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OFFICE OF CIVIL DEFENSE

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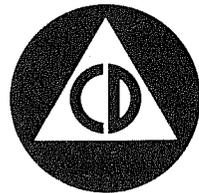
**DEPARTMENT OF DEFENSE
OFFICE OF THE SECRETARY OF THE ARMY**

Annual Report

of the

United States

Office of Civil Defense



For Fiscal Year

1969

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THE SECRETARY OF DEFENSE

WASHINGTON

26 January 1970

MEMORANDUM FOR THE PRESIDENT

In compliance with section 406 of the Federal Civil Defense Act of 1950 and section 5 of Executive Order 10952 of July 20, 1961, I submit herewith the eighth annual report of the Office of Civil Defense, covering civil defense functions assigned to me.

A handwritten signature in black ink, reading "Melvin R. Laird". The signature is written in a cursive style with a large, looping initial "M" and a long, sweeping underline.

MELVIN R. LAIRD

III

DEPARTMENT OF THE ARMY
OFFICE OF THE UNDER SECRETARY
WASHINGTON

29 December 1969

MEMORANDUM FOR THE SECRETARY OF DEFENSE

Submitted by the Director of Civil Defense, Mr. John E. Davis, and transmitted herewith is the eighth annual report of the Office of Civil Defense.

Thaddeus R. Beal

THADDEUS R. BEAL
UNDER SECRETARY OF THE ARMY

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INTRODUCTION

The Civil Defense Program is a necessary complement to our active defensive forces. It is relatively low-cost insurance in the event our deterrent fails or an attack is launched by accident or miscalculation.

The principal goal of the civil defense program continues to be fall-out shelter for the total population wherever they may be, at home, at work, or at school. Civil defense emphasis is on developing a system for the emergency use of existing structures and the management of that emergency system, together with supporting systems. This is accomplished through maximum use of existing manpower, equipment, and facilities of State and local governments and the private sector. A clear cut guideline for the program is to keep it low cost through making the most effective use of existing assets. The existing civil defense capability has proven to be invaluable in peacetime emergencies, e.g., use of attack warning systems for severe weather warning, and the use of State and local emergency operating centers and communications systems in various peacetime disasters.

Despite recent civil defense budget limitations, some substantial advancements in the nationwide civil defense systems during fiscal year 1969 were as follows:

Fallout Shelter Survey

1. *Located* fallout shelter space for 11.6 million persons in 6,698 facilities.—This extended the nationwide inventory to 188.2 million spaces in 195,751 facilities.

2. *Home Fallout Protection Survey* completed in five additional States and the District of Columbia.—This increased the number of completed surveys to 26 States, the District of Columbia and two New York Counties which have identified fallout protection for a total of 30 million home occupants.

Fallout Shelter Development

1. *Fallout Shelter Analysis courses* were completed by 1,947 architects and engineers.—This increased to more than 18,000 the number of fallout shelter analysts.

2. *Technical Publications*.—A total of 56 technical publications on protective construction were distributed, and 8 new technical publications were prepared.

3. *Direct Mail Shelter Development System (DMSDS)*.—The program was expanded from a seven-State test to an operational program

encompassing all States except Hawaii, Nevada, Illinois, South Carolina, Ohio, New York and Rhode Island.

4. *Advisory Services.*—Advisory services were provided to architects and engineers on 749 design projects resulting in recommendations which, if adopted, would add 232,736 shelter spaces to the inventory.

Licensing, Marking, and Stocking of Shelters

1. *Licensed 7,496 facilities.*—This increased the number of licensed facilities to 117,221 having aggregate shelter space for 119.7 million persons.

2. *Marked 1,496 facilities.*—This increased to 108,952 the number of facilities marked, with a total capacity to protect 105.1 million persons.

3. *Stocked 7,371 facilities.*—This increased to 98,445 the number of facilities stocked with sufficient supplies to accommodate 96.6 million persons the capacity of stocked facilities for 8 days, or 58.5 million for 14 days.

4. *Quality Check Program.*—Approximately 6,000 quality check reports on the status of shelter supplies were received for processing and analyses by automatic data processing.

Shelter Use

1. *Community Shelter Planning (CSP).*—Funds were available in fiscal year 1969 to provide for 29 CSP contracts. A cumulative total of 223 contracts had been negotiated to provide for the development of emergency shelter use plans in 292 counties with a population of nearly 62 million people. Forty-six officer contracts with States were in effect at the end of the fiscal year.

2. *Community Shelter Plan Publications.*—OCD funded CSP instructions to the public for distribution to 20 million people in 354 local jurisdictions throughout the United States, and of this number, instructions had been issued for 282 CSP areas covering 11,500,000 people.

Warning and Emergency Operations

1. *National Warning System (NAWAS).*—The system was expanded by the addition of 25 warning points at Federal installations and selected locations throughout the United States, bringing the total number of State and local warning points to 1,017.

2. *Civil Defense Teletype and Data System (NACOM-1).*—The system modernization was begun with the installation of computer terminals at OCD Regions Six and Eight. Dedicated, full period, leased teletype circuits were installed from Region Six to OCD National Headquarters, an emergency relocation site, and the other OCD

Regional Headquarters. Teletype service was installed between OCD Region One and Puerto Rico.

3. *Voice Communications Services (AUTOVON)*.—AUTOVON improvement was begun with the ordering of 43 additional AUTOVON circuits for use between OCD Headquarters locations and OCD regions. Additional dedicated, full-period, leased voice circuits also were ordered for Region-to-State use.

4. *Automatic Digital Network (AUTODIN)*.—AUTODIN terminals at four OCD regional offices have now been equipped with secure on-line communications.

5. *Civil Defense Radio System (NACOM-2)*.—NACOM-2 serving as a backup to NACOM-1 and Voice Communications Services, was extended to one additional State making it operational in 43 States, the District of Columbia, Puerto Rico, and the Canal Zone. Agreements have been signed with the remaining seven States and American Samoa.

6. *Emergency Broadcast System (EBS)*.—The EBS with 2,767 broadcasting stations, had 617 participating with OCD in a fallout protection program to insure operational capability in a radioactive fallout environment. A total of 573 radio stations had completed construction for fallout protection and 539 had been provided with required equipment.

7. *Regional Emergency Operating Centers*.—Centers at Regions Six and Eight were completed and became operational. Centers at Regions One and Five were completed in previous years.

8. *State and local Emergency Operating Centers (EOCs)*.—A total of 3,099 State and local EOCs were established or were in the process of being established. The number assisted by Federal funds totaled 1,036, and 2,063 centers were established without Federal financial assistance.

9. *Emergency Operations Systems Development (EOSD)*.—Emphasis was continued on developing systems for the orderly increase of civil defense readiness in periods of heightened international tension, and on providing guidance to State and local governments on actions to take during such a period.

10. *Annual Program Papers and Progress Reports*.—Program papers and related progress reports were submitted to OCD by the 50 States, Puerto Rico, American Samoa, Guam, the District of Columbia and nearly 4,400 political jurisdictions, covering about 88 percent of the U.S. population.

11. *Radiological Monitoring Network*.—The network was strengthened by the addition of 1,789 monitoring stations, making a cumulative total of 67,622 operational stations. A total of 9,296 public fallout

shelters were supplied with radiation monitoring kits, making a total of 103,562 shelters provided with 114,643 radiation kits.

Support

1. *Personnel and Administrative Expenses.*—All States, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the District of Columbia and approximately 1,995 political subdivisions had civil defense organizations participating in OCD Financial Assistance programs. These organizations were staffed by approximately 5,959 paid civil defense personnel.

2. *Emergency Public Information Kits.*—Kits of civil defense emergency public information materials offering official guidance on protective measures that the public could take during a nuclear emergency had reached 5,018 of a total of 11,306 newspapers, and 2,721 out of a total of 5,615 radio stations at fiscal yearend.

3. *Community Action Publications.*—Nearly a quarter of a million community action series publications were distributed, making a cumulative total of 2,628,308 since the first publication of the series was distributed in fiscal year 1964.

4. *Labor Liaison.*—Liaison with labor organizations accelerated their support of civil defense at all levels of government. As a result of labor leadership training seminars, 38,109 copies of the labor civil defense 10-point manual "How Does This Affect You" were distributed throughout the Nation.

5. *Industrial Participation.*—Liaison with commerce, business and industry accelerated the distribution of civil defense information to industrial employees and helped expand the nationwide fallout system in industrial facilities, and increased facility emergency preparedness to a higher degree of readiness for disaster.

6. *International Activities.*—Participation in international civil defense activities of the North Atlantic Treaty Organization and the U.S./Canada Civil Emergency Planning Committee provided for a meaningful exchange of concepts and for development of compatible plans for cooperation with Canada in civil defense operations.

7. *Research and Development.*—Research has continued to improve the technical information base and the equipment and methodology used in civil defense operations and planning.

8. *Staff College.*—A total of 1,023 persons completed 41 courses at the OCD Staff College. This brings the number of OCD graduates since fiscal year 1951 to a cumulative total of 53,192.

9. *Civil Defense University Extension Program (CDUEP).*—Through the CDUEP 45,463 key State and local officials were briefed on civil defense, increasing the total to 286,424 so trained.

10. *Home Study Course*.—Nationwide deployment of a home study course, "Civil Defense U.S.A.," had an enrollment of 25,000 students by fiscal yearend, and 5,000 students had successfully completed the course.

11. *Personal and Family Survival Training*.—In public education, more than 345,000 persons were trained in "Personal and Family Survival," making a cumulative total of more than 2.6 million so trained.

12. *Medical Self-Help Training*.—Despite the termination of most of the contract personnel on November 30, 1968, there were 2,412,738 persons trained in this program resulting in the most productive year ever experienced in Medical Self-Help training. Success can be attributed to program momentum generated by the continued interest and hard work of State Health Department and Civil Defense personnel, and the simplification of instructor reporting resulted in more courses being reported. Materials distributed during fiscal year 1969 were enough for 2,522,175 students.



PART II

THE NATIONAL CIVIL DEFENSE PROGRAM

“WHILE IT HAS BEEN NECESSARY TO LIMIT OUR CIVIL DEFENSE BUDGET REQUEST TO A MINIMUM LEVEL, IN VIEW OF THE HIGHER PRIORITY SOUTH-EAST ASIA ORIENTED REQUIREMENTS, WE BELIEVE AN EFFECTIVE CIVIL DEFENSE PROGRAM IS AN ESSENTIAL AND PRUDENT ELEMENT IN OUR DEFENSE PLANNING. IT WOULD MAKE A MAJOR CONTRIBUTION TO THE PROTECTION OF THE POPULATION IN THE EVENT OF A LARGE SCALE NUCLEAR ATTACK. ACCORDINGLY, THE MAJOR OBJECTIVE OF THE CIVIL DEFENSE PROGRAM CONTINUES TO BE THE DEVELOPMENT OF A NATIONWIDE SHELTER SYSTEM TO PROTECT THE POPULATION FROM RADIOLOGICAL FALLOUT.”

This statement by the Secretary of the Army, presented to the Committee on Appropriations, United States Senate in July 1969, emphasized the importance of civil defense in the over-all defense planning of our Nation.

RESPONSIBILITIES AND PROGRAMS

The Federal Civil Defense Act of 1950, as amended, Public Law 920—81st Congress, states the intent of the Congress of the United States to “provide a system of civil defense for the protection of life and property in the United States from attack.” The same Act also established a Federal agency, to be responsible for a National Civil Defense Program.

The Office of Civil Defense (OCD), within the Department of Defense, acts for the Secretary of the Army in developing and administering the over-all National Civil Defense Program, which includes:

1. A fallout shelter program.
2. A civilian chemical, biological, and radiological warfare defense program.
3. Development and operation of civil defense warning and communications systems.
4. Planning for emergency assistance to State and local governments in a postattack period.

5. Guidance and assistance to State and local governments to increase their protection and emergency operations capability.

6. Programs for financial contributions and donation of Federal surplus property to the States for civil defense purposes.

7. Developing systems to conduct nationwide assessments in event of attack to determine: (a) the nature and extent of damage, (b) surviving resources, and (c) specific hazards resulting from the detonation or use of special weapons.

In support of the foregoing responsibilities, OCD conducts the following programs: Research and Development, Training and Education, Emergency Public Information, and Industrial Participation.

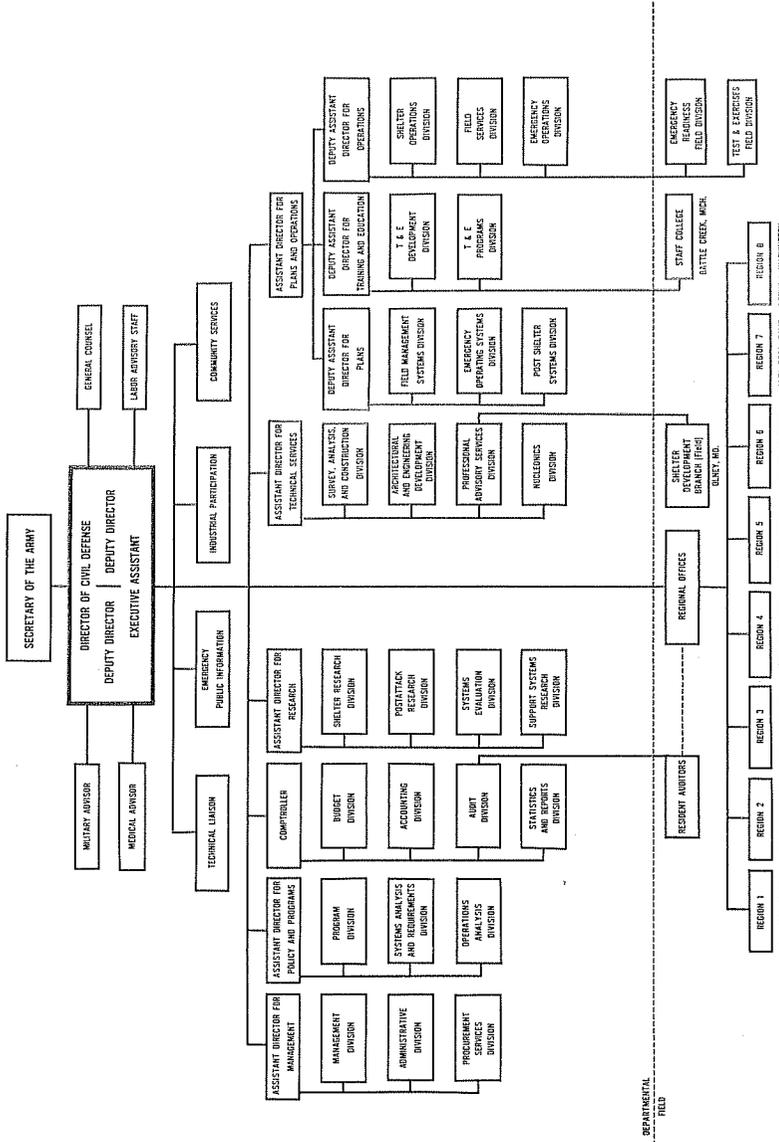
OCD also advises the Secretary of the Army on military support to civil defense; and participates in emergency exercises involving elements of DoD and other Federal agencies, and State and local governments.

ORGANIZATION AND MANAGEMENT

Organization.—The Office of Civil Defense is organized at the “Assistant Secretary” level in the Office of the Secretary of the Army, and is civilian in character and direction. The Director of Civil Defense in charge of the OCD is directly responsible to the Secretary of the Army. Legally, the bases for this responsibility are P.L. 920 and departmental directives issued by the Secretary of Defense pursuant to Executive Order 10952, *Assigning Civil Defense Responsibilities to the Secretary of Defense and Others*, effective August 1, 1961. The Assistant Secretary of Defense (Civil Defense) was in charge of the OCD from August 31, 1961, to March 31, 1964, when the civil defense functions and responsibilities delegated to the Secretary of Defense by Executive Order 10952 were assigned to the Secretary of the Army, who established the OCD within his office and delegated the functions to the Director of Civil Defense.

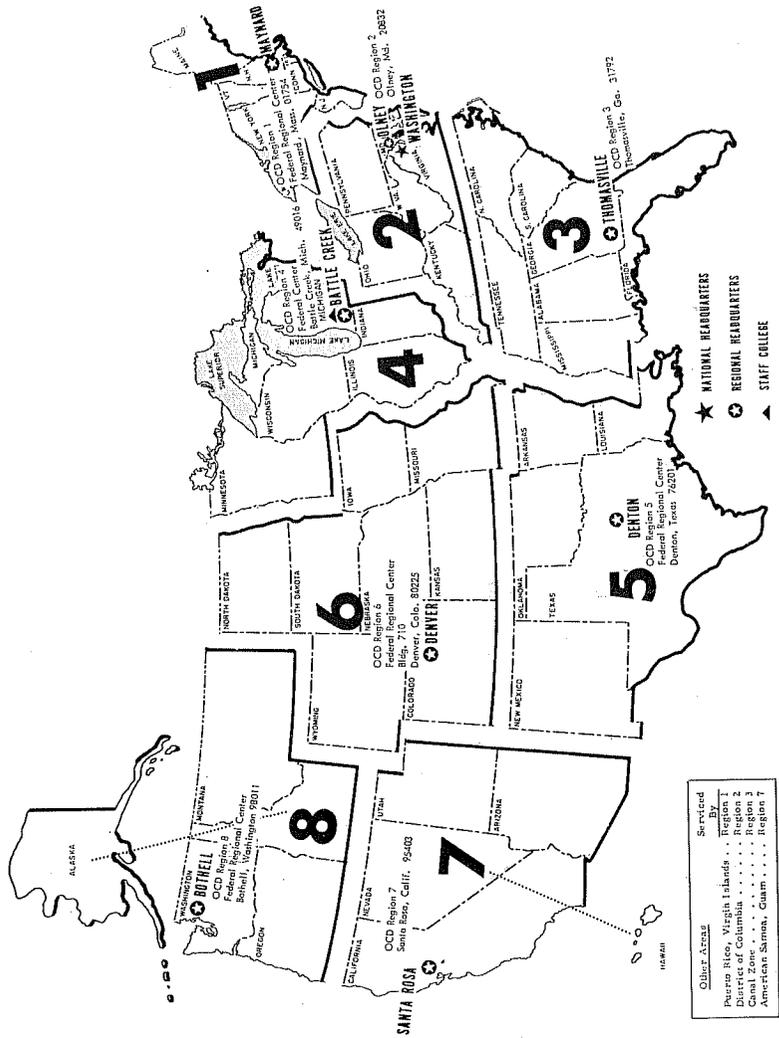
OCD Headquarters is located at the Pentagon in Washington, D.C. In addition, there are eight OCD Regional Offices, located at Maynard, Mass., Olney, Md., Thomasville, Ga., Battle Creek, Mich., Denton, Tex., Denver, Colo., Santa Rosa, Calif. and Bothell, Wash. There is also an OCD Staff College at Battle Creek, Mich. The organizational structure of the OCD at the end of fiscal year 1969 is shown in figures 1, and 2.

In the *Independent Offices Appropriations Act for Fiscal Year 1969* (Public Law 90-550), the Congress authorized a personnel ceiling for OCD of 787 positions; i.e., 44 less than in fiscal year 1968. Subsequently, implementation of Public Law 90-364 during this fiscal year



OCD CHART 1
JUNE 30, 1949

Figure 1.—OCD organization chart.



FEBRUARY 1969

Figure 2.—OCD regions.

resulted in limiting the hire level to 778 or 9 below the yearend authorized manpower ceiling. The 787 OCD personnel spaces authorized at the end of the fiscal year were distributed as follows: 336 at the departmental level, 398 at eight OCD regional offices, and 53 at various other field locations.

Management.—During fiscal year 1969, the OCD continued to apply effective techniques in the management of major operational projects and programs. For example:

1. The Contract Register provided an automated means for reporting data for improved contract management on all OCD contracts. Improvements to the system and extension of its use were continued throughout fiscal year 1969, particularly in financial management and performance reporting.

2. The Integrated Management Information System (IMIS) computer-processed the fiscal year 1969 local program papers and progress reports, and furnished summarized information on planned and accomplished efforts in civil defense programs at local levels. Turn-around forms provided progress reports for each 6-month period during the year. National, regional, and State summaries were also available in output reports from this system.

3. A system for monitoring the Overtime policy for the OCD has been established, providing a comprehensive view of this operation. Quarterly reports are prepared to aid in the control of the program.

4. The Architects and Engineers Directory was in constant use during the year. Periodic updating of the data file added information on new fallout shelter analysts as they completed training courses.

5. The Emergency Operating Center (EOC) Report provided an automated means for processing, summarizing, and analyzing information on the construction and readiness of State and local government EOC's.

6. The Home Fallout Protection Survey provided individual homeowners with computer calculated estimates of the fallout protection afforded by their homes, and also provided OCD with planning information.

7. The computer-oriented Damage Assessment System provided estimates of the potential range of damage resulting from varying enemy capabilities in an assumed or actual attack. The system also included backup for the manual computation of damage.

8. Management analysis studies and on-site management surveys were conducted as part of our continuing review of the OCD organization to insure an effective organizational structure and efficient utilization of resources.

To provide data for efficient administration and to insure compliance with program requirements, internal reviews were conducted at one OCD Regional Office and approximately 300 local political subdivisions. As a result of the on-site reviews conducted at the local political subdivisions, 101 internal review reports were issued during fiscal year 1969 covering local program papers and shelter stocking data. Forty-one of these reports covered the program papers of 212 local political subdivisions. The other sixty reports covered the shelter stocking data of 295 local political subdivisions.

Financial audits were performed in every State and approximately 600 local political subdivisions. These audits covered expenditures for State and local personnel and administrative expenses; supplies, equipment, and training expenses; and Emergency Operating Center expenses. They included recommendations for cost reductions amounting to over \$225,000 and resulted in improving the efficiency of program administration as well as clarifying policy decisions and operational procedures.

During fiscal year 1969, 34 audit reports were issued on Radiological Defense Equipment Maintenance Agreements and 37 audit reports were issued on Community Shelter Planning State Contracts. These reports, which covered a dollar volume of over \$2,300,000 and recommended cost reductions of approximately \$10,000, resulted in clarification of the applicable cost principles and terms of the agreements.

FEDERAL RESOURCES

Resources of the Department of Defense, including those of the Armed Forces, as well as those of numerous other Federal agencies were widely used in developing and operating the civil defense program. For the eighth consecutive year, the OCD continued to coordinate this support at the Federal level.

Department of Defense Activities

Extensive use of DoD resources is indicated throughout this report, but some of the major support activities are summarized in this section.

The nationwide fallout shelter survey operations, principally updating in nature during fiscal year 1969, were conducted for the OCD by the Army Corps of Engineers and the Naval Facilities Engineering Command. These agencies conducted nationwide updating surveys including surveys of small structures in community shelter planning areas, assisting in engineering case studies, and training fallout shelter analysts. The Army Corp of Engineers operated the National Civil Defense Computer Facility, and let and managed CSP contracts.

Under OCD policy direction and control, the Defense Supply Agency furnished logistics support in managing OCD shelter supplies. This included all logistical operations involving shelter supplies, management of the OCD emergency engineering equipment, and the use of technical military capabilities for food and container research and development of procurement specifications, when needed. The Civil Defense Materiel Division of the Defense Supply Agency, using Veterinary Corps inspectors, examined all classes of civil defense shelter supplies under the Quality Check Program. The Military Traffic Management and Terminal Service of the Department of the Army determined routes, carriers, and transportation costs for shipping shelter supplies between warehouses.

Under OCD policy control, the management, direction, technical operations, and maintenance of civil defense communications systems, including the Civil Defense Telephone and Teletype System, the Civil Defense Radio System, and the National Warning System, were the responsibility of the U.S. Army Strategic Communications Command. The OCD warning centers relied upon the North American Air Defense Command for warning information.

Publications services, such as procuring printing and binding, distributing new publications, maintaining reserve stocks, and filling requisitions from State and local governments and the general public, were provided by The Adjutant General's Office, Department of the Army.

Information and studies supporting the role of civil defense in national defense and required for OCD damage assessment and operational planning were furnished by the Joint Chiefs of Staff, the Defense Atomic Support Agency, the Weapons Systems Evaluation Group, and the National Military Command Systems Support Center.

Military training resources were provided for civil defense purposes. Subordinate commands of the U.S. Continental Army Command trained State and local personnel in radiological monitoring and explosive ordnance reconnaissance. The Army Pictorial Service developed and produced the scripts for training and educational films for the OCD and the Army Audio-visual Support Centers distributed all OCD films. The U.S. Army Military Police School, Fort Gordon, Ga., included civil defense material in courses offered to industrial managers and executives.

The Surgeon General of the Army contributed training in handling mass casualties for U.S. Army Reserve and National Guard personnel as well as for personnel of civil defense agencies.

The Civil Air Patrol, an auxiliary of the Air Force continued to cooperate with the OCD in planning procedures for performing emergency air flight missions.

The United States Coast Guard continued to cooperate with the OCD in monitoring NAWAS 24 hours a day at the Rescue Coordination centers for the purpose of forwarding OCD warnings of enemy attack and radiological fallout to merchant vessels in or near the territorial waters.

Civil defense guidance materials were distributed by industrial defense survey officers of the Continental Army Command, and its subordinate numbered Army Area Commands, the Army Materiel Command, and the Army Corps of Engineers in connection with their surveys of certain industrial facilities important to the national defense. Recommendations made by the survey officers relating to their inspection of physical security and emergency preparedness measures at these facilities are consistent with guidance material issued by the OCD.

The Army has primary Service responsibility for military support of civil defense functions within the continental United States, and all Services recognize the need for a strong civil defense program in presenting and maintaining a credible deterrent against general war. The Services represent a major source of assistance to civil defense because of their organization, specialized equipment, disciplined manpower, and long experience in dealing with emergencies.

State Adjutants General, when federalized as State Area Commanders, exercise operational command over military units made available for postattack military support of civil defense missions within each State. The Commanding General, U.S. Continental Army Command, and the Continental U.S. (CONUS) Army Commanders direct preattack military support of civil defense planning carried on by CONSUS-based Adjutants General while in a State status. In Alaska, Hawaii, and Puerto Rico, similar preattack and postattack arrangements are the responsibility of the appropriate unified command.

DoD has authorized the Military Departments to permit members of the Ready and Standby Reserve to participate in training for military support of civil defense (DoD Directive 1215.6). The Service Secretaries may award training points, creditable for promotion and retirement purposes, for such participation. Volunteer Training Units (VTUs) are authorized to perform preattack planning and training in either civil defense or military support of civil defense. VTUs may be organized to assist any military headquarters in planning military support of civil defense or any civil defense office in planning civil defense. VTUs are not intended to be post attack operational units.

The OCD continued to coordinate the civil defense work of Federal agencies to assure that functions were carried out in consonance with

civil defense responsibilities assigned to the Secretary of Defense by Executive Order 10952, July 20, 1961. Much of this coordination was achieved within the framework of several other Executive Orders assigning civil defense responsibilities and emergency preparedness functions to various departments and agencies.

Effective coordination and progress were also achieved in civil defense through contractual arrangements with several departments and agencies. This enabled the OCD to use its special competence in coordinating and expediting many of its functions in accordance with Executive Order 10952. These arrangements are discussed, as applicable, throughout this report; e.g., the Medical Self-Help and Civil Defense Adult Education Programs conducted for the OCD by the Department of Health, Education, and Welfare; and civil defense research, compiling damage assessment data, and rural civil defense work carried out by the Department of Agriculture.

The OCD continued to work closely with the Office of Emergency Preparedness and other Federal agencies in developing postattack plans to manage survival resources.

The Interagency Civil Defense Committee continued to enhance the value of daily contacts and working relationships between personnel of Federal agencies pursuing related civil defense objectives.

Established in fiscal year 1963, the Regional Civil Defense Coordinating Boards continued to coordinate civil defense planning of military departments and Federal agencies with State and local civil defense operations.

STATE AND LOCAL PARTICIPATION

In attaining its program objectives, OCD works closely with State and local governments to develop their capability for taking effective action in time of emergency. This is in keeping with a declaration in the Federal Civil Defense Act that the responsibility for civil defense "shall be vested jointly in the Federal Government and the several States and their political subdivisions."

The concept of "civil defense" in the United States is that of the normal forces of Federal, State, and local government being organized—with supplementary forces as required—to meet the effects of attack.

In the civil defense program, the Office of Civil Defense works with the 50 States, Puerto Rico, the Virgin Islands, Guam, American Samoa, and the District of Columbia; and through the States, with more than 1,700 counties or parishes, and more than 2,700 incorporated local governments.

Evidence of nationwide participation in the civil defense program was the fact that 78 percent of all counties and more than 95 percent of the larger cities had some stocked public fallout shelters.

There were 5,959 full or part-time civil defense personnel, paid with the help of Federal matching funds, functioning as part of State and local civil defense organizations that are legally an integral part of civil government under the authority of elected officials. Under OCD guidance, these organizations also relied upon many additional State and local government employees and volunteers trained to carry out specific civil defense assignments.

As in former years, the operational readiness of many State and local civil defense organizations was tested in dealing with the effects of peacetime disasters. Major disaster activities in which civil defense played a significant role during fiscal year 1969 included Hurricane Gladys during October 1968, and the pipeline disaster in Lima, Ohio, in January 1969, as well as the California Floods in January 1969. (See app. 1).

FINANCIAL SUMMARY

Funds available during fiscal year 1969 for carrying out civil defense operations totaled approximately \$69.2 million; \$60.4 million of new fiscal year 1969 appropriations, \$8.6 million carried over into fiscal year 1969 from prior year appropriations (which includes \$.5 million which was transferred to Operation and Maintenance, CD from the Civil Defense Procurement Fund) and \$.2 million in reimbursable orders from other agencies. Of this total, \$68.2 million was apportioned by the Bureau of the Budget early in the year for execution of the fiscal year 1969 program and \$1.0 million was apportioned at yearend to finance part of the fiscal year 1970 program.

Table 1 shows the planned application of the funds programmed for obligation in fiscal year 1969, and the actual obligations for specific budget activities. The Office of Civil Defense obligated \$64.4 million, or 94 percent, of the \$68.2 million programmed for obligation.

TABLE 1.—Financial summary for fiscal year 1969

[In thousands]

Budget activity	Funds pro-grammed for obligation	Funds obligated
GRAND TOTAL.....	\$68, 249	\$64, 352
OPERATIONS AND MAINTENANCE TOTAL.....	48, 565	48, 368
Warning and detection.....	3, 067	3, 058
Warning systems.....	471	469
Detection and monitoring systems.....	285	284
Warehousing and maintenance.....	2, 311	2, 305
Emergency operations.....	9, 103	9, 033
Training and education.....	5, 853	5, 835
Emergency operations systems development.....	541	538
Emergency information.....	1, 503	1, 473
Damage assessment.....	943	935
Broadcast station protection program.....	119	108
Other emergency operations activities.....	144	144
Financial assistance to States.....	23, 083	23, 082
Personnel and administrative expenses.....	19, 100	19, 100
Survival supplies, equipment training.....	1, 557	1, 580
Emergency operating centers.....	2, 426	2, 402
Management.....	13, 311	13, 195
RESEARCH, SHELTER SURVEY AND MARKING, TOTAL.....	19, 680	15, 982
Shelters.....	14, 300	10, 926
Shelter survey and marking.....	5, 586	4, 277
Shelter provisions.....	10	2
Warehousing and transportation.....	3, 240	2, 217
Federal regional emergency operating centers.....	280	150
Shelter development.....	5, 183	4, 281
Research and development.....	5, 380	5, 056
CONSTRUCTION OF FACILITIES, TOTAL.....	4	2

Amounts may not add due to rounding.



PART III

FALLOUT SHELTER

The objective of the National Fallout Shelter Program is to provide the entire population of the United States with protection from fallout radiation that could result from nuclear attack.

Development of the nationwide public fallout shelter system, as an integral part of the total defenses of this Nation, is the core of the civil defense program. All other civil defense activities support the shelter program. The program is focused not only on fallout shelter, but also on the preparations necessary for effective use of the shelter system in event of attack. This part of the report describes fiscal year 1969 activities designed to expand and strengthen the fallout shelter system in each community.

SURVEYS

During fiscal year 1969, emphasis continued on the performance of engineering surveys of existing structures across the United States to identify the fallout protection inherent in such structures and to make the most efficient use of shelter space located. Damage limiting studies of potential attacks against both military and civilian targets have consistently concluded that fallout shelter offers substantial lifesaving potential at the lowest cost.

Support of the program at the Federal level was coordinated by the Office of Civil Defense and included use of resources of the Department of Defense as well as those of other Federal Agencies.

A National Fallout Shelter Survey (NFSS) was started in late 1961 to locate potential fallout shelter space in large structures—space meeting DoD shelter standards and which would accommodate 50 or more persons in the event of attack. In addition, the survey identifies fallout protection in smaller buildings, other than one-, two-, and three-family homes (shelter capacity of 10 to 49 persons), where needed. Surveys also were extended to private householders under the Home Fallout Protection Survey (HFPS) aimed at the more than 29 million U.S. homes with basements. The handling of the forms for the surveys are highly automated with the Army Corps of Engineers managing the NFSS survey and the U.S. Bureau of the Census conducting the HFPS survey for OCD.

The National Fallout Shelter Survey

Some protection from radioactive fallout exists in all structures because building material reduces by varying degrees the amount of

radiation to which a person would be exposed. This reduction of radiation intensity results from the amount of structural mass and the distance between the source of radiation outside the building and the person within.

The purpose of a fallout shelter program is to provide enough shielding to reduce radiation doses to non-fatal or non-disabling levels. Public fallout shelters in this program fall into two categories: (1) Those with space for at least 50 persons and a minimum protection factor (Pf) of 40, and (2) those with space for 10 to 50 persons and a Pf of at least 40. Pf expresses the relation between the amounts of radiation received by an unprotected person and by a person inside the shelter. Thus an unprotected person would receive 40 times more radiation than a person at the same location inside a shelter with a Pf of 40. During fiscal year 1969, the survey continued to include structures omitted before fiscal year 1967 in the basic National Fallout Shelter Survey because they did not meet the minimum criteria of Pf 40. The search for the best available protection has been limited to the southern and southwestern States where few homes have basements.

During fiscal year 1969, survey operations continued to be principally of an updating nature. The operations consisted of adding new facilities to the inventory, deleting those which had been demolished or would no longer qualify as shelter facilities.

There were 11.6 million additional public fallout shelter spaces located during fiscal year 1969, and the nationwide shelter inventory was increased by 6,698 facilities, increasing the grand total to 195,751 facilities with an aggregate capacity of about 188.2 million spaces. (See tables 2 and 3.)

TABLE 2.—Summary of progress in public fallout shelter program, fiscal year 1969

Program action	Number of facilities (in thousands)				Number of spaces (in millions)			
	End of fiscal year 1968, total	End of fiscal year 1969, total	During fiscal year 1969		End of fiscal year 1968, total	End of fiscal year 1969, total	During fiscal year 1969	
			Gain	Percent gain			Gain*	Percent gain
Located.....	189. 1	195. 8	6. 7	4	176. 5	188. 2	11. 6	7
Licensed.....	109. 7	117. 2	7. 5	7	108. 9	119. 7	10. 8	10
Marked.....	107. 5	109. 0	1. 5	1	101. 1	105. 1	4. 0	4
Stocked.....	91. 1	98. 4	7. 3	8	52. 7	58. 5	5. 8	11
Rated capacity of facilities stocked.....					88. 1	96. 6	8. 5	10

*Totals may not add due to rounding.

TABLE 6.--FALLOUT SHELTER LOCATED, LICENSED, MARKED, AND STOCKED FISCAL YEAR (FY) 1968^{1/}

(Protection factor of 40 or higher, 50 or more spaces per facility)

Area	L O C A T E D				L I C E N S E D				M A R K E D				S T O C K E D (With General Supplies)							
	Facilities		Spaces (000)2/		Facilities		Spaces (000)2/		Facilities		Spaces (000)2/		Facilities		Spaces (000)2/		Rated Capacity		Stocked Capacity	
	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968	During FY 1968	Cumulative, End of FY 1968
TOTAL	13,557	189,053	16,302	176,539	9,257	109,725	10,186	108,883	6,438	107,456	8,389	101,053	8,033	91,075	9,634	88,058	5,682	52,748		
REGION ONE	1,371	64,372	1,772	52,881	2,348	34,294	1,995	30,491	953	38,233	1,267	30,694	2,410	28,357	2,473	24,115	1,684	14,665		
Connecticut.....	11	2,889	38	2,231	37	1,914	17	1,655	19	1,549	11	1,297	16	1,670	1	1,281	-3	961		
Maine.....	101	1,019	63	522	192	737	93	440	188	777	96	441	175	617	74	349	63	285		
Massachusetts.....	170	7,191	149	5,613	258	3,918	142	3,059	235	3,775	103	2,936	212	2,757	136	2,223	118	1,422		
New Hampshire.....	24	590	18	290	92	415	45	207	99	398	45	194	48	341	20	172	29	150		
New Jersey.....	-117	7,807	290	6,575	60	4,057	201	3,863	-357	3,772	35	3,783	169	3,109	298	3,207	275	1,782		
New York.....	914	41,610	1,146	35,648	1,354	21,059	1,393	19,964	443	26,174	856	20,964	1,498	18,273	1,856	15,921	1,056	9,364		
Rhode Island.....	108	1,174	54	861	233	907	85	672	320	698	122	529	205	662	56	513	104	354		
Vermont.....	21	375	5	171	30	293	13	143	23	286	11	145	11	267	1	130	4	93		
Puerto Rico.....	139	1,702	9	968	92	981	4	486	-17	791	-10	404	76	648	30	317	39	252		
Virgin Islands....	0	15	0	2	0	13	0	2	0	13	0	2	0	13	0	2	0	2		
REGION TWO	3,806	39,381	4,722	37,786	1,752	21,297	2,245	22,675	2,266	21,453	2,707	21,976	1,227	16,639	1,839	18,336	538	8,709		
Delaware.....	64	748	31	511	41	488	21	405	75	416	28	347	26	457	17	335	13	135		
Dist. of Columbia.	1,475	5,626	1,434	6,461	340	1,603	596	3,663	330	1,538	579	3,493	81	1,214	467	3,220	29	704		
Kentucky.....	50	1,719	85	2,204	78	1,196	86	1,550	34	1,200	53	1,493	70	1,075	56	1,289	16	945		
Maryland.....	365	2,943	1,174	3,461	136	2,011	208	1,908	251	1,905	311	1,761	121	1,640	153	1,492	64	864		
Ohio.....	360	7,735	287	6,871	226	4,565	310	3,812	24	4,873	87	3,816	211	3,464	137	2,733	49	1,778		
Pennsylvania.....	773	14,852	1,215	14,093	663	8,650	846	8,934	1,083	8,260	1,354	8,437	517	6,699	851	7,370	247	3,122		
Virginia.....	681	4,806	433	3,583	261	2,175	176	2,027	469	2,592	275	2,218	193	1,568	144	1,583	115	881		
West Virginia.....	38	952	62	601	7	609	4	378	0	669	18	411	8	522	11	312	6	281		
REGION THREE	1,683	13,430	2,086	14,196	1,021	9,349	974	9,600	474	7,868	457	8,155	691	7,861	645	7,807	438	5,444		
Alabama.....	-12	1,880	88	1,442	99	1,500	124	1,163	43	1,399	26	996	111	1,370	62	1,029	53	829		
Florida.....	581	2,539	1,252	3,875	143	1,316	139	1,802	-5	1,110	14	1,598	60	1,025	111	1,424	47	865		
Georgia.....	271	2,557	155	3,571	244	1,952	135	2,788	161	1,463	202	2,366	162	1,554	202	2,290	90	1,203		
Mississippi.....	44	631	33	425	33	530	29	385	22	534	21	381	33	473	28	369	20	359		
North Carolina....	444	2,590	372	2,062	272	1,833	262	1,541	92	1,178	53	936	165	1,517	120	1,195	91	910		
South Carolina....	134	921	39	646	123	680	44	474	118	607	45	417	88	513	40	370	61	320		
Tennessee.....	166	2,059	132	2,087	107	1,460	242	1,398	43	1,503	94	1,411	72	1,331	83	1,081	76	906		
Canal Zone.....	55	253	19	90	0	78	1	50	0	74	0	49	0	78	1	50	0	52		
REGION FOUR	1,443	25,445	2,142	26,788	1,144	15,879	1,499	16,528	506	14,339	913	14,167	1,292	14,225	1,819	13,054	830	8,057		
Illinois.....	141	8,385	49	10,307	277	4,873	171	5,785	54	4,155	3	4,612	592	4,210	746	3,784	243	2,183		
Indiana.....	92	2,912	156	2,307	61	1,755	131	1,661	19	1,779	87	1,484	59	1,589	91	1,423	61	1,136		
Michigan.....	271	5,213	906	6,475	92	3,059	369	3,829	-20	2,851	231	3,501	88	2,692	265	3,237	68	1,483		
Minnesota.....	714	4,386	778	4,109	331	2,964	515	3,035	253	2,807	432	2,699	203	2,768	457	2,637	244	1,713		
Wisconsin.....	225	4,549	252	3,356	383	3,228	313	2,218	200	2,747	162	1,871	350	2,966	260	1,973	216	1,543		
REGION FIVE	955	9,651	1,216	10,913	580	7,052	1,149	8,185	318	6,453	1,087	7,441	432	6,142	955	7,050	798	4,857		
Arkansas.....	106	1,587	42	913	65	1,259	75	773	65	1,243	38	753	34	1,130	30	666	31	446		
Louisiana.....	96	1,022	81	1,401	16	658	32	864	39	726	44	959	62	602	104	814	218	692		
New Mexico.....	87	651	61	408	35	511	43	328	2	436	9	270	44	506	26	303	32	297		
Oklahoma.....	207	1,723	262	1,553	91	1,379	209	1,287	28	1,337	131	1,227	45	1,338	184	1,215	149	1,020		
Texas.....	459	4,668	769	6,638	373	3,245	791	4,932	184	2,711	865	4,233	247	2,566	610	4,052	369	2,403		
REGION SIX	1,760	18,207	1,025	12,498	1,109	11,342	792	8,139	918	10,412	623	7,605	996	8,860	660	6,846	600	4,491		
Colorado.....	401	2,244	254	1,870	267	1,453	229	1,291	209	1,237	151	983	205	1,147	149	1,078	141	881		
Iowa.....	148	2,385	92	1,396	114	1,765	57	1,006	80	1,833	67	1,102	132	1,462	81	829	95	656		
Kansas.....	256	3,081	109	1,834	102	1,946	56	1,347	122	2,082	67	1,405	85	1,551	35	1,141	33	702		
Missouri.....	249	4,539	243	4,904	87	2,201	173	2,743	7	1,958	74	2,584	43	1,624	82	2,264	26	1,000		
Nebraska.....	319	3,378	217	1,389	174	2,023	112	855	166	1,844	134	787	233	1,503	191	786	174	586		
North Dakota.....	19	928	13	419	175	743	96	367	130	504	61	278	188	635	70	303	77	283		
South Dakota.....	282	1,106	75	445	175	831	62	362	200	639	66	307	73	634	33	307	32	252		
Wyoming.....	86	546	22	241	15	380	8	169	4	315	3	159	37	304	20	138	24	132		
REGION SEVEN	1,834	12,727	2,811	16,816	754	6,242	1,100	9,796	595	5,010	982	7,911	522	5,157	858	7,834	492	4,187		
Arizona.....	120	699	256	783	62	417	114	445	76	350	145	378	41	357	57	314	23	252		
California.....	1,247	8,767	2,029	14,113	490	4,407	713	8,237	376	3,525	670	6,715	276	3,539	572	6,603	308	3,259		
Hawaii.....	87	570	156	500	65	344	114	354	3	220	21	202	65	276	80	276	31	128		
Nevada.....	81	387	139	397	54	288	96	294	29	162										

Special shelter surveys and other techniques were also used to help locate additional shelter space where needed. Results of survey operations were made available to State and local planning officials to help them provide fallout protection for the people in their area of responsibility.

Home Fallout Protection Survey

The Home Fallout Protection Survey (HFPS), after active development and testing for several years, was first deployed in Rhode Island in early 1966. Using Bureau of the Census techniques, the survey collects data from householders to identify and inventory the amount and quality of fallout protection in home basements. The identification of fallout protection in homes is of significant value to the householder as well as to community shelter planners, as a shortage of acceptable public fallout shelter exists, particularly in residential areas, in many parts of the country. Technical aspects of the program were developed in close cooperation with the Subcommittee on Radiation Shielding of the Advisory Committee on Civil Defense, National Academy of Sciences.

Under OCD sponsorship, the Bureau of the Census conducts the survey by mailing a questionnaire to householders in one-, two-, and three-family homes. These are filled out and returned to the Census Bureau for computation of protection factors in each home with a basement. Usually, places of less than 10,000 population, where addresses are not available, are covered by enumerators. The information on each home is confidential to the householder and the Census Bureau. For the majority of householders, the survey provides information for the first time on whether or not fallout shelter protection exists in the basements of their homes.

Every respondent whose home has a basement is mailed a specially prepared booklet titled "Fallout Protection for Homes with Basements," H-12, which provides information on the degree of fallout protection in the basement and means of improving this protection. If the home does not have the minimum protection suggested, Pf-40, the family is provided several alternatives for improvement. The alternatives include actions which could be taken in a relatively short time during a period of increased tension. In addition, a return card is included for requesting detailed fallout protection construction plans and a list of materials with approximate costs.

Families responding, in homes without basements, are furnished an emergency information booklet titled "In Time of Emergency," H-14, and are advised to seek public shelter in an emergency and contact their local civil defense authorities for additional information.

TABLE 4.—Home Fallout Protection Surveys, through fiscal year 1969

[In thousands, except percents]

Completed States	Homes covered	Mail questionnaires			Homes covered by enumerators	Shelter space identified ¹	
		Delivered to homes	Mailed back	Percent response		PF 40 or higher	PF 20-39 ²
Total ³	15, 626	8, 696	6, 448	74	6, 928	1, 817	28, 021
Rhode Island.....	223	223	162	73	(13)	66	472
Minnesota.....	934	420	358	85	514	76	2, 302
Maine.....	251	251	203	81	-----	44	501
Utah.....	249	149	114	77	100	8	441
Nebraska.....	420	151	118	78	269	16	766
Iowa.....	816	301	225	75	515	37	1, 780
Kansas.....	661	335	249	74	326	30	833
West Virginia.....	505	141	101	72	364	24	352
Colorado.....	532	349	265	77	183	34	779
Wyoming.....	87	35	26	74	53	2	132
Idaho.....	184	55	43	78	129	4	288
New Hampshire.....	188	67	48	71	121	23	447
Vermont.....	112	18	13	72	94	12	289
Washington.....	847	493	381	77	355	22	889
Wisconsin.....	1, 155	583	464	80	571	115	3, 066
Montana.....	186	66	49	74	120	7	332
South Dakota.....	181	47	38	81	134	4	415
North Dakota.....	160	43	33	77	117	3	420
Alaska*.....	36	36	26	72	-----	0. 5	26
Nassau-Suffolk (New York).....	612	466	365	77	146	97	1, 340
Michigan.....	2, 299	1, 453	1, 099	76	846	222	4, 619
Oregon.....	549	245	193	79	303	11	419
Virginia.....	1, 128	518	392	76	610	81	855
Maryland.....	886	607	418	69	279	290	1, 245
Delaware.....	131	131	94	72	-----	43	162
District of Columbia.....	122	122	71	58	-----	62	113
Connecticut.....	745	484	333	69	261	142	1, 606
Massachusetts.....	1, 425	907	567	63	518	341	3, 133

*Fairbanks excluded because of the flood there, a major natural disaster.

¹ Based on number of occupants.

² 97.3 percent are improvable at low cost to PF-40.

³ Totals may not add due to rounding.

Statistical summaries of home fallout protection are furnished to the State and local governments for use in local shelter planning. The total cost averages 92¢ per home covered in the survey.

The Bureau of the Census, under contract with OCD, continued Home Fallout Protection Surveys, completing 5 additional States and the District of Columbia during fiscal year 1969. The voluntary and confidential surveys now completed in 26 States, the District of Columbia and 2 New York counties, have identified fallout protection for 30 million home occupants. (See table 4.) Less than one-tenth of 1 percent of the occupants contacted objected to the survey while over 87 percent furnished data necessary for computations. Extension of this effort to additional States is deferred pending receipt of lists of houses with basements to be furnished by the Census of Housing and Population in the Spring of 1970.

Other Surveys

Shelter on Military Installations.—Military installation commanders are responsible for fallout shelter surveys on their installations—to determine protected spaces that may be used not only by military personnel, but also by the public in areas where it can be permitted. The U.S. Army Corps of Engineers and the Naval Facilities Engineering Command personnel assist in military areas surveys. Commanders are also responsible for preparations for effective use of fallout shelters on their installations in event of nuclear attack.

IMPROVEMENT

Packaged Ventilation Kits

A large resource of potential public fallout shelter can be developed by improving the rate of ventilation in many shelters. An economical and effective technique for expanding the inventory of the nationwide fallout shelter system would be to develop this resource by stocking packaged ventilation kits in public fallout shelters. Such a kit was developed in fiscal year 1964. Further development of this kit in fiscal year 1965 resulted in substantially reducing its cost per additional shelter inhabitant. The pilot program for the acquisition and distribution of ventilation kits was essentially completed in fiscal year 1968. (See app. 2.) The program increased the shelter occupant capacity by a total of 202,000 spaces through the placement of these kits in inadequately ventilated public shelters. Due to budget limitations, no additional kits were procured or distributed in fiscal year 1969, this program having been deferred to be resumed later.

DEVELOPMENT

The OCD Shelter Development program has focused on the architects and their consulting engineers who are encouraged to include dual-use shelter in their building designs to increase the national shelter inventory. Graduate-level courses for architects and engineers have produced 18,575 fallout shelter analysts. OCD has developed radiation protection design techniques that apply to building design. The OCD has also initiated the Direct Mail Shelter Development System whereby new projects and their architects are identified through construction reports; architect and owner are then contacted and asked to include shelter. A university advisory service is available to give architects advice on radiation protection design. Other programs to demonstrate shelter design include architectural competitions, design studies, and awards programs. These OCD fallout shelter development programs are discussed in this part of the report.

Professional Development of Architects and Engineers

Through 162 classes conducted in Fallout Shelter Analysis during fiscal year 1969, 1,947 architects and engineers completed the course, increasing the cumulative number of fallout shelter analysts to more than 18,000. (See fig. 3.) The OCD keeps the qualified analysts informed by mail on new technical data as it becomes available. The names of qualified analysts are published in the National Directory of Qualified Fallout Shelter Analysts, FG-F-1.3.

The Fallout Shelter Analysis course was taught at several universities and professional schools on a semester basis, as well as by traveling instructor teams. It was also taught by the U.S. Navy Civil Engineer Corps Officers' School at Port Hueneme, Calif., and the U.S. Army Engineer School, Fort Belvoir, Va. Several other courses were offered during the year, including one in Protective Construction given 29 times, with a total of 590 participants. The course was an extension of the Fallout Shelter Analysis course, with emphasis on structural dynamics and the immediate effects of a nuclear detonation on structures. A course in Environmental Engineering was offered in 18 classes attended by 401 persons. This course covers the unique problems of shelter environment control and the procedures for solving them.

OCD-sponsored courses in Fallout Shelter Survey Techniques were offered for the first time during the fiscal year for undergraduate students of architecture or engineering. The course prepared them for summer employment in the Shelter Survey Program. Approximately 400 students were so employed during the Summer of 1969.

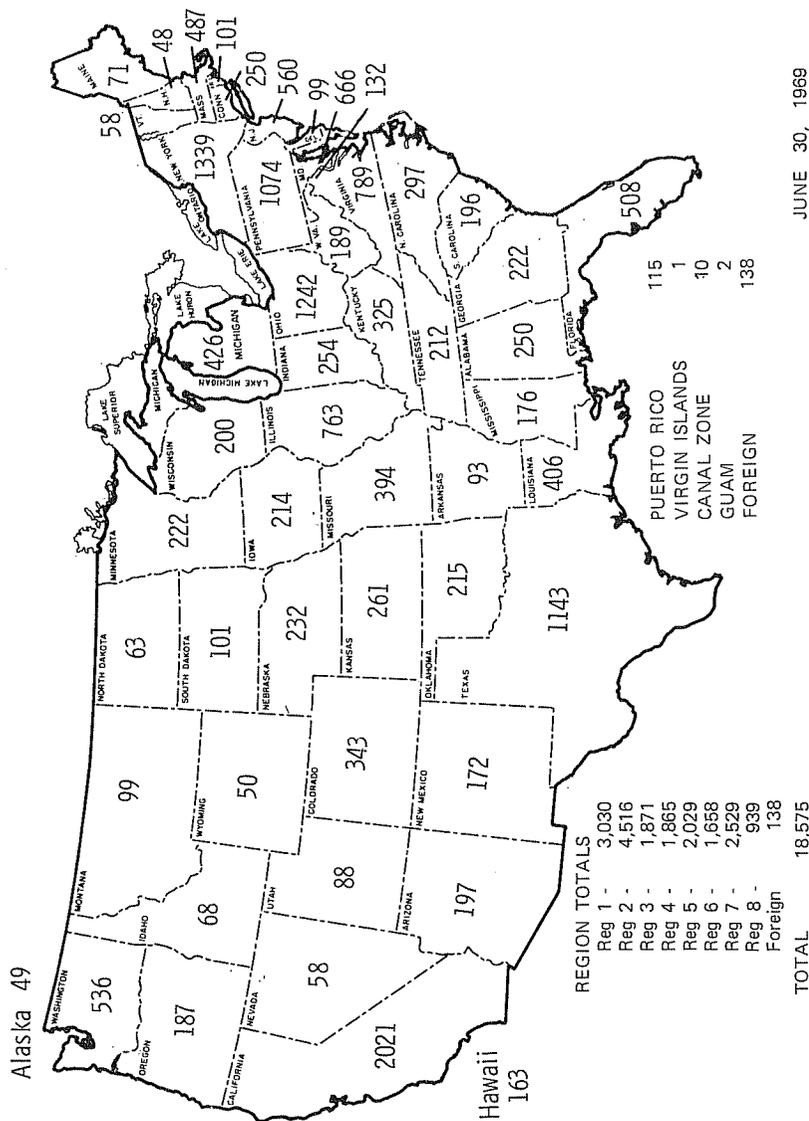


Figure 3.—Geographical distribution of qualified fallout shelter analysts.

Student fellowships.—The Graduate Student Development Fellowship program was established by OCD in cooperation with the American Society for Engineering Education during fiscal year 1966. The purpose of the program is to increase the number of architectural and engineering teaching faculty. This is accomplished by reaching young professionals with research and teaching potential early in their careers and interesting them in the needs of civil defense. The fellowship program enables graduate students of architecture, engineering, urban design, applied mathematics, and related nuclear sciences to pursue courses of instruction in areas of radiation shielding or architected studies related to radiation protection.

By fiscal yearend, a total of 107 fellowships had been awarded to students from 40 universities since the program began in July 1966. A grand total of 306 applications for fellowships had been received from 165 institutions. There are 10 fellowships authorized for the 1969–1970 academic year. The fields of interest include architecture and civil, electrical, mechanical, and nuclear engineering.

Faculty Development.—A total of 104 faculty members from 69 universities, colleges, institutes, and service schools participated in summer institutes during fiscal year 1969. This increased to 185 the number of institutions eligible to conduct fallout shelter analysis courses and related activities for architects, engineers, faculty members, and students. The number of qualified instructors throughout the country was increased to 649.

The faculty development program is administered for OCD under contract by the American Society for Engineering Education which is responsible for the programs through subcontracts with qualified universities. During the summer of 1968, Nuclear Defense Design institutes were conducted by the Universities of Wisconsin and Hawaii, the Kansas and Pennsylvania State Universities and Rensselaer Polytechnic Institute.

Architect and Engineer Technical Information

To acquaint architects and engineers with ways of incorporating shelter in new buildings of all types is a continuing objective. By continually demonstrating how this can be done, through examples developed by leading architects, others will be motivated to include shelter in their own designs.

Architect Workshops.—A special workshop curriculum was developed by the American Institute of Architects during the year. Without going into detailed calculations of protection factors, the workshop purpose is to acquaint architects, who are design chiefs and principals of firms, with shelter policy and principles of radiation protection.

By June 30, 1969, four workshops had been conducted in Baltimore, Md., Philadelphia, Pa., Boston, Mass., and Richmond, Virginia.

Technical Publications.—A total of 56 technical publications on protective construction have been distributed, and 8 new technical publications were prepared during the year for distribution early in fiscal year 1970. These technical publications include manuals, guides, technical memoranda, and reports. In addition, 6 publications were revised and republished. Collection of information on building projects incorporating shelter was continued during fiscal year 1969. The information is used in preparing brochures, reports, exhibits and other promotional activities.

Honor Awards.—A 24-minute sound, color, 16-mm film titled "Architecture and the Atom" was produced by the American Institute of Architects. The film illustrates the eight award winning entries in the 1966 Honor Awards program for buildings designed with fallout shelters. Distribution of the film will be accomplished in fiscal year 1970. The American Institute of Architects conducted a second honor awards program during the year. The jury designated three entries for First Honor Awards and five for Awards of Merit.

Services to Architects and Engineers

The ultimate goal of the Office of Civil Defense is to have each and every building designer consider the incorporation of fallout protection in his on-going design project.

Direct Mail Shelter Development System.—Administered by the OCD, the Direct Mail Shelter Development System (DMSDS) is a systematic procedure for contacting owners and architects of specific new buildings and offering the technical assistance for incorporating fallout protection in the design of the project. The DMSDS uses direct mail techniques combined with personal contact by State or local government authorities and University Service Centers. The State or local authorities confer with the building owners; the Professional Advisory Service Centers assist the project designers. Contacts are made early in the design phase while there is still time to incorporate fallout protection into the building design at little or no extra cost through slanting techniques.

Under the DMSDS procedure, a letter is sent to each building owner of a selected project, urging him to have his architect examine the possibility of including fallout protection in the building. At the same time, another letter is sent to the architect informing him of the technical assistance available from University Service Centers for incorporating fallout protection in the design. The State Civil Defense Directors are kept apprised of projects selected in their State so that

they or the local Civil Defense official can follow up with the building owner. This is usually accomplished through a personal visit to the building owner to discuss the vital importance of designing fallout protection into the new building to provide needed shelter for the community.

In States serviced by DMSDS, a Professional Advisory Service Center exists to provide technical guidance and assistance to architects wishing to apply radiation protection design techniques to give maximum fallout protection in a specific project. In other cases, architects will be able to call on their own experience or that of a staff member if either is one of more than 18,500 fallout shelter analysts who have successfully completed the radiation shielding design and analysis course.

During fiscal year 1968, DMSDS was conducted as a test in Arizona, Florida, Louisiana, Massachusetts, Tennessee, Texas, and Wisconsin. In fiscal year 1969 the program was expanded from a seven-State test to an operational program encompassing all States except Hawaii, Nevada, Illinois, South Carolina, Ohio, New York, and Rhode Island. (See Table 5).

Professional Advisory Service Centers.—In a continuing effort to establish a nationwide advisory service center program, new Professional Advisory Service Centers were established at four universities during the fiscal year. The service centers are located at Rutgers University in New Jersey, and the Universities of Connecticut, New Mexico, and North Carolina State. By June 30, 1969 there were 44 Professional Advisory Service Centers under OCD contract to perform these services.

Contracts were negotiated or renewed with all 44 centers during the year. Requests for professional advisory services by architectural and engineering firms resulted in the initiation of 1,889 various professional advisory service projects with 986 projects completed during the fiscal year. Advisory services were provided on 749 design projects. These services resulted in recommendations which, if adopted, would add 232,736 shelter spaces to these facilities. In addition, the advisory services identified 635,115 shelter spaces inherent in structures.

A total of 172 lectures, seminars, and workshops were conducted by Professional Advisory Service Centers. Through these lectures, a "fallout shelter consciousness" is developed within the community and the philosophy of slanting for shelter becomes a normal construction practice.

Architectural and Engineering Development Centers.—Established during fiscal year 1965, these centers, one in each of the eight OCD regions, provide planners, architects, and engineers with information on the latest techniques for providing protection from fallout.

TABLE 5.—*Direct Mail Shelter Development System Activity Report as of June 30, 1969*

DMSDS State	Design and construction reports reviewed	DMSDS projects mailed	DMSDS related projects	Total projects	Responses received from architects	Services requested by architects
Total.....	144, 639	11, 254	574	11, 828	4, 183	1, 525
REGION ONE.....	12, 399	1, 126	71	1, 197	330	149
Maine.....	46	13	1	14	4	3
Massachusetts.....	6, 158	525	64	589	196	101
New Hampshire*.....	501	51	0	51	8	3
New Jersey*.....	4, 972	467	4	471	91	30
Vermont.....	722	70	2	72	31	12
REGION TWO.....	31, 041	2, 387	16	2, 403	710	191
Delaware*.....	360	43	1	44	12	0
Kentucky*.....	3, 197	187	5	192	75	20
Maryland.....	5, 442	492	1	493	140	27
Pennsylvania.....	14, 029	1, 068	6	1, 074	268	75
Virginia.....	6, 130	494	2	496	186	53
West Virginia.....	1, 883	103	1	104	29	16
REGION THREE.....	25, 215	1, 642	108	1, 750	619	244
Alabama*.....	2, 353	129	13	142	67	21
Florida.....	11, 988	788	47	835	308	82
Georgia*.....	4, 088	292	4	296	15	10
Mississippi*.....	1, 391	66	2	68	17	7
Tennessee.....	5, 395	367	42	409	212	124
REGION FOUR.....	23, 278	1, 605	52	1, 657	583	201
Michigan.....	9, 933	735	8	743	238	37
Minnesota.....	6, 016	458	39	497	205	124
Wisconsin.....	7, 329	412	5	417	140	40
REGION FIVE.....	19, 318	1, 039	27	1, 066	414	125
Louisiana.....	3, 816	155	2	157	56	19
Oklahoma.....	3, 096	209	9	218	105	49
Texas.....	12, 406	675	16	691	253	57

See footnote at end of table.

TABLE 5.—Direct Mail Shelter Development System Activity Report as of June 30, 1969—Continued

DMSDS State	Design and construction reports reviewed	DMSDS projects mailed	DMSDS related projects	Total projects	Responses received from architects	Services requested by architects
REGION SIX-----	15, 593	1, 361	49	1, 410	567	181
Colorado-----	688	220	6	226	68	16
Iowa-----	4, 041	288	8	296	135	37
Kansas-----	3, 332	255	24	279	139	52
Missouri-----	4, 364	336	3	339	113	43
Nebraska-----	1, 934	117	1	118	45	6
North Dakota----	575	72	5	77	28	17
South Dakota----	606	57	1	58	33	6
Wyoming-----	53	16	1	17	6	4
REGION SEVEN----	17, 209	1, 651	100	1, 751	674	213
Arizona-----	1, 582	133	68	201	159	92
California-----	15, 521	1, 451	32	1, 483	488	109
Utah†-----	106	67	0	67	27	12
REGION EIGHT----	586	443	151	594	286	221
Alaska-----	12	9	3	12	5	3
Idaho-----	66	46	50	96	47	45
Montana-----	47	40	33	73	37	31
Oregon-----	92	68	56	124	80	77
Washington-----	369	280	9	289	117	65

*DMSDS started in November 1968.

†DMSDS started in April 1969.

Located at the Universities of Colorado, Florida, and Washington, and at Pennsylvania State University, Purdue University, San Jose State College, Texas Agricultural and Mechanical University, and Worcester Polytechnic Institute, these centers offer programs integrating the technical capabilities of the institution as a base for dissemination of civil defense technical information to practicing architects, engineers, faculty, and students in its area.

During fiscal year 1969, Worcester Polytechnic Institute provided changes to the publication "Shelter Design and Analysis," TR-20, Vol. 1, and completed and distributed the "Fallout Shelter Analysts Instructor's Guide." A catalogue of slides and a publication illustrating them were developed by Pennsylvania State University for use by fallout shelter analysis instructors. In addition, Pennsylvania State University completed a publication titled "Shelter Design in

New Buildings," TR-43A, and continued work on a computer data retrieval system. A publication titled "Environmental Engineering for Fallout Shelters," TR-20, Vol. 3 was completed by the University of Florida and distributed to instructors in Environmental Engineering and all fallout shelter analysts. Purdue University is finalizing "Mechanical Equipment for Shelters" and "Electromagnetic Pulse and Neutron Transport" reports. Texas Agriculture and Mechanical University is finalizing a document on "Radiation Effects on Men and Animals." Reports titled "Utility Tunnels for Public Shelter" and "Urban Design Techniques for Increasing Protection" are being prepared by Colorado University. San Jose State College is preparing reports on the subjects of "Slanting in Protective Design and Construction," "Soil Structure Interaction," and "Radioactive Contamination of Water Supplies," which were nearing completion by the end of the fiscal year. All eight Architectural and Engineering Development Centers are collaborating in the preparation of an "Architect and Engineer Shelter Design Handbook," with San Jose State College as project coordinator. The University of Washington completed a preliminary draft of a "Protective Construction" textbook.

Federal Buildings.—The purpose of this program is to encourage Federal agencies to incorporate radiation fallout protection in the design of Federal buildings. They are urged to apply the principles of radiation protection design techniques at an early stage in order to obtain the maximum amount of no cost or low cost shelter. OCD professional consulting services are made available to the Federal agencies. The General Services Administration through each of its 10 regional offices has the largest responsibility for the design and construction of Federal buildings.

During fiscal year 1969, a seminar was conducted at each of the 10 GSA regional offices with regional design and construction representatives in attendance. The subject covered was "Design Techniques Necessary for the Incorporation of Fallout Protection in Federal Buildings." Procedures for obtaining technical assistance in incorporating radiation fallout protection in the design and construction of new Federal buildings were established at each GSA region.

ADVISORY COMMITTEE ON THE DESIGN AND CONSTRUCTION OF PUBLIC FALLOUT SHELTERS

This section of the report and appendix 3 contain the information on advisory committees required by section 10(a) of Executive Order 11007, February 17, 1962.

The primary purpose of advisory committees is to advise the Director of Civil Defense. The Advisory Committee on the Design and Construction of Public Fallout Shelters served the Office of Civil Defense during fiscal year 1969.

The chairman is a full-time, salaried OCD official, and the committee membership comprises, in addition to the chairman, 14 outstanding representatives of the American Institute of Architects, the American Institute of Planners, the Consulting Engineers Council, the National Society of Professional Engineers, the Engineers Joint Council, the American Society of Civil Engineers, and the Associated General Contractors of America, Inc. Each member is a person whose experience and talents enable him to make a major contribution to the achievement of OCD objectives.

The Committee reviewed OCD programs of interest to architects, engineers, and urban designers and gave comments and suggestions. It considered detailed progress of the seven-State Direct Mail Shelter Development pilot program and its evaluation by the American Institute of Architects. The committee recommended against monetary compensation to architects for time expended in shelter feasibility studies on private projects. In addition, the committee reviewed the progress of the Community Shelter Planning Program, the Professional Development Program, and the Faculty and Student Development Programs.

On June 27, 1968, the committee was officially continued until June 30, 1970.

LICENSING, MARKING, AND STOCKING

Licensing

Before marking public fallout shelters and stocking them with survival supplies, the OCD requires that property owners and local government officials sign a Fallout Shelter License or Privilege form. During fiscal year 1969, licenses were signed for 7,496 facilities with an aggregate capacity for about 10.8 million persons. This increased the grand total to 117,221 licensed facilities, with an aggregate capacity for 119.7 million persons. (See tables 2 and 3.)

Local governments are responsible for obtaining these licenses. No monetary payment is made to or by the owner of the shelter facility, and he may revoke the license by sending a 90-day notice by registered mail to his local government as well as to the Federal Government.

The license authorizes temporary access by the public to specified shelter space in emergencies in the period immediately before, as well as during and after, an attack. It also authorizes placement and main-

tenance of shelter signs, storage of shelter provisions in the facility, and inspection by Federal and local governments responsible for care and maintenance of the shelter provisions, and except for willful damage or bad faith, exempts the owner from these responsibilities.

Marking

The OCD continued to furnish standard fallout shelter signs for the interior and exterior marking of public fallout shelters meeting the minimum requirements. Posting these signs is the responsibility of State and local governments.

There were 1,496 facilities, with an aggregate capacity for 4.0 million persons marked with standard fallout shelter signs during fiscal year 1969. This increased the grand total to 108,952 marked facilities, with an aggregate capacity for 105.1 million persons. (See tables 2 and 3).

Procurement of Shelter Stocks

Food, sanitation kits, and medical kits, procured and delivered to Federal warehouses since the inception of the program in fiscal year 1962, would be sufficient to take care of 63 million shelter occupants for two weeks. Water containers were procured for only 50 million since trapped water is available in many shelters for emergency use. No additional procurement of general shelter supplies was initiated during fiscal years 1965 through 1969, pending distribution of stocks procured. About eight percent of these supplies were placed in shelters during fiscal year 1969; 84 percent were placed in shelters in prior years, and, at the end of fiscal year 1969, the remaining 8 percent, for use in filling requisitions, were at warehouses. (See fig. 4.) Issues at the fiscal year 1969 rate will completely deplete issuable stocks in fiscal year 1970. Radiological kits had been furnished to 103,562 shelters by year end.

The pilot program for the acquisition and distribution of ventilation kits was essentially completed in fiscal year 1968. No additional kits were procured or distributed in fiscal year 1969, this program having been deferred to be resumed later.

Product Improvement Program.—Product improvement performed for OCD by the Defense Supply Agency involves the monitoring and test evaluation of commercial products as well as OCD and other Government agencies' research items for possible use in the shelter stocking program. Before new stock or substitutes for the standard OCD supplies are adopted, prototype quantities of these new products must be procured, tested, and evaluated. Development efforts concern

(million spaces)

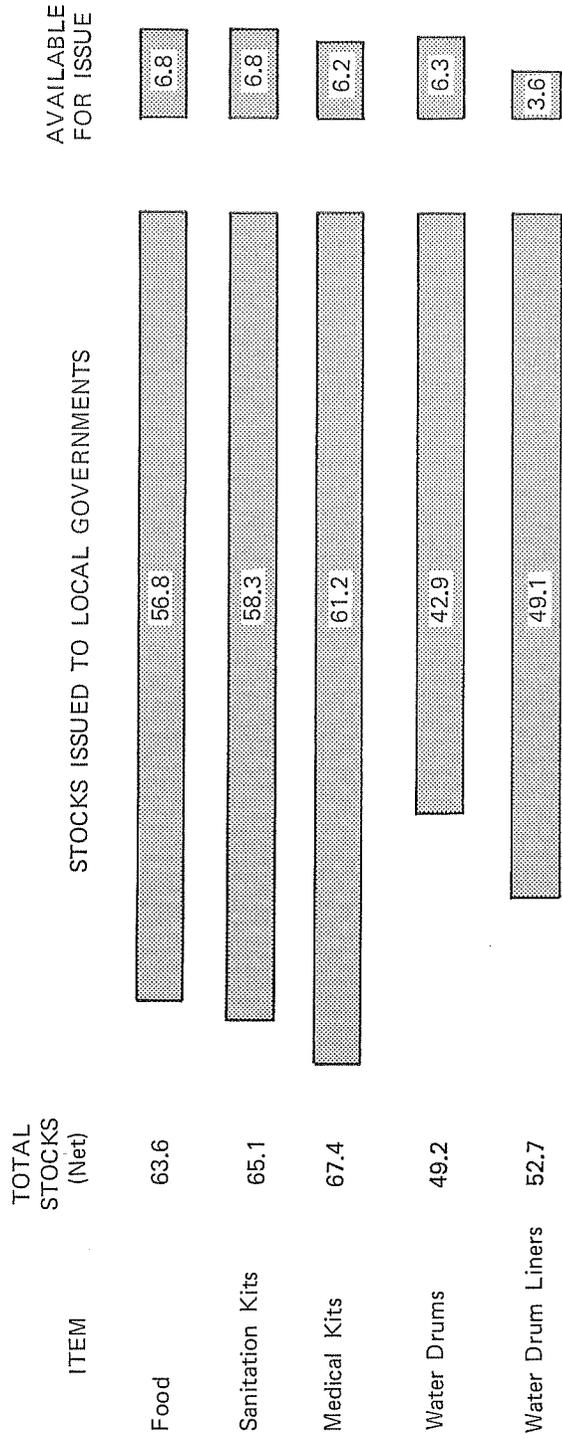


Figure 4.—Stock availability of general supplies as of June 30, 1969.

improved packaging and stability, increased storage life, and substitute items for the stocking program. The OCD has also conducted a review of the water storage requirements in shelters and the various problems associated with this requirement. The various items which are presently included in the search for improved shelter items are:

1. Blown mold plastic liners for 17½-gallon steel drums.
2. Round bottom film liners for 17½-gallon steel drums.
3. Foldable commodes of resistant fiberboard with inner and outer polyethylene bags.
4. Nestable steel water drums, 17½ and 10½-gallon capacity.
5. Five-gallon plastic water containers with cap closures and spigots.
6. Two five-gallon plastic containers packaged into a single water-resistant fiberboard box.
7. Fifteen-gallon and 7½-gallon plastic drums (commercial items).
8. Pillow-type tanks (military items).
9. Prototype medical replacement packs with appropriate quantities of 6 medical components for both types of medical kits previously procured.
10. Pilot quantities of two improved arrangements of medical kits in moisture-resistant containers which are compartmentized to facilitate future replacement of components.

A follow-on procurement was made for special protective devices for supplies to be kept in mines, caves, and tunnels where storage conditions are less favorable due to humidity, moisture, and dust. The protective devices are issued to special facilities where additional protection is required to insure continued serviceability of supplies.

Protective devices consist of:

1. A highly water-resistant, impregnated fiberboard box, with sleeve, used to overpack each food case.
2. A highly water-resistant, impregnated fiberboard box used to overpack each large medical kit.
3. A protective bag, fabricated from polyethylene film, which is used to enclose one each: sanitation kit, water container, small medical kit, and radef kit.
4. Polyethylene film, in rolls, used to cover stacks of supplies in shelters stocking 1,000 or more spaces.
5. Special pallets to provide a firm stocking platform and to keep supplies from direct contact with the facility floor surface.

Distribution of the protective devices is made from warehouses at Edison, N.J., Memphis, Tenn., LaPorte, Ind., Kansas City, Mo.,

Sacramento, Calif., and Seattle, Washington. Protective devices have been issued to 235 facilities in 33 States providing protection for a total of 1,020,624 spaces.

Warehousing and Transportation of Shelter Stocks

During fiscal year 1969, supply operations were limited primarily to the distribution of supplies from warehouses to public fallout shelters. All supplies were distributed through Department of Defense (DoD) and General Services Administration (GSA) warehouse facilities. The Defense General Supply Center (DGSC) at Richmond, Va., a field facility of the DSA, continued as the national inventory control point for the distribution of shelter supplies.

At the end of the fiscal year, 15 DoD and 9 GSA depots were serving as distribution points to local governments. During the year, civil defense supply activities were discontinued at one DoD activity because of higher priority military requirements for the warehouse space. The geographic area mission was reassigned to other depots.

Such reassignments reduce future warehousing costs, but the potential savings are offset by an increase in the number of civil defense organizations requiring transportation of supplies for shelter stocking at Federal expense. The Federal Government pays for transportation of supplies to local central delivery points or to shelters being stocked for more than 1,000 persons, if more than 50 percent of the population of the county are more than 25 airmiles from the warehouse. For shorter distances, local governments provide transportation for pick-up and delivery of shelter supplies. Local governments are responsible for placing the supplies in shelters and for future care, inspection, and maintenance of these supplies.

According to available data and by all comparability standards, shelter supplies placed in public fallout shelters remain demonstrably secure. At the end of the fiscal year reported losses amounted to only about nine-tenths of one percent of all shelter supplies procured since the beginning of the program in fiscal year 1962. This included replacements necessitated by losses of all types including theft, fire, natural disaster, and all other causes. Losses due specifically to theft and vandalism amounted to somewhat less than two-tenths of one percent.

Civil Defense Quality Check Program.—Fiscal year 1969 was the second year of full operation of the Civil Defense Quality Check Program initiated in fiscal year 1967. The purpose of this program is to inspect fallout shelter supplies stored in public fallout shelters on a scientific sampling basis and obtain data relative to the serviceability and operational readiness of these supplies.

The shelters to be inspected were selected and the list was reviewed by the OCD regions late in fiscal year 1968, and the physical inspections were carried out by Army and Air Force Veterinary Services personnel. Preliminary findings from inspections indicate that the general condition of supplies is satisfactory. Samples of medicinal items in the medical kits, food, and water in civil defense storage containers were collected for laboratory testing. This testing has indicated that several of the medicinal items have, to varying degrees, lost their potency due to aging, and although not harmful if used, should be replaced. The OCD budget for fiscal year 1970 provided for an initial increment to replace these items.

A total of approximately 6,000 quality check reports was received during the fiscal year. At the close of the fiscal year, these data were being converted to punched cards for further processing and analyses by automatic data processing equipment. Plans have been made to conduct further quality check inspections in fiscal year 1970. The shelters to be inspected have been selected and the list is under review by the OCD regions.

In cooperation with the Defense Supply Agency, the U.S. Army Pictorial Center is producing an informational and educational color film on the Quality Check Program. It is designed for use in the training of inspection personnel and local civil defense staffs. It will also be used to acquaint the general public with the objectives and techniques of the Quality Check Program. The film will be available for showing early in fiscal year 1970.

Stocking Shelters

The series of actions that result in actual stocking of a specific shelter begins when the owner and local government official sign the shelter license agreement. Based upon the shelter license data, a pre-printed requisition for shelter supplies is sent by the Defense General Supply Center (DGSC) to the local government. When local officials sign and return the requisition, the DGSC sends a shipping document to the appropriate warehouse and the local government. The supplies are then issued by the warehouse as soon as practicable. Effective July 1, 1969, procedures have been revised so that supplies will no longer be reserved against specific shipping documents, thus freeing all stocks for issue on a first-come, first-served basis.

Survival supplies were issued to 7,370 facilities during fiscal year 1969, increasing the grand total of stocked facilities to 98,445. The survival supplies issued during the fiscal year would be sufficient to take care of more than 8 million persons, the capacity of stocked facilities, for 8 days or almost 6 million for 14 days. At the end

of the fiscal year, the cumulative quantity of survival supplies placed in stocked facilities would be sufficient to take care of 96.6 million persons for 8 days, the capacity of stocked facilities, or 58.5 million for 14 days. In addition, during the year, 9,296 shelters were furnished with at least one radiation detection and monitoring kit, increasing the total so equipped to 103,562 facilities. As of the end of the fiscal year, the capacity of shelters with radef kits showed a cumulative total of 101.9 million persons.

An OCD objective is to assure that survival supplies available to each licensed public fallout shelter would be sufficient to take care of shelter occupants for a 14-day period. The number of shelter occupants in each case is the rated capacity of the shelter; *i.e.*, the number of persons for whom a shelter is capable of providing protected space, as determined by the survey or the number of persons assigned to shelter in a community shelter plan. Shelter occupants in many places would have access to water, food, and medical supplies normally available in buildings where shelters are located. These and other survival assets, such as sewage facilities, are important in determining the amount and kind of supplies issued to each shelter.

Many public fallout shelters have been stocked for 100 percent of their rated shelter occupant capacity. Shelter spaces stocked with federally procured supplies during fiscal year 1969 averaged 61 percent of the rated capacity of the facilities stocked.

The survival supplies placed in licensed public fallout shelters are food, sanitation and medical supplies, water storage containers, and radiation detection equipment. These supplies, described in appendix 2, were developed and procured by the Federal Government. An important specification was that they remain usable after long periods of storage. They are adequate to take care of normally healthy persons while in shelters and to enable them to resume productive activities upon emergence.

SHELTER USE

The public shelters now identified will not be fully effective until citizens in areas served by public shelters know where the shelters are and where they should go and what they should do to best use the shelters. Thus, an essential step in developing an operational civil defense system based on fallout shelters is to build upon the investment represented by the National Fallout Shelter Survey and related shelter surveys, by providing specific information to allow each citizen to determine what to do and where to go in time of emergency and by getting that information to the individual. The largest part of the job involves matching people to the best protection available and making these allocations known.

Community Shelter Planning

Adequate fallout shelter will save many lives in the event of attack if people know about and use the shelters. A shelter use plan for each community enables a local government to help people survive nuclear attack by answering the questions, "What do I do?" and "Where do I go?" In developing the plan in each community, people are matched with specific shelters in the best possible combination. In those cases where there is insufficient shelter, instructions are provided for improving emergency fallout protection in the home. This information is made public by wide distribution of printed instructions and guidance for each citizen on what to do and where to go in a civil defense emergency. When growth of the community, or shifts in the location of population make it necessary, this plan is updated and the revised guidance is given to the public.

In large communities, OCD, through the U.S. Army Corps of Engineers, contracts with local governments or planning agencies for the development of community shelter plans. At the end of fiscal year 1969, a cumulative total of 223 contracts had been negotiated. These contracts provide for the development of emergency shelter use plans in 292 counties with a population of nearly 62 million people.

The Federal Government makes funds available for States to obtain the services of a professional planner who serves as State CSP Officer (CSPOS). The CSPOS give technical assistance to local non-urban governments in small communities where shelter allocation and movement to shelter are uncomplicated, in the development of their shelter plans.

Forty-six CSP Officer contracts were in effect at the end of the fiscal year. Rhode Island, being an urban State, has no CSPOS, but it is covered by a single State-wide CSP contract. By the end of fiscal year 1969, a cumulative total of 1,116 smaller communities with a population of over 26 million persons had started community shelter plans.

During fiscal year 1969, the OCD funded CSP instructions to the public for distribution to 20 million people in 354 local jurisdictions throughout the United States. (See Community Shelter Planning Instructions, page 83.) At the end of fiscal year 1969, instructions to the public had been issued for 282 CSP areas covering 11,500,000 people. The development of a shelter use plan for large metropolitan areas such as New York City and Los Angeles, Calif., is an unusually complex task. It involves such enormous quantities of data about locations of people and the locations and capacities of shelters that computer assistance is required. During this year, OCD has assisted New York City and Los Angeles with pilot studies to work out the concept and

procedures for developing an allocation with computer assistance as it would apply in those cities.

OCD has also been developing a generalized computer allocation procedure which could be used for developing a shelter allocation for any large city. This is being developed under OCD direction by the Bureau of the Census. The generalized computer allocation procedures will take full advantage of the new electronic data processing techniques developed to process the results of the 1970 census.

Community Shelter Planning Training

Training of this type is usually the first step taken by State and local governmental officials toward establishing coordinated and systematic plans for utilizing fallout shelters in their communities. Development of a plan involves a great many factors, such as the knowledge of population areas, shelter location and their capacities, traffic routes, and public knowledge and awareness. This training considers these problems and many others, and gives the governmental officials the necessary information with which they can successfully develop shelter plans for their communities. Because this is a highly technical field, involving the profession of urban planning, the OCD has maintained a contract since June 1965 with the University of Tennessee Graduate School of Planning to manage this training program.

Individuals who are encouraged to take this training are urban planners assisting with their city shelter planning, civil defense coordinators, both State and local, and State CSP officers who are responsible for providing advice and assistance to local civil defense officials in their State. The participants selected for these training sessions are reimbursed for their travel expenses.

Most of the training has been provided in the facilities of the OCD Staff College, Battle Creek, Michigan, by the staff members of the University of Tennessee. (See OCD Staff College, page 106.) During fiscal year 1969, 33 persons were trained in four workshops for Urban Planners; 106 persons were trained in six non-contract process courses, and 10 persons were trained in two workshops for CD officials. Within the provisions of the contract with the University of Tennessee, three seminars for planners to study means of improving the CSP planning process were held at Philadelphia, Pa., Atlanta, Ga., and Denver, Colo., with 114 persons in attendance. In addition, three conferences were held by OCD regional offices in cooperation with the University of Tennessee for the purpose of studying problems peculiar to those regions. The conferences were held at Thomasville, Ga., Boulder, Colo., and San Francisco, Calif., with approximately 120 persons in attendance.

WARNING AND EMERGENCY OPERATIONS

In addition to the nationwide fallout shelter system, warning and emergency operations systems are necessary to achieve a balanced civil defense program. These systems—*Federal Warning, State and Local Warning, Command, Control and Communications, Emergency Operations Support, and Tests and Exercises*—are essential for the effective use of shelter and for preattack planning and postattack operations.

FEDERAL WARNING SYSTEMS

Alerting.—The Office of Civil Defense is responsible for passing appropriate alert notices to Federal agencies and State governments when changes occur in military defense readiness conditions. Procedures for carrying out this responsibility are tested at least weekly at the national level, and quarterly at the regional level, either separately or as a part of military or civil defense exercises.

In alerting Federal agencies at the national level, OCD makes use of the Defense Coordination Teletypewriter Network (DEFCORD), established by the Office of Emergency Preparedness, backed up by a telephone alerting arrangement. The OCD regional offices alert Federal field agencies by use of a telephone system or, during duty hours, by teletypewriter.

Warning.—Federal warning systems are designed for passing warning to strategic points. State and local governments are responsible for dissemination to the public beyond these points. A civil defense warning system is operated throughout the continental United States, including Alaska. Using advanced techniques, this system interconnects Federal, State, and local warning systems to a single warning network. Separate warning systems interfaced with the National Warning System serve Hawaii, American Samoa, Guam, Puerto Rico, and the Virgin Islands.

National Warning System (NAWAS)

The Federal portion of the civil defense warning system serving the continental United States is the National Warning System. Almost instantaneous attack warning information can be disseminated to State and local warning points from three national warning centers continuously manned and operated for OCD by the U.S. Army Strategic Communications Command (USASTRATCOM) warning

officers. (See fig. 5.) The primary National Warning Center is in Cheyenne Mountain, Colorado Springs, Colo.; the other warning centers are located at Denton, Tex., and in the Washington, D.C. area. During fiscal year 1969, the system was expanded by the addition of 25 warning points at Federal installations and selected locations throughout the United States, bringing the total number of State and local warning points to 1,017 by June 30, 1969. (See fig. 6.)

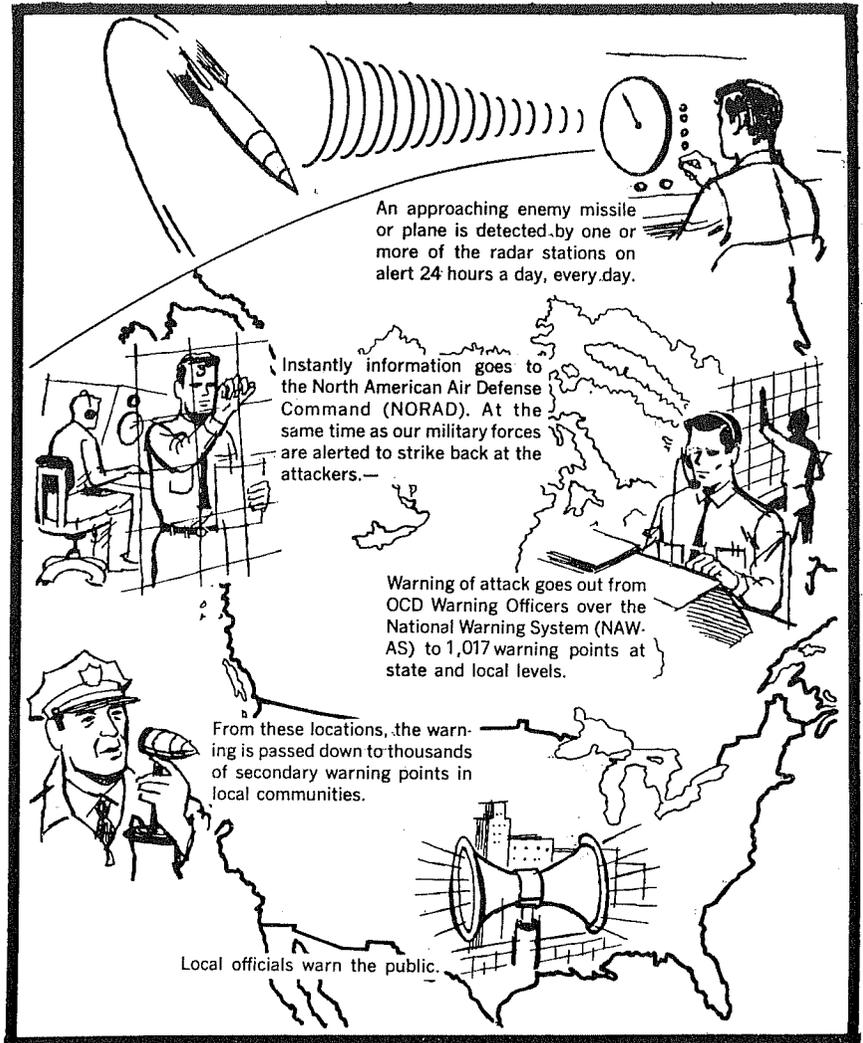


Figure 5.—Warning network in operation.



Figure 6.—National Warning System (NAWAS).

During fiscal year 1969, a standard warning point operational analysis format was developed to determine the effectiveness of NAWAS in support of State and local warning systems.

NAWAS Reconfiguration in South Dakota.—A new concept of NAWAS utilization within a State was developed during fiscal year 1968 for testing in South Dakota. This development will use a central exchange system by which multiple transmissions can occur simultaneously within the State. This concept of operation has been undergoing engineering design and will be installed during fiscal year 1970 for a one year evaluation.

NAWAS Reconfiguration in Wisconsin.—Reconfiguration of the NAWAS circuitry in Wisconsin was initiated during fiscal year 1969 to support a reorganization of the State Civil Defense. Six new civil defense area headquarters were established and designated as warning points, and NAWAS equipment was provided at these locations.

It is anticipated that during fiscal year 1970 the present State circuit will be modified to interconnect the six civil defense area headquarters and the State warning point. Six new sub-circuits will be established to connect each area headquarters to all warning points within its purview. This change will enable the State warning point to coordinate with all six area offices and each area office will be able to coordinate within its area of responsibility. Under emergency conditions, however, the seven circuits will be restored into a single State warning network.

Utilization of NAWAS for interstate relay of severe weather data.—During the year, a study was made of NAWAS to determine its effectiveness for relaying severe weather data. The study revealed that severe weather information generated within a given State can be effectively disseminated to government officials within the same State by NAWAS. It also revealed that the same type of information required across the borders of adjacent States required three relays. Because of these findings, a more effective method of interstate relay was developed by OCD in coordination with the Environmental Science and Service Administration (ESSA).

System improvement was accomplished by relocating certain Weather Bureau Airport Station (WBAS) NAWAS facilities at the nearest Weather Bureau Forecast Office (WBFO) and providing each WBFO with extensions on the adjacent States NAWAS circuit thus effecting interstate severe weather warning by direct relay. The improvement will be implemented on an evolutionary basis with little or no expansion to the existing system.

Warning for Hawaii and U.S. Possessions

A warning system similar to NAWAS was designed for the State of Hawaii during fiscal year 1968, and is now scheduled to become operational during fiscal year 1970. This new system will replace military circuits which are being phased out. Warning can be disseminated to Guam and American Samoa from Hawaii. Another Federal system serves points in Puerto Rico and the Virgin Islands.

Washington Area Warning System (WAWAS)

This system, serving the Washington, D.C. metropolitan area, comprises 301 sirens and facilities for voice communication with local civil defense headquarters in the area and with certain Federal, civilian, and military installations.

Decision Information Distribution System (DIDS)

The design of an experimental automatic radio warning system has been completed. This would be a low-frequency radio station network to provide warning information directly from the three National Warning Centers to all levels of government in the continental United States. Through the use of ten distribution transmitter facilities, written and voice warnings could be received and outdoor sirens could be sounded automatically at locations with special terminal equipment. Sites for the distribution facilities have been located, and tests are underway to confirm system coverage.

The program for DIDS would provide transmitter and control devices and receiving terminals for voice. Some of these terminals would also be equipped for receiving teletype messages. Control terminals for local siren systems and individual sirens would be included. Typical locations for the receiving terminals would include Federal and State government agencies; State, city, and county emergency operating centers; NAWAS warning points; and, following arrangements with the Federal Communications Commission, emergency broadcasting radio stations which, in turn, would rebroadcast the warning to the general public.

The DIDS could form the basis for automatic indoor home warning by including within regular television or radio receivers special devices which, through the low frequency transmission network, could turn on the receivers at any time it was necessary to alert the public and provide warning information.

STATE AND LOCAL WARNING SYSTEMS

State and local governments provide a variety of communications and warning facilities for the dissemination of warning and supplemental data from 1,017 NAWAS warning points to thousands of local warning points. Combination of existing land line and radio systems, as well as specially designed warning systems, are used for this purpose. Each State and local warning point is located within an existing governmental agency which is continuously manned, such as law enforcement or fire department headquarters. This assures 24-hour warning coverage for the areas served by each warning point. The OCD provides guidance and financial assistance to States and their political subdivisions for the purpose of strengthening their warning systems. NAWAS extensions have been installed with Federal matching funds assistance at 255 locations important to local civil defense operations.

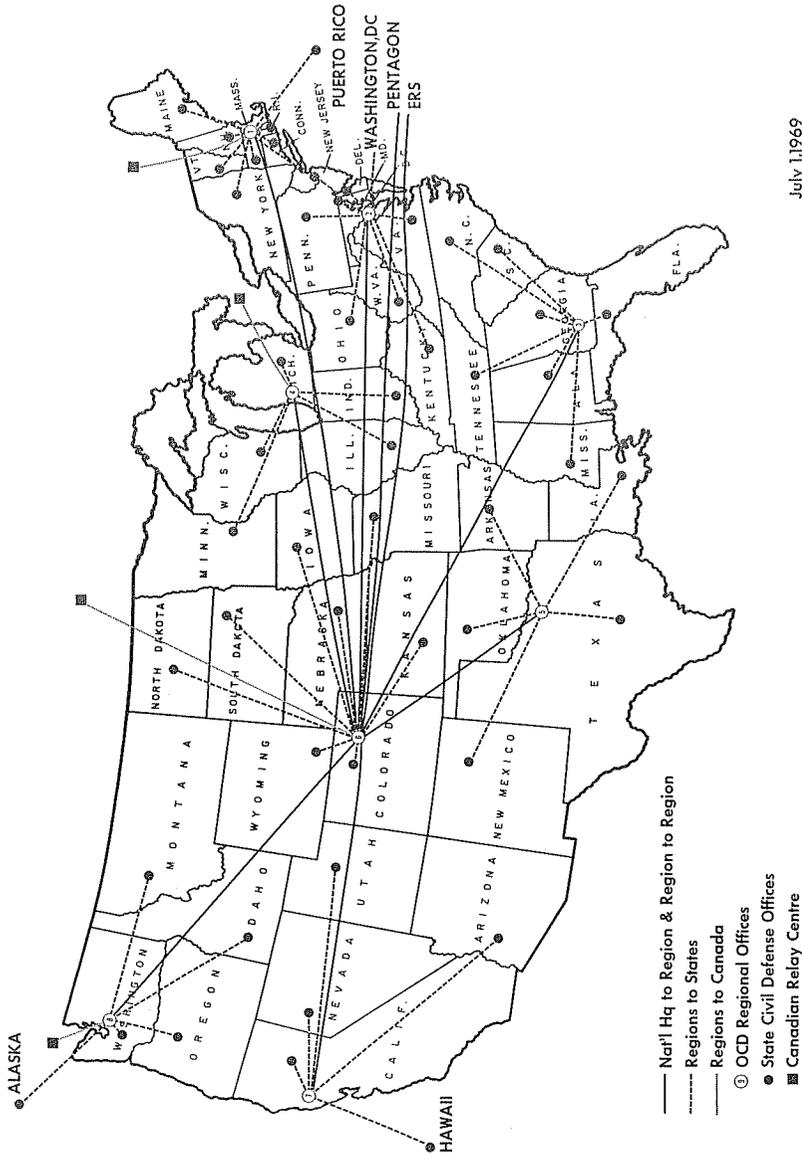
EMERGENCY OPERATIONS COMMAND, CONTROL AND COMMUNICATIONS

Essential Federal to State communications for conducting civil defense operations on a nationwide basis are provided through the use of two communications systems described below. Both systems are maintained and operated by the U.S. Army Strategic Communications Command (USASTRATCOM) in accordance with the policy guidance and requirements furnished by OCD.

NACOM-1 (Primary System)

The Civil Defense Teletype and Data System is the primary system for transmitting OCD record communications. (See fig. 7). This system is designed for speed, flexibility, and continuity of service required for civil defense emergencies; all circuits on this system are dedicated full-period. The system serves OCD national headquarters, the emergency relocation site, OCD regional offices, the 50 States, the District of Columbia, and Puerto Rico. Modernization was begun with the installation of computer terminals at OCD Regions Six and Eight.

Voice communications services are provided by a combination of Automatic Voice Network (AUTOVON) circuits and dedicated full-period leased voice circuitry. (See fig. 8). AUTOVON is used between OCD national headquarters, the emergency relocation site, and the eight OCD regional offices. Dedicated full-period leased voice circuits are used between the OCD regional offices and their respective States and the District of Columbia, with the exception of Hawaii. Circuit pre-emption capability has been installed in all OCD regional offices.



July 1969

Figure 7.—Civil Defense Telephone and Teletype System (NACOM I).

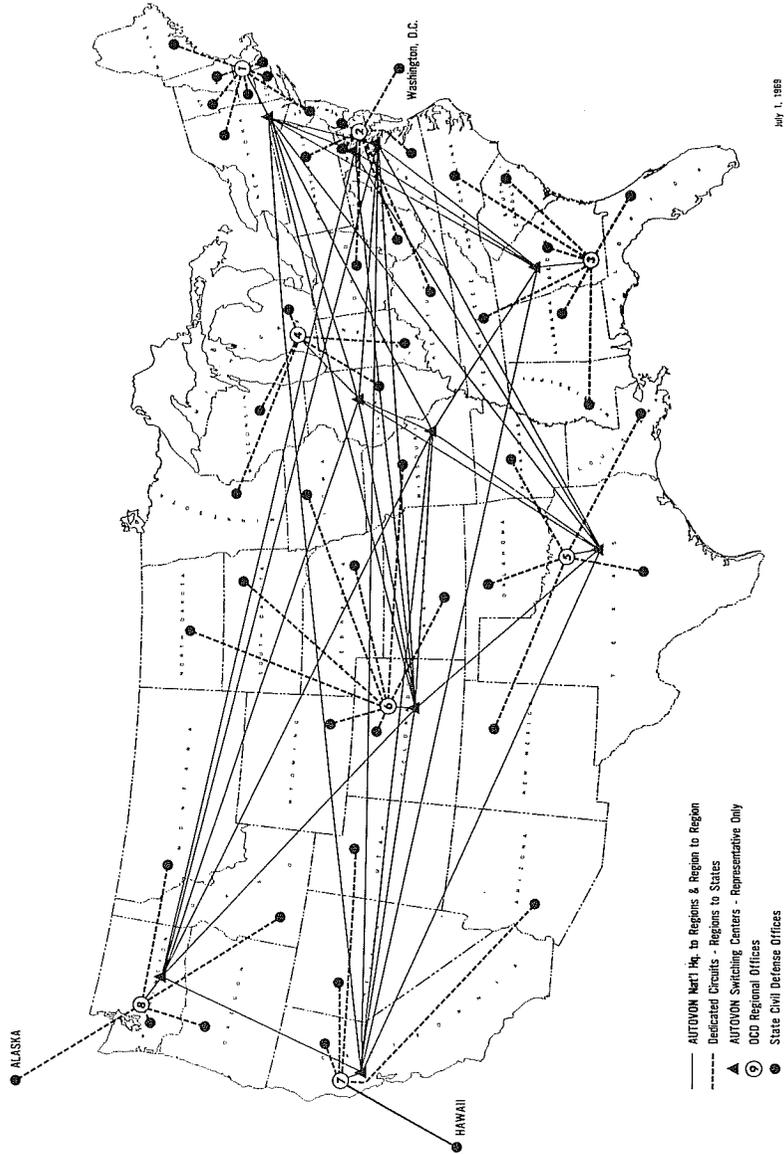


Figure 8.—Civil Defense Voice Communications Services.

Improvement was begun with the ordering of 43 additional AUTOVON circuits for use between OCD headquarters locations and OCD regions. Additional dedicated full-period leased voice circuits also were ordered for region-to-State use.

All OCD regional communications centers have access to the Automatic Digital Network (AUTODIN), a Defense Communications System of teletype circuits. Fiscal year 1969 improvements included the installation of AUTODIN terminals for secure on-line communications at OCD Region Eight. Regions One, Four, Five, and Eight are now so equipped and the remaining four are programmed as they relocate into their new regional centers.

NACOM-2 (Backup System)

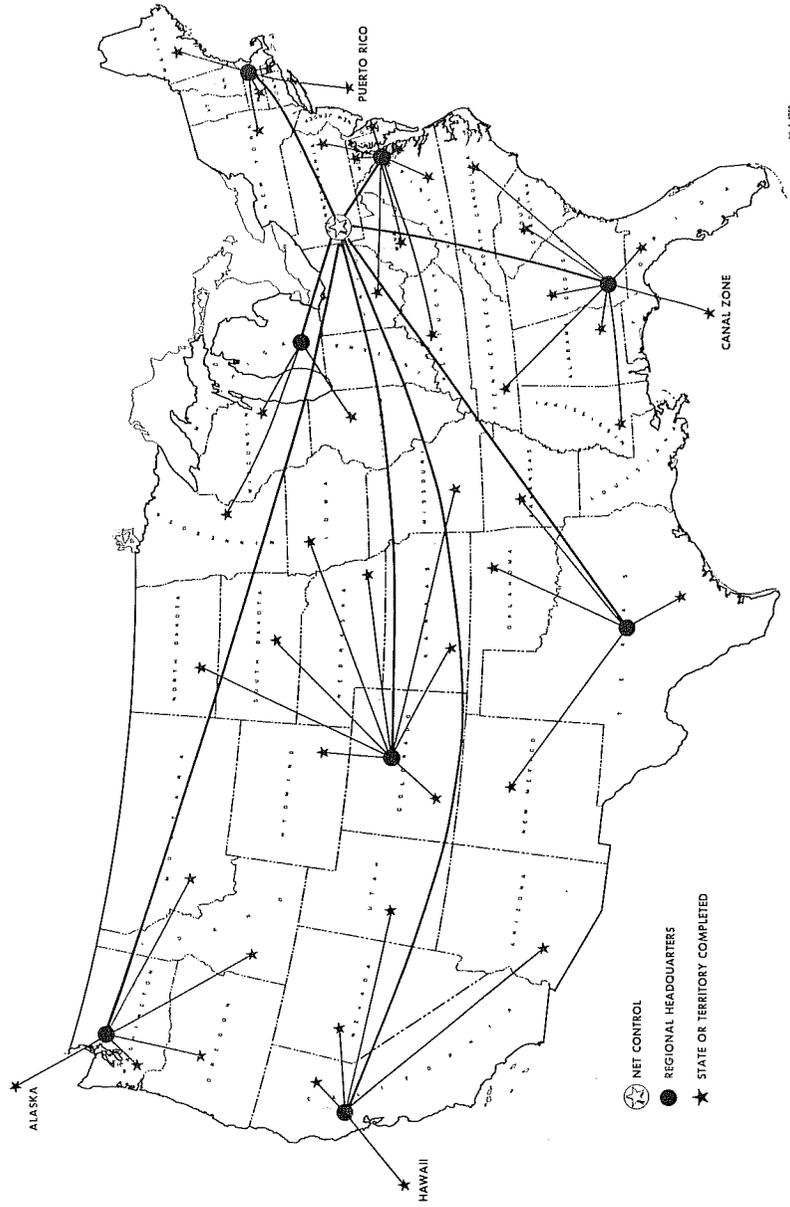
The Civil Defense Radio System, NACOM-2, is the backup system for NACOM-1 and Voice Communications Service. (See fig. 9). NACOM-2 is a high-frequency radio network for transmission of voice, code, or radio-teletype messages. Control facilities for NACOM-2 are collocated with NACOM-1 and Voice Communications Services facilities to make them readily available. Fiscal year 1969 improvements included installation in North Carolina, making NACOM-2 operational in 43 States, the District of Columbia, Puerto Rico, and the Canal Zone. Agreements have been signed with the remaining seven States and American Samoa.

State and Local Emergency Communications

During fiscal year 1969, State and local communications planning continued under the new guidance, Emergency Communications, Part E, Chapter 3, of the Federal Civil Defense Guide. This guidance set forth the principle that the national program to develop a civil defense lifesaving and damage-limiting capability is based on the fundamental precepts of (1) planning and preparing for the most effective use of all existing resources, and (2) acquiring additional means only where it is clearly necessary in order to improve the effectiveness of existing resources for emergency use.

The new Emergency Communication guidance provided State and local governments with a practical and economical approach for planning, developing, and maintaining an emergency communications capability by making maximum use of existing resources. By June 30, 1969, 35 States and 534 local governments had completed communications planning reports.

Radio Amateur Civil Emergency Services (RACES).—The Radio Amateur Civil Emergency Services (RACES) remained operational in all States and included more than 1,500 approved State, county,



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Figure 9.—Civil Defense Radio System (NACOM. 2).

and local plans at fiscal yearend. RACES enables amateur radio operators to perform emergency communications functions as an important emergency supplement to State and local communications systems.

Emergency Broadcast System

The Emergency Broadcast System (EBS) is designed for use by the President and National, State, and local officials to reach the public promptly with emergency information preceding, during, and following an enemy attack. The EBS plan is based on the requirements of the White House, the Office of Emergency Preparedness, and the OCD. The EBS is managed by the Federal Communications Commission in cooperation with the broadcasting industry under the authority of Executive Order 11092, February 26, 1963.

At the end of the year, a total of 2,767 broadcasting stations had National Defense Emergency Authorizations (NDEA) to participate in the EBS.

Broadcast Station Protection Program

Throughout the year, OCD continued the Broadcast Station Protection Program. This program provides fallout protection, emergency power when needed, and programming equipment to selected key EBS stations enabling them to remain on the air under fallout conditions and provide nationwide coverage for Presidential programming. Actions are also continuing to tie EOCs to selected EBS stations. A total of 617 stations were selected for participation in this program. As of June 30, 1969, 573 had completed fallout protection, and 539 of the 573 had also been provided with required equipment. Since the 617 stations provide excellent national population coverage—98 percent—for Presidential programming and also provide some State and local programming capability, no additional stations are planned for protection with Federal funds.

Regional Emergency Operating Centers

Each OCD regional office is an operating center at the Federal level, and will be the site of Civil defense emergency operations in the event of a nuclear attack. These buildings house the peacetime operational staff of the OCD and the Office of Emergency Preparedness. A few other government agencies maintain staffs in the regional offices. OCD plans to provide permanent protected sites for all of the eight regional offices; four structures are now completed and fully operational. The Region Five center at Denton, Texas, became operational in February 1964; the Region One center at Maynard, Mass., in March 1968; the Region Eight center at Bothell, Wash., in December 1968; and the

Region Six center at Denver, Colo., in January 1969. (See fig. 10.) These buildings are mounded and underground structures, built and equipped to afford protection to their occupants against some of the effects of a nuclear weapon. The buildings will contain food and other supplies for up to 30 days. Water is obtained from wells and the other utilities are built into the self sufficient buildings.

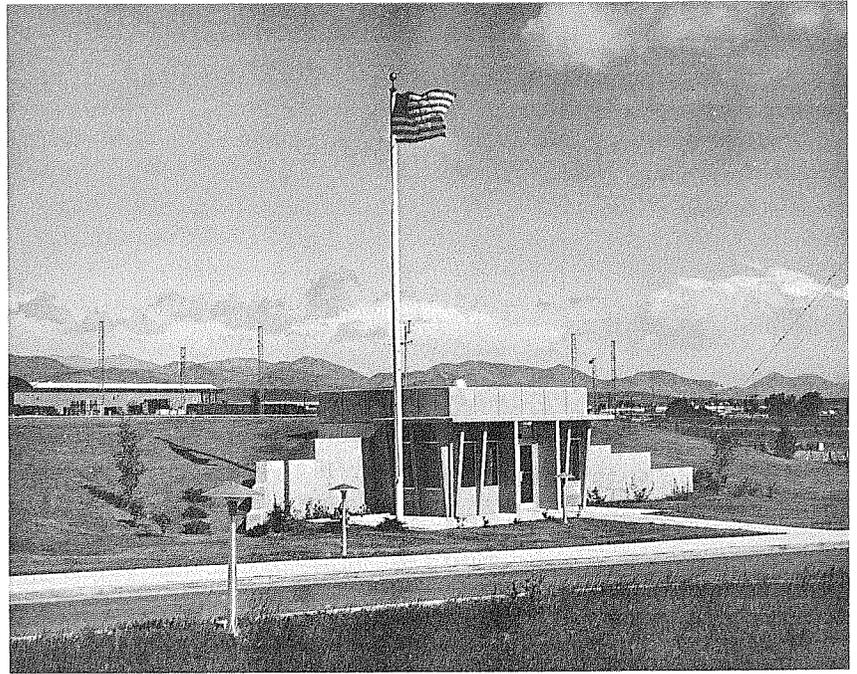


Figure 10.—OCD Region Six Federal Regional Center, Denver, Colo.

Funds used by OCD for construction of the Federal centers total approximately \$9.9 million. The funds to construct Region Five were appropriated to the OCD predecessor agency, Office of Civil and Defense Mobilization, during fiscal year 1960. In addition to the completed structures at Regions One, Five, Six, and Eight, a contract was let in June 1968 to construct the Region Two center which will also provide for the protected housing of the OCD computer facility at Olney, Maryland. Final plans for the Region Three center at Thomasville, Georgia, were completed in May 1968. By fiscal yearend, final plans for the Region Four center were 95 percent complete, preliminary plans for the Region Seven center were completed, and construction at the Region Two center 31 percent completed. Region Four

will develop an operational center by converting the basement area of the existing Federal center in Battle Creek, Mich. The Region Seven center will be located at the Sonoma County California airport where necessary land and water resources are available.

State and Local Emergency Operating Centers

An emergency operating center (EOC) is a location within an existing building or a specially constructed facility where the decision-makers of a State or local government assemble in emergencies to exert direction and control over survival and recovery actions. Although EOCs are meant primarily for use in event of nuclear attack, they are frequently used by local governments during natural disasters. Some Governors and Mayors have also activated their EOCs during civil disturbances. In many communities, EOCs are also in day-to-day use as the normal headquarters of governmental units such as civil defense, police or fire departments, and this dual-use is encouraged by OCD as an economy measure.

EOCs which meet Federal standards may be assisted up to one-half their cost with Federal matching funds. During fiscal year 1969, Federal funds totaling approximately \$2.4 million were obligated for the planning, design, construction and/or equipment of EOCs under this program. Federal standards, recommended for all primary EOCs and required for Federal financial assistance, included a fallout protection factor (Pf) of 100 or more; emergency power and fuel supply; sufficient food, water and medical supplies to maintain the emergency staff for at least 14 days; a mechanical ventilation system; an operations room; communications and warning; and sufficient space for the planned staff.

Throughout its history, the emphasis of the EOC program has been on austerity and reduced cost. Whenever possible, State and local governments have been urged to make use of available space in existing buildings; by modest modification, it can often be converted into an effective EOC. If no such space is available, jurisdictions are urged to incorporate EOCs into new buildings under construction for normal purposes. Those EOCs for which Federal financial assistance is provided are carefully scrutinized; only the added alternate cost of the EOC is permitted. No assistance can be provided for costs which would have been incurred for the same space if it were not an EOC, and only the equipment and supplies for emergency use may be included. The OCD emphasis on low cost EOCs has been intensified as the availability of Federal assistance funds has diminished.

By June 30, 1969, a total of 3,099 EOCs had been established or were in the process of being established. The number assisted by Federal funds totaled 1,036 and 2,063 centers were established without Federal financial assistance. (See table 6.)

TABLE 6.—Status of the Emergency Operating Centers (EOC's) completed or in process, as of 30 June 1969

	Total	State	Local
Total.....	3, 099	231	2, 868
Funded (Federal Matching Funds).....	1, 036	182	854
Non-funded (100% State and Local Funds).....	2, 063	49	2, 014

Damage Assessment

The Damage Assessment System is designed to develop the best possible estimates of the potential range of damage to resources and population before, during, and after a nuclear attack. These estimates are based upon enemy capabilities and a variety of civil defense postures. The information emanating from the system provides a basis for pre-attack planning and for the conduct of effective emergency operations to preserve life and reduce human suffering and postattack damage to resources.

Executive Order 10952 of July 20, 1961 assigned to the Office of Civil Defense the responsibility for developing plans and systems for nationwide postattack assessment of damage. Under other Executive Orders and in coordination with OCD, Federal agencies are responsible for maintaining damage assessment capabilities related to their functions. The agencies provide pertinent data on their resource categories to the Office of Civil Defense.

Major accomplishments and developments in damage assessment and data base during fiscal year 1969 include the following:

1. The first phase of the 1969 Damage Limiting Study was initiated. Its major objectives were to evaluate alternative combinations of fallout and blast shelters and to evaluate the effectiveness of alternative warning systems in reducing casualties from nuclear attack. In other phases of the study, there will be evaluation of the sensitivity of life-saving estimates to varying amounts of shelter stock and estimates of effective survivors and medical caseloads.

2. A manual damage estimation system was developed for use at the relocation site for OCD Headquarters personnel as a backup to the computer system. The manual system can be used to provide ini-

tial estimates of damage inflicted on resources in the event that the computer is unavailable. Damage estimates on resources are essential for lifesaving actions and effective recovery operations.

3. Work initiated last year was continued in the modification and expansion of the National Location Code in anticipation of the 1970 census. About 90,000 standard location areas will be included and provisions will be made for city coding.

4. Under a contract with the Department of Health, Education and Welfare, the development of a prototype emergency water supply plan was continued. The Dallas City Water Department is being used as a pilot organization to determine the most likely methods for providing water to surviving population and industry based upon an analysis of the effects of attack damage sustained by the Dallas water system.

5. A pilot study conducted by the Bureau of Mines, Department of the Interior, was completed. This was an analysis of the critical elements of an oilfield system. The giant oilfield at Hastings West, Brazoria County, Texas was used in the study. The results of this study will be used to determine the feasibility of analyzing large oilfield systems that produce a significant percentage of the crude oil requirements of the United States. After a nuclear attack, it will be essential to know the status of our crude oil resources in order to meet the Nation's oil needs.

6. The input-output study developed by the Office of Business Economics, Department of Commerce, was expanded to include data on special detailed industries. The results of this study will provide an improved data base for estimating the effectiveness of alternative designs of civil defense systems for reducing the effects of enemy attacks on population and property.

7. A pilot study of the critical elements of sewerage systems was completed. This study, conducted by the Public Health Service, Department of Health, Education and Welfare, will be the basis for determining the feasibility of inventorying the critical elements of major sewerage facilities in order to provide the needed data for evaluating postattack damage to such facilities.

8. The Department of Health, Education and Welfare completed its pilot study on the vulnerability of the critical elements of water systems. The results of this study will provide a basis for the update of the water systems inventory.

9. The Bureau of Census, under the direction of the Office of Oil and Gas, Department of the Interior, continued its project to collect data on petroleum storage at the local level. The results of this study

will be used to update the data base resource categories on petroleum storage.

10. A project was initiated with the Bureau of Census to obtain current year estimates and future year projections of the population of each county and certain small areas in the United States. These population estimates will serve many programs in the Office of Civil Defense.

11. During the year, considerable effort was directed to the development of sampling plans applicable to data base resources. The objective is to reduce the volume of data to be handled in an emergency. Sampling plans were developed for six resource categories: health supplies, equipment and survival items, medical manpower, GSA assigned space, medical care facilities, and State Government facilities.

EMERGENCY OPERATIONS SUPPORT

Effective emergency operational support systems for community shelter planning and for over-all government emergency operations planning is of prime importance. Under emergency conditions, essential operational information would be needed by decision-makers at Federal, State, and local levels to assist them in making effective decisions. They must be warned of impending disaster in order to implement their plans: they must be provided information concerning the hazards and actions to take; and in addition, they must have the necessary equipment in operating condition to take necessary action. Also, they must have the required services support to assure the effective implementation of their plans by using the most reliable information, systems, equipment and facilities available.

Emergency Operations Systems Development (EOSD)

This program bridges the gap between research and operations. Emergency Operations Systems Development is the cyclical or repetitive process of using analytical and planning techniques to develop practical civil defense doctrine and operational systems criteria from the research or concept stage to readiness for use by State and local governments. This includes the preparation of detailed guidance materials on emergency systems, their peacetime and crisis development, their operation, attendant training requirements and related management information systems. The long range goal is to maintain doctrine, systems, and guidance for civil defense emergency operations as close to the current state of the art as is feasible, on a cost-effectiveness basis, in light of the social, political, and economic constraints at the time.

During fiscal year 1969, emphasis was continued on developing systems for the orderly increase of civil defense readiness in periods of heightened international tension, and on providing guidance to State and local governments on actions to take during such a period. Specific projects during the year included the following:

Integrated Management Information System (IMIS).—This is an Office of Civil Defense computer-based information system which includes the procedures for data input, a data bank for storage of information required for the system, and the routines for preparing management reports.

Specifically, the IMIS system permits OCD and the States to (1) determine periodically the accomplishment of jurisdictions submitting program papers; (2) compare the goals of State and local jurisdictions with those established for the national OCD programs on immediate, annual, and longer time bases; and (3) measure State and local program progress by relating progress to goals and elapsed time.

The primary source of data for the IMIS is the local program paper and progress report. This document, submitted as a program paper at the beginning of the fiscal year, and as a progress report in the middle of the fiscal year, is the primary management tool to aid local governments in developing and scheduling their civil defense program to achieve the greatest lifesaving potential. Its secondary role is to provide basic data for the IMIS, which in turn develops a series of computer-prepared management reports that enables the States and OCD to guide and assist local governments in their CD program development. Each participating local government is provided a preprinted program form listing the specific activities and elements of a balanced civil defense program with appropriate provisions for reporting each item quantitatively. This form is then computer-processed, so that only updating is needed before returning it to OCD.

IMIS became operational early in fiscal year 1966. During fiscal years 1967 and 1968, design modifications were made and tested, and many improvements were included in the revised forms. During fiscal year 1969 additional improvements were made to the reporting forms and management report outputs, reflecting the issuance of new planning guidance late in fiscal year 1968. These modifications are being implemented with the fiscal year 1970 local program paper and progress report submissions.

As part of a continuing field testing program, all OCD regional officials were indoctrinated in the use of IMIS management reports during fiscal year 1967, and deployment in selected States was begun late in fiscal year 1968. Deployment was accomplished in a total of 18 States by the end of fiscal year 1969, and deployment and field-testing in additional States is expected to continue during fiscal year 1970.

In addition to the 50 States, the Virgin Islands, Puerto Rico, America Samoa, Guam, and the District of Columbia, more than 4,400 political jurisdictions, covering about 88 percent of the U.S. population, submitted annual program papers and related semiannual progress reports in fiscal year 1969.

Increased Readiness Information System (IRIS).—Studies and experiments to determine the control requirements for the operation of civil government in an emergency were initiated in fiscal year 1966 and continued in fiscal years 1967, 1968 and 1969. A successful full-scale test of the system was conducted during the October 1967 civil defense exercise, CDEX-67. During fiscal year 1969, IRIS exercises were conducted by State and local governments, and improvements were made to the system. IRIS exercises by selected local governments and all of the States are scheduled for early in fiscal year 1970. In addition, an automatic data processing capability will be established for processing IRIS information at the national level by the National Civil Defense Computer Facility.

IRIS serves as a base for decision-making by key-national officials concerning increased readiness actions by State and local governments during periods of increased tension. In addition, the system provides significant information concerning public response to these activities throughout the Nation. The system has been designed for State and local reporting of information each evening during periods of increased tension. The information is relayed to State, Regional, and national officials by the next morning.

Emergency Operations Planning.—Planning guidance on preparing local government civil defense emergency plans has been distributed to all the States and their political subdivisions. The guidance is contained in Part G, Chapter 1, of the Federal Civil Defense Guide and covers such subjects as “Local Government Civil Defense Emergency Plans” and “Example of a Local Government Civil Defense Plan for a Municipality of Approximately 20,000 Population.” In general, it sets forth basic planning guidance required by local jurisdictions of small, medium, and large population.

Local Resources Plans.—The OCD continued to support the development of guidance for use by local governments in planning for the conservation and use of resources in a nuclear emergency. The objective is to develop capability at local levels to conserve and control the distribution and use of food, petroleum products, electric power and gas, water, medical supplies and equipment, and other essential resources to assure that the most urgent local needs are met within available supplies. An additional objective is to assure that local

systems are compatible with State and Federal long-range postattack policies and programs.

During the fiscal year, under OCD sponsorship and in collaboration with the Office of Emergency Preparedness and Federal resources agencies, the local governments of New Haven, Conn., Charlottesville, Va., Oak Ridge, Tenn., Hennepin Co., Minn., Benton Co., Ark., Waterloo, Iowa, Phoenix, Ariz., and Cowlitz Co., Wash., conducted pilot planning projects to develop "on-site" plans and procedures that local leaders would execute in emergency. The results of these projects are being evaluated for possible translation into Federal general guidance to other localities.

In addition, a joint study on construction resources was completed by the OCD and the Corps of Engineers on measures to assist State and local governments in preparation for an execution of postattack repairs and restorations of vital utilities and facilities. Four pilot projects are planned for fiscal year 1970 to evaluate and field-test study recommendations.

Federal Civil Defense Guide (FCDG).—The Federal Civil Defense Guide is a continuing major information activity of OCD to transmit official civil defense policy and operations guidance to State and local governments, and to other Federal agencies—including the military services. Most of the review and final draft material is developed in-house, with some of it based on the results of contract EOSD projects. The publication brings together the results of applicable OCD research programs and operational analyses. Various other OCD publications of an operational nature are keyed to the Guide. During fiscal year 1969, 11 FCDG issuances were published and distributed.

Major FCDG issuances included Part E, Chapter 9, "Maintenance of Law and Order During Civil Defense Emergencies," with appendices 1 and 2—"Planning and Programs" and "Orientation and Training," and Part E, Chapter 10, "Fire Prevention and Control During Civil Defense Emergencies," with appendices 1 and 2—"Developing Plans and Programs" and "Orientation and Training." Chapter 9 of the FCDG series was prepared in cooperation with the International Association of Chiefs of Police and the National Sheriff's Association. The International Association of Fire Chiefs, International Association of Fire Fighters, the National Fire Protection Association, the Forest Service, U.S. Department of Agriculture, the United States Civil Defense Council, and National Association of State Civil Defense Directors cooperated in the preparation of chapter 10.

Fire Defense Planning for CD Emergencies.—OCD completed guidance for State and local governments on planning for fire prevention and control during civil defense emergencies. The guidance

was published and distributed in fiscal year 1969, as Part E, Chapter 10 of the Federal Civil Defense Guide. The guidance concentrates on the extraordinary fire problem that a nuclear attack would create, and outlines the preattack plans that local fire service officials should prepare to counter these problems. The basic chapter is intended for the fire chief. The supporting appendices, on fire defense planning, orientation and training, are intended for those members of the local fire service staff responsible for developing nuclear fire defense plans and programs.

The International Association of Fire Chiefs (IAFC) has completed testing guidance for OCD for use by State and local governments on fire defense planning:

1. The Self-Help Emergency Firefighting Training Kit has been tested in 100 communities. The materials will be packaged in kits and distributed nationwide for use by local fire departments.
2. The system for Local Assessment of the Conflagration Potential of Urban Areas has been field-tested and is being readied for publication in the Federal Civil Defense Guide.

The IAFC continued work on development of a final draft of the Fire Defense Leadership Seminar materials, and the U.S. Forest Service continued development of fire defense plans for use by State and local governments.

Law Enforcement Planning for Civil Defense Emergencies.—OCD completed guidance for State and local governments on planning for maintenance of law and order in civil defense emergencies which was issued as Part E, Chapter 9 of the Federal Civil Defense Guide. The guidance, entitled "Maintenance of Law and Order During Civil Defense Emergencies," included two appendices—Appendix 1, "Planning and Programs for Maintenance of Law and Order," with Annex 1, "Federal Emergency Assignee Identification Card," and Appendix 2, "Orientation and Training for Maintenance of Law and Order During Civil Defense Emergencies." The documents are intended for use by chiefs of police and sheriffs and their planning staffs in preparing to cope with police problems arising from civil defense emergencies. The police planning package provides the detailed guidance needed by police planning staffs and sheriffs' offices to develop an overall local government emergency plan dealing with the maintenance of law and order. The materials have been distributed to State and local CD directors, interested Federal departments and agencies including all FBI field offices and the Provost Marshall General, as well as to 5,000 police chief members of the International Association of Chiefs of Police and to 3,000 sheriff members of the National Sheriffs' Association.

Rescue.—Drafts of Federal Civil Defense Guide materials on rescue were prepared. Following a limited field testing of the proposed guidance, the materials are to be published in the FCDG.

Public Works Engineering.—OCD prepared guidance materials to help State and local governments and public works departments develop plans and programs for public works engineering operations in civil defense emergencies. The field-testing of this guidance started in late fiscal year 1969, will be completed in the first half of fiscal year 1970, and the materials are to be published in the Federal Civil Defense Guide.

Military Support.—Military Support to Civil Defense Plans are being prepared by all of the 50 States and Puerto Rico. Planning and training guidance for the State Adjutants General and their staffs in Military Support of Civil Defense has been provided by USCONARC. Procedures for an orderly interchange of information and compatibility with State and local civil defense emergency operations plans are being further developed.

Emergency Operations Reporting System.—Major new concepts, techniques and procedures for emergency operations reporting for use by local, State, and Federal civil and military authorities were developed during fiscal year 1969. By yearend, guidance materials and procedural manuals for the new reporting system were being reproduced for final review by States and interested Federal agencies.

Radiological Monitoring and Reporting Systems

There continues to be a need for an effective and operationally ready radiological monitoring, reporting and evaluating system to provide accurate and timely information on the extent, intensity and duration of radiological fallout hazards that could result from a nuclear attack. Tens of millions of casualties can be avoided, the early recovery of essential facilities can be effected, and rehabilitation can be accomplished only through an organized capability of detecting, monitoring, reporting and analysis of the fallout situation at each affected locality. Therefore, the Radiological Defense Systems are developed on a continuing basis consistent with the development of the shelter program and other emergency operational programs.

A nationwide radiological monitoring system has been designed to provide radiological information to all levels of government. Major elements of this system include: (1) Monitoring capability at public fallout shelters and other vital facilities at strategic locations to achieve geographic coverage by emergency services personnel and by aerial teams; (2) data processing and evaluating capabilities at emergency operating centers; and (3) capability within each State to maintain

and calibrate radiation measuring instruments used in the monitoring system.

Monitoring Stations.—A grand total of 67,622 monitoring stations were operational by the end of fiscal year 1969, for a total net gain of 1,789 stations (See fig. 11). Each monitoring station meeting minimum requirements has been provided with one radiological defense operational set CD V-777. The requirements include suitable geographic location, fallout protection, adequate communications, and at least two trained radiological monitors. Some stations are located in public fallout shelters that meet the requirements. The monitoring staff in these cases would perform both shelter and operational monitoring functions. Selected monitoring stations having extensive area monitoring assignments are furnished additional radiological defense equipment in the form of the radiological monitoring support set CD V-777A. A remote reading, high-range survey meter that permits radiation measurements up to a distance of 25 feet is also made available separately for monitoring locations with major responsibilities for reporting radiological data.

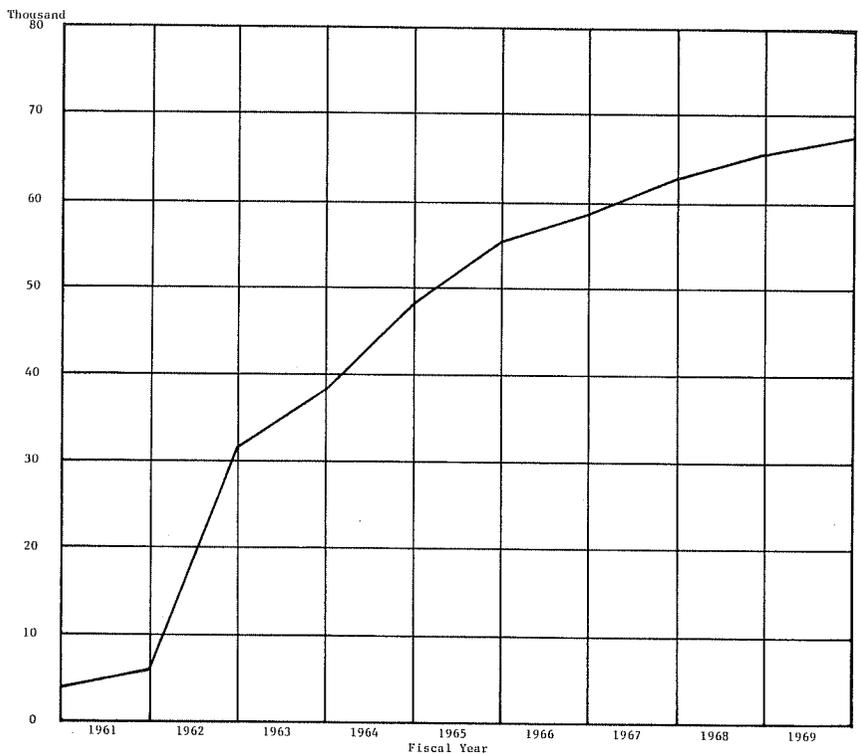


Figure 11.—Growth in number of Federal, State, and local radiological monitoring stations.

Some monitoring stations are located at sites of Federal agencies having civil defense responsibilities assigned by Executive Orders. Some are located at State facilities but the majority, established by local governments, are at local facilities. During an emergency, stations manned by Federal personnel would supply local governments with fallout data, as provided by established agreements.

Shelter Monitoring.—A total of 103,562 public fallout shelters has been provided with at least one radiation kit CD V-777-1 by the end of the year. This was a net increase of 9,296 during the year.

Radiation measurements in each shelter would serve as a basis for determining (1) the best protected shelter areas in a facility, (2) whether adjoining areas of the facility should be used to alleviate crowding when radiation intensities permit, and (3) the amount of radiation exposure to be recorded for shelter occupants. The information would also be used to determine emergency excursions outside the shelter, and as a basis for requesting advice from the EOC on emergency action in extreme situations. Finally, these data would be the basis for situation information for shelter occupants and would be the source of RADEF information for the shelter manager's report of the general shelter status to the EOC. Upon completion of their primary assignments, shelter monitors would be reassigned to monitoring of other areas as required.

Aerial Monitoring.—At the end of the fiscal year, 48 States had been furnished equipment to develop aerial monitoring capability. A total of 269 CD V-781 aerial survey meters and supporting equipment had been issued.

The States have continued in the development of their aerial radiological monitoring plans. These plans are in consonance with the resources plans of the States and the North American Air Defense Command (NORAD) Plan, "Security Control of Air Traffic and Navigation Aids (SCATANA)." The State Aeronautical Authority serves as the principal coordinating agency for the utilization of general aviation aircraft. In a number of the States, the Aeronautical Authorities have been very helpful in the planning and developing of aerial radiological monitoring capability.

During the fiscal year, seven of the States have conducted aerial monitor/pilot training using an interim outline. Experience gained through this training will be used in developing official training materials and in developing guidance for periodic practice of aerial monitoring techniques by monitors and pilots.

Postattack Radiation Exposure Control.—The States have been supplied with 1,807,415 dosimeters and 71,467 dosimeter chargers for use by emergency services personnel conducting postattack operations. The

dosimeters are for measurement of the workers' accumulated radiation exposure dose as a basis for exposure control. Only 167,375 dosimeters and 1,464 chargers were issued for this program during fiscal year 1969.

Distribution and Servicing of RADEF Instruments

Distribution.—Radiological defense instruments distributed during fiscal year 1969 totaled 277,812 making a cumulative total of 3.8 million as follows: (Also, see fig. 12).

Public fallout shelters.....	576,245
State and local operational purposes.....	2,210,258
Federal operational purposes.....	238,470
Maintenance float stock and replacement.....	228,778
Training and other purposes.....	522,883
Total.....	3,776,634

The number of instruments on hand has been adequate to meet requirements for shelter and operational monitoring sets. Therefore, procurement has been primarily for procurement of replacement parts to maintain and increase the reliability of the instruments.

RADEF Equipment Inspection, Maintenance, and Calibration

Radiation detection and measuring instruments are the only known means for determining the exact hazard to people and animals from radioactive fallout. They are required for measuring exposure rates and doses in shelters and also for warning people against over-exposure when performing emergency services outside of shelters. To provide a reliable operational capability, these sensitive instruments must be periodically inspected, recalibrated, and repaired. The 100 percent Federally funded inspection, maintenance and calibration program is continuing in operation in the 50 States, the District of Columbia, and Puerto Rico. All civil defense radiological instruments that have been distributed are calibrated and serviced at least once every two years at central facilities that are a part of the States' systems, and major repairs are made there. During the fiscal year, these State shops have inspected about 885,000 instruments and repaired and/or calibrated approximately 180,000 of them. OCD has developed calibrators suitable for calibrating all ranges of the radiological instruments without significant radiation exposure to the operator and has made them available to all States.

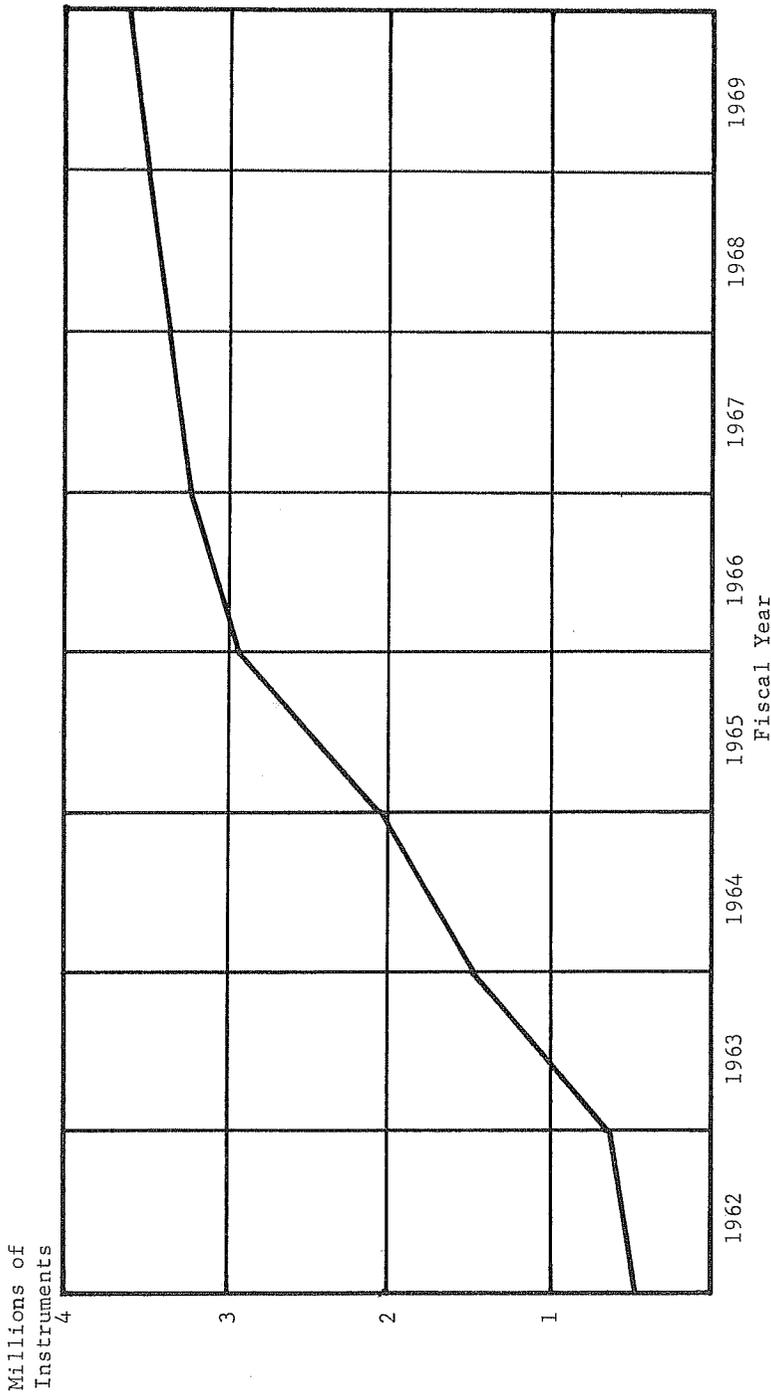


Figure 12.—Cumulative distribution of radiological defense instruments.

Radiological Engineering Services

The primary effort of the Radiological Engineering Services program is directed to continuously improving the cost effectiveness long-term utility and reliability of RADEF instruments. The program bridges the gap between research and mass production by providing for production engineering, pilot production, pilot installations and extensive field trials of new RADEF devices. It also provides for technical surveillance of large quantity procurements of radiological instruments. The type and characteristics of future OCD RADEF instruments depend upon national strategy, weapons phenomenology and weapons system development. Some major accomplishments in Radiological Engineering during fiscal year 1969 include:

1. A pilot production of an improved radiological instrument calibrator (CDV-794, Mark IV) was completed. (See fig. 13). This calibrator is now being used in the OCD State maintenance and calibration program, and has resulted in increased efficiency in calibration of survey meters.

2. A low-cost remote sensor radiation meter (CDV-711 Mark III) was tested. The Air Force will base a forthcoming procurement on the design. This instrument features a detector assembly remotable to a maximum of 2,000 feet. This version was designed for deployment as an increased readiness measure during a crisis period. Figure 14 illustrates a pilot production model of this instrument.

3. A prototype model of an improved version of a remote sensor radiation meter (CDV-711 Mark IV) was completed. This model is designed for installation in emergency operating centers. It features improved stability through the extensive use of solid state circuitry, and it will operate on 110 volts AC or on self-contained "D" size batteries.

Weather Services

The U.S. Weather Bureau continued, under contract to OCD, to disseminate data on upper wind observations throughout the continental United States. This information, transmitted twice daily over weather reporting circuits to several hundred locations, is redistributed as needed and can be used at emergency operating centers to develop fallout forecasts. The Weather Bureau is in the process of modifying this program to provide forecast data in contrast to the data now disseminated which is measured data and does not reflect changes since the time of measurement.

The American National Red Cross (ANRC)

The services of the American National Red Cross were available to the OCD in both advisory and operational capabilities. The ANRC continued to assist the OCD in providing fallout shelter space in its buildings in accordance with the Memorandum of Understanding dated August 15, 1962. The ANRC also continued to encourage local chapters, local organizations and community groups in the development of the civil defense program.



Figure 13.—Radiological instrument calibrator (CDV-794, Mark IV).

The ANRC assisted Federal, State, and local governments in developing civil defense readiness. For this purpose, the OCD arranged for an ANRC representative to carry on civil defense liaison work at the national level and for an ANRC consultant to serve at each OCD regional office.

More than 3,600 local ANRC chapters, widely dispersed nationally, continued to train millions of persons in skills essential to civil defense preparedness: e.g., first aid, home nursing, emergency mass feeding, and management of community fallout shelters.

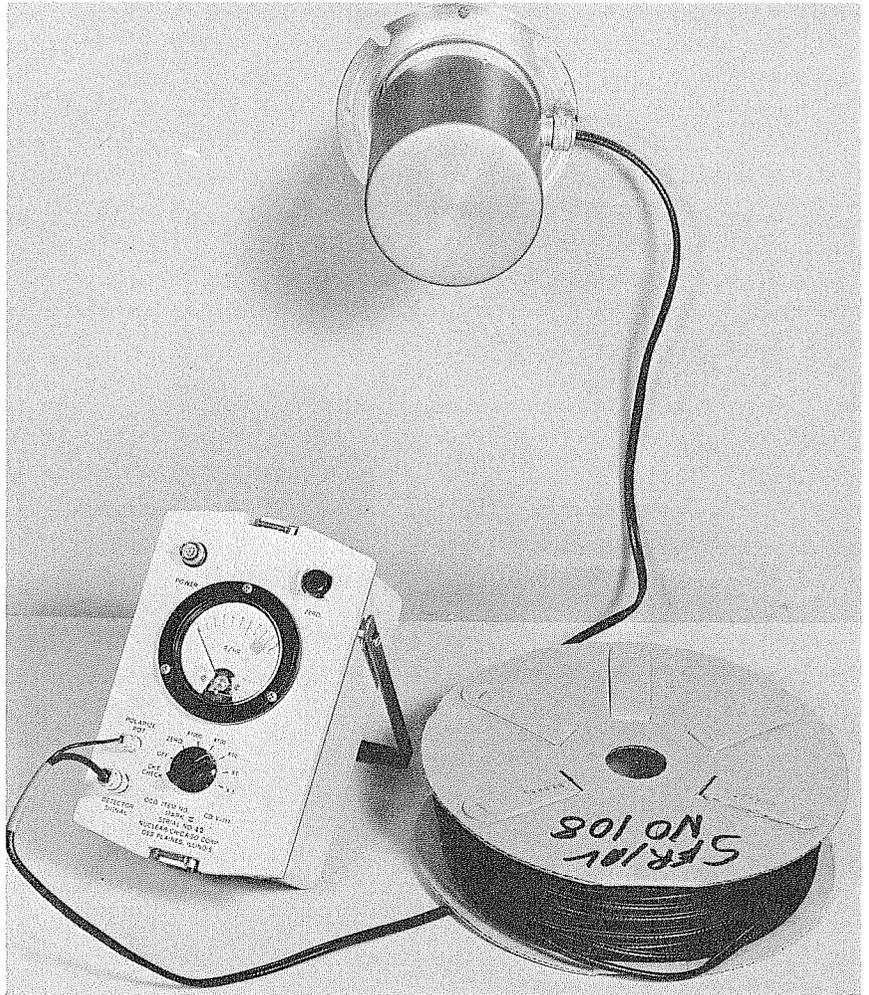


Figure 14.—Remote sensor radiation meter (CDV-711, Mark III).

Emergency Water Supply Equipment

The OCD inventory of emergency water supply equipment consists of 45 equipment units each with 10 miles of 8-inch steel pipe, with supporting pumps, electric generators, purifiers, chlorinators, and storage tanks. The equipment is maintained to assist State and local governments during postattack operations and is also used to assist in natural disaster situations. Total value of the inventory was approximately \$6.5 million at the end of fiscal year 1969. One of the big events of the year was the deployment of 114 pumps and supporting equipment in the Upper Mississippi River Area in readiness to combat the predicted Spring Flood of 1969.

Fifteen widely dispersed warehouse storage locations assisted 66 communities in 17 States in situations of drought, water shortages, contaminated water supply, floods, and hurricanes during fiscal year 1969. (See fig. 15.) Loans of equipment included an aggregate of 213 pumps, approximately 78 miles of 8-inch pipe with fittings and 8 electric power generator units. Equipment issued on loan is valued at approximately \$1.2 million. At the end of the fiscal year, the equipment was still on loan to 10 States for use in 23 communities.

Program Management Information Systems

Major accomplishments under this program include the following:

1. Consultant services were provided to the District of Columbia to assist in the continued operation of the Generalized Automatic Data Processing System for Civil Defense. The system was designed and developed in the Office of Civil Defense to assist local civil defense directors in managing their civil defense programs. The prototype system installed in the District of Columbia has operated successfully and proved to be an effective management tool.

2. Independent tests of the Generalized Automatic Data Processing for Civil Defense system were arranged for Philadelphia, Pa., and Cleveland, Ohio. Another test of a revised system was initiated in San Diego County, Calif.

3. The Office of Civil Defense has been an active participant in the work of the Urban Information Systems Inter-Agency Committee (USAC). This committee plans to implement an Integrated Municipal Management Information System in two or three pilot cities to test the prototype system. The ultimate objective is to produce a system package that could be used by any municipality desiring to employ an ADP management system.

4. Progress continued in the development of the Quality Control System that was designed for the Civil Defense Materiel Division, Defense Supply Agency. The system provides a computer-oriented

means of compiling information on the condition of stocks in shelters as reported by inspectors. The results of this system will serve as a basis for a replacement program of shelter stocks.

5. A number of on-going management systems were revised and improved during the year. These included the Integrated Management Information System, Emergency Operations Centers, and the Architects and Engineers Directory.

TESTS AND EXERCISES

A major civil defense activity during this fiscal year was carried out in connection with a worldwide military exercise, HIGH HEELS 68, sponsored by the Joint Chiefs of Staff. State and local governments did not participate. At the national level, OCD staff stationed at a number of emergency operations sites supported the exercise by furnishing periodic status reports and appropriate responses to various military headquarters, and by identifying requirements for military assistance to civil governments generated by the simulated attack. Relationships between OCD regions and the Continental U.S. Army Headquarters were maintained by means of "response cells" at the regional offices.

A significant part of the exercise involved a test of the Increased Readiness Information System (IRIS) that has been developed to keep the Federal Government informed of readiness actions taken at State and local levels during periods of heightened international tension. Data were developed during separate IRIS exercises conducted by OCD regional offices, and then used as the basis for readiness reports and decision making during the HIGH HEELS exercise. The OCD also disseminated notice of changes in simulated Defense Readiness Conditions to the Federal establishment in order to provide civil agencies the opportunity to exercise their alerting and mobilization procedures.

Computer-developed messages were used again this year to describe simulated weapons effects at local levels throughout the United States. These messages, oriented to some 5,000 points in the country, provided a realistic basis for identifying and reporting on effects of the exercise attack and the resulting actions taken to meet the simulated postattack conditions.

During the fiscal year, plans were developed for a long-range program for tests and exercises. The plans include policy and procedures for programming, managing and evaluating civil defense exercise activities over a five-year period at Federal, State and local levels. A national civil defense exercise involving all levels of government is scheduled for early in calendar year 1971.

CIVILIAN CHEMICAL AND BIOLOGICAL DEFENSE

OCD programs for civilian chemical, biological, and radiological warfare defense stress protection from the radiological threat. However, studies conducted for the Department of Defense indicate that the threat to the United States posed by chemical and biological agents is relatively less significant than that posed by the nuclear threat. Chemical agents are not considered a major strategic threat, as they are effective mainly if used against tactical targets of limited area. Although the possibility of employment of biological agents against population centers cannot be ruled out, neither a chemical nor a biological threat against the continental United States warrants, at this time, the attention and priority given to defense against the effects of nuclear weapons. But Department of Defense research on methods of detecting, identifying, reporting, and analyzing biologicals, as well as on methods of defense against them, will continue; meanwhile this potential threat is kept under constant review.

PART V

SUPPORT

Financial Assistance to State and local governments, an informed public, the support of industry and national organizations, program development through research, and training, are important requirements of an effective and efficient civil defense program. Major supporting activities that contribute to these requirements are discussed in this part of the report.

FINANCIAL ASSISTANCE

In accordance with the Federal Civil Defense Act of 1950, as amended, Section 201 (i) and the amendment to this law of 1958 which added Section 205, the Office of Civil Defense continued to administer a Federal Financial Assistance program to assist State and local governments to develop and maintain civil defense readiness within their jurisdictions.

Federal financial assistance may be granted for up to one-half of the total costs for eligible items. Categories for which funds may be granted upon approval of application include (1) personnel and administrative expenses, (2) supplies, equipment, and training, and (3) construction of emergency operating centers (EOCs).

The four basic requirements for a unit of government to be eligible for OCD financial assistance are :

1. Civil defense organizational arrangements must be established pursuant to law.
2. There must be an OCD-approved operations plan.
3. There must be an approved program paper for the current Federal fiscal year.
4. The State or local civil defense agency must comply with Title VI of the Civil Rights Act of 1964.

In addition, applicants for financial assistance for personnel and administrative expenses must (1) have an approved merit system for all of their civil defense employees, and (2) submit an annual submission which includes a financial plan and staffing pattern.

Approximately \$1.6 million was obligated during fiscal year 1969 for supplies, equipment, and training. Of this amount, approximately 98 percent was used for communications and warning (See table 7).

All States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, Guam, and 1,995 of their political subdivisions participated in the Personnel and Administrative Expenses program.

TABLE 7.—Fiscal year 1969 Federal contributions to State and local governments for supplies, equipment, training, and emergency operating centers

	Amounts obligated ¹		
	Total	Supplies, equipment, and training	Emergency operating centers
Total.....	\$3, 982, 235	\$1, 580, 509	\$2, 401, 726
REGION ONE.....	759, 717	451, 877	307, 840
Connecticut.....	56, 311	39, 463	16, 848
Maine.....	46, 049	36, 788	9, 261
Massachusetts.....	44, 660	40, 373	4, 287
New Hampshire.....	9, 147	4, 482	4, 665
New Jersey.....	34, 458	28, 413	6, 045
New York.....	564, 343	298, 940	265, 403
Rhode Island.....	804	804	0
Vermont.....	2, 614	2, 614	0
Puerto Rico.....	1, 331	0	1, 331
Virgin Islands.....	0	0	0
REGION TWO.....	537, 937	182, 401	355, 536
Delaware.....	4, 170	3, 265	905
District of Columbia.....	0	0	0
Kentucky.....	12, 015	11, 415	600
Maryland.....	41, 198	34, 906	6, 292
Ohio.....	91, 912	32, 705	59, 207
Pennsylvania.....	110, 286	92, 014	18, 272
Virginia.....	277, 744	7, 484	270, 260
West Virginia.....	612	612	0
REGION THREE.....	277, 196	100, 714	176, 482
Alabama.....	101, 880	9, 764	92, 116
Florida.....	46, 134	35, 234	10, 900
Georgia.....	23, 864	19, 662	4, 202
Mississippi.....	59, 682	5, 821	53, 861
North Carolina.....	19, 262	14, 157	5, 105
South Carolina.....	10, 522	2, 223	8, 299
Tennessee.....	15, 852	13, 853	1, 999
Canal Zone.....	0	0	0
REGION FOUR.....	424, 996	232, 071	192, 925
Illinois.....	65, 695	62, 017	3, 678
Indiana.....	7, 041	6, 081	960
Michigan.....	29, 625	24, 304	5, 321
Minnesota.....	90, 620	44, 113	46, 507
Wisconsin.....	232, 015	95, 556	136, 459

¹ Figures may not add to exact totals due to rounding.

TABLE 7.—Fiscal year 1969 Federal contributions to State and local governments for supplies, equipment, training, and emergency operating centers—Continued

	Amounts obligated ¹		
	Total	Supplies, equipment, and training	Emergency operating centers
REGION FIVE.....	\$302, 729	\$43, 498	\$259, 231
Arkansas.....	3, 078	2, 349	729
Louisiana.....	11, 668	10, 899	769
New Mexico.....	1, 876	1, 876	0
Oklahoma.....	51, 287	11, 518	39, 769
Texas.....	234, 820	16, 856	217, 964
REGION SIX.....	548, 762	189, 810	358, 952
Colorado.....	106, 617	16, 194	90, 423
Iowa.....	122, 694	62, 590	60, 104
Kansas.....	48, 755	46, 094	2, 661
Missouri.....	103, 111	36, 410	66, 701
Nebraska.....	38, 371	9, 126	49, 245
North Dakota.....	5, 358	5, 358	0
South Dakota.....	121, 108	11, 940	109, 168
Wyoming.....	2, 748	2, 098	650
REGION SEVEN.....	1, 053, 731	346, 583	707, 148
Arizona.....	20, 584	17, 637	2, 947
California.....	952, 947	268, 002	684, 945
Hawaii.....	66, 834	51, 986	14, 848
Nevada.....	8, 738	5, 729	3, 009
Utah.....	4, 628	3, 229	1, 399
American Samoa.....	0	0	0
Guam.....	0	0	0
REGION EIGHT.....	77, 173	33, 558	43, 615
Alaska.....	4, 809	4, 809	0
Idaho.....	3, 698	3, 508	190
Montana.....	31, 281	3, 282	27, 999
Oregon.....	15, 698	272	15, 426
Washington.....	21, 687	21, 687	0

¹ Figures may not add to exact totals due to rounding.

TABLE 8.—Fiscal year 1969 Federal contributions for civil defense personnel and administrative expenses

Area	Amount obligated	Political subdivisions	
		Number participating	Staff
Total.....	\$19, 099, 697	1, 995	5, 959
REGION ONE.....	5, 369, 355	335	1, 587
Connecticut.....	257, 838	24	76
Maine.....	259, 436	78	127
Massachusetts.....	658, 324	51	200
New Hampshire.....	70, 502	15	34
New Jersey.....	551, 517	53	189
New York.....	3, 081, 103	36	724
Rhode Island.....	149, 179	8	40
Vermont.....	56, 690	5	18
Puerto Rico.....	269, 212	65	174
Virgin Islands.....	15, 554	0	5
REGION TWO.....	2, 195, 480	221	706
Delaware.....	97, 685	4	30
District of Columbia.....	157, 981	0	26
Kentucky.....	211, 543	51	104
Maryland.....	434, 706	21	102
Ohio.....	308, 304	28	100
Pennsylvania.....	625, 922	56	208
Virginia.....	253, 037	37	78
West Virginia.....	106, 302	24	58
REGION THREE.....	2, 869, 282	371	999
Alabama.....	415, 827	58	132
Florida.....	615, 823	52	192
Georgia.....	544, 215	84	204
Mississippi.....	214, 577	49	100
North Carolina.....	497, 989	63	170
South Carolina.....	341, 997	36	106
Tennessee.....	238, 854	29	95
Canal Zone.....	0	0	0
REGION FOUR.....	2, 196, 951	329	714
Illinois.....	531, 100	98	193
Indiana.....	132, 085	21	52
Michigan.....	464, 845	68	121
Minnesota.....	577, 641	77	199
Wisconsin.....	491, 280	65	149

TABLE 3.—Fiscal year 1969 Federal contributions for civil defense personnel and administrative expenses—Continued

Area	Amount obligated	Political subdivisions	
		Number participating	Staff
REGION FIVE.....	\$1, 444, 426	172	484
Arkansas.....	253, 465	47	101
Louisiana.....	368, 989	15	106
New Mexico.....	85, 539	7	24
Oklahoma.....	244, 328	35	84
Texas.....	492, 105	68	169
REGION SIX.....	1, 379, 918	332	613
Colorado.....	190, 051	30	62
Iowa.....	265, 551	68	118
Kansas.....	185, 460	49	90
Missouri.....	248, 117	52	103
Nebraska.....	180, 087	35	78
North Dakota.....	125, 412	48	66
South Dakota.....	125, 049	35	73
Wyoming.....	60, 191	15	23
REGION SEVEN.....	2, 847, 578	127	613
Arizona.....	202, 183	23	68
California.....	2, 130, 829	79	429
Hawaii.....	163, 273	4	37
Nevada.....	116, 793	12	41
Utah.....	350	9	32
American Samoa.....	20, 188	0	1
Guam.....	213, 962	0	5
REGION EIGHT.....	796, 707	108	243
Alaska.....	92, 265	2	17
Idaho.....	141, 929	25	44
Montana.....	92, 384	52	69
Oregon.....	352, 060	10	25
Washington.....	118, 069	19	88

TABLE 9.—Federal surplus property transferred to State and local governments for civil defense purposes

[In thousands of dollars]

Area	Acquisition cost of transferred property ¹	
	Fiscal years 1957 through 1969	Fiscal year 1969
Total.....	\$433, 183	\$31, 187
REGION ONE.....	73, 473	5, 333
Connecticut.....	7, 461	350
Maine.....	9, 870	627
Massachusetts.....	19, 667	1, 340
New Hampshire.....	3, 297	235
New Jersey.....	13, 556	950
New York.....	12, 234	1, 398
Rhode Island.....	3, 251	246
Vermont.....	1, 455	99
Puerto Rico.....	2, 666	72
Virgin Islands.....	14	14
REGION TWO.....	35, 344	1, 364
Delaware.....	649	129
District of Columbia.....	0	0
Kentucky.....	4, 608	206
Maryland.....	7, 197	408
Ohio.....	5, 167	230
Pennsylvania.....	9, 724	213
Virginia.....	5, 500	145
West Virginia.....	2, 499	32
REGION THREE.....	94, 960	6, 641
Alabama.....	13, 821	874
Florida.....	21, 908	1, 301
Georgia.....	21, 990	1, 373
Mississippi.....	13, 926	1, 680
North Carolina.....	12, 770	653
South Carolina.....	5, 339	612
Tennessee.....	5, 204	148
Canal Zone.....	0	0
REGION FOUR.....	50, 399	3, 399
Illinois.....	13, 981	1, 021
Indiana.....	5, 659	85
Michigan.....	22, 428	1, 982
Minnesota.....	5, 370	210
Wisconsin.....	2, 961	101

See footnote at end of table.

TABLE 9.—Federal surplus property transferred to State and local governments for civil defense purposes—Continued

[In thousands of dollars]

Area	Acquisition cost of transferred property ¹	
	Fiscal years 1957 through 1969	Fiscal year 1969
REGION FIVE.....	57, 947	5, 817
Arkansas.....	9, 007	1, 168
Louisiana.....	13, 735	910
New Mexico.....	1, 735	160
Oklahoma.....	7, 903	670
Texas.....	25, 565	2, 908
REGION SIX.....	28, 569	1, 491
Colorado.....	6, 299	238
Iowa.....	2, 961	357
Kansas.....	2, 052	47
Missouri.....	6, 038	86
Nebraska.....	1, 639	8
North Dakota.....	2, 820	301
South Dakota.....	3, 556	226
Wyoming.....	3, 202	227
REGION SEVEN.....	75, 235	6, 313
Arizona.....	4, 116	606
California.....	59, 154	4, 708
Hawaii.....	746	28
Nevada.....	3, 443	516
Utah.....	7, 774	455
American Samoa.....	0	0
Guam.....	0	0
REGION EIGHT.....	17, 258	830
Alaska.....	1, 724	66
Idaho.....	3, 349	179
Montana.....	1, 218	105
Oregon.....	3, 277	152
Washington.....	7, 690	327

¹ Figures may not add to exact totals due to rounding.

During the fiscal year, OCD made \$19.1 million available for this program. The number of State and local employees performing civil defense functions totaled 5,959 at the end of fiscal year 1969 (See table 8).

The program for partial reimbursement of travel and per diem expenses of students attending OCD schools was continued to encourage training of State and local civil defense personnel. Course completion certificates issued to students reimbursed under this program during this fiscal year totaled 142, and the amount reimbursed was \$13,873. Cumulative expenditures since this program was started in fiscal year 1960 totaled \$715,813, and a cumulative total of 11,668 completion certificates had been issued.

Surplus Property

Federal surplus property, under the Federal Property and Administrative Services Act of 1949, as amended, may be donated also to States and their political subdivisions for civil defense purposes. Since the program was started in fiscal year 1957, property having an acquisition cost of approximately \$433.2 million has been transferred to State and local governments. Federal surplus property with an original acquisition value of approximately \$31.2 million was donated to the State and local governments during fiscal year 1969. (See table 9). Recipients of these property donations were required to submit the same type of program papers and reports as those required of recipients of Federal matching funds.

INFORMATION ACTIVITIES

All civil defense information is concerned with emergency action. To gain involvement in civil defense at the community level, to provide advice and instructions needed by the public and industry to save and maintain life and to protect property and assure industrial survival in the event of attack are major concerns of civil defense.

Emergency Public Information

Emergency public information is an important link in the chain of preparedness for protection in the event of nuclear attack upon the United States. The strength of this link is based upon plans, procedures, and tools used in communicating lifesaving instructions to the public in a period of rising international tension or crises. Authoritative information for this purpose was prepared and distributed at an accelerated rate during fiscal year 1969. Special attention was also given to the following two important aspects: (1) adapting the information as applicable for current use to inform and train the public in

survival measures; (2) packaging the information in such a manner that it may be quickly reproduced and recommunicated to the public during an emergency or crisis period.

In Time of Emergency.—Under this heading basic emergency instructions were prepared and distributed under a variety of formats throughout the Nation. (See figure 16). These instructions can all be used currently to inform and train the public in survival measures. However, their most intensive use and greatest public attention would probably occur during a crisis period.

All of the instructions are based upon information in the OCD handbook "In Time of Emergency," H-14. Distribution of this publication was started in fiscal year 1968 and continued throughout fiscal year 1969. At the end of fiscal year 1969, 10 million copies had been distributed.

The basic purpose of the 96-page, two-color, 6 by 9-inch handbook is to help people prepare for nuclear attack or major natural disaster, and tell them the best actions to take at such a time.

Concerning nuclear attack, the handbook provides emergency information and general guidance that is applicable in all parts of the country. The guidance is used in conjunction with specific civil defense instructions that are issued by many local governments participating in OCD's Community Shelter Planning (CSP) program.

Kits of emergency public information materials offering official guidance on protective measures that the public could take during a nuclear emergency were distributed under a variety of formats throughout the Nation during the fiscal year. The new materials include: "In Time of Emergency Newspaper Kit (K-43)," "In Time of Emergency Radio Kits 1 and 2," and "In Time of Emergency TV Announcement Kit." Like the handbook, the nuclear survival instructions provided in the kit are valid for any geographic area, but should be supplemented by other emergency instructions which can only be provided by local officials.

The newspaper kit contains ten articles in matted and reproduction proof form for quick use by both letterpress and offset-printed daily and weekly newspapers. The articles are on nuclear hazards and attack warning, aspects of fallout shelter living, fire prevention and fire fighting, and medical care.

Radio Kit 1 contains ten 1-minute spot announcements on a 12-inch record, while Radio Kit 2 consists of six recorded feature announcements varying from two to six minutes.

The TV Announcement Kit consists of four copies each of ten 1-minute spot announcements, with four 2 x 2-inch color slide announcement illustrations. Each kit is packaged in a 2-pound cardboard container.

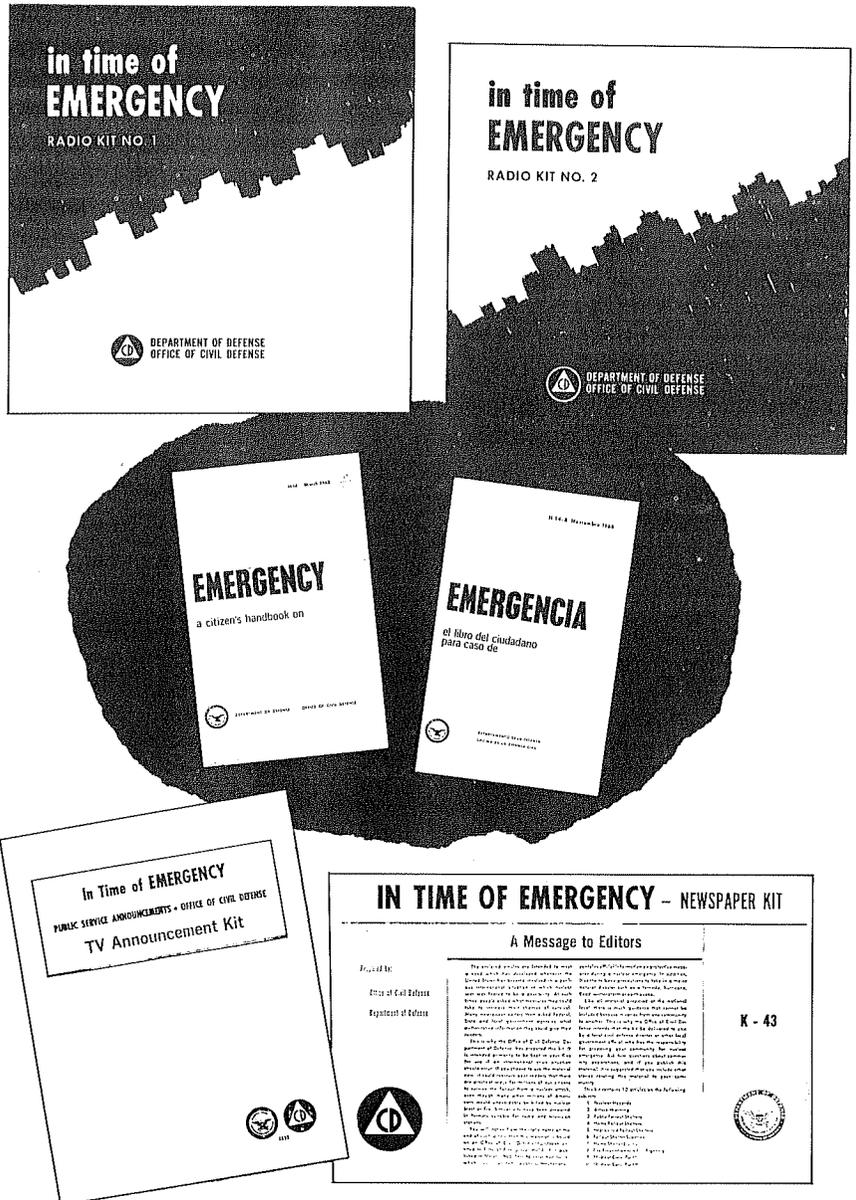


Figure 16.—In time of emergency instructions to the public.

The kits were produced and shipped to State and Territorial civil defense offices for distribution by local civil defense offices to every weekly and daily newspaper, radio station, and television station in their locality. This decentralized procedure was chosen to (1) minimize large distribution logistical problems, (2) give local officials opportunity to mesh local emergency plans with the nationally prepared materials, and (3) assist local directors in making direct personal contact with the mass media outlets in their communities.

By fiscal yearend, newspaper kits were received by 5,018 of a total of 11,306 newspapers, or 44 percent. Radio kits were received by 2,721 radio stations of a total of 5,615 stations, or 48 percent. Distribution of the television kit started just before fiscal yearend.

Community Shelter Planning (CSP) Instructions.—A major priority continued during fiscal year 1969 was the guidance provided State and local governments in planning and implementing the public information aspects of community shelter planning.

Federal funds were used to prepare, print, and distribute an emergency information plan for CSP areas. This included the preparation, printing, and distribution of a local publication describing (1) location of public fallout shelters, (2) areas to which specific shelters are allocated, (3) routes to shelters and means of getting there, and (4) guidance on improvising fallout protection to people for whom public shelter was unavailable or inaccessible.

During fiscal year 1969, the OCD funded CSP emergency public information plans for distribution to 20 million people in 354 local jurisdictions throughout the United States. At the end of the year, instructions to the public had been issued for 282 CSP areas covering 11,500,000 people. (See *Community Shelter Planning*, page 39.) This made a total of more than 25 million people living in 463 jurisdictions or CSP planning areas for whom this information has been funded for distribution since inception of the program. (See figs. 17 and 18 and table 10).

The comparative progress achieved in the production, distribution, and OCD funding of emergency public information plans designed for local community usage is summarized in table 10.

Initially, the CSP information was issued to the public in each community or planning area in the form of an individual booklet or folder specifically prepared for each CSP planning area. Beginning in fiscal year 1969, the large metropolitan CSP areas were urged to publish and distribute this information by means of special newspaper supplements. Smaller or less populous CSP areas were urged to prepare and publish only information which is unique to the local community and insert it into copies of H-14, "In Time of Emergency"

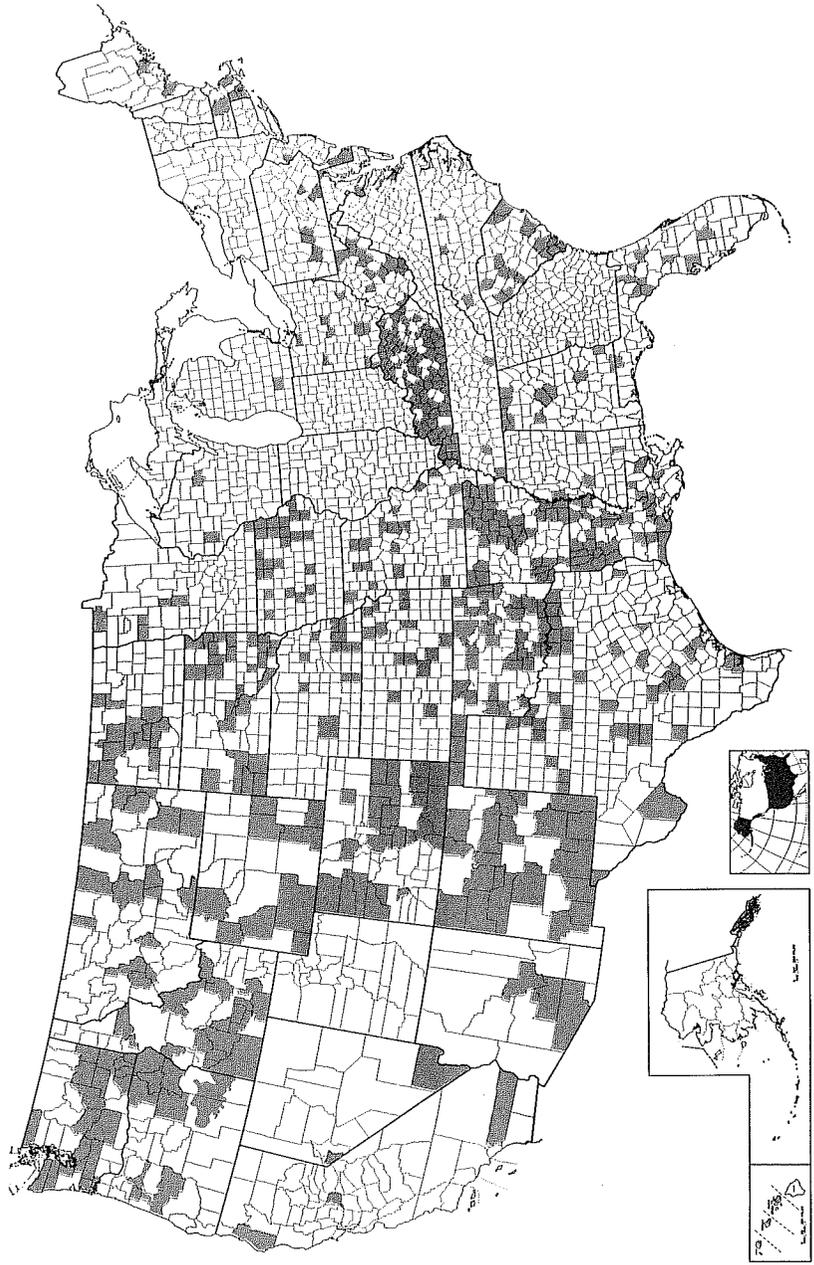


Figure 17.—Areas of the United States covered by Community Shelter Plans (emergency public information packets funded for distribution to the public, end fiscal year 1969).

TABLE 10.—*Emergency public information plans or Community Shelter Plan Packets funded for distribution to the public*

Fiscal year	Number local projects approved	Aggregate population of areas covered	Number of copies of instructions printed	Total cost	Average cost per unit copy printed
1967-----	11	370, 750	82, 000	\$32, 162	\$0. 39
1968-----	98	5, 000, 000	2, 250, 000	426, 000	. 19
1969-----	354	20, 000, 000	9, 000, 000	766, 400	. 08
Total..	463	25, 370, 750	11, 332, 000	1, 224, 562	. 11

for distribution. Use of these methods resulted in reducing the average unit cost of printing and distribution from \$0.39 in fiscal year 1967 and from \$0.19 in fiscal year 1968 to \$0.08 in fiscal year 1969. In addition, use of the newspaper supplement format introduced another important advantage by providing for rapid republication and redistribution of emergency readiness information in a crisis period of increased international tension.

During the year, a CSP Emergency Public Information Workshop was conducted for OCD under contract by the U.S. Civil Defense Council (USCDC) in six of the eight OCD regions. The purpose of these workshops was to help local civil defense directors and State and local community shelter planning officers effectively and economically develop the emergency public information aspects of community shelter planning.

This same organization completed a series of Emergency Public Information (EPI) workshops under contract for OCD during fiscal year 1969. These EPI workshops were primarily designed to help local civil defense directors identify information resources available to them for use in emergencies. The workshops also demonstrated how to use these resources and highlighted procedures to provide the public with accurate information during emergencies.

Instructions for Emergency Broadcast System.—On July 20, 1968, the Secretary of the Army assigned responsibility in the area of EBS programming to the Director of Civil Defense. The assignment includes the responsibility for developing such prerecorded material as may be required to provide continuity of program service for the EBS and for preparing and representing the views of the Department of Defense in this area.

On September 19, 1968, the Interagency Civil Defense Committee met and appointed a Special Working Group on Prerecorded EBS Information. The Working Group, composed of representatives of 21 Federal agencies, was chaired and represented by OCD staff.

The 21 Federal agencies, working in concert on this project under the direction of the OCD, prepared Federal instructions to be taped and ready for use if needed over the EBS.

By yearend, the prerecorded library of emergency instructions for the EBS totaled 20 messages covering one hour and 16 minutes of program time. As evidenced by the fact that scripts for 12 additional messages were in various stages of production at the end of the year, the contents of the library were constantly being expanded.

Editorial Planning Support Activities.—OCD continued to provide civil defense information support through materials issued as guidance to State and local governments and other organizations, as well as through fact sheets and editorial and illustrative material issued to newspapers, magazines, and other public media.

Twenty-one OCD Information Bulletins were issued to transmit information on national civil defense and related military defense policies to State and local governments. In addition, a constant flow of civil defense information to individuals, families, organizations, and public officials was maintained through interviews, conferences, and correspondence in response to individual inquiries.

A publication titled "Status of the Civil Defense Program," MP-46, first developed and released in January 1967, was revised to highlight civil defense information as of April 1969. Designed for quarterly updating, this new publication is distributed upon request to members of Congress, to representatives of newspapers and other communications media, and to the public.

Audio-Visual Support Activities.—An indication of the extensive usage made of OCD public information motion picture films was reflected in reports from the Army Pictorial Center, Long Island City, New York. These reports showed that 33,199 requests for these motion pictures were received by the Army Film Libraries during fiscal year 1969. "Though the Earth Be Moved" (The Alaskan Earthquake) led the list with 6,090 requests; "About Fallout" was second with 6,072, and then followed "One Week in October" with 3,452, "Town of the Times" with 1,424, and "Shelter on a Quiet Street" with 1,142 requests. In addition, the OCD public information motion pictures were widely circulated and used as a result of permanent loans to metropolitan school systems and to film libraries of large industrial libraries, loans by State and OCD regional offices, direct loans to numerous Federal agencies, and showings in connection with OCD Staff College activities and adult education courses.

The OCD film "Slanting," in competition mostly with foreign film entries, won an Honor Award at the 1968 Chicago International Film Festival.

Two short color films were produced during the fiscal year, as part of two major OCD exhibits entitled "Maintaining Life in a Hostile Environment" and "Adapting to Living in a Nuclear Age." OCD personnel wrote the script, directed the cameramen, edited the film, and supervised the narration and mixing of the sound track.

A series of 17 spot announcements for radio, "Production Series 68," was completed and released on 12-inch records to approximately 6,000 radio stations throughout the U.S. Eight subjects were on the Emergency Broadcast System and nine were on general civil defense subjects.

Frequent requests were received from networks and local stations for specific film sequences from OCD natural disaster films for use in their own documentary films. Requests were received from a number of foreign countries for loan of OCD public information films: Netherlands, Philippines, Iran, Turkey, Thailand, Norway, Italy, Greece, Austria, and others.

Community Services

During fiscal year 1969, major emphasis was placed on the development of program activities and guidance materials designed to gain maximum involvement in civil defense at the community level, particularly the Community Shelter Planning Program, as well as all continuing civil defense programs having an impact at the community level.

These materials include publications, exhibits, filmstrips, slides and articles for organization journals, for use by local chapters of national organizations, professional associations and agencies, community leadership groups, and local industry and business.

Community Action Guidance.—Basis for the activity in community resource involvement were a series of publications for use by community resource groups. This series of community action publications was expanded during fiscal year 1969 to include "Community Action for Civil Defense—Leader's Guide" H-11-K1, and "Community Action for Civil Defense—Participant's Workbook" H-11-K2. In addition, a set of slides was developed for use with the "Leader's Guide" H-11-K3, and was distributed with H-11-K1 and H-11-K2 making a complete H-11-K kit. Using the seminar workshop technique to enlist support of community organizations, the materials were designed for use in a one-day workshop for civil defense directors and other leaders. More than 2,000 H-11-K kits, and approximately 20,000 Participant's Workbooks were ordered by various community resource groups. In addition, approximately 78,000 copies of the community action publication, "Meetings That Move" Vol. 5, H-11-5, were distributed to

community associations, organizations, and other community groups for use in civil defense programs during the year.

Other publications of the H-11 series include "Community and Family Service for Civil Defense" H-11, "Community Involvement in Civil Defense" H-11-A, "Committees for Community Shelter Planning" H-11-B, and the other four volumes of "Meetings That Move" H-11-1, 2, 3, and 4. Nearly a quarter of a million of these publications were distributed during the fiscal year, making a cumulative total of 2,608,308 since the publication of the first of the series in fiscal year 1964.

Liaison and Coordination Activities.—On 784 occasions, OCD provided members of the Congress or their staffs, with briefings, announcements, and various publications. The briefings concerned progress of the CSP program in their States or districts in addition to reports on Federal matching fund grants and on civil defense activities in the States, and other types of information.

National organizations in the States of Delaware, Virginia, Maryland, Connecticut and Massachusetts and in the District of Columbia gave strong support to the Home Fallout Protection Survey (HFPS). The organizations sent letters to their State and local units, and many published articles in their newsletters encouraging member participation in the program. For their support of the HFPS program conducted since fiscal year 1966, 21 national organizations were awarded OCD distinguished service citations. These organizations were the Air Force Association, the American Legion, the American Legion Auxiliary, the AMVETS, the B'nai B'rith, the B'nai B'rith Women, the Catholic War Vets, the Disabled American Veterans, the Farmers Union, the Future Farmers of America, the Future Homemakers of America, the General Federation of Women's Clubs, the Jewish War Veterans, the National Council of Catholic Women, the National Exchange Club, the National Grange, the Reserve Officers Association, the Retired Officers Association, the Veterans of Foreign Wars, the Ladies Auxiliary to the VFW, and the Veterans of World War I.

Fourteen national organizations cooperated with OCD to publish and distribute leaflets to their members encouraging civil defense support. Among the leaflets completed and distributed were those titled: "AMVETS and Civil Defense," "American Legion and the American Legion Auxiliary in Civil Defense," "National Exchange Club and Civil Defense," "An Action Program For Your Members," "The National Club Association and Civil Defense," "Retired Officers Association and Civil Defense," and "4-H Citizenship and Civil Defense." The Civil Air Patrol, the Future Farmers of America, the National Grange, the Veterans of Foreign Wars and Auxiliary, the

Catholic War Veterans, the B'nai B'rith, the B'nai B'rith Women, the Disabled American Veterans, and the Reserve Officers Association have leaflets in production.

Exhibits and Related Items.—OCD exhibits were placed for viewing by potential audiences estimated at 40 million persons. Exhibits were displayed at many locations throughout the Nation including 27 national conventions, and 26 State and county fairs. Major exhibits were on long-term display at the New York Hall of Science, the Cincinnati Science Center, Cincinnati, Ohio, the Columbus Center of Science and Industry, Columbus, Ohio, and for the fifth consecutive year, in the Los Angeles Museum of Science and Industry, Los Angeles, Calif. Smaller exhibits were on long-term display in 19 airports and in the lobbies of Federal and State buildings.

Among the major exhibits produced during the year were the following: "The Emergency Operations Center" illustrates the effectiveness of an Emergency Operations Center to insure good, quick decisions by responsible officials in time of nuclear or peacetime emergency. (See fig. 19). "Industry and Civil Defense," stresses that industry and government should work together for community protection in emergencies. It highlights the theme that industry must save its resources but especially its most important resource—it workers. "Schools and Civil Defense," details the part schools can play in helping the community prepare itself for emergencies. "Community Action Program" shows how civil defense conserves manpower and resources by making dual use of all existing community services and activities. "Planning for Life Support" illustrates how the Community Shelter Plan of a community will operate.

A major exhibit, "Emergency Health Services," was designed and displayed in cooperation with the Division of Health Mobilization. A leaflet, "A Nation Prepared—A Vital Factor in Emergency Health Services and Civil Defense," was also produced to be distributed at the display site. The leaflet contains a post card order blank listing OCD and Public Health Service publications related to the subject of the exhibit. A table top exhibit was also produced on the emergency health services theme.

A table top exhibit titled "Basic Shelter Supplies" illustrates the shelter supplies and equipment being stocked in public fallout shelters, types of supplies already found in some buildings and the kinds of supplemental supplies or home shelter supplies which a family might need. A new panel was also produced describing the civil defense home study course, "Civil Defense, USA," for use on the 1,000 portable stand-up displays already in the field. A portable exhibit illustrating 10 different civil defense subjects is in production, one for each State.

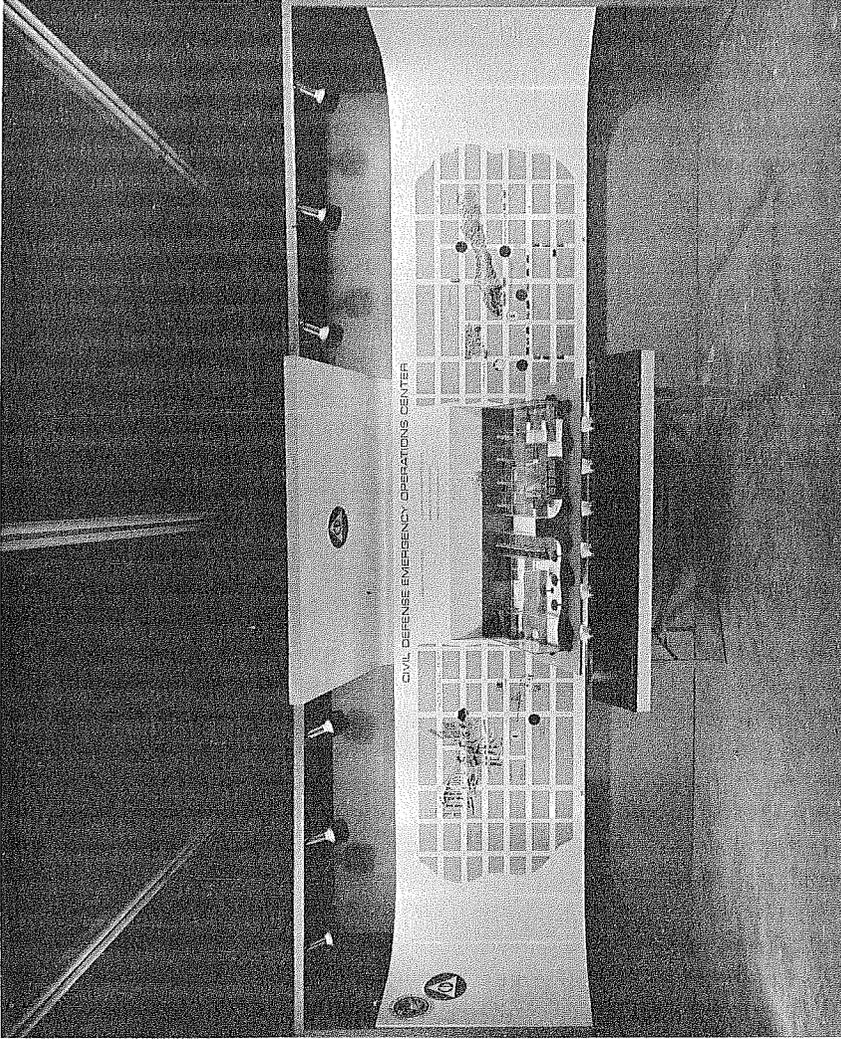


Figure 19.—OCD exhibit—The Emergency Operations Center.

The 10 different panels are interchangeable and may be varied to accommodate different audiences. Blank panels will also be provided for use by State personnel so that the subject matter may be tailored to each individual State. Also in production is the exhibit, "Civil Defense in Social Studies," and two tent exhibits, "Maintaining Life in a Hostile Environment."

Literature display units, which open on four sides to form shelves which may be used to fill out order cards, were produced for use by regions with their exhibits, and for use with 12 OCD exhibits. Plastic publications racks were ordered for distribution to regions, States and cities of 25,000 population or over.

With the distribution of post card order blanks at all major and museum exhibits, a total of 32,897 items of OCD publications were ordered through this method.

Office of Civil Defense Citations.—In addition to the Distinguished Service Citations presented to the 21 national organizations, 24 were presented to other deserving organizations and individuals.

Seventeen areas were awarded the Distinguished Service Citation for cities or counties that had stocked fallout shelter space for all or more than their resident population. These areas provide stocked shelter spaces for a total of 818,302 persons. Since fiscal year 1964, 77 areas have been awarded this citation and provide stocked shelter spaces for more than 5 million persons.

Industrial Participation

Industrial participation activities deal with all aspects of civil defense at business, industrial and commercial facilities. These activities are designed to encourage and help management to make definite plans and preparations for the protection of life and property in a civil defense emergency.

Throughout fiscal year 1969, the OCD continued to help business and industry make necessary provisions for (1) protecting industrial personnel and facilities, and (2) preserving production and service capabilities. In addition, guidance and assistance were provided to State and local civil defense officials on (1) how to encourage and assist business and industrial firms in civil defense and emergency preparedness and (2) how to utilize the resources of business and industry in achieving over-all community preparedness. The OCD coordinated the activities of other Federal agencies, which in turn, helped business, industrial and commercial establishments achieve these objectives. The fiscal year 1969 pattern of operations, similar to that followed in recent years, resulted in increased development and dissemination of industrial civil defense information. Conferences,

seminars, industrial civil defense staff college courses, and other training activities were widely used to guide and instruct industrial and business leaders in civil defense. Liaison with home offices of multi-plant firms helped to expand and strengthen the nationwide public fallout shelter system.

The OCD provided leadership and guidance to 21 Federal agencies that have been assigned responsibilities by Executive Orders for promoting industrial facility preparedness programs. This included coordination of their civil defense publications and assurance that their activities were in consonance with OCD plans. Industrial civil defense guidance materials were disseminated through Department of Defense (DoD) components that work with industrial firms in the DoD industrial defense program.

Federal agencies, with OCD encouragement and assistance, continued to develop and disseminate civil defense information and guidance materials adapted to the needs of those industries with which they maintain liaison regularly. Many business and industrial firms continued to publish civil defense information in their magazines and other news media. Information on personal and family survival was also distributed to many employees through these media.

Publications, motion pictures, and exhibits were widely used to disseminate civil defense information during fiscal year 1969. An important new publication titled "A Guide to Developing a Company CD Manual" was distributed during the fiscal year. This basic "how-to-do-it" plan is styled in easy to do steps for use by industrial plant executives in developing preparations that should be made to protect life and property and to restore facilities and facility production in the event of nuclear attack. Another publication, "Civil Defense Training for Business and Industry" FG-F-3.46, and one issue of "Industrial Civil Defense Highlights" were released for distribution.

The Handbook "In Time of Emergency" was well received by commerce, business, and industry. Hundreds of companies distributed one copy to each employee at the workplace or by mail to their homes with a company letter which urged families to read the instructions and prepare the families and homes for emergencies.

Many companies conducted training for their employees and their families and provided instruction in personal and family survival, medical self-help, first-aid, shelter management, and the civil defense home study course. Among these were Shell Oil, Humble Oil, Gulf Oil, Standard Oil, International Harvester, Western Electric, United States Steel, Hughes Aircraft, Douglas Aircraft, Alcoa, Detroit Edison, International Business Machines, Jones and Laughlin, Pittsburgh Plate Glass, the Affiliated Bell System Telephone Companies

throughout the United States, and numerous other companies. Industrial civil defense preparedness information and guidance received considerable publicity through various publishing houses, industrial house organs, and trade magazines. Among magazines featuring civil defense articles were: "The Northwestern Miller," "Training and Development Journal," "Defense Industry Bulletin," "American City Magazine," "Security World Publishing," "Industrial Security Magazine," and the "National Safety Magazine."

More than 2,500 military officers and key industrial and civil leaders attended National Security Seminars conducted by the Industrial College of the Armed Forces in eight metropolitan areas and heard lectures about civil defense and industrial readiness, and obtained civil defense material. Industrial civil defense guidance material was also included in courses conducted for government and industry executives by the U.S. Army Military Police School, Fort Gordon, Georgia.

Through direct liaison with multi-plant industrial and business concerns, the OCD continued to encourage business, commerce and industry to assist in the Civil Defense Community Shelter Program and to provide leadership and assistance in local, State, and national civil defense preparedness. Coordination in this important phase of the program was achieved through large department stores, aerospace industries, publishing houses, and many of the large multi-plant and multi-State corporate entities.

Many business, professional, educational, and other civic leaders obtained civil defense guidance and information through industrial civil defense conferences, seminars, and training sessions conducted primarily for civil defense purposes. These included four classes in Industrial Civil Defense Management offered at the OCD Staff College with approximately 120 executives from business and industry in attendance. The preparation of special briefings for top executive management of business, commercial, and industrial concerns was given top priority during the year. Typical briefing subjects included: "Effects of Nuclear Weapons," "The National Plan to Limit Attack Damage," "What Industry Should Do to Survive Attack," "How Some Companies have Prepared for Emergencies," "How Fallout Protection can be Designed into New Structures Without an Appreciable Increase in Construction Costs," and "Industrial Mutual Aid Associations for Civil Defense." Many of the Nation's Associations of business and industrial executives have appointed special committees on "Civil Defense and Emergency Preparedness," to maintain liaison with government and inform and educate their members on non-military planning.

"A Day in September," a 28-minute color film about the incorporation of fallout shelter in Federal buildings was released for viewing throughout the United States. It emphasizes the importance of cooperation between authorities responsible for CD planning and the local government in making plans and preparations for saving lives, and minimizing damage to operational plant equipment in the event of attack upon the United States.

Plans were completed for the construction of a new display exhibit titled "Industry and Government Working Together for Civil Defense." The exhibit features a novel system for selecting and obtaining civil defense publications by use of a self-addressed, postage-paid postcard order blank. The exhibit will be on display at large conferences, industrial exhibits, meetings and gatherings during fiscal year 1970.

COMPUTER AND DATA BASE SUPPORT

The National Civil Defense Computer Facility (NCDCCF) located at Olney, Maryland, and operated under the Corps of Engineers provided computer support for the Office of Civil Defense in a wide variety of programs. Included in the programs were damage assessment, vulnerability studies, fallout shelter survey, and a large number of management systems. Services also included systems analysis, system design, computer programming, data reduction, and consultant assistance. The following table 11 provides a summary of computer time used during fiscal year 1969.

The NCDCCF made a major contribution to the CDEX-68 exercise conducted in the first half of the fiscal year. It furnished the exercise messages for the control group for some 5,000 points and provided damage assessment printouts for resources during the exercise.

TABLE 11.—National Civil Defense Computer Facility Utilization—CDC/3200 system, fiscal year 1969

[Hours]

Programs	3600	3200	Total
Damage assessment.....	2, 372. 33	1, 719. 54	4, 091. 87
Research.....	448, 07	477. 90	925. 97
NFSS.....	1, 809. 91	2, 361. 73	4, 171. 64
Management.....	532. 93	1, 078. 42	1, 611. 35
Other government agencies.....	746. 39	538. 14	1, 284. 53
Total.....	5, 909. 63	6, 175. 73	12, 085. 36

RESEARCH AND DEVELOPMENT

The purpose of the OCD research program is to develop information of many kinds for use by planners and policy makers in improving the effectiveness and efficiency of civil defense programs. The fluctuations of the international situation along with new technological developments causes a need for constant re-evaluation of ongoing programs and a search for improved alternative solutions to a great variety of civil defense problems.

Execution of the program is principally through contractual agreements with government, educational and private organizations. Selection of capable contractors and careful screening of studies to be done have resulted in some noteworthy accomplishments described in this report. The percentages of funds committed to the various research groups in fiscal year 1969 and previous years were:

	Percent	
	Fiscal years 1962-68	Fiscal year 1969
Department of Defense (DoD)	14. 5	13. 3
Federal agencies, exclusive of DoD	10. 1	9. 6
Educational institutions	11. 4	12. 4
Private organizations, including industrial laboratories, research institutes and foundations, and quasi-government agencies	64. 0	64. 7
Total	100. 0	100. 0

In planning the research program, information requirements provide the basis for establishing objectives. Emphasis is given to systems evaluation and supporting applied research. The major focus is on improving the capability for estimating the cost, effectiveness, and feasibility of future alternative civil defense systems, although some effort is also devoted to supporting currently approved systems. In general, there are three basic types of future civil defense systems which are being studied: (1) those related to the current civil defense posture which offer hope of substantial improvement; (2) those which could provide a high degree of protection against attacks on urban populations; and (3) those which could reduce vulnerability of population and resources through various actions taken when international situations are critically worsening.

A study area of some magnitude, being done in conjunction with the Office of Emergency Preparedness, relates to the problem of postattack viability of the nation after nuclear attack. If better protection is provided for the population, then as the number of survivors increases the per capita surviving resources will drop unless protection is also provided for resources. Thus, an effort is underway to measure the

effectiveness of civil defense and other strategic defense systems in terms of added survivors and per capita income a year or two after attack.

Functional Categories.—The research program is carried out in four major areas as listed below. In fiscal year 1969, \$5 million was made available for research. Of this amount, 98.6 percent was programmed for the four functional areas. (See table 12). The balance was used to obtain technical advisory management and support services from lead laboratories. The breakdown of funds for research and services follows:

	<i>Percent</i>
Shelter -----	28.8
Support systems-----	22.1
Postattack -----	24.5
Systems evaluation-----	23.2
Management and support-----	1.4

The following descriptions indicate the progress made in each of the functional categories:

Shelter

In fiscal year 1969, research was continued in the areas of protection from weapons effects, environmental conditions in shelters, low-cost equipment and supplies for in-shelter use, organization and management of large shelters, and alternative shelter mixes appropriate for an extension or expansion of the present fallout shelter system.

Experimental and analytical studies in radiation shielding confirmed that the shielding technology used in evaluating radiation protection is generally good over a wide range of protection factors. Some minor errors were corrected on the basis of evaluation of data from experimental and theoretical studies. The analyses of the behavior of existing structures produced an analytical methodology which permits failure predictions over a wide range of loading conditions. A better understanding of behavior of blast in shelters with open doors was developed and the feasibility of low-cost hardening of basements of new buildings was established.

Detailed studies of many basements with fallout shelters showed that natural ventilation was not sufficient but that many millions of additional high quality fallout shelter spaces could be added to the present inventory if they were adequately ventilated. Prototype models of an improved simple bicycle operated fan and a swinging baffle "Kearny" pump were developed. Both were tested under shelter conditions. It appears that combinations of these two ventilating devices are capable of ventilating virtually all below ground space.

TABLE 12.—Research funds programmed and obligated fiscal year 1969 appropriations

Type of research (category and project)	Programed	Obligated
Total.....	¹ \$5, 030, 000	² \$4, 885, 346
Shelter.....	1, 440, 000	1, 432, 112
Protection studies.....	910, 000	909, 995
Shelter environment.....	160, 000	158, 074
Subsistence and habitability.....	0	0
Component development.....	60, 000	59, 920
Shelter management.....	60, 000	58, 884
Shelter systems.....	250, 000	245, 239
Support Systems.....	1, 107, 000	1, 047, 852
Monitoring systems.....	102, 000	98, 716
Communications and warning.....	230, 000	230, 000
Reduction of vulnerability.....	100, 000	99, 136
Emergency medical research.....	180, 000	145, 000
Fire effects and protection.....	375, 000	355, 000
Emergency operations.....	120, 000	120, 000
Postattack.....	1, 255, 000	1, 193, 567
Radiological phenomena and effects.....	379, 000	354, 042
Radiological countermeasures.....	198, 000	196, 078
Repair, reclamation of damage.....	125, 000	124, 355
Postattack medical, health, and welfare.....	133, 000	92, 746
Recovery and maintenance systems.....	420, 000	426, 346
Systems evaluation.....	1, 158, 000	1, 141, 815
CD systems analysis.....	523, 000	511, 985
Strategic analysis.....	25, 000	25, 000
Vulnerability and requirements.....	245, 000	244, 959
Organization and training.....	30, 000	30, 000
Planning support.....	45, 000	45, 000
Information systems analysis.....	0	0
Physical environment studies.....	0	0
Social and psychological.....	290, 000	284, 871
Management and support.....	70, 000	70, 000

¹ Consists of \$5 million research and development appropriation and \$30,000 reimbursable order received from the Office of Emergency Preparedness.

² An additional \$170,404 was obligated in FY 1969 from earlier appropriations for research and development projects approved in prior years.

Tests were conducted to establish heat tolerance limits by subjecting human subjects to the maximum heat stress levels which might occur in shelters. Surveillance and testing of OCD food stocks indicated that most of the food stocks continue to retain a high degree of stability. A trial effort was undertaken to determine whether the present ration can be further improved by taking advantage of improved manufacturing processes.

The influence of shelter occupants' expectations about the levels of austerity they will face in shelters on their behavior under shelter conditions was experimentally examined. It was found that shelter occupants whose expectations about shelter are generally confirmed by what they find will show more initiative and participate more actively in critical activities. The results of many past occupancy studies were collated and analyzed to document conditions under which "emergent" managers succeeded or failed to accomplish effective management. An analytical model was constructed, based on occupancy testing experience, by which it is hoped that simulated shelter occupant response to alternative management and operations doctrine can be predicted for various environmental conditions. It is hoped that this model will permit many variations of shelter occupancy conditions to be studied, particularly in those shelters with 2,000 or more occupants.

Analytical relationships and criteria for estimating the survival of fallout shelter occupants in a combined fallout, fire and blast environment were produced. A method was developed for evaluating survival in specially designed shelters, and survival expectancy estimates were produced for several shelters which have been used in civil defense damage limiting studies. Studies on the distribution of new construction which could be slanted to perform in a dual role as shelter show that most new construction is being built in the fringe areas of population centers. The potential for shelter in underground transportation systems was explored, and detailed information was obtained in 15 large cities. A detailed study on the proposed Washington subway indicated that it might be possible to shelter from 350,000 to 550,000 people in stations of the subway system. An additional potential exists if shelter could be incorporated into freeway interchanges and grade separations, and in underground vehicle tunnels.

Support Systems

A study was completed which described a method of predicting fallout by adjusting a fallout model to conform to actual fallout data. A study of the shelf-and operating-life of present radiological in-

strument power sources (flashlight D-cells) was completed; and a follow-on study is examining alternate power sources. A gamma dosimeter which uses a solid state compton recoil electron detector is being designed and tested. Work continues on a compilation of physical and engineering aspects of Geiger Mueller tube design, and on transistorized circuits for radiological instruments.

A comprehensive review was made of computer rate and computer language standards for possible use in civil defense installations. This study provides a summary on the computer state of the art and useful information concerning its possible use by local civil defense officials. An initial document has been produced describing the electromagnetic pulse (EMP) phenomenology resulting from a nuclear detonation and its effect on electrical/electronic equipment of concern to civil defense. Interim guidelines for protection of such equipment through shielding and electromagnetic isolation techniques were developed. An intra emergency operating center (EOC) systems analysis developed guides for organization structure and operational procedures that will provide maximum capability for processing communications inputs. Another study determined the information required for conduct of civil defense emergency operations at municipal levels, and provides guidance on its use in EOC displays for critical environmental and operational elements.

A series of studies was developed on how people perceive and respond psychologically to alerting and warning and practical information was obtained in constructing optimum warning messages. A study was developed concerning reactions of people to alert signals while sleeping. An examination was made of the feasibility of proposed Anti-Ballistic Missile systems to provide impact warning and appropriate public warning actions that could be taken within the time constraints.

Vulnerability reduction measures were inter-related in a continuing study. Attempts were made to quantify the effectiveness of various countermeasures. Studies continued on partial evacuation and relocation of value targets.

Medical studies concentrated on protracted low dose-rate exposures to large animals, and provided new insights on the question of median lethal dose and the relationship of exposure dose to dose-rate and recovery.

Other work continued on austere treatment of burns and development of a non-narcotic analgesic for possible inclusion in shelter medical kits. A study was initiated on total urban medical systems, with the objective of defining an optimal system definition capability. Work was continued on a casualty prediction system that advanced the

state of the art considerably, particularly in the fire and fallout injury area.

A symposium on mass burns was co-sponsored with the National Academy of Sciences. Response was enthusiastic, and both operational and research guidelines were produced.

Studies continue to indicate that fires produced by nuclear detonations could be a significant damage and casualty producing consequence of nuclear attack on or near urban areas. A system analysis of fire defense in metropolitan areas has shown the need for public assistance to professional fire departments through the elimination of flammable material in houses, especially near windows, and the extinguishment of small fires by self-help teams. Experimental fires in surplus urban and military structures have been monitored for time history of fire spread, fire temperatures, heat radiation, energy release, effects of weather and wind, measurement of gases and smoke produced by the fires, and production and spread of firebrands. Characteristics of wildland fires have been measured for future computer analysis. Additional information has been obtained by laboratory studies of firebrand production, transport by wind, and their ignition of burnable materials. Studies have been made on the burning of woodlike materials, the effect of fire retardants in changing the products of combustion of materials, and the properties of burning fuel. Carbon smoke generators designed to produce smoke that would absorb the thermal energy of a nuclear explosion have been tested for performance during and after blast stress.

Disaster research continued, with emphasis on in-depth studies of selected major catastrophes. Production of the scheduled series of analytical reports is still underway.

Prototype contingency plans reflecting a concept of operations under nuclear attack developed in fiscal year 1968 were prepared in outline form. A fuller development of a local plan has been undertaken. Scenario production for nuclear attack simulation culminated in its application to the transattack period in a specific city. Upgrading of test methodology is a major result foreseen from this continuing effort.

Postattack

Research on the availability of food following a nuclear attack and the factors that might inhibit (or prohibit) the resumption of agricultural production is proceeding along two lines. One is an examination, both experimental and theoretical, of the vulnerability of individual food crops and livestock species to fallout gamma and beta radiation, and combinations thereof. The other involves study of hypothetical nuclear attacks to evaluate the postattack relationships between sur-

viving supplies and requirements, and the problems that would have to be overcome before resuming production.

Both crops and livestock, when subjected to radiation exposure conditions closely simulating those that could occur postattack, are turning out to be considerably more vulnerable than earlier analysis indicated. The factors that contribute to increased sensitivity in plants include: (1) gamma doses delivered at rates so as to simulate fallout radiation decay show greater effects than the doses given at constant exposure rates in earlier experiments (the difference is as much as a factor of 2); (2) the beta radiation effects on plants by fallout retained on their foliage could add appreciably to this gamma-radiation produced injury; and (3) at certain stages of growth, crop yield is severely reduced by doses much lower than doses that would kill the plant—the criterion used in previous analyses. (See fig. 20.)

Experiments with simulated fallout show that beta irradiation from the fallout retained on the forage that would be consumed by grazing animals could result in very high doses to critical body organs. In the experimental research on gastrointestinal injury to sheep that were fed yttrium-90-tagged (a beta emitter) simulated fallout, serious internal damage resulted. Such damage could be expected to add materially to the losses of grazing livestock—losses which heretofore have been estimated on the basis of gamma radiation alone.

In the case studies of various postulated hypothetical attacks when the combined effects of fallout radiation, petroleum shortages, and fertilizer deficiencies are taken into account, potential production capacity still seems adequate to meet survivor demands. The management problems, however, appear formidable and probably are the key to the over-all food situation during the postattack period. Because of extensive disruption in process and distribution channels as well as normal pattern of supply and demand, preattack systems may not be adequate to assure that the food gets from the producers to the consumers in time. The Department of Agriculture, with its network of county agents, provides the logical basis for the development of a system to determine where resources are available, where they are needed, and how distribution can be effected. The Department of Agriculture currently is in the process of developing such a system.

As long as the cushion of at least a year's supply of reserve food remains in the Nation's publicly and privately owned stockpiles, it appears the postattack food problem will continue to be one relating primarily to management. If, however, these inventories should fall much below a year's supply, crop and animal damage and denial to the farmer of cropland by fallout radiation could assume critical importance.

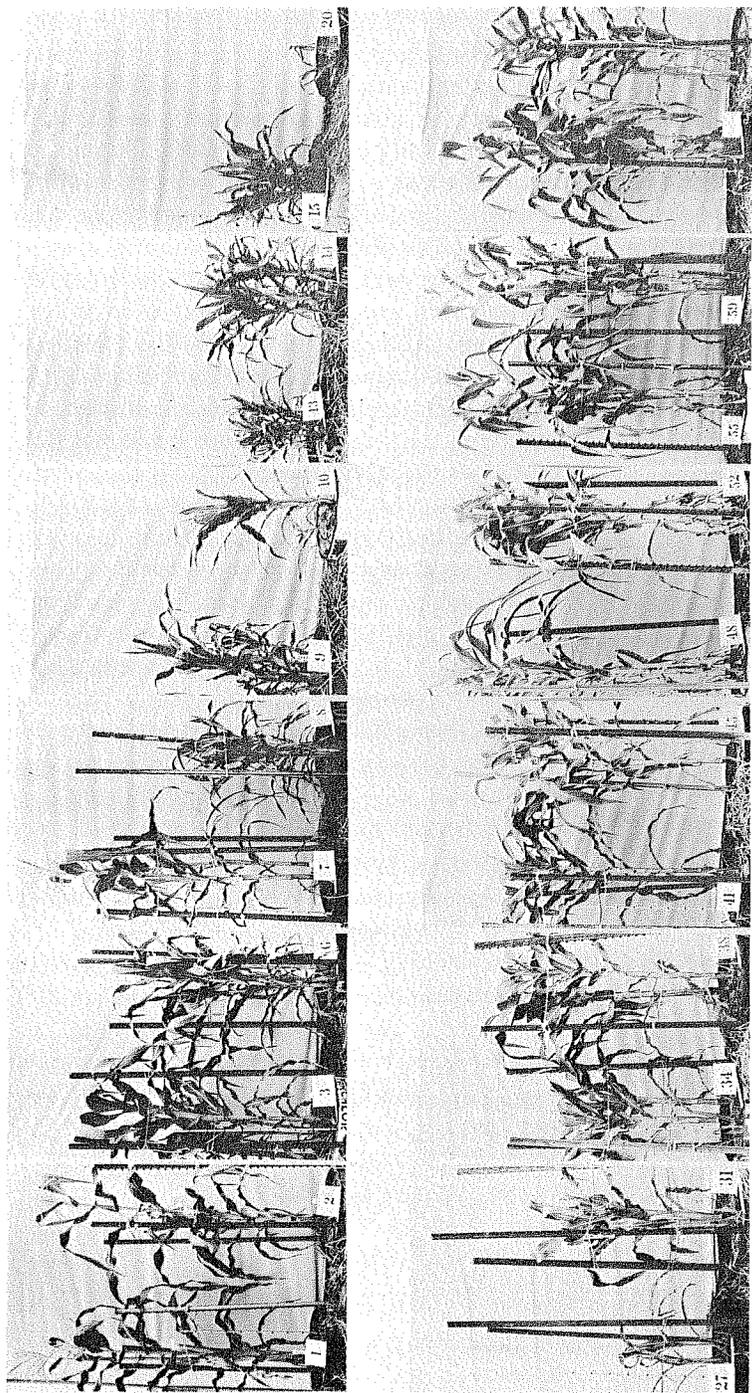


Figure 20.—The state of corn development on August 13, 1968, as influenced by day of radiation with a 2500 R gamma ray dose. Numbers are days after shoot emergence. The unnumbered card denotes unirradiated plants.

The Office of Civil Defense-Public Health Service Total Emergency Health Care Systems Model has been improved in a number of respects. This model, a computer simulation for analyzing the effects of various levels of medical care on injury and disease-threatened survivors of nuclear attack, is now documented and fully operational. Application of this model to analysis of medical care requirements of various hypothetical attacks should result in an improved basis for medical care and public health plans and for medical stockpiles. The model, which extends through a one-year period postattack, also permits analysis of the potential importance and means of controlling post-attack epidemics which otherwise might become serious as a result of the combined effects of the radiation exposure on the surviving population, disrupted water and sanitation systems, and malnutrition.

Results are now available for an in-depth investigation of the feasibility and potential utility for civil defense purposes of an economic model of a single city. The various potential uses of a single-city model which include preattack training, hypothetical attack analysis, and postattack operational application were carefully examined. Although the value of such a model for actual post-nuclear-attack operational application is questionable, a single city model clearly would be feasible and useful in preattack analyses and for training purposes. However, the expense of developing and keeping up-to-date the resource data base for individual cities and of computerizing and implementing the economic model is prohibitive, and further work on it is not scheduled.

The "core" program of critical industry studies has produced estimates of damage to the basic chemical industry and the corresponding repair and manpower requirements for restoration. This research effort is now aimed at determining types and quantities of emergency (auxiliary) power sources that could be made available during early postattack periods. A draft handbook on debris and damage prediction was prepared, and charts for estimated debris expected for various structure types from a wide range of weapon yields were developed. A debris prediction model was programmed for a digital computer and methods were developed for allocating and scheduling manpower, equipment, and other resources to remove and clear debris.

The linear programming economic model for postattack resource management systems studies is being broadened and modified to permit application of the results of the 1963 Interindustry Study of the U.S. Office of Business Economics (OBE), particularly for improvement in production coefficients not covered by the OBE study. Inclusion of transportation constraints in the model, although very difficult, appears to be feasible.

The studies of national survival and recovery have concentrated on selected problem areas dealing with the initial (up to 60 days) recovery phases. Included has been an analysis of the extent to which undamaged communities could accommodate the homeless from damaged areas. Further study of the economic capability after a nuclear attack, both short and longer-term, continues to indicate that the most important need is an improvement of the expected effectiveness of a postattack management. Emphasis, therefore, in research will continue to be placed on the management aspects of the problem.

Systems Evaluation

The principal concern of this research is to explore and exercise the means of objectively examining total civil defense systems. This evaluation necessarily includes both the intrinsic worth of the systems and their extrinsic value in terms of possible relationships with other defensive systems, e.g., ballistic missile defense. Trends in offensive weapons systems and strategic environmental changes must also be considered.

Research emphasis in fiscal year 1969 was on the development of basic models of possible civil defense systems and on the testing of the relationships between these systems and other defense systems such as ABM.

A preliminary national network model using counties as the basic building blocks was developed to permit rapid assessment of casualties, resource damage and institutional dislocations for various assumed hypothetical attack situations. This assessment then can be coupled with alternative civil defense systems so that prompt evaluations can be made of the effectiveness of each under a wide variety of assumed attack and defense conditions. Also, this model is useful for systems studies involving larger land areas such as multi-counties, or States.

Development of a model for use in detailed studies based on smaller unit areas, (e.g., selected 5 digit zip code areas) was undertaken during the year. Local resource vulnerability research completed during the year is being related to this model.

A fast-running computer "game" that optimizes mixes of active and passive defense has been completed and tested. The optimum mix is obtained when minimum fatalities are achieved throughout the country for any given national budget. This computer program, as well as other models, such as those relating to the economic production capacity, is being modified to fit the new national network model discussed above.

Social Science research included detailed studies of the Home Fall-out Protection Survey (HFPS) and the Community Shelter Planning

(CSP) program. Preliminary predictions of a favorable public response to HFPS were validated. Although data were collected in the CSP program, analysis has not been completed.

TRAINING AND EDUCATION

The OCD Training and Education Program supports civil defense activity nationwide at all levels of government, and provides civil defense education to the public. Key personnel in government receive instruction on planning and directing civil defense operations, skills needed to cope with civil defense emergencies.

Throughout fiscal year 1969, the principal means of providing civil defense training included the OCD Staff College, the extension division of 53 State universities and land-grant colleges, Army post facilities, and the Civil Defense Adult Education Program. In addition, OCD-produced training materials were used by local governments to train in such areas as police, rescue, and radiological defense.

OCD Staff College

A total of 1,023 persons completed 41 courses at the OCD Staff College in fiscal year 1969. This brings the number of OCD graduates since fiscal year 1951 to a cumulative total of 53,192. Participants come from local, State and Federal government, the military, universities participating in the Civil Defense University Extension Program, industry, the planning profession and other organizations concerned with civil defense (see fig. 21).

Special emphasis during the year was directed toward pilot courses in a Civil Defense Career Development Program for local civil defense coordinators. Three separate phases of this instruction were conducted in two-week units, focusing in turn on the job of the coordinator, his work environment, and his role as a manager, communicator, persuader, and innovator.

Nationwide deployment of a home study course, "Civil Defense, U.S.A." was completed during the year. At year's end 23,652 students were enrolled and 4,760 had successfully completed the course.

Regular courses were conducted in Civil Defense Management, Shelter Management Instructor, Radiological Monitoring for Instructors, Radiological Defense Officer, Industrial Civil Defense Management, Planning and Operations, and Community Shelter Planning. Other courses included workshops for the Civil Defense University Extension Program, institutes for OCD Regional Field Officers, orientations for OCD employees, and a seminar for the Adult Education Program.

Training development work began for a new home study course for the Civil Defense Director/Coordinator and continued in the Civil Defense Career Development Program. Various training materials were revised and provided for use in the CD University Extension Program.

Training Materials

OCD continued the development and production of training materials to give logistical support to on-going training programs conducted by the Staff College, the Civil Defense University Extension Program, the Civil Defense Adult Education Program, local communities, and related support training.

Training materials for civil defense training and education underwent an extensive review and evaluation in terms of cost reduction and management improvement. This action resulted in limited procurement and reprinting of existing training materials when supplies were exhausted or in need of replenishment.

One new publication was printed entitled, "Civil Defense, A Vital Concern for P.T.A."; and 75,000 copies were made available for distribution to local PTA Chapters participating in civil defense activities.

The Civil Defense Management Package was reprinted following the revision of the Civil Defense Management Textbook to provide for 154 contracted courses at the universities and 3 at Staff College. A brochure entitled, "A Word to the Wise," was prepared, printed, and distributed to prospective students and student audiences, which further announces the availability of the course.

Development of a second home study course has been completed and is presently being field tested. National deployment is projected to the second quarter of fiscal year 1970. This course is designed for the local civil defense director and is chiefly targeted to those directors of jurisdictions with 10,000 population or less. Both home study courses will be included in the Civil Defense Career Development Program for local Civil Defense Directors.

Other training material requirements included the issuance of: (1) 250,000 copies of the Personal Family Survival Textbook used in the Civil Defense Adult Education Program, (2) 5,000 copies each of the Radiological Defense Officer Student Workbook and Radiological Defense Planning and Operations Guide for use at the OCD Staff College and universities, (3) 27,000 copies of the Emergency Rescue Training Manual to support the training of fire and police units to meet civil defense emergencies, and (4) reprints of five films for use in the Personal Family Survival Course.

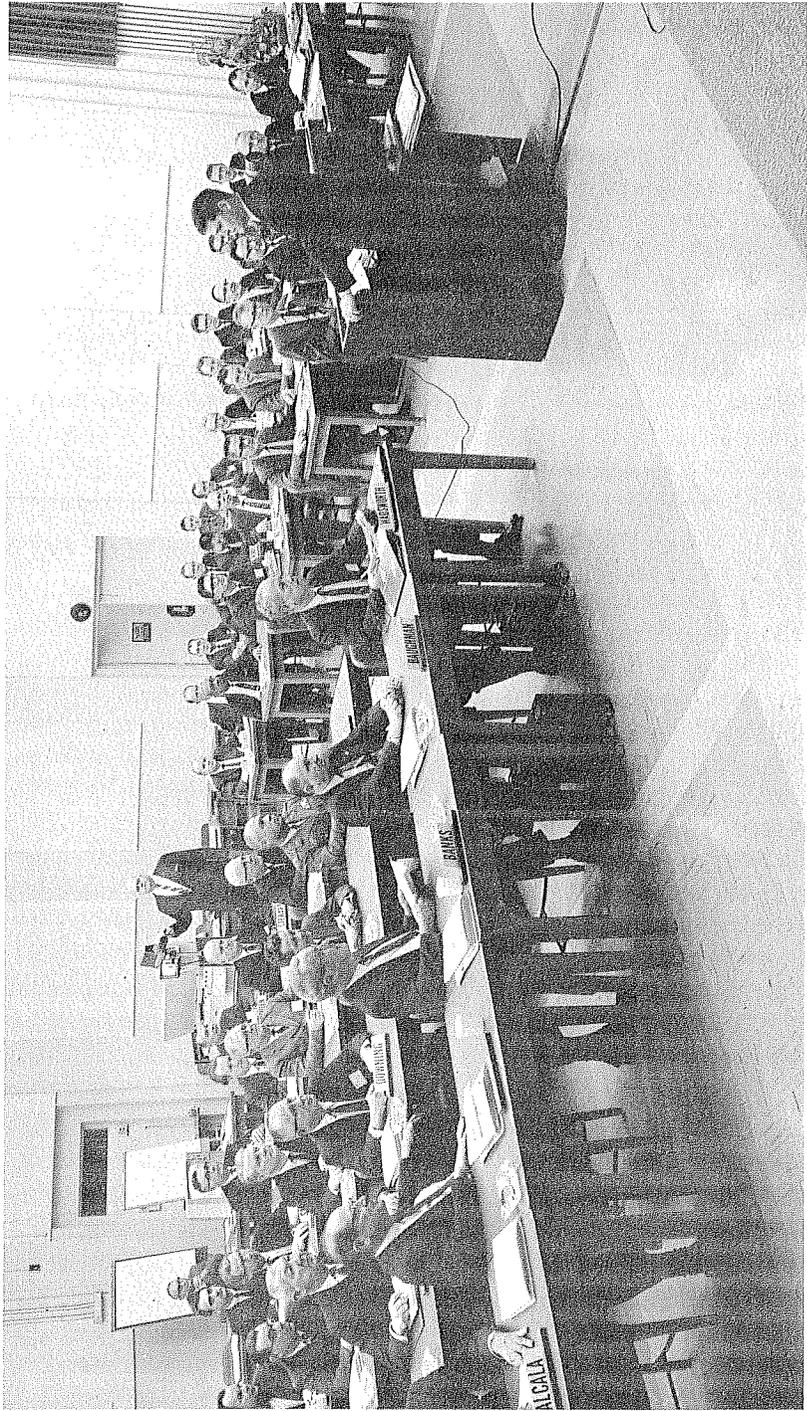


Figure 21.—OCD Staff College classroom.

Civil Defense University Extension Program (CDUEP)

The extension divisions of land-grant colleges and universities, because of their experience in local communities and by reason of their facilities, have a unique capability for civil defense training and education. The CDUEP which began in fiscal year 1963, has two basic premises: (1) that civil defense training and education must be effectively carried on the local level to achieve operational readiness, and; (2) that civil defense training and education must make maximum use of existing instructional resources, thus avoiding the development of special facilities used only for civil defense. Under contracts with OCD, the extension divisions of the colleges and universities conduct conferences for government officials, train instructors, and give professional training courses in local communities.

During fiscal year 1969, the CDUEP brought civil defense training to 45,463 State and local personnel, and a total of 286,424 persons have participated in the program since its inception. The program in fiscal year 1969 included contracts with 53 universities and colleges located in fifty States, the District of Columbia, and Puerto Rico.

Through 449 conferences, a total of 18,093 State and local officials, key community leaders, and personnel in business and industry were briefed on civil defense. A total of 3,846 instructors were trained in 291 classes: 1,704 in shelter management, and 2,142 in radiological monitoring. Fiscal year 1969 initiated at least one new course to the family of CDUEP course offerings: a course in aerial monitoring graduated 29 students. Training was given to 1,767 key staff personnel in 136 classes in Civil Defense Management, and 915 radiological defense officers received this training in 97 classes. Training was conducted for 2,461 shelter managers in 150 classes, and for 2,989 radiological monitors in 206 classes. Also, 11,349 public officials were trained in 280 Emergency Operations Simulations, while 141 courses in Plans and Operations were attended by 2,287. In addition, refresher training in fiscal year 1969 continued to grow in terms of numbers of courses, types of courses, and numbers of students: 449 radiological monitor instructors attended 49 Radiological Monitor Instructor Refresher courses, 1,117 radiological monitors attended 31 Radiological Monitor Refresher courses, 80 radiological defense officers attended 8 Radiological Defense Officers Refresher courses, and 81 shelter manager instructors attended 6 Shelter Manager Instructor Refresher courses.

The success of the Emergency Operations Simulations, and the enthusiasm given the Plans and Operations courses by State and local public officials, key community leaders, and program managers has resulted in a shift in CDUEP program emphasis. CDUEP thrust is now toward developing a more refined operational readiness in terms

of local civil defense organizational development. This thrust is made manifest in the CDUEP contracts that were negotiated for nine months of fiscal year 1970 that will provide for: 307 conferences for public officials and 31 for executives in business and industry, as well as 57 classes for shelter manager instructors, and 74 classes for radiological monitor instructors. Eighty Radiological Defense Officers courses, 93 Radiological Monitor courses, and 96 Shelter Manager courses will be scheduled. One hundred and seven civil defense management courses have been contracted for, and in the area of refresher courses the following may be anticipated: 5 Radiological Monitor Instructors Refresher courses, 7 Radiological Monitor Refresher courses, 11 Radiological Defense Officers Refresher courses, and 5 Shelter Manager Instructor Refresher courses. In addition, 450 contracts call for 332 Emergency Operations Simulations, 186 Plans and Operations courses, and 3 Aerial Monitoring courses.

Armed Forces Training

Radiological Monitor Training by the Army.—This program served the important need of training civilian radiological monitors for civil defense. Since the beginning of the OCD sponsored program in April 1963, training was conducted by the U.S. Continental Army Command (USCONARC) at 32 Army posts. The Army installations provided the instructors and administrative support. Funds for the radiological monitor training given by the Army were provided by the Office of Civil Defense.

Radiological monitors trained by the USCONARC during fiscal year 1969 totaled 529, making a cumulative total of 18,484 trained since the start of the program.

Due to the increasing number of similar courses being offered by means of the Civil Defense Education and the Civil Defense University Extension programs, the need of help from the Army in this respect, has diminished. The program was phased out in June 1969.

Explosive Ordnance Reconnaissance.—USCONARC continued to train local and State police in explosive ordnance reconnaissance. More than 4,000 were trained during fiscal year 1969, increasing the cumulative total to approximately 61,000. There were 3,494 police trained in techniques for dealing with explosive and sabotage devices, increasing the number so trained to 20,285.

National Associations Training

Liaison with the national education organizations is the principal means of incorporating civil defense concepts and principles into the nation's education system. The Office of Civil Defense participated in

the annual conferences of selected organizations such as the National Education Association, Catholic Education Association, American Association of School Administrators, the National School Board Association, and the National Congress of Parents and Teachers.

OCD work with National education organizations continued to focus on guidelines to advance disaster preparedness in schools and colleges.

Training Evaluation and Improvement

The purpose of this program is to evaluate and improve the effectiveness and progress of on-going training programs and to develop and field test new training programs and training materials before deployment for nationwide use. Training evaluations made during fiscal year 1969 included:

The evaluation of the *Civil Defense Adult Education Program (CDAEP)* conducted under contract by System Development Corporation, was completed by the end of the year. The courses conducted under the CDAEP were examined and evaluated for impact, content, length, instructor qualifications and applicability to the local situations. The findings and recommendations were forwarded to the U.S. Office of Education for study and necessary implementation.

The *University of Kansas* continued its efforts in general support of the *Civil Defense University Program (CDUEP)* and maintained liaison between the OCD and the General Extension Division of the Association of the State Universities and Land-Grant Colleges. The university also under this support contract to the CDUEP completed a study of costs and impact of the *Emergency Operations Simulations* conducted by universities participating in the program. In addition, the university implemented a pilot study in the States of Missouri and Oklahoma to collect data for a study of Radiological Monitor Instructor and Shelter Manager Instructor course graduates as a civil defense training resource at State and local level. The study will collect information on the availability and actual use of trained radiological monitor and shelter manager instructors.

The *International Association of Fire Chiefs (IAFC)* is preparing the final draft of the *Support Assistants for Fire Emergency Training Package*. This training package is designed to train selected citizens to augment regular firefighting forces in time of emergency. It should be ready for distribution by December 1969. In addition, the IAFC has, following a nationwide field test, completed the *Self-Help Emergency Firefighting* training package. This program is designed to teach householders how to (1) identify and remove common fire hazards: (2) take protective measures against fire and other nuclear weap-

ons effects when warned of impending attack; and to extinguish small fires in case the regular fire forces are not available.

The American Waterworks Association (AWWA) in cooperation with the Office of Civil Defense, developed, field tested and evaluated a course of instruction for Emergency Planning for Water Utilities. The AWWA Committee on Emergency Planning concluded as a result of evaluation of the field test that additional work on course content would be necessary prior to nationwide deployment for training water utility personnel.

During fiscal year 1966, a total of 60 *Emergency Operations Simulation Packages (EOS SIM-PAC's)* were procured and provided to the contracting universities in the Civil Defense University Extension Program and to OCD Regions and Staff College. Each SIM-PAC contains status boards, map boards, and associated supplies to conduct an EOS. After approximately two years of usage, a field survey was conducted to determine the durability of the materials in this training package and to develop recommendations for design changes as necessary. The field survey was conducted and design modifications were developed in fiscal year 1968. Three new prototype EOS SIM-PAC's were produced in accordance with the revised specifications and are now being tested in the field. Due to the favorable reports received on the previous field test, it is not anticipated that additional units or any major design changes will be needed in the near future.

Six graduate students were awarded OCD fellowships totaling \$41,000 under the *OCD Graduate Fellowship Program*. The program was instituted during fiscal year 1967 on a prototype basis with contracts let to the Universities of Tennessee, Southern California, and Michigan State University. Each of the six graduating fellows produced a civil defense oriented thesis which are being evaluated by the Office of Civil Defense.

Civil Defense Adult Education Program (CDAEP)

The Civil Defense Adult Education Program (CDAEP) is administered for the Office of Civil Defense by the U.S. Office of Education. Through a contractual agreement between the U.S. Office of Education and an education agency in each State, the resources of the State Education System are employed to conduct civil defense training and education courses to support local government operation in an emergency. Formal courses of instruction offered under the CDAEP during fiscal year 1969 included Shelter Management, Radiological Monitoring, and Personal and Family Survival. Specialists employed under this program also were used to encourage and assist local school officials to incorporate civil defense instruction and principles into the

established curriculum. An added feature of this activity also involved working with and through State and local civil defense officials to develop school disaster preparedness plans.

A total of 48 States, Puerto Rico and the District of Columbia participated in the CDAEP during fiscal year 1969. All of these States offered Personal and Family Survival courses and assistance to schools. However, only 42 States conducted Shelter Management training and 43 States conducted Radiological Monitor training. Program activity in the participating States produced 10,562 shelter managers, 30,690 radiological monitors, and 345,911 persons who successfully completed the Personal and Family Survival course.

Federal funds were used to pay for the services of the local instructors of the OCD skill courses, but payment of teachers of the Personal and Family Survival course was terminated June 1, 1969.

During fiscal year 1969, the scope of the CDAE program was expanded to provide conferences and workshops designed to assist school officials in emergency preparedness planning. This activity resulted in 86 conferences during the period January 1, 1969, through June 30, 1969.

Medical Self-help (MSH) Training Program

The Medical Self-Help training program managed by the U.S. Public Health Service using funds made available by the Office of Civil Defense pertains directly to the humanitarian needs envisioned in shelter utilization and to the increase of community readiness for whatever disaster may occur. People trained under this program are ready to assist others in matters of health and medical care in community shelters, an important capability when medical professionals are not present.

The administration of the Medical Self-Help program below the Federal level is the responsibility of the State. At the State level, the Health Department or civil defense officials implement and administer the program. Budgetary limitations, however, necessitated the termination of contracts for the State coordinators and caused an insufficiency of instructor supplies. Nevertheless, noteworthy results were attained in the training of 2,412,738 students during the year. These achievements were due to the high degree of interest and perseverance engendered in MSH among State and local organizations which resulted in a total of 10,673,344 persons trained since fiscal year 1962.

Since the Medical Self-Help Humanitarian Award was established last fiscal year, there have been 13 awards made in 12 States. These awards are presented to persons who have saved lives through knowledge gained from MSH training.

Rural Civil Defense Program

The Rural Civil Defense Program conducted by the Federal Extension Service of the U.S. Department of Agriculture (USDA) under contract with the Office of Civil Defense continued its efforts to provide civil defense information and education.

This program extends to an audience of approximately 70 million persons, most of whom reside in cities and towns of less than 10,000 population. Information and education explains how fallout protection can be provided on farms and in small communities with specific attention given to the protection of livestock and feed, water and food products.

In fiscal year 1969, the Federal Extension Service conducted in-service training for its staff, attended two 2-day briefing sessions on livestock and crop research conducted by the Atomic Energy Commission, and assisted the State Extension Service personnel in developing a training program for USDA State and County Defense Boards. Plans were also made for a second 4-H TV series, 6 to 8 TV programs with supporting instructional materials, and an introduction to the "Community Response" game for nationwide use. This game will provide youth with roles to play when a simulated disaster hits a community. To provide facts about peace-time and nuclear fires, a new publication entitled, "Rural Fires—Prevent 'Em or Fight 'Em" was distributed to State Extension Services and the U.S. Forest Service.

In fiscal year 1969, budget limitations made it necessary to curtail work at the regional and State levels. Nevertheless, USDA Subject Matter Specialists (AG engineers, agronomists, 4-H club leaders, home economists, etc.) continued to incorporate civil defense program emphasis, objectives, plans and procedures into regular on-going USDA activities and functions at the State and county level.

OTHER SUPPORT

Technical Liaison

During fiscal year 1969, effort to assure technical and scientific validity of OCD policies, plans, programs, and executive actions was continued. Previous studies were extended or new studies were made in subject areas such as shelter ventilation, technical standards for shelter, radiological defense planning, economics of shelter placement, expedient shelter guidance, and electromagnetic effects of nuclear weapons. As appropriate, ad hoc informal groups of OCD staff members were used to provide broad consideration and coordination of subjects of agencywide interest.

Monitoring of the activities of the National Academy of Sciences/National Research Council related to civil defense was continued. Guidance was provided to the Advisory Committee on Civil Defense and the Committee on Fire Research and participation by OCD staff specialists was coordinated. During the year, active committees of the Advisory Committee on Civil Defense covered radiation shielding, fallout phenomena, protective construction, blast and thermal effects, organization and operation of civil defense systems, and damage limiting systems studies.

Activity was continued in the correlation of operational program requirements and research activities, as well as in the utilization of research findings and new technical data in agency program improvement.

Labor

Labor and trade unions, as evidenced by past records, continued in their strong support of civil defense, particularly in the area of labor leadership training. Some major examples of this support follow:

1. Labor civil defense seminars were attended by 2,618 labor leaders during the year, resulting in a cumulative total of 11,617 labor leaders throughout the United States trained in the 1 $\frac{1}{4}$ -hour course titled "Labor's Supporting Role in State, County, and Local Civil Defense."

2. Leadership in the Postal Services responded by training 235 members in the 1 $\frac{1}{4}$ -hour course, "Labor and the Postal Worker in Civil Defense." This brought the number of key postal union officials so trained to a cumulative total of 1,766.

3. As a result of the labor leadership training seminars, 38,109 copies of the labor civil defense 10-point manual, "How Does This Affect You?", have been distributed to labor officials throughout the Nation. In addition, 40,000 copies of the Spanish translation of the manual were distributed. Approximately 400,570 copies of this manual have been distributed since it was first prepared in 1966.

In accordance with custom established many years ago, the Office of Civil Defense had an exhibit at the Union-Industries Show, Denver, Colorado. The space for the exhibit was donated by the Union Label and Service Trades Department of the AFL-CIO. The exhibit consisted of eight colored panels that illustrated the program and policies of the Office of Civil Defense in relation to the Trade Union Movement. More than 200,000 persons attended the show, and over 50,000 OCD labor-oriented pamphlets were distributed to those in attendance.

Members of the Ladies Auxiliaries of unions affiliated with the AFL-CIO continued to show a marked interest in the shelter and civil defense programs.

International Activities

Exchange of information with friendly nations and mutual civil defense planning were the principal international activities of the OCD during fiscal year 1969. In coordination with the Office of the Assistant Chief of Staff for Intelligence, Department of the Army, and the Department of State, these activities were conducted cooperatively with the North Atlantic Treaty Organization (NATO), and the United States/Canada Civil Emergency Planning Committee (CEPC).

Prior to the September 1968 meeting of the NATO Civil Defense Committee in Brussels, the OCD Director and other national delegates were guests of the West German Government and participated in a four-day tour of German civil defense installations. Following the meeting, the Director visited Copenhagen to confer with Danish civil defense officials. In addition, an OCD representative participated in the NATO Symposium on Civil Emergency Planning, held in Brussels, February 10 through 14, 1969. An OCD representative chaired a Quadripartite Technical Cooperation Working Group meeting in Canberra, in connection with a coordinated Mass Fire Symposium, February 10 through 14, 1969, following which he conferred with Australian fire and civil defense officials and visited several State installations and the Civil Defense School at Macedon. Another OCD official attended the June 2 through 16, 1969 meeting of the International Electrotechnical Commission, Technical Committee 45, in Moscow, following which he conferred with members of the Swedish Research Institute of National Defense in Stockholm.

The OCD assisted the Department of State in preparation of the U.S. position papers for use at meetings of the NATO Senior Civil Emergency Planning Committee. OCD was also represented at a U.S. position meeting in October of the Quadripartite Working Group on Radiological Defense Equipment.

In addition to a group of 50 students from the Argentine National War College and an official of the Civil Emergency Planning Directorate of NATO, representatives from Australia, Brazil, Canada, France, Germany, Israel, Sweden, Switzerland, Thailand, and the United Kingdom were among 44 foreign officials from 10 countries who visited the OCD during fiscal year 1969. In connection with their OCD visits, four Brazilian Army engineers attended the Fallout Shelter Analysis course at Ft. Belvoir, Va., and an officer of the Thai-

land National Police attended a course at the OCD Staff College, Battle Creek, Mich.

NATO and CENTO member countries were supplied with OCD Information Bulletins and technical publications, as well as the OCD Annual Report for fiscal year 1968. In response to 270 requests, certain OCD publications were sent to 55 countries. The Spanish version of the handbook, "In Time of Emergency," was made available to 18 Spanish-speaking countries. Two new OCD motion picture films were furnished the NATO civil defense library for loan to member nations. These and other films were either loaned to or purchased by the Governments of Austria, Canada, France, Greece, Iceland, India, Iran, Malta, Netherlands, Norway, Philippines, and Switzerland.

The U.S./Canada Civil Emergency Planning Committee met in Ottawa, June 27, 1969, to establish new goals for joint emergency planning and to review activities in fiscal year 1969. Subcommittee and regional activity included the July 1968 meeting of the U.S./Canada Joint Emergency Resources Planning Committee (JERPC), and four crossborder conferences at the State/Province level. The JERPC reported compatible planning accomplished in three resource areas, namely: Foods, fuels and energy, and industrial production and materials. The State/Province conferences to promote compatibility of local emergency operating procedures and facilitate crossborder assistance in emergency situations included (1) Alaska with the Yukon and Northwest Territories, in December 1968, (2) Washington with British Columbia in March 1969, (3) Michigan, Minnesota, and North Dakota with Manitoba, Ontario and Saskatchewan in June 1969, and Maine with New Brunswick and Quebec, also in June.

The Director General of the Canada Emergency Measures Organization spoke to the U.S. Interagency Civil Defense Committee on emergency planning in Canada in November 1968 and, in return, the Assistant Director of U.S. Civil Defense, Plans and Operations, spoke on U.S. civil defense to the Canadian Interdepartmental Committee on Civil Emergency Planning in June 1969.

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PART VI

SUMMARY

As stated in the Introduction, and as detailed in this report, despite recent civil defense budget limitations, substantial advancements were made during fiscal year 1969 in the principal civil defense goal of providing fallout shelter for the total civilian population throughout the United States. However, the stringent fiscal restraints on Federal expenditures coupled with the overriding need for meeting Southeast Asia oriented requirements has forced the Executive Branch to reduce the budget request for the Civil Defense program to a minimum sustaining rate in recent years. For fiscal year 1969, this minimum budget request for \$77.3 million was further reduced by the Congress to an appropriation of \$61.0 million. This drastic reduction required cancellation or deferment of substantial elements of the nationwide civil defense program.

With regard to the program basis for providing protection for the population of the United States against the effects of nuclear weapons, much of the design research has been done; the systems, including the Radio Warning Decision Information Distribution System (DIDS) have been developed and tested; their cost effectiveness has been established and the alternatives have been studied. The capability exists for implementing all civil defense systems at a much higher level than has been possible with recent appropriations. The civil defense organizations of State and local governments and the field organizations of various other coordinating Federal agencies provide the elements of an experienced nationwide civil defense structure. These key elements could significantly improve the civil defense preparedness posture given the required financial support.

The achievements to date are substantial in terms of lifesaving capability but program momentum has declined with serious impact on the efforts of State and local governments. These restraints in recent years have resulted in program backlogs. For example:

1. The survey of new buildings for fallout shelter capacity is more than one year behind schedule.
2. The rate of marking of public shelters has fallen below prior year rates.
3. Warehouse stocks of shelter supplies will be exhausted by the end of fiscal year 1970, and while improved supplies have been developed, none have been procured.
4. Over \$2 million in matching funds was not available to match State and local government funds for proposed emergency operating centers.

5. \$1.3 million in matching funds was not available to match State and local government funds for emergency communications and warning equipment.

6. 105 qualified local jurisdictions have been unable to enter the matching funds program for civil defense personnel and administrative expenses.

7. Deployment of the Radio Warning Decision Information Distribution System (DIDS) has been delayed.

8. Research necessary to define optimum solutions to problems of protection against direct effects of nuclear weapons and of the immediate postattack period has been deferred or curtailed.

The current civil defense capability should not be permitted to deteriorate. Much work has been done, a great deal more remains to be done, but the ultimate goal of providing protection for everyone cannot be achieved without adequate funds to eliminate the backlogs and reinstate the program to effective performance levels consistent with new technological advancements and the national population growth rate.



JOHN E. DAVIS,
Director of Civil Defense.

APPENDIX I

EXAMPLES OF EMERGENCY OPERATING CENTER DISASTER OPERATIONS FISCAL YEAR 1969

Hurricane Gladys (October 1968)

As Hurricane Gladys began its sweep northward, the Florida Department of Civil Defense representing virtually every agency of government, activated State Headquarters EOCs at Jacksonville, Tallahassee and Jupiter on 24-hour duty. Wildwood State EOC was placed on standby alert. The OCD Regional Field Officer for Florida was dispatched to the State CD headquarters at Jacksonville and the American National Red Cross Advisor to the Tampa Bay area. State officials, coordinating with OCD Regional and American Red Cross representatives, discussed precautionary measures that might lessen the hurricane's impact during and after the severe storm. The EOCs were the State's nerve center during the rescue and relief program. When it appeared that Gladys would change her course, Alabama and Mississippi State Civil Defense Agencies were alerted. Third Army Headquarters was alerted, also Region Three Headquarters, and the Office of Emergency Preparedness.

As the hurricane progressed northward up the west coast of Florida, local EOCs were either activated or placed on standby alert in those counties most likely to be affected (Monroe, Tampa-Hillsborough County, Collier, Lee, Charlotte, Sarasota, Manatee, Hardee, Pinellas, and Pasco).

The Georgia State EOC alerted all State agencies having emergency responsibilities, including the National Guard, and directed the highway patrol to alert all areas and NAWAS stations. The Savannah CD Director was directed to place his entire EOC staff on alert.

South Carolina opened their State EOC, activated their RACES communications system, notified Henry, Georgetown, and Charleston Counties to be on alert, notified the South Carolina National Red Cross, National Guard, Highway Patrol, State Law Enforcement Division and the Governor's Office.

The North Carolina State EOC was activated with from three to five men on duty, including the State CD Director and the State Operations Chief.

California Floods (January 1969)

The California State Emergency Organization, including all of the California Disaster Office Staff and other State agency personnel, was

activated on January 20, 1969 and coordinated State and Federal disaster operations throughout the disaster period of 13 days. The emergency organization operated from the California Disaster Office Headquarters EOC in Sacramento and from California Disaster Office Regional Offices located at Los Angeles, Fresno, and Oroville. The Regional Offices at Fresno and Oroville are EOCs. Thirteen counties and 31 cities activated their civil defense EOCs during the period.

Pipeline Disaster (January 13, 1969)

A 22-inch pipeline carrying crude oil broke at 7th Street and Norval Avenue in Lima, Ohio on January 13, 1969. Spillage covered a 110 block area that contained 7,000 residents. The oil entered the city sewer system and traveled 75 blocks to a sewage treatment plant where it caught fire. The Allen County Civil Defense EOC was activated. The Ohio Deputy State Director of Civil Defense surveyed the disaster area working closely with the local offices. The operation was directed from the EOC. Cots and blankets were furnished by Auglaize, Hancock, Mercer, Montgomery, Putnam and Shelby Counties and from Packaged Disaster Hospitals. The American Red Cross and Salvation Army operated emergency lodging and feeding facilities.

APPENDIX 2

DESCRIPTION OF PUBLIC FALLOUT SHELTER SUPPLIES

General Shelter Supplies, Radiation Kits, and Packaged Ventilation Kits (PVK's)

Food Rations.—Food rations, providing 10,000 calories and amounting to 5 pounds in weight per shelter occupant, are austere but adequate for sedentary conditions and estimated duration of shelter occupancy. The food is packaged in hermetically sealed cans having a capacity of 2½ or 5 gallons. These containers and special formulation of the food products are expected to assure that the food will remain usable for as long as 15 years after storage.

The Armed Forces Food and Container Institute, now the Army Natick Laboratories, developed specifications for the food items. There are: (1) A survival biscuit—a baked wheat flour biscuit containing small amounts of corn and soy flour—developed by the National Biscuit Co. for the New York State Civil Defense Commission; (2) a survival cracker—a baked wheat-corn cracker containing more corn flour than the survival biscuit, but no soy flour—developed by the Midwest Research Institute for the State of Nebraska; (3) a bulgur wafer—containing parboiled bulgur wheat that has been dried, puffed, and blended with several ingredients—developed by the U.S. Department of Agriculture; and (4) a carbohydrate supplement containing sucrose, glucose, and flavorings—adapted from a standard product in accordance with a military specification.

The physiological fuel value of each of the four dry food items is approximately 2,000 calories per pound. The basic ration of 10,000 calories per shelter occupant contains proper components of protein, carbohydrate, and fat. The protein content is low, since consumption of high-protein foods increases renal activity and would require consumption of water in excess of limited amounts expected to be available in shelters. In accordance with established nutritional requirements, the carbohydrate supplement is limited to one-third the weight of the total food ration. The ration contains sufficient salt to preserve body fluids, but vitamin fortification is not necessary, and deficiencies in calcium, phosphorous, or potassium would not be of serious consequence during the limited period of shelter occupancy.

Food rations do not provide for special nutritional requirements of infants, young children, pregnant women, or those who are aged or ill. Special foods required by them must be brought into the shelter by the individuals or families concerned.

Sanitation Kits.—Sanitation kits, designed for waste disposal during shelter occupancy, are provided. Two kits are available: one with supplies to serve 25, and the other with supplies to serve 50 persons.

Each kit includes a 17½-gallon fiber drum packaged with toilet seat, toilet tissue, commode chemical, sanitary napkins, drinking cups for individual use, and other items. Packaged with each kit are instructions for its use. The toilet seat is designed to be used with the fiber drum as a chemical toilet, and as water containers are emptied, they can be used in the same manner. This method of waste disposal has been used satisfactorily in shelter occupancy tests conducted as part of OCD research projects.

Assembly of the kits is on the schedule of *Blind Made Products* under terms of the Wagner-O'Day Act of June 1938 (52 Stat. 1196; 41 U.S.C. 46-48). Workshops for the blind throughout the country therefore assemble the individual kit items. The National Industries for the Blind selects these workshops and competitively procures the kit components through centralized procedures that assure the advantage of volume purchasing. Eleven workshops have performed the task of assembling sanitation kits.

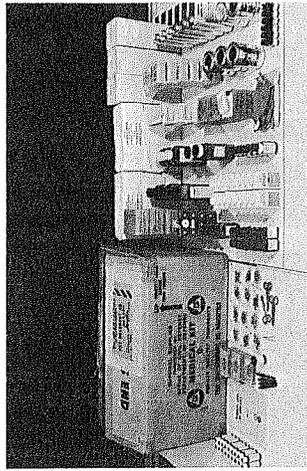
Medical Kits.—Medical kits are provided in two sizes: one to serve 50 to 65 persons, the other to serve 300 to 325. These kits contain different quantities of identical items that provide an austere capability to save lives and alleviate suffering by (1) preventing disease and checking its transmission, (2) controlling emotional stress, and (3) controlling disease symptoms to alleviate pain and prevent complications. Medication and devices are not provided for chronic diseases, childbirth, or for purposes that require a high degree of professional proficiency.

Since health status, skills proficiency, and professional ability of shelter occupants can be estimated only generally, the kits are designed for nonprofessional use and contain nontechnical instruction booklets. The National Academy of Science—National Research Council; U.S. Public Health Service, Division of Health Mobilization; and DoD medical authorities have approved the items in the kit. Contents are adequate to serve emergency needs generally of normal, healthy persons.

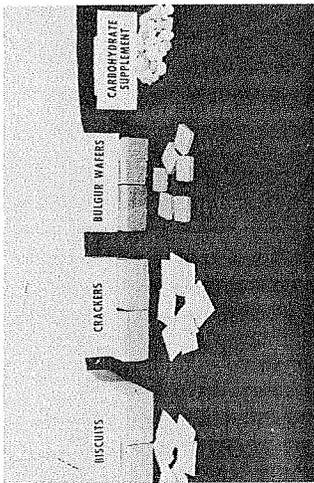
Water Containers.—The containers are 17½-gallon, lightweight steel drums supplied with a double polyethylene liner. The drums are filled at the shelter site with water from sources meeting Public Health Service standards. One container is intended to serve five shelter occupants, and tests have shown that this method is suitable for long-range storage of potable water. During shelter occupancy, the empty water containers may be converted to chemical toilets by using appropriate items contained in the sanitation kits.



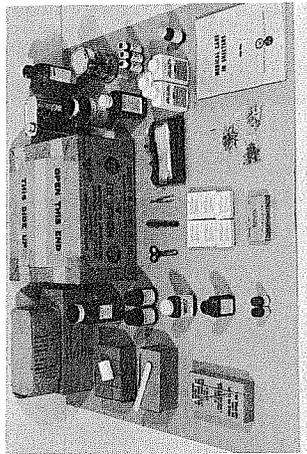
Type SK-IV Sanitation Kit



Type "C" Medical Kit



Civil Defense Food Rations



Type "A" Medical Kit

Figure 22.—Civil defense survival supplies.

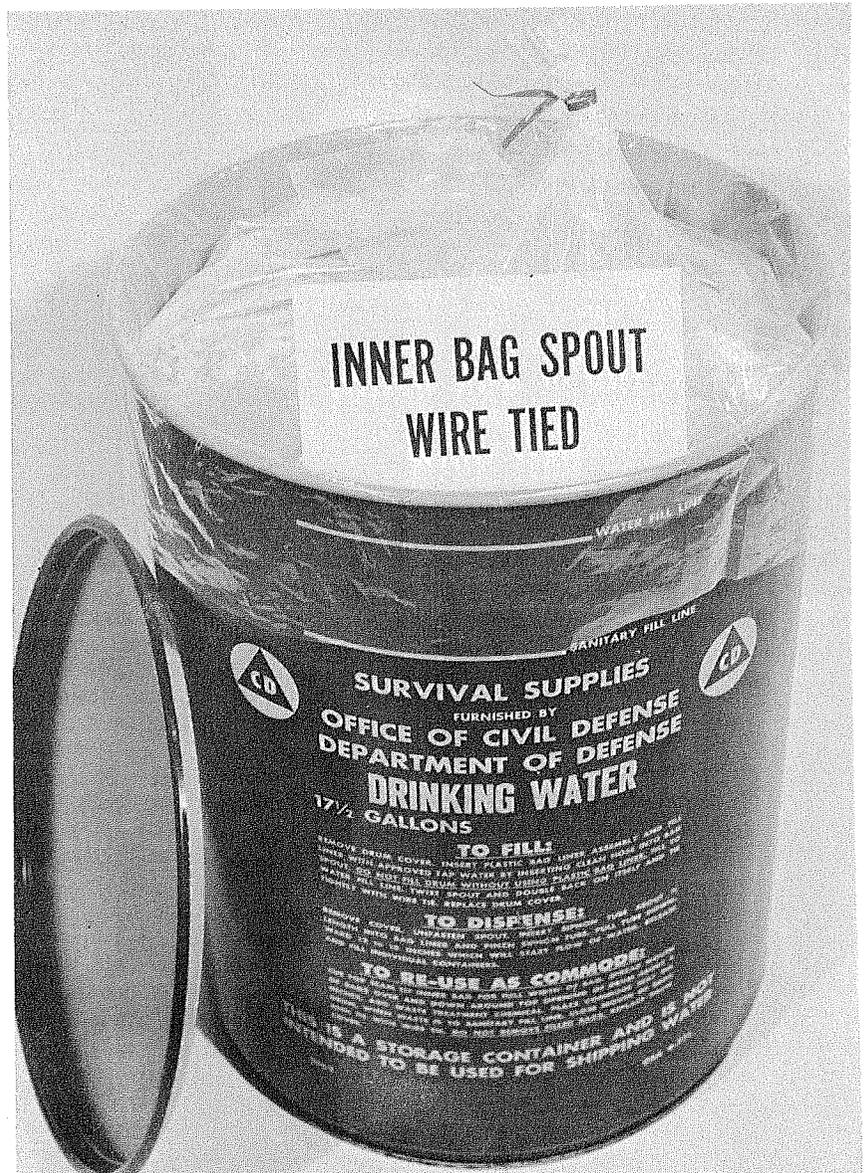


Figure 23.—Civil Defense Water Storage Container.

Radiation Kit.—At least one radiation kit, to be used by trained radiological monitors, is supplied each public fallout shelter. The kit contains: (1) A low range beta-gamma discriminating survey meter (CD V-700), known as a Geiger counter, for monitoring personnel, food, and water; (2) for a high range survey meter (CD V-715) or ion chamber for monitoring inside and outside the shelter; (3) two dosimeters (CD V-742) for measuring personnel exposure and (4) a dosimeter charger (CD V-750) to reset and recharge the dosimeters.

Use of this equipment during shelter occupancy will enable the radiological monitor to (1) locate the shelter area offering greatest protection, (2) evaluate contamination of personnel and material brought into the shelter, (3) determine when adjoining areas are sufficiently free of radiation to be used for relieving overcrowding, (4) control radiation exposure of persons performing emergency functions, and (5) provide radiological data on the surrounding area to the shelter manager and the local emergency operations center.

VENTILATION KITS

Two new types of shelter ventilation kits have been developed; the Pedal Ventilation Kit (PVK), and the Kearny Pump Kit (KPK).

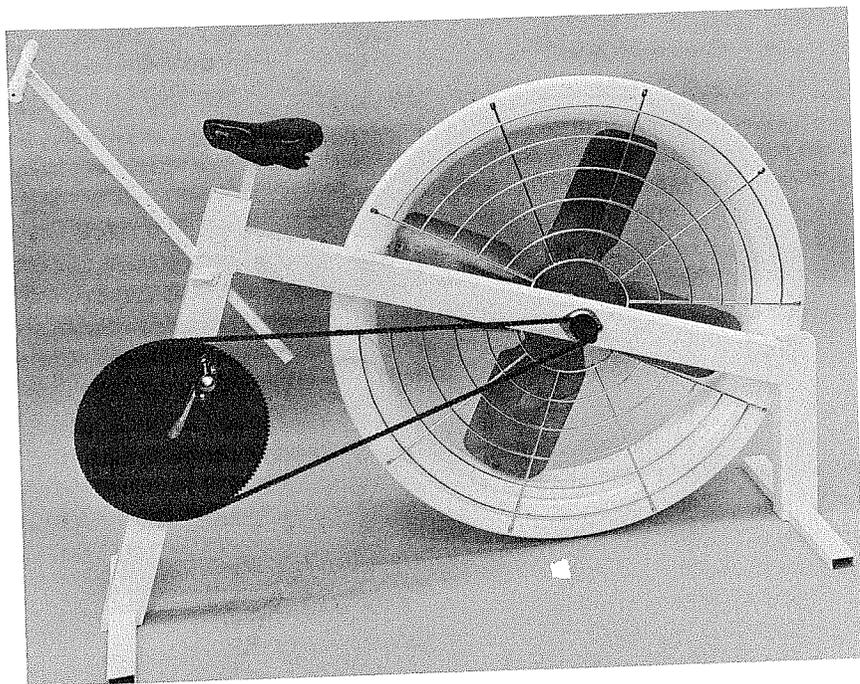


Figure 24.—Pedal Ventilation Kit (PVK).

The PVK, weighing 60 pounds with a storage volume of 22.8 cubic feet, consists of a completely assembled pedal operated fan unit with accessories. An optional, detachable $\frac{1}{2}$ hp electric motor unit weighing 32 lbs. has a storage volume of 1 cubic foot. The KPK, weighing 55 lbs. with a storage volume of 5.9 cubic feet, consists of two air moving panels with flap-valves, a doorway bar-hanger and an A-frame.

These kits, when procured, would be used together in combinations configured to specific shelters. They are designed to remove the carbon dioxide, moisture and heat from a shelter by inducing fresh, cooler air to enter through various outside openings. They would be supplied to provide additional spaces where needed, particularly in basements, or to improve habitability where shelters are inadequately ventilated.

APPENDIX 3



Office of Civil Defense Instruction

OFFICE OF THE SECRETARY OF THE ARMY

DATE August 19, 1968

NUMBER 5120.2

MGT (MD)

ADVISORY COMMITTEE ON THE DESIGN AND CONSTRUCTION OF FALLOUT SHELTERS

(Boards and Committees)

- References: (a) Federal Civil Defense Act of 1950, as amended (50 U.S.C. App. 2251-2297)
- (b) Executive Order 10952 of July 20, 1961
 - (c) DoD Directive 5160.50 of March 31, 1964
 - (d) OCD Instruction 5100.1, Organization and Operation of the Office of Civil Defense and Delegation of Authority for Civil Defense Functions, May 24, 1968

1. General

By virtue of the authority contained in reference (a), as re delegated to me by reference (b), (c) and (d), I hereby continue the Civil Defense Advisory Committee on the Design and Construction of Fallout Shelters. The purpose, membership, and operation of the committee are set forth below.

2. Purpose

The purpose of the Committee is to advise the Director of Civil Defense in the following matters:

- a. Review and make recommendations on the technical problems related to fallout shelter design and construction including Federal programs to overcome fallout shelter deficits.
- b. Provide means for effective communications relating to shelter design and construction between the Office of Civil Defense and the membership of the associations named below.
- c. Recommend methods of stimulating shelter construction through development of plans and designs, by reducing shelter construction costs, and by communicating technical information conducive to shelter construction to architects, engineers, contractors, and building owners.

3. Membership

This Committee shall be representative of the American Institute of Architects, the American Society of Civil Engineers, the Associated General Contractors of America, Incorporated, the National Society of Professional Engineers, the Engineers Joint Council, the American Institute of Planners and the Consulting Engineers Council. Total membership shall consist of fifteen members.

a. There shall be two members from each of the seven professional organizations named above. One of the two members shall be an officer, the other a staff member, of the organization represented.

b. One member, a full time, salaried Government official designated by the Director of Civil Defense, shall be Chairman of the Committee.

c. If a vacancy occurs on the Committee, it shall be filled in the same manner as the original appointment.

4. Operation

a. The Committee shall be organized and operated in accordance with the references and with applicable DoD and OCD directives and instructions.

b. The Chairman shall call each meeting of the Committee, and shall formulate the agenda of each meeting. He shall make provision for taking minutes of each meeting, and shall certify the accuracy of summary minutes thereof. He shall have the authority to adjourn any meeting whenever he feels that its continuation would not be in the public interest.

c. The functions of the Committee are solely advisory, and any determination of action to be taken, based in whole or in part on such advice, shall be made by the Director of Civil Defense.

5. Duration of committee

The committee shall continue in existence until June 30, 1970, or whenever the mission is completed, whichever is earlier.

6. Rescission

OCD Instruction 5120.2 issued August 5, 1966 is hereby rescinded.

7. Effective date

This instruction is effective the date of issuance.



JOSEPH ROMM,
Director of Civil Defense.

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