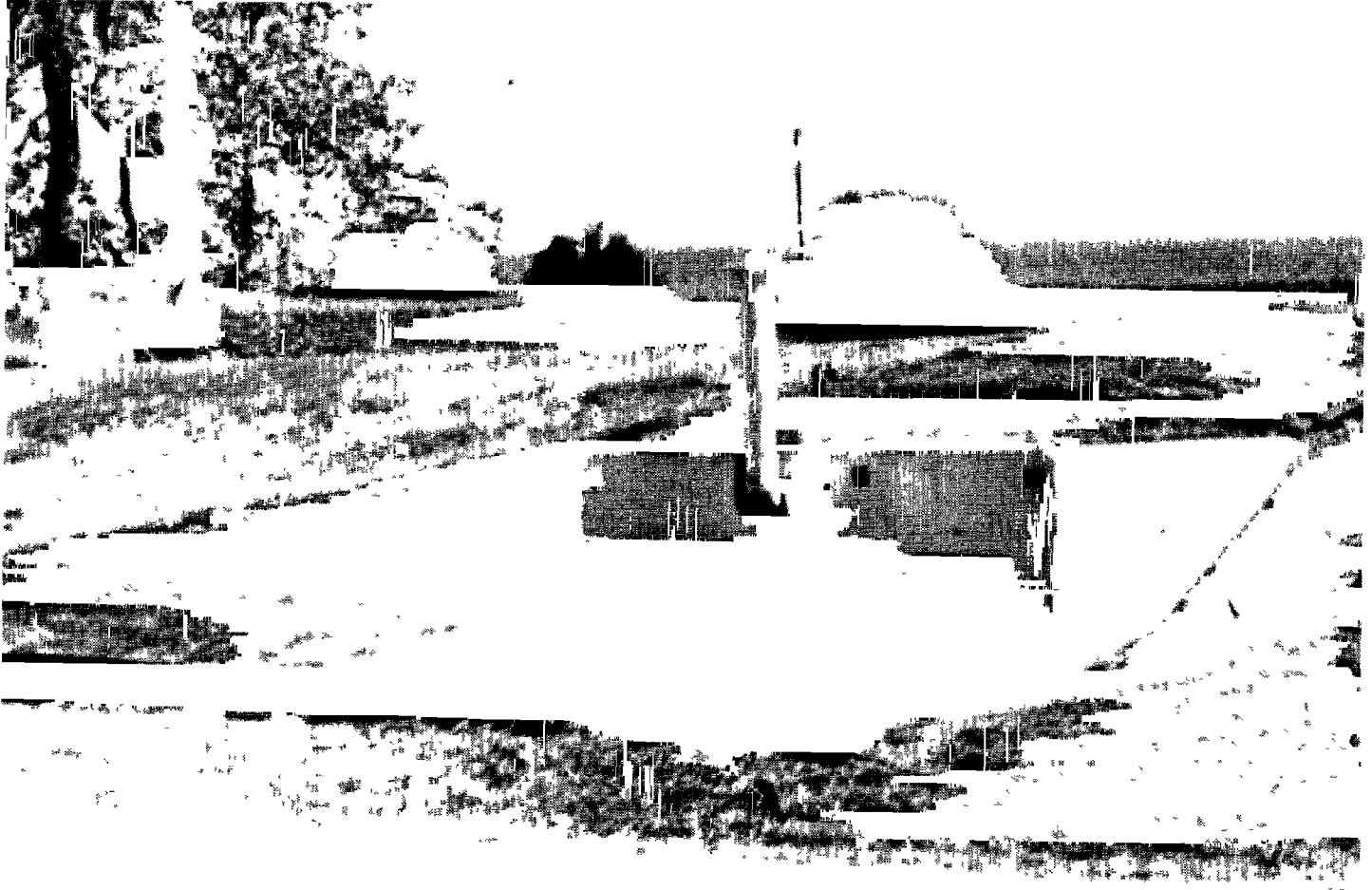
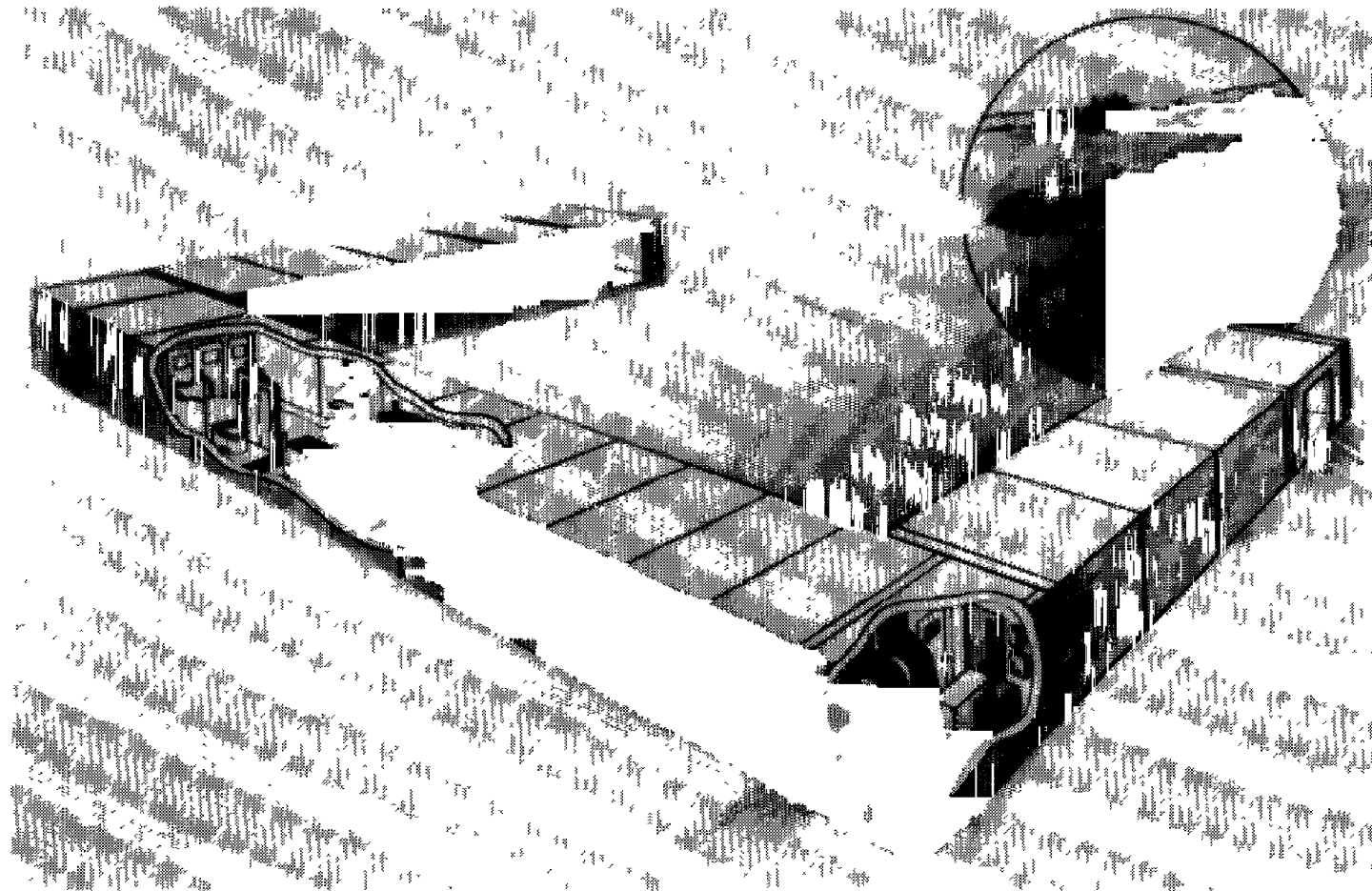


Figure I.2: SCPS Design



The SCPS Program

In 1982 the Air Force awarded a contract to Systems Research Laboratories in Dayton, Ohio, to design, develop, and test scps. The Air Force determined in 1983 that the SCPS was its choice for long-term rest and relief,¹ and the Congress appropriated the first funds—\$18.4 million for 33 SCPS—in fiscal year 1985. For Europe and Pacific bases, the Congress appropriated \$58.6 million for 122 SCPS in fiscal year 1986 and \$64.4 million for 119 SCPS in fiscal year 1987.

¹ The Air Force considered another alternative, a French-made chemical shelter, the AMF-80, which is constructed of round steel-reinforced concrete pipe sections and can protect 40 people during a 12-hour shift. Although the Air Force requested \$13.8 million in fiscal year 1984 to procure 92 modified AMF-80s while the development of SCPS was being completed, it decided that the AMF-80 and a modified AMF-80 did not meet its requirements. The AMF-80 is used by the French and Canadian military in Europe.

Appendix I
Air Force Plans to Acquire Chemical
Protection Shelters

On September 13, 1985, the Air Force competitively awarded the first contract for 33 SCPSS to the Bowen, McLaughlin and York Division of the Harsco Corporation in York, Pennsylvania. The Air Force received three bids on the contract which is a fixed-price contract, with a unit price of \$493,000. European subcontractors will perform a large portion of the work, including the construction and the installation of the steel reinforced concrete modules.

In April 1986 the European subcontractors began construction of the concrete modules and site preparation for the first SCPSS under the fiscal year 1985 contract. Thirty-three SCPSS are to be installed in the Federal Republic of Germany at three air bases (Ramstein, Spangdahlem, and Bitburg) and one ancillary site to Ramstein Air Base. According to Air Force officials, the first production SCPSS installed at Spangdahlem Air Base was accepted in late October 1986.

The Air Force contract with Bowen, McLaughlin and York contained an option for 70 to 115 additional SCPSS. The Air Force exercised the option on December 12, 1986. The contract cost was \$36.5 million for 82 SCPSS. (See table I.1 for the bases that are to receive SCPSS funded in fiscal years 1985, 1986, and 1987.)

Table I.1: U.S. Air Force Bases in Europe to Receive SCPSSs Funded in Fiscal Years 1985, 1986, and 1987 (As of December 12, 1986)^a

Base	Fiscal Years			Total planned through fiscal year 1987
	1985	1986	1987	
Ramstein Air Base, Germany	11	17	18	46
Bitburg Air Base, Germany	14	9	8	31
Spangdahlem Air Base, Germany	8	9	10	27 ^b
Hahn Air Base, Germany	•	14	13	27
Sembach Air Base, Germany	•	9	8	17
Zweibruecken Air Base, Germany	•	9	8	17
Camp New Amsterdam, Netherlands	•	4	6	10
Lindsey Air Station, Germany	•	•	7	7
Rhein-Main Air Base, Germany	•	11	11	22
Total	33	82	89	204^c

^aDoes not include those planned through future fiscal years.

^bDoes not include six SCPSSs funded with research and development funds.

^cDoes not include the six SCPSSs previously received at Spangdahlem Air Base.

Overall Requirements for SCPSSs May Be Overstated

To arrive at a requirement of over 1,400 SCPSS in Europe, the Air Force calculated 50 percent of each base's maximum wartime population and divided it by the number of personnel that could be protected in one SCPSS. No further analysis was performed. The Air Force did not consider any specific base or unit level information, such as the wartime missions and deployment plans of units, to determine which type of chemical shelter (existing facilities, SCPSS, or transportable) it needed

Base Requirements Not Adequately Considered

A May 1981 Air Force study on chemical warfare defense for air bases in Europe entitled A Limited Assessment of Ground Operations in a Chemical Environment at a Typical USAFE Base states that chemical shelter requirements should be determined by evaluating each base's needs individually, since each air base has a unique deployment plan. In addition, it recommends that the following general criteria be applied to establish chemical shelter requirements:

- The number of personnel that need to be sheltered
- The number of shelters that would be needed to protect such personnel
- Conventional hardening.
- The proximity of chemical shelters to work areas.
- The time required to process personnel in and out of shelters
- The support requirements for shelters.

The Air Force established a requirement for over 1,400 SCPSS in Europe based on providing shelter space for 12 hours a day for 100 percent of the in-place and augmentation² personnel at main and collocated bases. This resulted in shelter space requirements for 50 percent of each base's maximum wartime population

In December 1985, when the Air Force last reviewed its SCPSS requirements, Air Force officials in Europe indicated that they had not established requirements for transportable systems because of insufficient information about such shelters. They added that mobile systems will probably be required for mobile tactical aircraft units, communication sites, and other small deployed units. The proceedings of an Air Force-sponsored Chemical Warfare Defense Users' Conference in April 1984 listed the following units as possibly requiring transportable chemical protection

²Augmentation personnel are those that would arrive to supplement in-place forces in the event of a crisis

- Tactical air control systems.
- Combat communications (groups, squadrons, and flights).
- Electronic Security Command mobile monitoring units.
- Deployed ground-launched cruise missile (GLCM) units.
- Point air defense/short range air defense elements.

In July 1986 the Air Force established requirements for 188 transportable chemical shelters. The Air Force intends to further define its requirement by determining what other units may require this type of protection. To date, no changes have been made in the SCPS requirements. In addition, the Air Force has not done an analysis to determine whether transportable shelters will service the same personnel that are to occupy the SCPSS. The absence of a complete assessment of transportable chemical shelter requirements and its relationship to SCPS requirements could result in the Air Force purchasing more SCPSS than necessary.

Further, we found that the Air Force had overstated the SCPS requirements for three GLCM bases in Europe. Air Force officials in Europe told us that they established a requirement of 12 SCPSS for each GLCM installation, based on anticipated growth rather than deployment data. Based on Air Force plans and force authorizations at the time of our review, we calculated that the three bases will receive a total of at least 19 SCPSS in excess of their maximum population estimate. DOD, in commenting on a draft of our report, agreed that the SCPSS requirements were overstated but said that a recent review of force authorizations indicated that only eight SCPSS are excess.

Planning for SCPS Operation Is Inadequate

As of May 1986, when the first SCPS was installed in the Federal Republic of Germany, the Air Force was still in the process of determining the necessary support items to be procured and policies and requirements for the operations of SCPSS. As of November 1986 the Air Force was finalizing operations and maintenance plans and had estimated the additional costs associated with support items. However, additional costs may be incurred for modifications to the SCPSS.

Support and Maintenance for SCPSS

In May 1985 the Air Force included SCPSS in an air base survivability demonstration (Salty Demo) at Spangdahlem Air Base. The Air Force procured six SCPSS with research and development funds to evaluate the shelter and other equipment during an exercise scenario. SCPSS were

installed on the flightline and were used primarily by maintenance and civil engineering personnel

The Air Force's report on Salty Demo, released in January 1986, contains observations, conclusions, and recommendations that demonstrate the need for improved planning for support and operation of the SCPSS. Some of these recommendations are to

- Establish a policy on who will occupy SCPSS (the entire base or some segment), when, and for how long.
- Procure SCPSS with the necessary support items, such as an initial supply of consumable items; trucks for water, fuel, and sewage; communications equipment; walkways; and access roads. Without these items, the report states that the usefulness of SCPSS is extremely limited and that the provision of these items from the bases is not feasible. For example, in the Salty Demo, two sewage trucks were borrowed from a GLCM base, and walkways and access roads were improvised, but considered unsatisfactory.
- Program and provide additional personnel to maintain SCPSS and drive the various vehicles necessary to support these shelters.
- Establish policies on the stockage of consumable items and the need to store such items as clothing, bedding, individual protective suits, and personal items.
- Improve the sleeping area of SCPSS to reduce light and noise.
- Add at least one section to the SCPSS for inside storage and study the addition of another section to reduce crowding in the common area.
- Enlarge and improve the sewage holding tank, which is only adequate for 3 days. (The requirement is to operate it continuously for 4 days).
- Plan transportation requirements for traveling between SCPSS and work areas and provide training and exercises to meet these requirements.

Although the Air Force had established requirements for over 1,400 SCPSS in Europe and installed the first one in May 1986, it had not finalized plans for operating and maintaining them. Instead, interim guidance had been established for the bases in Europe, while the Air Force was still determining

- the additional equipment (consumable items, support vehicles, and chemical warfare gear) that must be procured to make SCPSS functional,
- the number of personnel needed to manage, maintain, and support SCPSS; and
- the amount of training required for personnel who will occupy and manage it.

DOD Directive 7200.4 states that a total estimated cost of a procurement item should be provided to the Congress so that the full dimensions and cost of the item is presented in the budget. At the time of our field work, the Air Force had not fully identified the costs for the additional items cited above. Since then the Air Force has estimated and programmed these costs. The Air Force estimates that the over 1,400 SCPSS currently planned for Europe will need an additional \$56 million for heater/air conditioner, communications equipment, and support vehicles. In addition, based on the latest Air Force estimate provided to us in DOD's comments on our draft report, annual operation and maintenance costs, including costs for decontamination supplies, hygiene supplies, diesel fuel, and other supplies, will be about \$8.5 million.³

The Air Force also may modify the SCPSS. Currently, the storage space is not considered adequate, and the Air Force report on Salty Demo has recommended that another module be added to increase storage space. In addition, the sewage holding tank does not meet the Air Force's requirement which is it must operate continuously for 4 days. The sleeping and common area may also be improved. The report did not provide any cost estimate for the modifications. The Air Force is reviewing Salty Demo results and related proposals to determine appropriate modifications and will report the associated costs once final decisions are made.

Conclusions

The Air Force needs to reevaluate its requirements for SCPS and transportable shelters at its overseas bases in high-threat areas. Requirements should take into account costs for support, operation, and maintenance for SCPSS. Such planning costs should be reported to the Congress consistent with DOD policy.

Because the SCPS is not suitable for mobile missions, it would seem desirable to establish requirements for transportable shelters in Europe for those units that have mobile missions. Since SCPS requirements were established without considering the use of transportable shelters, a full assessment to determine whether transportable shelters will service the same personnel that are to occupy SCPS could reduce SCPSS requirements.

Recommendation

We recommend that the Secretary of Defense reevaluate the SCPS and mobile units requirements, based on specific base and unit information.

³Report has been changed to reflect the latest DOD estimate.

and ensure that the plan for managing, operating, and maintaining the SCPS is finalized

Agency Comments and Our Evaluation

DOD, in commenting on a draft of this report, partially concurred in our findings and recommendations and indicated actions the Air Force was taking to address our recommendations.

In regard to establishing requirements for SCPSS, DOD stated that the Air Force followed its policy in Air Force Regulation 355-1 by calculating shelter needs based on peak wartime population at each location. The intent is to protect all personnel with SCPS, including mobile units that may or may not be deployed. It is anticipated that transportable shelters would be used only when the mobile units are deployed. The Air Force regulation that establishes shelter requirements does not indicate the type of shelters to be used—SCPS or transportable. It states that all collective protection systems will be blast resistant and will protect against radiation, or will be installed at facilities that provide this protection. It specifies that transportable protection systems will require expedient blast hardening.

We recognize that the Air Force wants to provide mobile units with protection in SCPSS, however, we question whether SCPS must be provided for all mobile units. Mobile units could use SCPSS intended to protect augmentation forces until they arrive. Once the augmentation forces arrive, most mobile units should already be deployed, thus making the SCPSS available to the augmentation forces.

DOD agreed that SCPS requirements at the three GLCM bases were overstated and that the latest force authorizations indicate a total of 28 SCPSS will be needed instead of the 36 projected previously. It stated that this case illustrates how quickly requirements tied to base populations can fluctuate, making annual reviews of all shelter requirements necessary, including SCPS and transportable systems. DOD stated that the Air Force plans to review its shelter requirements annually to avoid over or understated requirements at any location.

We agree with the Air Force plans to perform annual reviews of its shelter needs at bases. The fluctuation of base population at GLCM sites is a clear example of the need for such reviews.

DOD said that the Air Force is now finalizing operations and maintenance plans to support SCPSS. The Air Force plans to publish, by April 1987,

Appendix 1
Air Force Plans to Acquire Chemical
Protection Shelters

general guidelines on all aspects of the collective protection program and a list of support equipment and expendable supplies for SCPSS. It has determined that the SCPSS peacetime and wartime management can be performed by selected current personnel at the organizations who have custodial responsibility for SCPSS, and these personnel will receive formal training, beginning in January 1987. The Air Force also noted it has programmed additional engineering personnel in fiscal years 1987-92 for SCPSS maintenance requirements. In addition, the Air Force plans to publish technical guidance in January 1987 on the SCPSS operations and maintenance.

Objectives, Scope, and Methodology

Our objectives were to evaluate the Air Force's requirements and its planning for chemical shelters, particularly for long term rest and relief, and to determine if overall costs could be reduced. To achieve our objectives we collected data and analyzed the methodology the Air Force used to establish these requirements. We also identified the locations where the Air Force plans to install SCPSS in Europe and the types of facilities that have chemical or conventional weapon protection at these locations. We did not assess which type of chemical shelter would be more appropriate for specific Air Force bases or units. Finally, we reviewed numerous Air Force documents, including studies, technical reports, correspondence, plans, and guidance and interviewed Air Force officials at the Air Force's headquarters and four air bases in Europe. We conducted our review in accordance with generally accepted government auditing standards from January 1986 to May 1986.

We performed our work at the following locations.

- Headquarters, U.S. Air Force, Washington, D.C.
- Headquarters, U.S. Forces Europe, Federal Republic of Germany
- Headquarters, U.S. Air Force Europe, Federal Republic of Germany
- Air Force Contract Maintenance Center, Detachment 16, Federal Republic of Germany
- Ramstein Air Base, Federal Republic of Germany
- Bitburg Air Base, Federal Republic of Germany
- Spangdahlem Air Base, Federal Republic of Germany
- Rhein-Main Air Base, Federal Republic of Germany

Comments From the Assistant Secretary of Defense (Acquisition and Logistics)



ACQUISITION AND
LOGISTICS

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ASSISTANT SECRETARY OF DEFENSE

WASHINGTON D C 20301 8000

19 DEC 1986

Mr. Frank C. Conahan
Assistant Comptroller General
National Security and International
Affairs Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Conahan

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "Chemical Warfare: Planning for Protective Chemical Shelters Needs To Be Improved," dated October 31, 1986, (GAO Code 392190/OSD Case 7163).

The Department agrees that the requirements for chemical shelters at the Ground Launched Cruise Missile (GLCM) sites have been overstated and actions have been taken to adjust current plans. Over the long term, requirements at other installations may change based on decisions involving force structure, aircraft beddown locations, and personnel manning levels. The Department, and specifically the Air Force, will continue to closely monitor requirements and make changes where necessary.

The Department recognizes that planning for personnel training, Survivable Collective Protection Systems (SCPS) management, maintenance, and stockage is not yet complete. Given, however, that these shelters have only recently been installed at an initial location and are still being evaluated, the Air Force has made significant strides in defining equipment requirements, determining costs, and establishing personnel training programs. Follow-on efforts will be documented in a scheduled February 1987 DoD report directed by the House Appropriations Committee.

Detailed comments on the findings and recommendations are enclosed. The DoD appreciates the opportunity to comment on the draft report.

Sincerely,

Thomas P. Christie
for the
Assistant Secretary of Defense
(Acquisition and Logistics)

Enclosure

Appendix III
Comments From the Assistant Secretary of
Defense (Acquisition and Logistics)

GENERAL ACCOUNTING OFFICE (GAO) DRAFT REPORT, DATED OCTOBER 31, 1986
'CHEMICAL WARFARE' PLANNING FOR PROTECTIVE CHEMICAL SHELTERS
NEEDS TO BE IMPROVED"
(GAO CODE 392190) (OSD CASE 7163)

DEPARTMENT OF DEFENSE COMMENTS

FINDINGS

FINDING A. Air Base Requirements for Chemical Shelters Not Adequately Considered. The GAO reported that a May 1981 Air Force study stated that chemical shelter requirements for air bases in Europe should be determined by individually evaluating each base's needs, and the study listed several criteria for evaluating the requirements. The GAO found, however, that the Air Force established a requirement for over 1,400 Survivable Collective Protection Systems (SCPS) in Europe by calculating 50 percent of the maximum wartime population for each main and collocated base, and dividing by the number of shelter spaces in a SCPS. In addition, the GAO found that the Air Force did not take into consideration mobile missions at the bases, which could require transportable chemical shelters rather than the SCPS. The GAO reported that as of July 1986, the Air Force had established requirements for 188 transportable chemical shelters, but that no changes were made in the SCPS requirements. In addition, the GAO found that the Air Force has not done an analysis to determine whether transportable shelters will service the same personnel that are to occupy the SCPSs. The GAO concluded that the absence of a complete assessment of transportable chemical shelter requirements, and its relationship to the SCPS, could result in the Air Force purchasing more SCPSs than necessary. (p. 2, pp. 13-14, GAO Draft Report)

DOD RESPONSE. Partially concur. In general terms, the GAO is correct in describing how the Air Force determined its SCPS requirements. In doing so, however, the Air Force complied with the basic intent of the May 1981 study by considering each base's needs for on-base protection of all assigned personnel and off-base needs of mobile units like those described in the GAO draft report. The Air Force followed long-standing policy in Air Force Regulation (AFR) 355-1 in calculating shelter needs based on peak wartime population at each location. The intent is to protect all personnel located at fixed sites, including mobile units that may or may not be deployed at the time of attack. On the other hand, the Air Force has also established requirements for transportable shelter systems to protect units once they have deployed. These systems are designed to add chemical protection to mobile vans, expandable shelters, and tents used by mobile units. Thus, the Air Force views the SCPS and transportable collective protective systems (TCPS) as complementary, not mutually exclusive systems. The Air Force will, however, conduct annual reviews of SCPS and TCPS requirements to insure that they are current in relation to any planned changes at the base level. Changes in requirements will be accommodated by changes in the SCPS fielding strategy to ensure that the correct number of SCPSs are installed at each location as rapidly as possible.

FINDING B. SCPS Requirements for Three Ground Launch Cruise Missile (GLCM) Bases Overstated. The GAO found that the Air Force calculated the number of SCPSs needed (12) at each of three GLCM bases in Europe based on anticipated

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Appendix III
Comments From the Assistant Secretary of
Defense (Acquisition and Logistics)

Now on pp 2 and 12

growth, rather than deployment data. Based on Air Force plans and force authorizations at the time of its review, however, the GAO found that the three bases will receive a total of at least 19 SCPSs in excess of their maximum population estimate. The GAO concluded, therefore, that the Air Force overstated SCPS requirements for the three GLCM bases in Europe. (pp. 2-3 and p. 16, GAO Draft Report)

DOD RESPONSE: Partially concur. The DoD agrees that the SCPS requirements for the first three GLCM bases in Europe were overstated, but not to the extent indicated by the GAO. A recent review of the latest force authorizations for the first three GLCM bases in Europe to be equipped with SCPS indicates a total of 28 SCPS will be needed versus the original 36 projected. The original projection was based on previous end-strength figures which were higher than those now projected. The Air Force will reduce its total requirements for SCPSs at the GLCM bases accordingly. This case illustrates how quickly requirements tied to base populations can fluctuate, making the requirement for annual reviews all the more necessary to prevent over or understatement of SCPS requirements. (See DoD Position on Finding A.)

FINDING C: SCPS Operation and Maintenance Plans Not Complete. The GAO found that although the Air Force has established requirements for over 1,400 SCPSs in Europe, and has already installed the first SCPS in May 1986, the Air Force has not finalized its plans for SCPS operation and maintenance. The GAO reported that the Air Force included SCPSs in the Salty Demo air base survivability demonstration at Spangdahlem Air Base in May 1985. The GAO found that as a result of that experience, a number of SCPS operation and support improvements were identified. The GAO noted that interim guidance has been established for the bases in Europe. The GAO also found, however, that the Air Force is still in the process of determining (1) what additional equipment must be procured, (2) the number of personnel needed to manage and support the SCPS, and (3) personnel training requirements. The GAO noted that the Air Force is aware of these problems and has attempted to address them with its Salty Demo Implementation Plan. The GAO concluded, however, that the current SCPS operation and maintenance plans are inadequate. (Page 2 and pages 16-18, GAO Draft Report.)

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DOD RESPONSE: Partially concur. The GAO has correctly assessed the need to complete SCPS plans but does not recognize the degree of progress the Air Force has made. The Air Force is now finalizing operations and maintenance plans to support fielding of the initial 33 SCPSs, the first of which was accepted by the Air Force in late October 1986. Operations and maintenance technical orders have undergone a rigorous series of reviews leading to planned publication in January 1987. These five technical orders will provide the base level operators and maintainers with comprehensive technical instructions for the SCPS. General guidelines for wartime employment of the SCPS have been incorporated into applicable war and mobilization plans and a draft regulation providing consolidated guidance on all aspects of the Air Force's collective protection program is due for publication in April 1987.

The Air Force's Collective Protection Board will meet in December 1986 to review various proposed improvements to the SCPS and recommend which should be incorporated, considering relative benefits versus cost. Plans are already underway to retrofit SCPS at bases in Germany with heaters.

**Appendix III
Comments From the Assistant Secretary of
Defense (Acquisition and Logistics)**

Based on operation of the preproduction SCPSs at Spangdahlem Air Base, a list of support equipment and expendable supplies has been established and will be incorporated into the new collective protection regulation and various tables of allowance by April 1987. Operations and maintenance funds are programmed in fiscal years 1987 through 1992 to acquire these items.

The Air Force has determined that peacetime and wartime management of the SCPS will be done by selected personnel from organizations which have custodial responsibility for the SCPS they occupy in wartime. Management of the SCPS will be a secondary peacetime duty and a primary wartime duty. Based on recent successful tests of standardized shelter entry/exit procedures which rely on personnel helping each other, minimal shelter management teams of three to four personnel per shift appear to be sufficient. To support intermediate level maintenance requirements, additional civil engineering manpower authorizations have been programmed in fiscal years 1987 through 1992 at a rate of one authorization per every 20 SCPS.

Formal training for shelter managers in operations and maintenance of the SCPS will be conducted at Air Force bases in Germany by a mobile training team beginning in January 1987. Two SCPSs used for testing purposes have been relocated to support training; one for disaster preparedness specialists at Lowry AFB, Colorado, and the other for field training of integrated base recovery teams at Eglin AFB, Florida.

FINDING D: Total SCPS Program Costs Not Known. The GAO reported that DoD Directive 7200.4 states that total procurement cost estimates should be provided to the Congress. In addition, the GAO reported that the Five-Year Defense Program is to reflect the best estimate of program cost. The GAO found, however, that the Air Force has not yet fully identified the cost, nor programmed the funds for the additional items discussed in Finding C. The GAO estimated that these additional costs could amount to about \$75 million. The GAO also found that the Air Force may make modifications to the SCPS based on results of the Salty Demo experience, but that no estimates of these additional costs were reported. The GAO concluded that the DoD needs to fully assess the SCPS requirements and costs and report them to the Congress, consistent with DoD policy. (pp. 2-3 and pp. 18-19, CAO Draft Report)

DOD RESPONSE: Partially concur. The Air Force did not report associated support costs in its March 1986 report to the Congress on collective protection, but since then has estimated and programmed these costs under Program Element 27593F, Chemical/Biological Defense. The Air Force estimate of \$56 million to procure support equipment for 1,400 SCPSs is close to the GAO estimate of \$58 million. However, the Air Force estimates that annual operations and maintenance costs for the same number of SCPSs to be about \$8.5 million, or one-half the GAO estimate of \$17 million. These Air Force estimates are derived from actual expenses incurred in operating the preproduction test units. The Air Force is reviewing Salty Demo results and related product improvement proposals to determine appropriate modifications and will report associated costs once final decisions and supporting cost estimates have been made. A primary aim is to select proposals that offer the greatest operational benefit for the added cost.

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Appendix III
Comments From the Assistant Secretary of
Defense (Acquisition and Logistics)

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RECOMMENDATION 1: The GAO recommended that the Secretary of Defense conduct a reevaluation of the SCPS Program, based on specific base and unit information, and develop a detailed plan for managing, operating, and maintaining the SCPS. (p. 3 and p. 20, GAO Draft Report)

DOD RESPONSE: Partially concur. A complete reevaluation of the SCPS Program is not deemed necessary, but the DoD endorses Air Force plans to review its requirements annually to ensure that unit moves, force drawdowns, planning changes, etc., do not produce significant over or understated requirements at any location. (See DoD Position on Finding A.) The Air Force will continue efforts to finalize SCPS operations and maintenance plans, including an overall collective protection regulation and detailed technical orders by April 1987, when installation of the initial increment of SCPSs should be completed. Once this occurs, bases can then finalize their locally specific management plans following Air Force guidelines. Furthermore, the House Appropriations Committee Report No. 99-793 directed the DoD "to submit a coordinated plan which addresses total (collective protection) requirements, the integration of various collective protection efforts among the Services, and details program costs and locations and which relates the program to those of our allies." This plan is in preparation and scheduled to be submitted to the Committee by February 1, 1987.

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RECOMMENDATION 2: The GAO recommended that the Secretary of Defense ensure that the detailed SCPS plan identify requirements for equipment, supplies, and maintenance personnel to maintain and operate the SCPS. (Page 3 and page 20, GAO Draft Report.)

DOD RESPONSE: Partially concur. Air Force SCPS plans will dictate general requirements for equipment, supplies, and maintenance personnel to maintain and operate SCPS. Base commanders, however, will be given flexibility in determining specific equipage of their SCPS and employment of maintenance personnel to meet their needs within local budgeting and manpower constraints. In this way the Air Force can sufficiently standardize shelter operations without impairing the ability of commanders to effectively use their SCPS.

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