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**DEPARTMENT OF DEFENSE
OFFICE OF CIVIL DEFENSE**

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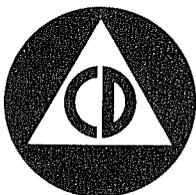
DEPARTMENT OF DEFENSE

OFFICE OF THE SECRETARY OF THE ARMY

Annual Report

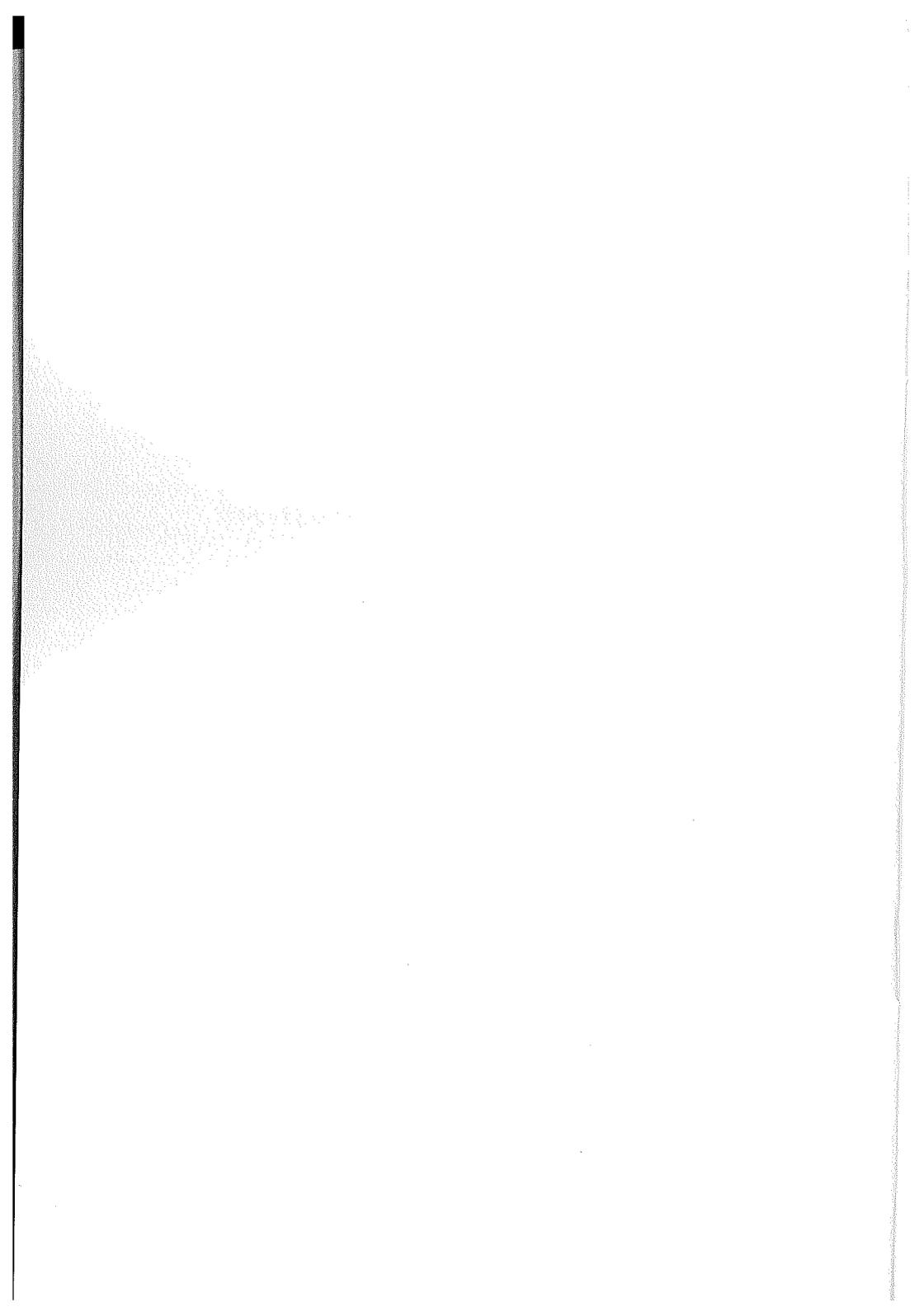
of the

Office of Civil Defense



For Fiscal Year

1964



Letter of Transmittal

THE SECRETARY OF DEFENSE

WASHINGTON

December 28, 1964

DEAR MR. 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 third annual report of the Office of Civil Defense, covering civil defense functions assigned to me.

Sincerely,



ROBERT S. MCNAMARA

THE PRESIDENT
THE WHITE HOUSE

Letter of Transmittal

THE SECRETARY OF THE ARMY

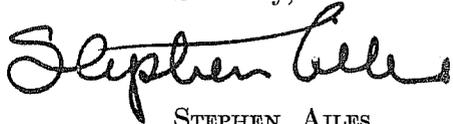
WASHINGTON

December 4, 1964

DEAR MR. SECRETARY:

Submitted by the Director of Civil Defense, Mr. William P. Durkee, and transmitted herewith is the third annual report of the Office of Civil Defense.

Sincerely,

A handwritten signature in cursive script that reads "Stephen Ailes". The signature is written in dark ink and is positioned above the printed name.

STEPHEN AILES

The Secretary of Defense
Department of Defense

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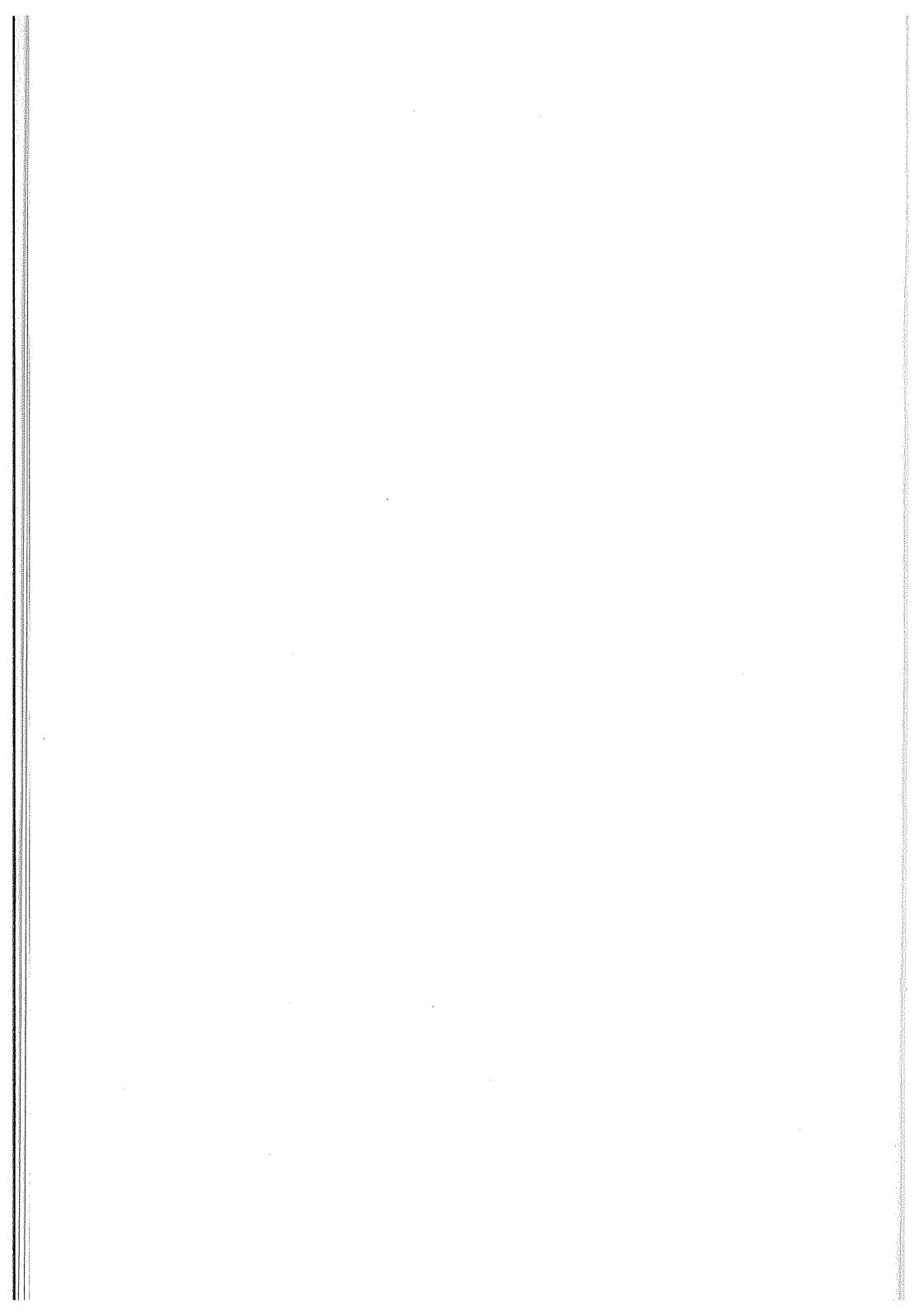
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INTRODUCTORY STATEMENT

In addition to the operational achievements of the Office of Civil Defense during fiscal year 1964, there were several events and developments that will have a continuing impact on the civil defense program. Principal among them were:

First, the statement of the Secretary of Defense before the Armed Services Committee of the House of Representatives in January 1964. He said, in part:

Civil defense is an integral and essential part of our overall defense posture. I believe it is clear from my discussions of the Strategic Retaliatory and Continental Air and Missile Defense Forces that a well planned and executed nationwide civil defense program centered around fallout shelters could contribute much more, dollar for dollar, to the saving of lives in the event of a nuclear attack upon the United States than any further increases in either of these two programs. Indeed, our studies indicate that an effective civil defense program could increase the number of persons surviving a determined Soviet nuclear attack in the 1970 period by tens of millions, at a total investment cost to the Federal Government of about \$3½ billion.

. . . The effectiveness of an active ballistic missile defense system in saving lives depends in large part upon the existence of an adequate civil defense system. Indeed, in the absence of adequate fallout shelters, an active defense might not significantly increase the proportion of the population surviving an all-out nuclear attack. Offensive missiles could easily be targeted at points outside the defended area and thereby achieve by fallout what otherwise would have to be achieved by blast and heat effects. For this reason, the very austere civil defense program recommended by the President . . . should be given priority over procurement and deployment of any major additions to the active defenses.

Second, Senator Henry M. Jackson, the Chairman of the Special Subcommittee for Civil Defense, Senate Armed Services Committee, in a letter to the Assistant Secretary of Defense (Civil Defense) on March 4, 1964, commented on the committee's decision deferring action on civil defense legislation (H.R. 8200) passed by the House of Representatives. He said, in part:

This decision was based on several factors not necessarily related to the substance of the bill. Principal among them is the fact that ballistic missile defense and the shelter program have been closely related and it is believed that a decision as to both should be similarly related . . .

It is believed that all civil defense organizations will be fully occupied during the coming months with their current efforts to organize a working

Third, the Secretary of Defense, on March 31, 1964, assigned civil defense responsibilities, delegated to him by Executive Order 10952, to the Secretary of the Army. A Department of Defense news release issued on that date read, in part, as follows:

Secretary McNamara stated that the civil defense functions are being transferred to the Army because they are essentially operational and therefore should properly be administered by one of the Military Departments. These functions originally were assigned to the Secretary's immediate office in order that he might exercise personal supervision while the program was first getting started under Defense Department direction. The Secretary pointed out that the initial shelter program is now well underway.

The Secretary of the Army immediately established the Office of Civil Defense within his office and delegated the functions to the Director of Civil Defense. The civilian nature of civil defense leadership remained unaltered.

Fourth, disaster operations following the Alaskan earthquake of March 27, 1964, demonstrated what coordinated local, State, and Federal civil defense preparedness can mean to any area of the Nation stricken by disaster of major proportions, whether caused by nature or by enemy attack.

Fifth, a plan for use of State Adjutants General and their staffs to coordinate military support of civil defense planning and operations within their respective States was approved by the Secretary of the Army on June 8, 1964. Responses received from State Governors by the end of the fiscal year indicated their general acceptance of the plan.

Major facts on the development of the nationwide fallout shelter system at the end of fiscal year 1964 were:

1. Fallout shelter space for approximately 121.4 million persons had been located in more than 143,000 facilities.
2. Owners of more than 70,000 facilities had signed shelter license agreements for use of space to protect nearly 63 million persons.
3. Shelter space to protect nearly 64 million persons had been marked in nearly 80,000 facilities.
4. Shelters in more than 45,000 facilities had been stocked with supplies to serve nearly 24 million persons, and cumulative procurement commitments included supplies to serve an additional 39 million.

Among other major accomplishments during the year were the following:

1. The Emergency Broadcast System (EBS) plan was implemented, making a nationwide system of radio stations available to the President and to State and local governments for civil defense emergency communications. More than 300 stations authorized by the Federal Communications Commission to serve in the EBS had signed agreements providing for fallout protection, emergency generators, and special communication facilities.

2. A packaged ventilation unit was developed that can be used to increase the capacity of unventilated public fallout shelters. Space for an additional 31 million persons, at an approximate cost of \$2.50 per person, could be obtained from presently unventilated shelters in this way.

3. It was established that use of a radio indoor warning system to alert people of impending attack is feasible. Such a system shows promise of being more economical to install than the National Emergency Alarm Repeater (NEAR) system. Preliminary studies also indicated that the home receivers for such a system would be no more expensive than NEAR receivers.

4. State and local emergency operating centers completed or under development with the support of Federal matching funds totaled 378.

5. The National Warning System (NAWAS) was strengthened by increasing the number of warning points from 500 to 621; fallout protection was provided for 27 warning points, making at least 3 such points in each OCD region; using Federal matching funds in fiscal year 1964, State and local governments obtained NAWAS extensions to 262 key locations: an increase of more than 35 percent.

6. The National Communications System No. 1 (NACOM 1) was improved and strengthened; e.g., service was extended to Hawaii, OCD regional and State services were made full-time operational daily, and teletype equipment was upgraded from 75 to 100 words per minute.

7. The radiological monitoring network was strengthened by the addition of more than 9,700 monitoring stations, making a total of more than 48,200. Also, more than 56,000 radiation monitoring kits were available in public fallout shelters having a rated capacity for nearly 43 million persons.

8. The damage assessment system was strengthened by the adoption of a new concept of handling information to make resource data more readily available and adaptable for civil defense use.

9. A program of community shelter planning was inaugurated to assure full use of public fallout shelters and to stimulate expansion of the nationwide fallout shelter system. Covering at least one community in each State and the District of Columbia, the program is designed to provide balanced and diversified data for guidance in conducting similar studies in all types of communities.

10. New architectural and engineering design techniques and procedures were developed that provide for incorporating fallout protection features in new construction with little or no increase in cost and without sacrificing the functional or esthetic qualities of the building. Incorporation of these design and construction features is called "slanting." This includes the geometrical arrangement of structural elements such as walls and windows to provide maximum fallout protec

tion. Use of slanting techniques will enhance the inherent fallout protection capability of a structure, or it may facilitate later improvements in this capability.

11. Techniques for a rapid system of evaluating fallout protection capabilities of single-family homes were developed, and a survey was started to determine the feasibility of using this method to assist residents and local governments in making full use of these fallout protection capabilities in community shelter planning.

12. Approximately 195,000 persons were trained in civil defense adult education, making a cumulative total of approximately 900,000; about 1 million persons were trained in medical self-help, making a cumulative total of 1.7 million.

13. Key civil defense personnel and instructors trained at OCD schools totaled 3,654, making a cumulative total of 22,391 so trained since fiscal year 1960.

14. The Civil Defense University Extension program resulted in training 5,155 instructors in shelter management and 3,364 instructors in radiological monitoring, as well as in acquainting 25,125 key State and local officials with the civil defense program through conferences. About 3,600 local radiological monitors were trained by the Army.

15. Approximately 2,900 architects and engineers completed the Fallout Shelter Analysis course during fiscal year 1964, making a cumulative total of nearly 6,800 graduates qualified for listing in the *National Directory of Fallout Shelter Analysts*, FG-F-2.

16. Rural civil defense information and education programs were in operation in each State and in Puerto Rico.

PROGRAM PERSPECTIVE

An effective civil defense program is an important element of our total defense effort. It aims at the achievement of a nationwide fallout shelter system.



President of the United States

OPERATIONAL COMPONENTS

Civil defense operations throughout fiscal year 1964 continued to build and strengthen the civil defense program within the framework established in fiscal year 1962. Essential components of the program are operational. They are adequately based and sufficiently broad to accommodate future growth.

Discussed separately in other parts of this report, the five major components of the civil defense program are:

First, a nationwide system of fallout shelters.—The basic concept is to locate or develop sufficient fallout shelter space to accommodate the entire population, and to mark and stock public fallout shelters that meet certain minimum requirements.

Second, complementary civil defense systems.—These are designed to make possible the effective use of shelters and the conduct of emergency recovery operations: (1) *A nationwide warning system* to alert people to impending attack and to direct them in seeking shelter; (2) *communications systems* to keep people informed and to direct emergency operations; (3) *nationwide monitoring and reporting systems* to collect, evaluate, and disseminate information on radioactive fallout; and (4) *a damage assessment system* to provide guidance for pre-attack planning and postattack operations.

Third, Federal assistance.—This assistance includes technical guidance, training and education, financial assistance, and surplus property donations. These activities are designed to encourage all levels of government to develop and operate effective civil defense programs.

Fourth, research.—Carefully organized research is conducted to provide perspective and develop guidance for all elements of the civil

Fifth, supporting activities.—These activities serve to inform the public of civil defense developments, to gain the active support of industry and national organizations, to maintain liaison with international civil defense, and to obtain guidance and recommendations from experts.

SHELTER SPACE REQUIREMENTS

Plans call for providing approximately 240 million fallout shelter spaces within the next few years; i.e., space to accommodate about 210 million persons. This takes into consideration expected growth in population and duplication of shelter needs resulting from movement of people between home and work or school.

Independent private initiative is expected to provide shelter space in homes and business facilities for about 50 million persons. This effort is supported by various OCD activities discussed throughout this report; e.g., educational programs, shelter research and design development, and surveys identifying shelter space in homes. To the Federal Government, this is the least expensive source of shelter space, but Federal action in developing shelter space from other sources is considered essential to stimulate private initiative to make this source sufficiently productive.

The National Shelter Program (see part III), initiated in fiscal year 1962, is expected to provide shelter space for over 100 million persons. Adaptation of existing Federal buildings and incorporation of protective features in the construction of new ones (see part III) can produce fallout protection for approximately an additional 5 million persons. This source can be an example and stimulus to industrial and private shelter construction.

Another source is needed to provide the balance of the estimated 240 million fallout shelter spaces required to protect the entire population. Legislation (H.R. 8200) passed by the House of Representatives and referred to the Armed Services Committee of the Senate on Sept. 18, 1963, would authorize a dual-purpose shelter development program in governmental and nonprofit institutional facilities to fill this gap in the nationwide shelter system. On March 5, 1964, information from the Chairman of the Special Subcommittee for Civil Defense, Senate Armed Services Committee, was released, confirming that deferred action on the House bill was not a rejection of the shelter legislation. It was explained that fallout shelter is an integral part of other pending defense developments that should be considered at the same time.

ORGANIZATION AND MANAGEMENT OF CIVIL DEFENSE

Headed by the Director of Civil Defense, the Office of Civil Defense

March 16, 1966

Fiscal Year 1965 Annual Report of the Office of Civil Defense

The report covers the fiscal year ending June 30, 1965. Statistical data showing progress in major programs since that date are presented below. These data are as of February 28, 1966, with the exception of those on emergency operating centers.

Nationwide fallout shelter system.--Facilities having a rated capacity to shelter 64.7 million persons from radioactive fallout had been stocked. A total of 70,821 facilities had been stocked with sufficient supplies to accommodate 64.7 million persons for 8 days or 39.2 million persons for 14 days.

The 70,821 facilities are stocked, on an average, to accommodate 61 percent of their total shelter capacity of 64.7 million. The objective is to stock the facilities with supplies which, when added to those already available, will be sufficient to accommodate the total shelter capacity for 14 days.

Summary of progress in shelter program, updating information in Table 2, page 19.

Program action	Number of facilities (in thousands)		Number of spaces (in millions)	
	End of fiscal year 1965	End of February 1966	End of fiscal year 1965	End of February 1966
Located	Total	Total	Total	Total
	155.1	162.6	135.6	143.7
Marked	87.9	93.1	75.9	81.5
	81.8	89.8	77.2	84.5
Licensed	63.0	70.8	33.8	39.2
	7.8	7.5	4.8	8.1
Stocked	7.8	8.0	12.4	5.4
	9.5	9.8	16.0	7.3
	Gain	Percent gain	Gain	Percent gain
	5.2	7.5	5.6	8.1

Protection of radio stations.--A total of 339 selected radio stations of the Emergency Broadcast System had completed construction of fallout protection, an increase of 120 since June 30, 1965. Of this number, 247 stations had emergency equipment, an increase of 110 since the beginning of fiscal year 1966.

National Warning System (NAWAS).--The number of NAWAS warning points had been increased by 55 since the beginning of fiscal year 1966, making a total of 740. Established criteria for fallout protection and emergency equipment had been met by 99 of these warning points (20 without Federal funds and 79 with the help of Federal funds). An additional 180 of the 740 warning points are under contract to meet the program criteria with the aid of Federal funds.

Radiological fallout monitoring capability.--A total of 1,668 radiological monitoring stations had been added since the end of June, 1965, making a total of 56,842; radiation monitoring kits had been placed in 7,145 additional shelter facilities, making a total of 74,770 facilities so equipped.

Emergency operating centers (EOC's).--As of December 31, 1965, a total of 2,394 of federally and nonfederally funded State and local EOC's had been completed or were in process of completion, an increase of 451 since the beginning of fiscal year 1966.

organization responsible for conducting the civil defense program at the Federal level. The legal bases for this organization are (1) Executive Order 10952 *Assigning Civil Defense Responsibilities to the Secretary of Defense and Others*, effective August 1, 1961, and (2) subsequent departmental directives of the Secretary of Defense. From August 31, 1961, to March 31, 1964, the OCD was headed by the Assistant Secretary of Defense (Civil Defense). On March 31, 1964, 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.

The new status given OCD in the Defense Establishment was a recognition of its operational maturity. The Director of Civil Defense is responsible directly to the Secretary of the Army and is considered to be in a position equal to that of an Assistant Secretary of the Army. The civilian nature of responsibility and leadership in the civil defense program remains unchanged.

At the end of fiscal year 1964, the organizational structure was as shown in figure 1. Functional assignments and the organizational structure were realigned during the year to accommodate the increasing operational nature of civil defense activities.

The authorized personnel ceiling for fiscal year 1964 was 1,062 positions. Of these, 445 were at the departmental level, 476 at the 8 OCD regional offices (see fig. 2), and 141 at other field locations, such as training centers and warning centers.

Based on modern management techniques, including Program Evaluation and Review Techniques (PERT), the OCD developed and established an integrated management information system. The system provides for collection of pertinent management data, which is processed by automatic data-processing equipment. The resulting information is used to evaluate and control program scheduling and adds management support to planning, implementing, and monitoring, as well as reprogramming, if necessary, of civil defense activities.

The system is designed to process data for accomplishment of any civil defense program or project in accordance with designated plans, taking into consideration related and interrelated events. The final computer product shows work schedules, critical and slack paths (work processes), and time required, as well as people responsible for work performance. In addition to handling major programs and projects, the system has been adapted to provide similar information on short-term tasks. For example, information for 2-month tasks can be processed within 48 work-hours.

Another management tool in operation is an automated log monitoring system designed to provide information on daily OCD operations.

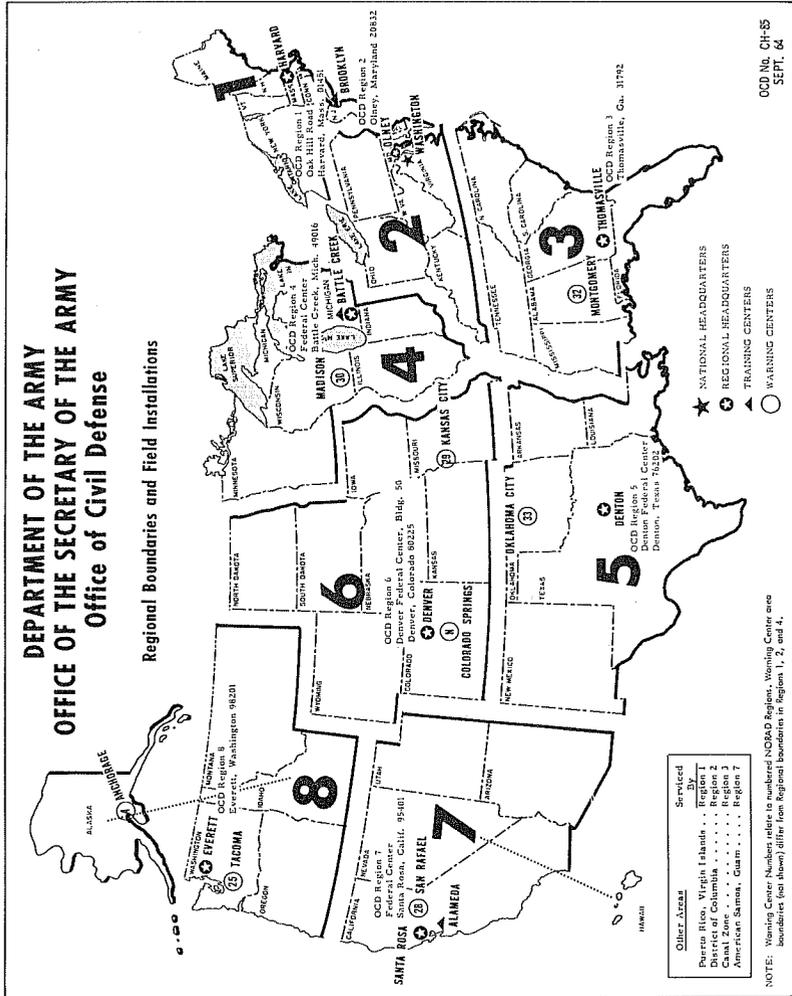


Figure 2.—OCD regions.

status of priority projects. During fiscal year 1965, OCD plans call for development of a system designed to store, review, and evaluate data showing the status and progress of civil defense programs at all government levels. This system will complement and strengthen the management information system already in operation.

The OCD streamlined procedures for internal audit reporting. As a result of audit operations in the field of Federal matching funds, the efficiency of program administration was increased by clarifying policy decisions and revising operating instructions.

FEDERAL SUPPORT

The OCD marshals support for civil defense from several Federal sources. Principal among them are: the use made of Department of Defense (DOD) resources, the development of military support of civil defense, and the coordination of civil defense efforts of Federal civilian agencies.

Use of Department of Defense Resources

The use that OCD continued to make of DOD resources is reflected throughout this report. Major support activities included the following operations:

1. OCD relied upon the Army Corps of Engineers and the Navy Bureau of Yards and Docks for continued assistance in surveying the Nation for fallout shelter space, as well as in training architects and engineers for this purpose. The two agencies managed and operated the Protective Structures Development Center, Fort Belvoir, Va., for OCD and assisted in engineering case studies and community shelter planning. The Corps of Engineers, under contractual arrangements, assisted in providing fallout protection and standby power for radio stations participating in the Emergency Broadcast System. The National Civil Defense Computer Support Facility was staffed by the Corps of Engineers National Civil Defense Computer Support Agency.

2. The Defense Supply Agency managed logistics of all OCD supplies. This included procurement, receipt, and storage of shelter supplies, as well as their issuance to State and local governments; management of the OCD emergency supply inventory; and use of technical military capabilities for food and container research and development of procurement specifications.

3. The U.S. Army Strategic Communications Command is responsible for management direction, technical operations, maintenance, and funding of civil defense communications systems, including National Communications Systems Nos. 1 and 2, and the National

4. The Adjutant General's Office, Department of the Army, provided publications services, such as procuring printing and binding, distributing new publications, maintaining reserve stocks, and filling requisitions from State and local agencies. The Adjutant General operated an office controlling the selection and assignment of Standby Reserve officers of all the military services to civil defense positions in State and local governments. He also administered a program for use of Standby Reserve Army personnel in civil defense field agencies.

5. The Defense Traffic Management Service determined transportation routes, carriers, and transportation costs for shelter stock shipments from suppliers to warehouses.

6. The Army Finance Office performed all OCD payroll and disbursing services.

7. Subordinate commands of the U.S. Continental Army Command trained State and local personnel in radiological monitoring and explosive ordnance reconnaissance.

8. The Army Pictorial Service produced training and educational films for OCD and developed accompanying scripts.

9. Surplus property made available by DOD agencies was used for civil defense purposes.

10. The Department of the Air Force cooperated with OCD in working with the Civil Air Patrol to develop procedures for performing aerial emergency missions.

11. The North American Air Defense Command (NORAD) supported OCD warning centers at NORAD installations and supplied information to them.

12. The Joint Chiefs of Staff, the Defense Atomic Support Agency, the Weapons Systems Evaluation Group, and the National Military Command Systems Support Center continued to provide information and studies supporting the role of civil defense in national strategy. Continuing information and evaluation studies are required to maintain the OCD damage assessment system and to determine the adequacy of OCD operational plans.

13. The U.S. Army Military Police School, Fort Gordon, Ga., made industrial civil defense courses available to industrial managers and executives, as well as to civil defense officials.

14. For industrial facilities, the Army, Navy, and Air Force provided a program of security surveys by which the effectiveness of emergency preparedness measures was analyzed; remedial action was recommended, as appropriate.

15. The Army Transportation Corps worked in liaison with Federal, State, and local civil defense authorities to insure effective and efficient operation of highways during national emergencies.

16. The Surgeon General of the Army provided training for U.S.

defense agencies, in handling mass casualties. He also provided funds for training physicians in medical schools to cope with disaster conditions and made reserve component medical units and personnel available for training civil defense personnel and for conducting training demonstrations and exercises in handling mass casualties.

Military Support Development

The Secretary of Defense, by departmental directive issued in fiscal year 1963, established civil defense functions to be performed by the Armed Forces during emergencies. Implementation of these functions continued during fiscal year 1964. However, effective implementation at the State level was complicated by the lack of military headquarters in each State for planning and controlling military support operations during civil defense emergencies. This was of primary concern to the Department of the Army since it is responsible for coordinating and controlling, through established Service command channels, those military resources made available by all Services and DOD agencies to assist State governments in emergencies. The following actions were taken to overcome this difficulty:

1. The Adjutants General Association, in April 1963, approved a concept of military support of civil defense which provides for: (1) Use of State headquarters by State Adjutants General and their staffs for coordinating, planning, and controlling operations of military forces in support of civil defense operations; (2) active participation by State Adjutants General in preattack planning for military support of civil defense; (3) use of State military headquarters as the focal point for military support planning within each State; (4) mobilization of State military headquarters prior to or immediately following nuclear attack on the continental United States; and (5) subsequent control by State Adjutants General, or by their designees, of forces made available from all military components, as designated by the Zone of Interior Army Commanders.

2. The Secretary of the Army directed the U.S. Continental Army Command (USCONARC) to establish a planning group, including OCD representatives, to make recommendations on implementing the military support concept. In March 1964, the USCONARC Planning Group submitted its recommendations outlining the organization of State headquarters, organizational relationships appropriate to pre-attack planning and postattack operations, and revisions required in DOD and DA directives and publications.

3. The Secretary of the Army, after approving the recommendations, wrote to the State Governors on June 13, 1964, outlining the plan and requesting their comments on and acceptance of the proposal. Simultaneously, the Chief of the National Guard Bureau sent copies

of the complete plan to the State Adjutants General, and the Director of Civil Defense sent copies to State Civil Defense Directors.

4. At the end of fiscal year 1964, replies received from the Governors indicated general acceptance of the plan. Implementing instructions and necessary revisions of directives and publications were initiated accordingly.

Federal Agency Coordination

The Office of Civil Defense coordinates the work of Federal agencies to assure that civil defense functions are carried out in consonance with major civil defense responsibilities assigned to the Secretary of Defense in Executive Order 10952. This coordination is achieved (1) within the framework of several other Executive orders assigning civil defense responsibilities and emergency preparedness functions to various departments and agencies and (2) through contractual arrangements with several departments and agencies. These arrangements permit OCD to use the special competence of Federal agencies in performing its functions in accordance with Executive Order 10952; e.g., conducting civil defense research, compiling damage assessment data, and carrying on rural civil defense work through the Department of Agriculture. Many relationships of this nature are referred to in applicable sections of this report.

The OCD works especially closely with the Office of Emergency Planning (OEP), whose director, under Executive Order 10952, advises and assists the President regarding the total civil defense program and is responsible for the continuity of government programs at all levels. During fiscal year 1964, an Interagency Civil Defense Committee served to promote understanding and cooperation among Federal agencies in their pursuit of civil defense objectives. Regional Civil Defense Coordinating Boards established in fiscal year 1963 continued to function in coordinating civil defense plans and action of military departments and Federal agencies with State and local civil defense operations.

NATURAL DISASTER OPERATIONS

Statewide and locally, civil defense perspective is closely associated with natural disaster preparedness. This was dramatically demonstrated following the Alaskan earthquake on March 27, 1964. Civil defense supplies available in Alaska, as well as those airlifted from many distant locations, were used to the fullest extent. These supplies included emergency power generators, medical supplies, emergency hospital equipment, and emergency water supply equipment. In addition, privately owned home shelter supplies were used by some families.

The National Warning System was used extensively for emergency

tidal waves resulting from the earthquake. Staff members from OCD Region 8 went to Alaska to assist the Alaska State Civil Defense staff and OEP personnel throughout the emergency and restoration periods. Many Federal agencies, as well as the Armed Forces, provided assistance under the provisions of Public Law 875, 81st Congress, administered by the OEP. A more complete account of these activities is contained in a booklet *The Alaskan Earthquake* prepared by the OCD and published in May 1964. The Alaskan experience demonstrated the soundness of using civil defense equipment and personnel to combat local disasters.

The OCD regulations applicable to disaster relief were revised and published in the Federal Register of June 20, 1964 (29 F.R. 7981). The revised regulations clarified the authorization relating to the use of the following civil defense resources in preparation for and during other-than-enemy-caused disaster: (1) Supplies and equipment obtained with the help of Federal contributions and Federal contributions obtained for personnel and administrative expenses under the Federal Civil Defense Act of 1950, as amended, and (2) Federal surplus property donated under the Federal Property and Administrative Services Act of 1949, as amended. The authorization clearly allows Federal contributions and surplus property donations to be used for training, test exercises, planning, and administrative activities in preparation for and during other-than-enemy-caused disaster, provided these activities are included as an integral part of planning and administrative activities in preparation for enemy-caused disaster.

Positive response of State and local governments and industrial, organization, and community leaders to the civil defense program is a measure of its success. This response is reflected throughout this report which deals with various aspects of the program. The role of civil defense in dealing with disasters, such as the Alaskan earthquake, demonstrates the significance of this response, whether the disaster be caused by nature or by enemy attack.

FINANCIAL SUMMARY

Approximately \$129.9 million was available to the Office of Civil Defense for obligation in carrying out civil defense operations during fiscal year 1964. Of this amount, \$18.3 million was carried over from fiscal year 1963. The balance of \$111.6 million was from new appropriations, made available for fiscal year 1964.

At the end of fiscal year 1964, OCD had obligated more than \$112.4 million. The \$17.5 million of unobligated funds includes \$16.4 million carried over into fiscal year 1965, leaving a balance of \$1.1 million no longer available. The amounts obligated for specific operational

TABLE 1.—*Financial summary for fiscal year 1964*

[In thousands]

Budget activity	Funds available for obligation	Funds obligated
GRAND TOTAL.....	\$129,856	\$112,402
OPERATION AND MAINTENANCE, TOTAL.....	70,312	69,285
Warning and detection.....	5,939	5,877
Warning and alert.....	1,735	1,696
Radiological fallout detection and monitoring.....	1,901	1,901
Warehousing and maintenance.....	2,203	2,184
Fallout protection for warning points.....	100	96
Emergency operations.....	26,335	25,743
Emergency broadcast system.....	3,720	3,689
Damage assessment.....	2,716	2,686
Training and education.....	16,701	16,450
Public information.....	2,832	2,631
Industrial participation.....	97	21
Other emergency operations.....	269	266
Financial assistance to States.....	23,967	23,735
Survival supplies, equipment and training.....	5,061	4,976
Emergency operating centers.....	4,584	4,438
Personnel and administrative expenses.....	14,322	14,321
Management.....	14,071	13,930
RESEARCH, SHELTER SURVEY AND MARKING, TOTAL.....	57,365	43,075
Shelters.....	43,143	31,276
Shelter survey and marking.....	13,131	7,776
Shelter stocking.....	30,012	23,500
Research and development.....	14,222	11,799
CONSTRUCTION OF FACILITIES, TOTAL.....	2,179	42

NATIONWIDE FALLOUT SHELTER SYSTEM

The goal of the national shelter policy established in fiscal year 1962 is to provide adequate fallout shelter for the entire population. Part II of this report describes existing and proposed methods of achieving this goal; this part describes operational progress achieved during fiscal year 1964.

NATIONAL SHELTER PROGRAM

Since becoming operational in September 1961, the National Shelter Program has been the principal source of producing public fallout shelters needed to provide nationwide protection for all the population. Key operational elements of this program are: (1) Locating suitable fallout shelter space in existing facilities, (2) securing signatures of facility owners on license agreements to permit use of acceptable space, (3) marking shelters with distinctive signs, (4) stocking licensed shelters with survival supplies, (5) locating additional shelter space where needed, and (6) keeping shelter data current.

At the end of fiscal year 1964, fallout shelter space for approximately 121.4 million persons had been located; space for nearly 64 million had been marked; space for nearly 63 million had been licensed; and space for nearly 24 million had been stocked. Table 2 summarizes fiscal year 1964 progress in this program. More details are given in succeeding sections of this report.

TABLE 2.—Summary of progress in National Shelter Program, fiscal year 1964

Shelter action	Number of facilities (in thousands)				Number of spaces (in millions)			
	Fiscal year 1963	End of fiscal year 1964			Fiscal year 1963	End of fiscal year 1964		
		Total	Total	Gain		Percent gain	Total	Total
Located.....	125.4	143.7	18.3	14.6	103.7	121.4	17.7	17.1
Marked.....	53.8	79.8	26.0	48.3	42.8	63.8	21.0	49.0
Licensed.....	50.0	70.7	20.7	41.4	47.4	62.8	15.4	32.5
Stocked.....	20.9	45.7	24.8	118.7	9.7	23.8	14.1	145.4

Shelter Location Operations

Public fallout shelters included in this program must (1) contain

ventilated space and 500 cubic feet in unventilated space, and (2) have a protection factor of at least 40; i.e., radiation inside the shelter would be reduced to one-fortieth or less of that existing outside. At least 1.1 cubic feet of storage space is generally required per person. This is taken into consideration during the licensing and stocking process.

The initial nationwide shelter survey, completed in fiscal year 1963, resulted in locating acceptable shelter space in more than 125,000 facilities with a shelter capacity for 103.7 million. Updating operations conducted in fiscal year 1964 gave priority to areas having large shelter deficiencies. This increased the nationwide shelter inventory by more than 18,000 facilities with an aggregate capacity for 17.7 million persons, and boosted the grand total to more than 143,000 facilities having an aggregate capacity for approximately 121.4 million persons. (See table 3.) Shelter space for an additional 2 million

TABLE 3.—Shelter space located, protection factor of 40 or higher, end fiscal year 1964

Area	Number of facilities located			Number of spaces ¹ (in thousands)		
	Before fiscal year 1964	During fiscal year 1964	Total	Before fiscal year 1964	During fiscal year 1964	Total
Total	125,445	18,208	143,653	103,680	17,710	121,390
REGION ONE.....	49,214	5,225	54,439	34,730	4,497	39,227
Connecticut.....	2,500	190	2,690	2,057	89	2,146
Maine.....	453	18	471	237	5	242
Massachusetts.....	5,287	359	5,646	3,740	132	3,872
New Hampshire.....	340	31	371	155	13	168
New Jersey.....	5,093	1,043	6,136	3,153	1,079	4,232
New York.....	33,740	3,538	37,278	24,342	3,150	27,492
Rhode Island.....	519	—17	502	498	5	503
Vermont.....	202	55	257	90	21	111
Puerto Rico.....	1,065	8	1,073	456	3	459
Virgin Islands.....	15	—	15	2	—	2
REGION TWO.....	21,031	3,586	24,617	19,400	3,466	22,866
Delaware.....	355	106	461	202	19	221
Dist. of Columbia.....	1,703	163	1,866	1,948	518	2,466
Kentucky.....	1,555	93	1,648	1,863	80	1,943
Maryland.....	1,503	467	1,970	1,610	339	1,949
Ohio.....	5,598	632	6,230	4,197	1,018	5,215
Pennsylvania.....	7,615	1,431	9,046	7,343	1,073	8,416
Virginia.....	2,027	573	2,600	1,831	320	2,151
West Virginia.....	675	121	796	406	89	495
REGION THREE.....	6,522	2,517	9,039	5,465	3,291	8,756
Alabama.....	1,016	629	1,645	786	425	1,211
Florida.....	812	593	1,405	608	847	1,455
Georgia.....	915	502	1,417	1,051	1,273	2,324
Mississippi.....	261	212	473	180	171	351
North Carolina.....	1,264	303	1,567	899	299	1,198
South Carolina.....	587	114	701	297	181	478
Tennessee.....	1,574	184	1,738	1,603	95	1,698
Canal Zone.....	93	—	93	41	—	41
REGION FOUR.....	19,742	1,525	21,267	18,866	1,599	20,465
Illinois.....	7,285	429	7,714	9,946	321	10,267
Indiana.....	2,619	96	2,715	2,024	176	2,200
Michigan.....	3,725	259	3,984	2,948	304	3,252
Minnesota.....	2,915	255	3,170	1,064	189	2,199

TABLE 3.—Shelter space located, protection factor of 40 or higher, end fiscal year 1964—Continued

Area	Number of facilities located			Number of spaces ¹ (in thousands)		
	Before fiscal year 1964	During fiscal year 1964	Total	Before fiscal year 1964	During fiscal year 1964	Total
REGION FIVE.....	6,974	1,116	8,090	5,633	1,944	7,577
Arkansas.....	1,250	120	1,370	761	120	881
Louisiana.....	619	217	836	828	367	1,195
New Mexico.....	349	762	1,111	163	66	229
Oklahoma.....	1,801	-506	1,295	924	72	996
Texas.....	2,955	523	3,478	2,957	1,320	4,277
REGION SIX.....	10,518	1,897	12,415	7,749	486	8,235
Colorado.....	1,033	150	1,183	831	55	886
Iowa.....	1,643	369	2,012	943	275	1,218
Kansas.....	1,404	876	2,280	1,099	309	1,408
Missouri.....	3,072	634	3,706	3,834	-250	3,584
Nebraska.....	2,467	-265	2,202	687	6	693
North Dakota.....	360	63	423	109	49	158
South Dakota.....	400	28	428	179	22	201
Wyoming.....	139	42	181	67	22	89
REGION SEVEN.....	7,866	1,668	9,534	9,055	1,709	10,764
Arizona.....	361	47	408	289	40	329
California.....	6,134	491	6,625	7,945	1,383	9,328
Hawaii.....	345	58	403	183	95	278
Nevada.....	189	50	239	156	11	167
Utah.....	816	1,021	1,837	474	179	653
American Samoa.....	1	1	2	0	(²)	(²)
Guam.....	20	-----	20	8	-----	8
REGION EIGHT.....	3,578	674	4,252	2,782	729	3,511
Alaska.....	246	6	252	110	17	127
Idaho.....	335	9	344	97	31	128
Montana.....	486	138	624	136	91	227
Oregon.....	1,095	262	1,357	1,002	152	1,154
Washington.....	1,416	259	1,675	1,437	438	1,875

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

² Less than 500.

persons has also been located in facilities too small to meet the 50-person accommodation requirement.

The Bureau of the Census produced several summaries showing location of shelter space according to standard locations. Data from these summaries confirmed that shelter space generally remained inadequate in suburban and rural areas and in smaller cities and towns.

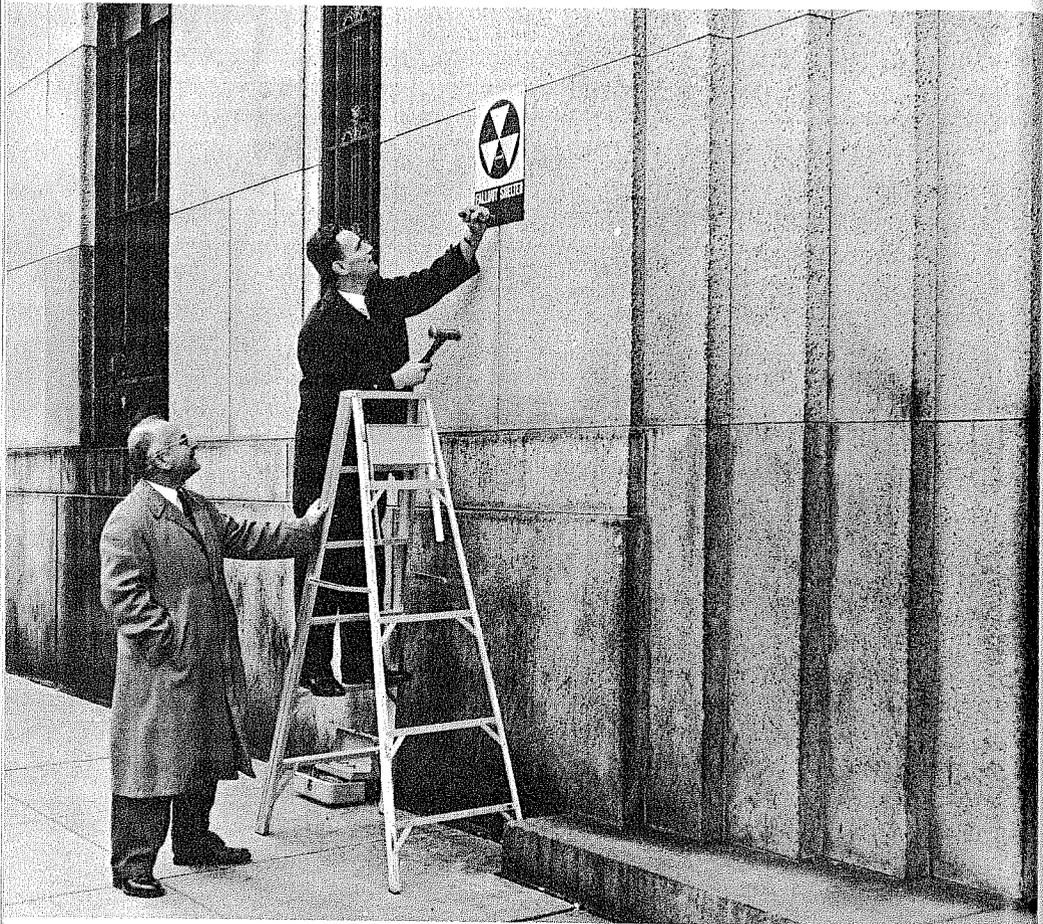
By continuous updating operations initiated in fiscal year 1963, OCD kept the nationwide shelter inventory current and corrected discrepancies discovered in records of the initial survey. These operations also expanded the inventory by addition of shelter facilities originally omitted inadvertently or because they were in the 40-99 protection factor category then excluded. Other additions were derived from new construction and from further analysis of facilities considered to have a marginal capacity or protection factor.

Procedures for processing and reporting shelter survey data were improved. Data on each facility surveyed were sent to appropriate State and local officials, as well as to military services when applicable.

(1) upgrading the protection factor of needed shelter facilities to 40 or higher and (2) increasing the shelter capacity of various types of structures and special facilities by such means as providing ventilation. (See *Shelter Projects* under *Technical Assistance and Guidance* in part V.)

Marking and Licensing Operations

With permission of facility owners, public fallout shelters meeting minimum requirements are marked with standard fallout shelter signs furnished by the Federal Government through central procurement. (See fig. 3.) During fiscal year 1964, arrangements were underway to transfer responsibility for posting these signs to the State and local governments. However, upon request of the State Civil Defense Director, the Army Corps of Engineers or the Navy Bureau of Yards



and Docks continue to perform this task where State and local governments cannot do it.

At the end of fiscal year 1964 more than 79,000 facilities having an aggregate shelteree capacity for more than 63 million had been marked with more than 128,000 exterior signs and more than 429,000 interior signs. The interior sign, 10 by 14 inches, is made of steel, the exterior sign, 14 by 20 inches, of aluminum; both show shelter capacity and are identical in design.

The OCD will stock only public fallout shelters for which the property owner has signed a *Fallout Shelter License Or Privilege* form. (See appendix 1.) Local governments are responsible for obtaining these agreements. At the end of fiscal year 1964, licenses had been obtained for more than 70,000 facilities having an aggregate shelteree capacity for more than 62 million persons.

Shelter Stocking Operations

Scope.—Public fallout shelters, after being identified and licensed, are stocked with survival items adequate to sustain life and enable shelterees to resume productive activities upon emergence. This requires a series of complex operations involving governments at all levels, and includes identification, development, selection, procurement, distribution, and storage of essential survival items.

Essential survival items identified, developed, and selected by the Federal Government for procurement and distribution are water containers and food rations, as well as kits for sanitation, medical, and radiation detection purposes. These survival supplies, developed prior to fiscal year 1964, are described in appendix 2. Local governments are responsible for requisitioning these supplies, placing them in licensed shelters (see fig. 4), filling water containers where appropriate, and assuring their security, maintenance, and availability for emergency use. Supplementary provisions to improve comfort of shelterees and special foods or medications may be supplied locally if desired.

Shelter stocking operations extend to local governments in every State and Puerto Rico as well as in the District of Columbia, the Panama Canal Zone, the Virgin Islands, American Samoa, and Guam. Nearly all 767 cities of 25,000 or more population and about 60 percent of 2,528 smaller towns of more than 5,000 population have public fallout shelters that are qualified for stocking. Stocking operations will eventually involve an estimated 100,000 building owners, governments in most of the 3,100 counties, and several thousand municipalities, as well as people living and working near shelter areas.

Procedures.—The Defense Supply Agency (DSA), through its various supply centers, procures general shelter supplies, and the General Services Administration (GSA) procures radiological defense

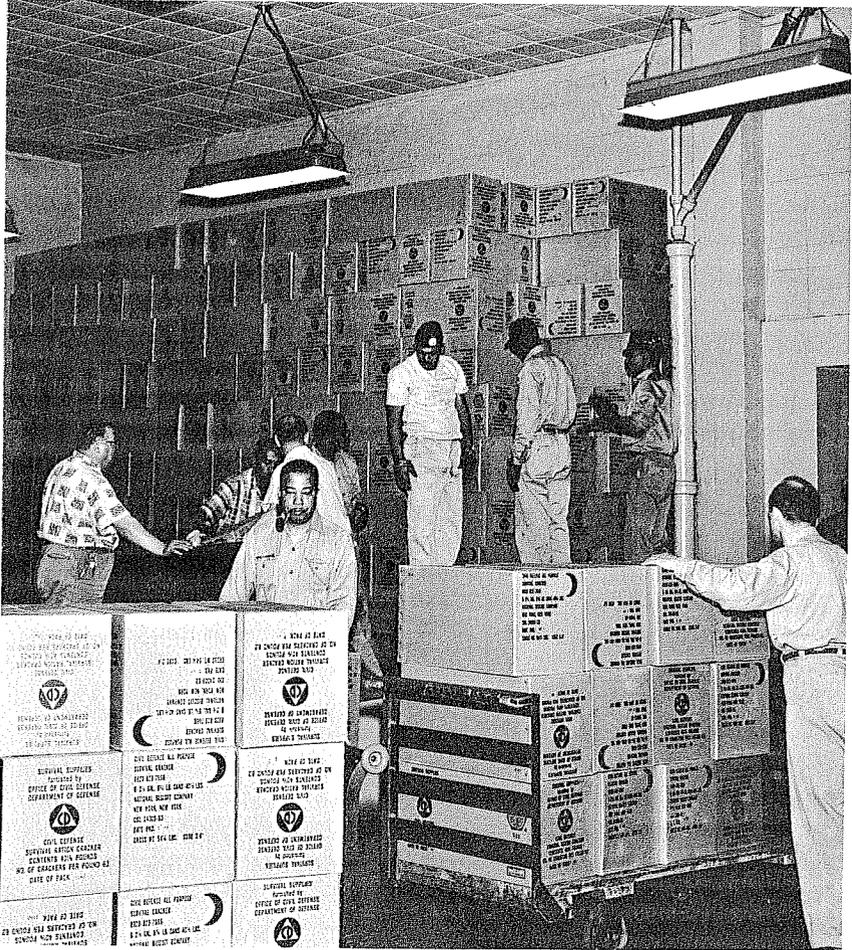


Figure 4.—Placing civil defense survival supplies in a public fallout shelter.

points or to warehouses controlled by the Federal Government. From these warehouses, the supplies are distributed to local governments for stocking licensed public fallout shelters.

Existing DOD and GSA facilities are used to full advantage in distributing shelter supplies. The Defense General Supply Center (DGSC) at Richmond, Va., a field facility of DSA, is the National Inventory Control Point. Scores of warehouses located in areas of heavy shelter concentration are used in the distribution process. During fiscal year 1964, the distribution missions of 15 warehouses were reassigned to other warehouses, thereby reducing the number operated for OCD. In addition, nine strategically located warehouses were assigned area support missions; i.e., these selected warehouses are to

warehouses or of local governments. The full impact of this improvement in procedures will be realized during fiscal year 1965 operations.

Supplies from manufacturers are received as separate components; e.g., cases of food, water containers, and sanitation and other items. At assembly points appropriate items are packaged into sanitation, medical, and radiation kits. These are shipped to distribution warehouses and, with exception of radiation kits, are issued with non-kit items (water containers and food) as complete sets of shelter stock for individual shelters. Important features of this procedure are that it assures balanced stocking of shelters and obviates need for back orders and followup shipments. However, this type of operation requires special planning and coordination.

As soon as a shelter has been licensed, a preprinted requisition for required supplies is sent to the local government. Upon signature and return of the requisition by local officials, a shipping order is sent to the appropriate warehouse for action to issue the supplies at the earliest practicable date. The Federal Government pays for transportation of supplies to individual shelters or delivery points if 50 percent or more of the population of the county are more than 25 air-miles from the warehouse. If lesser distances are involved, local governments provide transportation for pickup and delivery of shelter supplies.

Status.—During fiscal year 1964, general shelter supplies were issued to local governments for stocking fallout shelters for more than 14 million persons, making the cumulative total of shelter supplies issued sufficient to accommodate 23.8 million. (See table 4.) These supplies were located in 45,663 facilities having an aggregate rated capacity to shelter 36.1 million. Some shelters, lacking sufficient storage space, could not be stocked to accommodate their rated shelter capacity. Consequently, the aggregate shelter space stocked corresponds to about 66 percent of the total shelter capacity of these facilities.

At the end of fiscal year 1964, 56,242 radiation kits had been stocked in 51,956 shelters having a rated capacity to shelter nearly 43 million persons. These kits were distributed separately from the general shelter supplies.

The average cost to the Federal Government of shelter stocking during fiscal year 1964 was approximately \$2.43 per shelter space.

The amount of survival supplies actually issued and delivered to public fallout shelters illustrates only some of the accomplishments of shelter stocking operations. Operation of the logistical supply line is a continuous process geared to (1) estimated requirements of local governments, (2) amount of funds made available through congressional appropriations, and (3) other civil defense achievements or objectives.

Procurement of food, sanitation kits, and medical kits initiated in fiscal year 1964 was sufficient to accommodate 13 million persons, making cumulative procurement initiated sufficient to accommodate 63 million. About 16 percent of these supplies were in shelters as a result of prior operations, 22 percent were placed in shelters during fiscal year 1964, and the remaining 62 percent were in the supply line undergoing processing, delivery, assembly, or distribution at the end of fiscal year 1964. The status of this supply line: its relationship to procurement of general survival supplies and shipment of stocks in response to requisitions from local governments, is illustrated in figure 5.

At the end of fiscal year 1964, cumulative preprinted requisitions had been issued to local governments for stocking licensed shelters having a total capacity for 58.8 million persons. During fiscal year 1964, requisitions for stocking shelters having a capacity for 11.1

TABLE 4.—Shelter space stocked with general shelter supplies

Area location	Number of spaces (in thousands)		Area location	Number of spaces (in thousands)	
	Fiscal year 1964	Cumulative total end of fiscal year 1964		Fiscal year 1964	Cumulative total end of fiscal year 1964
Total.....	14,085	23,800	REGION FOUR—Con.		
REGION ONE.....	2,929	4,915	Michigan.....	560	913
Connecticut.....	570	748	Minnesota.....	550	855
Maine.....	64	124	Wisconsin.....	497	730
Massachusetts.....	404	685	REGION FIVE.....	1,345	2,322
New Hampshire.....	46	71	Arkansas.....	179	274
New Jersey.....	498	915	Louisiana.....	214	326
New York.....	1,111	2,065	New Mexico.....	59	100
Rhode Island.....	106	161	Oklahoma.....	202	439
Vermont.....	38	54	Texas.....	691	1,183
Puerto Rico.....	91	91	REGION SIX.....	1,055	2,290
Virgin Islands.....	2	2	Colorado.....	177	322
REGION TWO.....	3,030	4,917	Iowa.....	172	391
Delaware.....	45	63	Kansas.....	211	382
Dist. of Columbia.....	110	512	Missouri.....	244	710
Kentucky.....	596	734	Nebraska.....	137	280
Maryland.....	219	440	North Dakota.....	25	68
Ohio.....	625	1,020	South Dakota.....	61	103
Pennsylvania.....	1,126	1,557	Wyoming.....	26	33
Virginia.....	223	413	REGION SEVEN.....	954	1,802
West Virginia.....	87	178	Arizona.....	70	121
REGION THREE.....	1,600	2,694	California.....	728	1,386
Alabama.....	322	462	Hawaii.....	24	62
Florida.....	229	462	Nevada.....	60	90
Georgia.....	242	520	Utah.....	72	143
Mississippi.....	161	205	American Samoa.....		
North Carolina.....	222	481	Guam.....		
South Carolina.....	78	122	REGION EIGHT.....	634	1,091
Tennessee.....	307	403	Alaska.....	41	56
Canal Zone.....	38	38	Idaho.....	52	80
REGION FOUR.....	2,539	3,769	Montana.....	61	89
Illinois.....	510	629	Oregon.....	161	221
Indiana.....	423	642	Washington.....	317	634

million persons were signed and returned, making cumulative returned requisitions for stocks sufficient to serve 33.4 million; requisitions for supplies for 22 million were outstanding at the end of the year. Upon receipt of requisitions returned from local governments, shipping orders are executed and the supply line is kept operating continually from Federal warehouses to public fallout shelters.

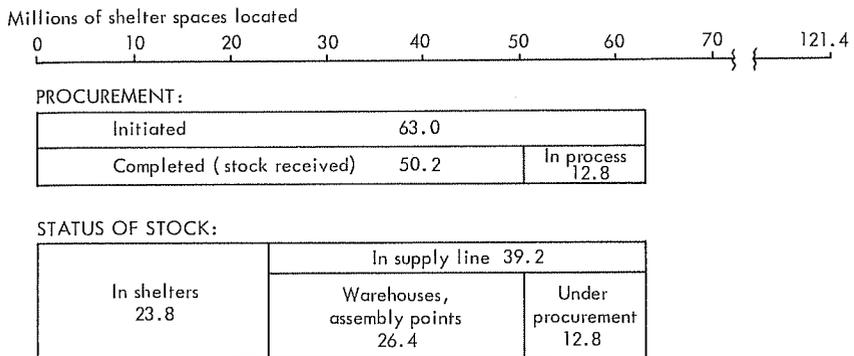


Figure 5.—Summary of shelter stocking operations, end of fiscal year 1964.

Studies completed during fiscal year 1964 showed that many shelters have water and sanitation facilities that can easily be adapted for emergency use. Local governments were issued instructions enabling them to take advantage of this opportunity to save storage space which is at a premium in most shelters. Since earlier procurement of water containers and liners is sufficient to accommodate more than 50 million shelterees, these items were excluded from procurement initiated in fiscal year 1964. However, cumulative procurement of some survival items is slightly in excess of those required to accommodate 63 million shelterees. This is necessary to permit use of standard packaging and shipping containers for balanced stocking of shelters of various capacities.

Some improvements in the medical kit were initiated during fiscal year 1964. The U.S. Public Health Service developed a manual titled *Medical Care in Shelters* to be distributed in medical kits in lieu of the several instructions and publications formerly included. Specifications for the medical kit were modified to prevent freezing of certain items during storage or shipment; instructions were issued for protection of these items contained in kits procured before fiscal year 1964.

FEDERAL BUILDINGS PROGRAM

Contingent upon future appropriations, this program could produce fallout shelter for 5 million persons. This is about 2 percent of the

shelter space needed in the nationwide shelter system. However, the importance of this program extends beyond the goal of developing additional shelter; e.g., it is a means of (1) stimulating local and private shelter construction by Federal example, (2) acquiring cost and technical data on public shelter construction, (3) developing less expensive methods of incorporating shelters in public buildings, and (4) acquiring practical experience in protective designing which may be applied nationwide.

The only fund for incorporating shelters in new and existing Federal buildings, \$17.5 million contained in the civil defense appropriation of the 1962 Department of Defense Appropriation Act, was allotted to several agencies during fiscal year 1962. At the end of fiscal year 1964, approximate completion of this construction was: 100 percent for the Departments of Agriculture and the Interior, and the Panama Canal Company, 95 percent for the Veterans' Administration, 81 percent for the Tennessee Valley Authority, and less than 10 percent for the General Services Administration (GSA).

Fallout shelter space for more than 100,000 persons has been developed from this source. Development of shelter space for more than 400,000 additional persons awaited completion of shelter projects that GSA continued to hold in abeyance. As a result of the limitation on shelter construction contained in section 303 of the Independent Offices Appropriation Act of 1963, the GSA suspended further shelter development based on the use of fiscal year 1962 funds. During fiscal year 1963, they submitted a prospectus of 476 buildings to the Public Works Committees of the Senate and the House of Representatives, requesting specific approval to continue shelter development.

SHELTER SUPPORT ACTIVITIES

Protective Structures

Emergency operating centers.—These are protected sites equipped for conducting civil defense emergency operations. The OCD continued to assist State and local governments in the construction of emergency operating centers. (See *Financial Assistance* in part V.)

OCD regional emergency operating centers are designed (1) for peacetime use as headquarters of regional civil defense operations, (2) for wartime use as headquarters of regional civil defense emergency operations, and (3) for use as alternate national civil defense emergency operational headquarters. The center for Region 5 at Denton, Tex., constructed at an approximate cost of \$2.8 million and operational since February 1964, can accommodate an emergency staff of 500. During fiscal year 1964, a specific site investigation was made to select a location for the Region 1 center. Construction of this center

by funds appropriated in fiscal year 1962; funds for constructing other regional centers are subject to future budgeting. Pending this construction, action was taken in fiscal year 1964 to provide OCD regional offices with emergency communications facilities having a minimum fallout radiation protection factor of 100.

Federal matching funds obligated during fiscal year 1964 to assist State and local governments in planning and constructing protected emergency operating centers (see *Financial Assistance* in part V) totaled more than \$4.4 million. Construction of 5 centers was completed in fiscal year 1964, making a total of 44 (12 State, 20 county, and 12 city). In addition, 91 centers were under construction, 123 were in the planning stage, and Federal matching funds had been obligated for modification of a total of 120 existing State and local buildings to provide minimum protection from radioactive fallout.

Prototype shelters.—Funded by allocations from fiscal years 1960 and 1961 appropriations, prototype shelter construction in fiscal year 1964 was limited to 8 projects that remained in design or construction stages. However, 641 prototype shelters, completed prior to fiscal year 1964, were available for demonstration purposes. Benefits derived from these projects included development of shelter space for about 50,000 persons, nationwide demonstration of family and community shelter construction, and acquisition of technical data in developing shelter designs as well as for planning the National Shelter Program.

Protection of radio stations.—At the end of fiscal year 1964, more than 300 radio stations had agreed to provide and maintain fallout protection and emergency power equipment in their installations and special communication links to local emergency operating centers. (See *Communications, Emergency Broadcast System*, in part IV.) Of these stations, 83 have provided fallout protection and 56 of them have also met the other requirements.

The purpose of these arrangements is to provide for continuous operation of selected radio stations under fallout conditions that would exist after nuclear attack. This would be necessary for disseminating civil defense information to the public and for emergency operations. Since commercial stations are not normally equipped to operate under fallout conditions, they are granted Federal funds for this purpose. Cost of this operation for fiscal year 1964 was approximately \$3.4 million. Contingent upon future appropriations, OCD anticipates adequate response from selected stations within the next few years to serve emergency needs.

Protection of warning points.—In preparation for establishing a nationwide operation to provide warning points with fallout protection, emergency power, and ventilating and special communications

equipment, OCD conducted a prototype operation of this nature during fiscal year 1964. A selected group of 27 warning points was included at a cost of approximately \$100,000. This protection and equipment are needed at warning points to assure effective and comprehensive operation of NAWAS under initial and subsequent attack conditions. (See *Federal Warning Systems, National Warning System*, in part IV.)

Engineering case studies.—These studies, being completed by use of fiscal years 1962 and 1963 funds, continued to provide shelter data on major types of structures especially relating shelter designs to variations in soil, climate, construction methods and costs, and building codes in different geographical areas. At the end of fiscal year 1964, final reports had been received on 180 studies and 10 reports were being prepared; selected studies on schools and hospitals were also being edited for publication. Data from these studies, extremely useful in planning proposed shelter programs, will continue to yield valuable results as they are analyzed further and programed for storage by automatic data processing equipment for future use.

Use and improvement of fallout shelters.—The OCD conducted several projects designed to provide technical guidance for improvement and use of fallout shelters. These are discussed in part V under *Technical Assistance and Guidance*.

Professional Development of Architects and Engineers

Architects and engineers, more than any other professional personnel, can help extend the nationwide fallout shelter system by focusing attention on protective construction during the initial design of thousands of structures built annually. Since 1962 OCD has provided a variety of opportunities for members of these professions to learn how to incorporate fallout protection in buildings and to develop and maintain capability for planning and designing protective construction.¹ Major efforts to accomplish this in fiscal year 1964 are described in this section of the report.

Professional development courses.—Approximately 2,900 architects and engineers completed these courses in fiscal year 1964, making a total of nearly 6,800 qualified graduates. The *National Directory of Fallout Shelter Analysts*, FG-F-1.2, lists all certified graduates and they are mailed new technical information as it becomes available. Firms employing them are listed in the *National Directory of Architectural, Engineering and Consulting Firms with Certified Fallout Shelter Analysts*, FG-F-1.3. In addition to a two-volume comprehensive textbook developed in fiscal year 1963, each course participant is

¹ See appendix 5 for information on Advisory Committee on the Design and Construction

provided a pocket-size publication *Protection Factor Estimator* for determining rapid and highly accurate estimates of fallout protection afforded by various facilities.

The course offered in fiscal year 1964 was an adaptation of the 2-week course developed in fiscal year 1962 to qualify architects and engineers for conducting the nationwide shelter survey. This course, emphasizing shelter planning and design for new construction, was taught at several universities and professional schools on a semester basis, as well as by traveling instructor teams where the demand existed. At the University of Wisconsin, more than 300 were enrolled in a home study correspondence course being perfected to accommodate architects and engineers unable to attend regularly scheduled classes.

Several other courses were offered during fiscal year 1964. A course in protective construction, offered 22 times and having a total of about 300 participants, was an extension of the *Fallout Shelter Analysis* course, with emphasis on immediate effects of nuclear detonations on structures. A course in unique problems of shelter environmental control engineering was offered in 7 pilot classes to an approximate total of 180 engineers. Under OCD contract, Pennsylvania State University conducted workshops and one-week courses to acquaint architects with shelter planning. Finally, the U.S. Navy School for Civil Engineer Corps Officers agreed to conduct two special classes in *Disaster Engineering* for selected groups of faculty members.

Faculty development.—By the end of fiscal year 1964, faculty members of 95 architectural and engineering institutions had participated in faculty development activities, and 195 members had qualified to teach *Fallout Shelter Analysis*. This had been accomplished mostly through summer institutes planned with the assistance of the Association of Collegiate Schools of Architecture and approved by the American Society for Engineering Education. Cosponsors of these institutes included the National Academy of Sciences Subcommittee on Radiation Shielding, the American Nuclear Society, and eight leading architectural and engineering organizations of national standing.

Fiscal year 1964 summer institutes were held at the Universities of California, Colorado, and Michigan, and at Worcester Polytechnic Institute. At Kansas State University of Agriculture and Applied Science, where a campus fallout simulator is available for experimental verification of theoretical problems, a special summer institute on fundamental radiation shielding problems was held.

Design competition and technical information.—*Industrial Architecture—Fallout Shelters*, distributed by OCD to architects and engineers in fiscal year 1964, shows how well-designed factory buildings can be planned to incorporate fallout shelter protection space for dual use, economically and without interference with the functional or

esthetic qualities of the building. This publication was the result of an industrial shelter design conference held at Rice University late in fiscal year 1963. Five nationally known architects, assisted by consulting engineers as well as by outstanding architectural graduates and students, produced the designs.

A publication to be issued in fiscal year 1965 will illustrate to architects, engineers, and community planners how to incorporate fallout shelters in an entire community, including a shopping center. This publication will feature the winning products of a nationwide design competition conducted by the American Institute of Architects for OCD in fiscal year 1964.

During fiscal year 1964, more than a dozen universities and technical institutes were under contract to perform specific research for OCD on protective construction. Each project, designed to fill a specific need for technical data not otherwise available, was expected to help major educational institutions incorporate protective construction as a standard part of professional training of architects and engineers. Qualifying criteria in terms of equipment and staff available at each institution conducting this research resulted in keeping the cost of these projects relatively low.

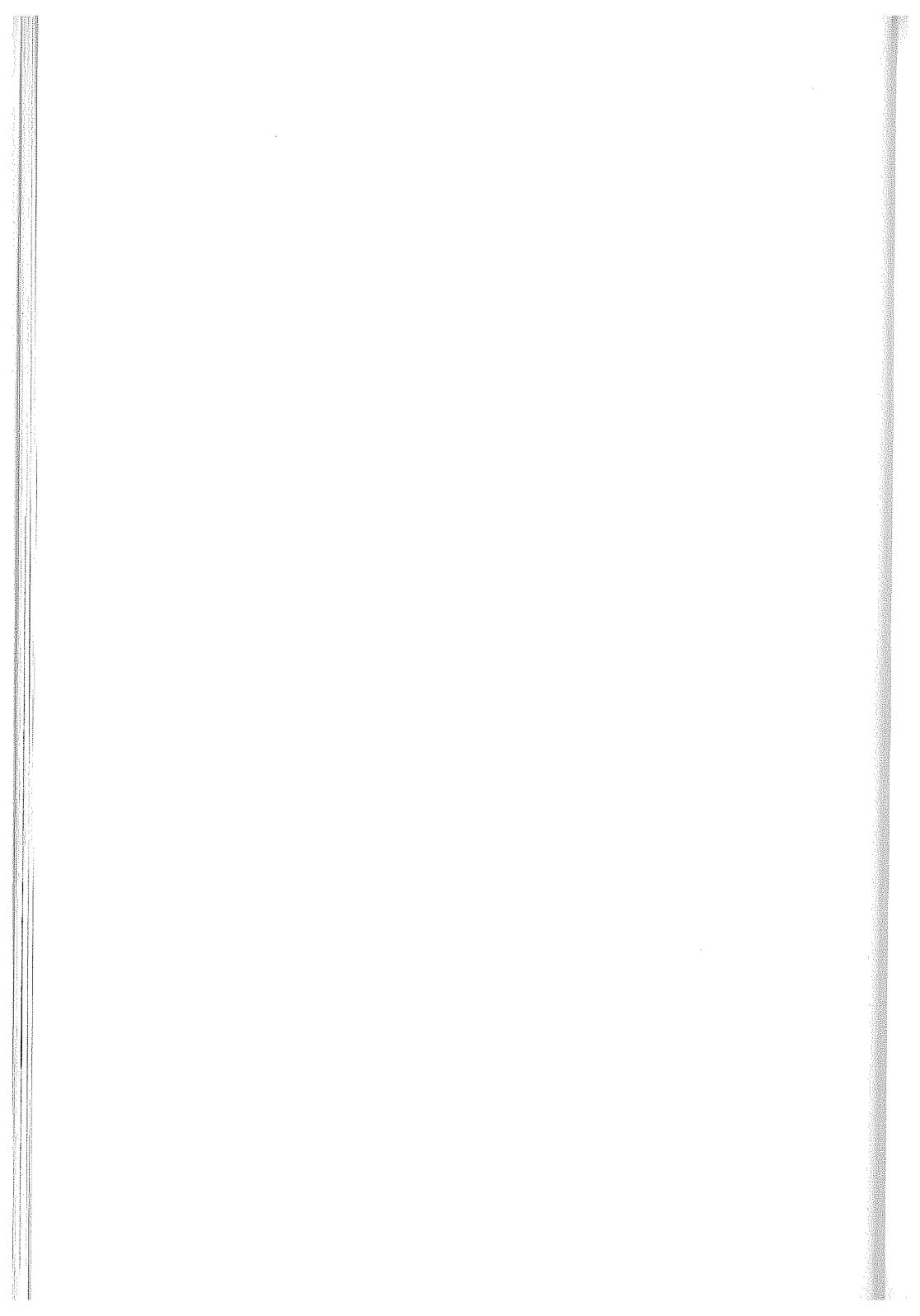
Several new technical publications were issued, making a total of 29. These included manuals, guides, design and engineering case studies, and technical memoranda distributed to architects, engineers, and other personnel interested in shelter design and construction. Continued need to replenish stocks of these publications indicated growing professional interest in protective construction.

Liaison and workshops.—Close technical liaison with professional, technical, educational, and military societies provided valuable guidance to OCD in promoting and developing interest in protective construction among architects and engineers. This included liaison with the American Institute of Architects, American Society of Civil Engineers, Associated General Contractors of America, Inc., National Society of Professional Engineers, Engineers Joint Council, American Institute of Planners, and Consulting Engineers Council.

OCD sponsored or cosponsored several workshops and symposiums for professional groups interested in civil defense. For example, in June 1964 a Symposium on Soil-Structure Interaction was conducted at the University of Arizona, where approximately 40 technical papers on the latest developments relative to protective construction were presented and discussed. Two-day workshops were held at 62 locations to bring architect-engineer shelter analysts up to date on latest techniques of shelter design and analysis. When the American Institute of Architects held its annual meeting in St. Louis, Mo., and when the American Society for Engineering Education held its annual

meeting at the University of Maine, hundreds of deans and department heads of engineering schools were briefed, and invited to participate in architectural and engineering aspects of civil defense. With other Federal agencies, OCD cosponsored an International Conference on Permafrost at Purdue University.

Breakthrough in design techniques and procedures.—Late in fiscal year 1964, new architectural and engineering design techniques were developed that provide for incorporating fallout protection features in new construction. Incorporation of these design and construction features with little or no increase in cost and without sacrificing the functional or esthetic qualities of the building is called "slanting." This includes the geometrical arrangement of structural elements, such as windows and walls, to provide maximum fallout protection. Use of slanting techniques will enhance the inherent fallout protection capability of a structure, or it may facilitate later improvements in this capability. It is anticipated that the concept of slanting, as it is introduced to architects and engineers, will become an important basis for developing fallout shelter space in future construction.



COMPLEMENTARY CIVIL DEFENSE SYSTEMS

Complementary civil defense systems are: Civil Defense Warning, Communications, Monitoring and Reporting, and Damage Assessment. These systems, essential to effective use of shelters and to preattack planning and postattack operations, are maintained in operational readiness at all times. This part of the report describes the status of these systems at the end of fiscal year 1964.

CIVIL DEFENSE WARNING

Federal warning systems, operational throughout the United States, provide for disseminating warning to certain strategic points from which State and local governments are responsible for warning the public. A Civil Defense Warning System (CDWS) operates throughout the continental United States, except Alaska. In the CDWS, Federal, State, and local warning systems are joined to form a giant network using the most reliable communications facilities available. Separate warning systems operate in Alaska and Hawaii, as well as in Guam, American Samoa, Puerto Rico, and the Virgin Islands.

Federal Warning Systems

National Warning System.—The Federal portion of the CDWS serving the continental United States, except Alaska, is the National Warning System (NAWAS). (See fig. 6.) From 9 OCD Warning Centers, manned and operated by OCD warning officers, warnings and warning information can be sent to 621 warning points. Seven warning centers are located at major North American Air Defense (NORAD) installations; one is at OCD Region 1 headquarters, and one in the Washington, D.C., area. Using a special voice communications system, they can directly and simultaneously alert the 621 warning points within a few seconds. These warning points are at key Federal locations and in State capitals and numerous cities, and warnings can be sent from them to the public via State and local warning systems within a few minutes. (See fig. 7.)

NAWAS was improved in several ways during fiscal year 1964. The number of OCD warning centers was increased from 8 to 9. The number of warning points was increased from 500 to 621 to provide more adequate warning coverage and to extend direct warning facilities to 7 additional Federal installations. Fallout protection was pro-

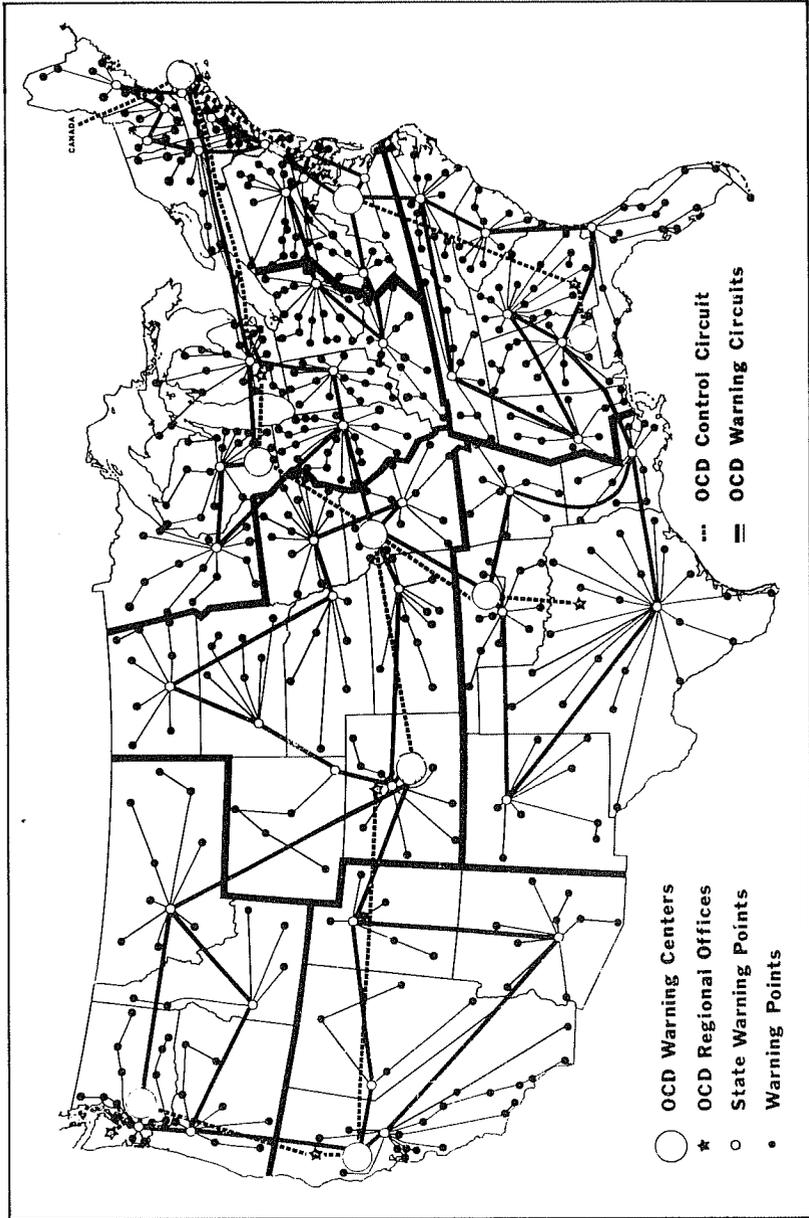


Figure 6.—National Warning System (NAWAS).

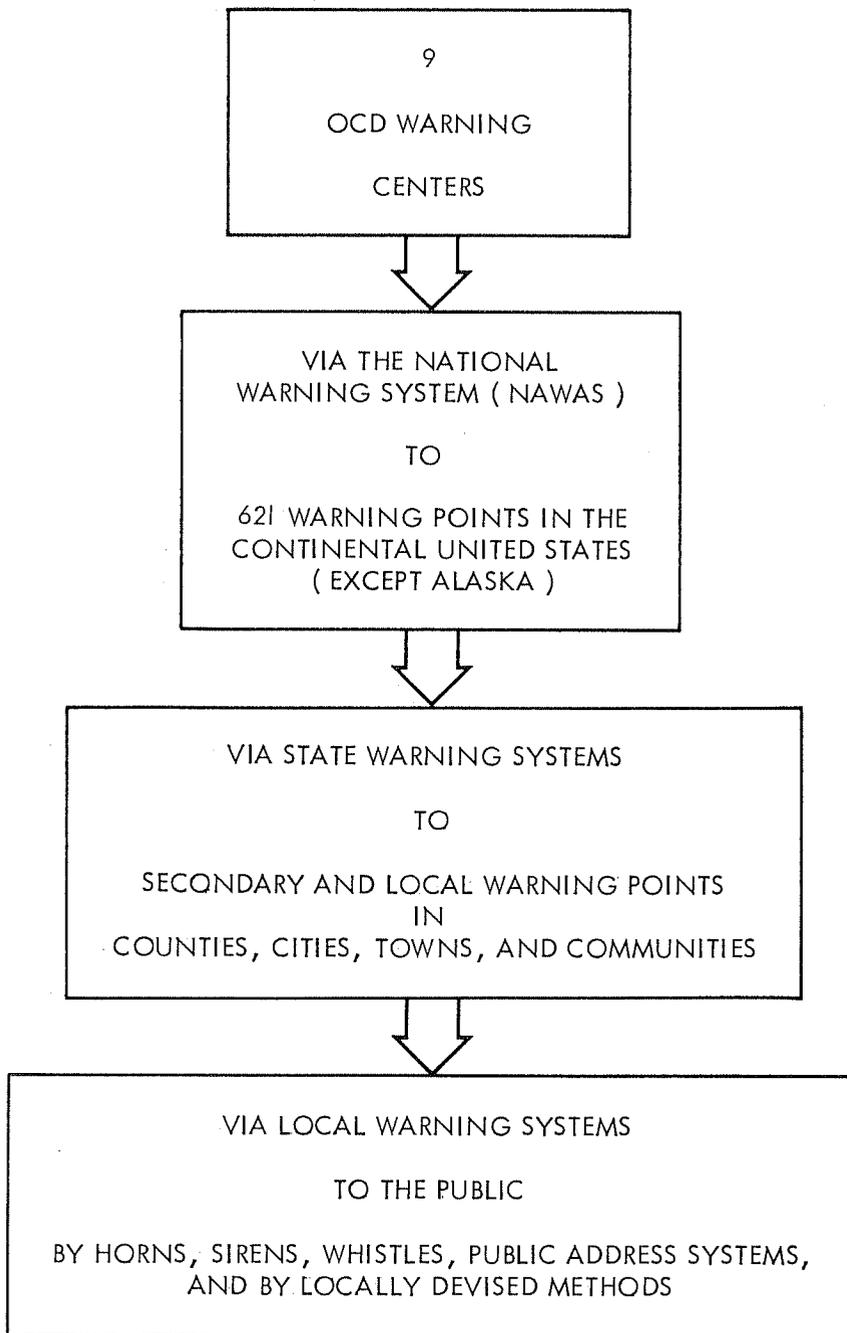


Figure 7.—Warning flow chart for the continental United States, except Alaska.

vided for 27 warning points; each OCD region has at least 3 warning points with fallout protection. The Warning Center at Syracuse, N.Y., was moved to OCD Region 1 headquarters to explore operational results of closer association of regional and warning activities. In addition, operational efficiency and readiness of NAWAS was checked by a warning-time survey to provide data on which to base further improvements.

Washington Warning System.—This system, covering the Washington, D.C., metropolitan area, was strengthened by the addition of more than a dozen sirens to extend coverage to newly populated areas. The system includes facilities for voice communication with local civil defense headquarters and certain Federal civilian and military installations.

Warning for Alaska and Hawaii and United States possessions.—Warning facilities at appropriate military installations serve these areas. The Alaskan Warning System was strengthened by increasing the number of warning points from 10 to 13; the system is served by an OCD Warning Center at a NORAD installation near Anchorage. A Federal warning system serving two points in Hawaii also extends to Guam and American Samoa; another Federal system serves two points in Puerto Rico and one in the Virgin Islands.

Indoor warning systems.—During fiscal year 1964, attention was focused upon developing a radio warning system that would immediately alert the public of impending attack. Several reasons prompted this decision. Restrictions on broadcasting in times of emergency had been lifted by discontinuance of CONELRAD (Control of Electromagnetic Radiations). Recent research studies indicated that modification of existing radio transmitters or erection of new ones required for a radio warning system would be less costly than installation of special signal generating equipment required to operate the National Emergency Alarm Repeater (NEAR) system using electric utility lines. In addition, it was concluded that reduction in prices of radio components would make possible the obtaining of radio receivers for this purpose at approximately the same cost as that of NEAR receivers. Accordingly, OCD made contractual arrangements providing for evaluation of data affecting design of radio warning systems and for developing radio transmitters and receivers adapted to operational requirements of these systems.

A basic operational requirement of a radio warning system is its capability to transmit messages under all conditions so that householders can receive them indoors. Adaptations of the following systems appear to meet this requirement: (1) A long-range electronic navigation system (LORAN-C) operated by the U.S. Coast Guard, (2) certain low-frequency transmitting facilities of the National

Bureau of Standards, and (3) especially engineered low-frequency systems.

At the end of fiscal year 1964, several accomplishments were evident. A prototype warning receiver was developed for use in the LORAN-C system. Transmission of warnings over this system does not interfere with its normal navigational use; the system can be used for low-speed teletype transmission and appears to have excellent capabilities for sending warnings to government facilities at all levels.

Means were developed for modifying low-frequency facilities of the National Bureau of Standards to permit transmission of radio warnings without interference with normal use. Incorporation of these modifications into various Federal low-frequency, long-range stations and development of special receiver units offer good prospects for nationwide coverage by a system completely responsive to Government warning requirements.

Engineering designs were initiated for a special civil defense low-frequency warning system. About eight high-power transmitting stations would be required for this system. But it could have the advantages of providing nationwide coverage for voice, warning signal, and teletype communications. In addition, indoor receivers have been developed for reception of AM radio warning signals as well as for voice transmission.

Contingent upon future appropriation of funds, OCD will complete engineering development and testing of AM receivers, signal transmission devices, and radio warning systems. As a result of these developments, contracts for analyzing 170 electric utility systems for installation of the NEAR warning system were terminated. However, upon completion of systemwide NEAR tests, underway in Michigan during calendar year 1964, basic engineering data required for installing the system will be available; prototype NEAR components and installations have been proved technologically satisfactory.

State and Local Warning Systems

OCD provides guidance and financial assistance to States and their political subdivisions to help them plan, establish, and strengthen their warning systems. State and local governments use a variety of communications facilities to send warnings and supplemental information from the 621 NAWAS warning points to more than 5,000 local warning points. Radio, teletypewriter, and telephone circuits are used for this purpose. Through the use of Federal matching funds, State and local governments have obtained NAWAS extensions to 262 key locations, an increase of more than 35 percent during fiscal year 1964.

Local warning systems include both outdoor and indoor devices for

warning device. Less common and more expensive outdoor devices for alerting the public include sound systems for spoken instructions. Means available for indoor warning include telephone, radio, and other devices and systems.

COMMUNICATIONS

Communications activities of primary interest to the OCD are emergency communications for civil defense operations and for addressing the public, and the support of State and local communications systems designed for these purposes.

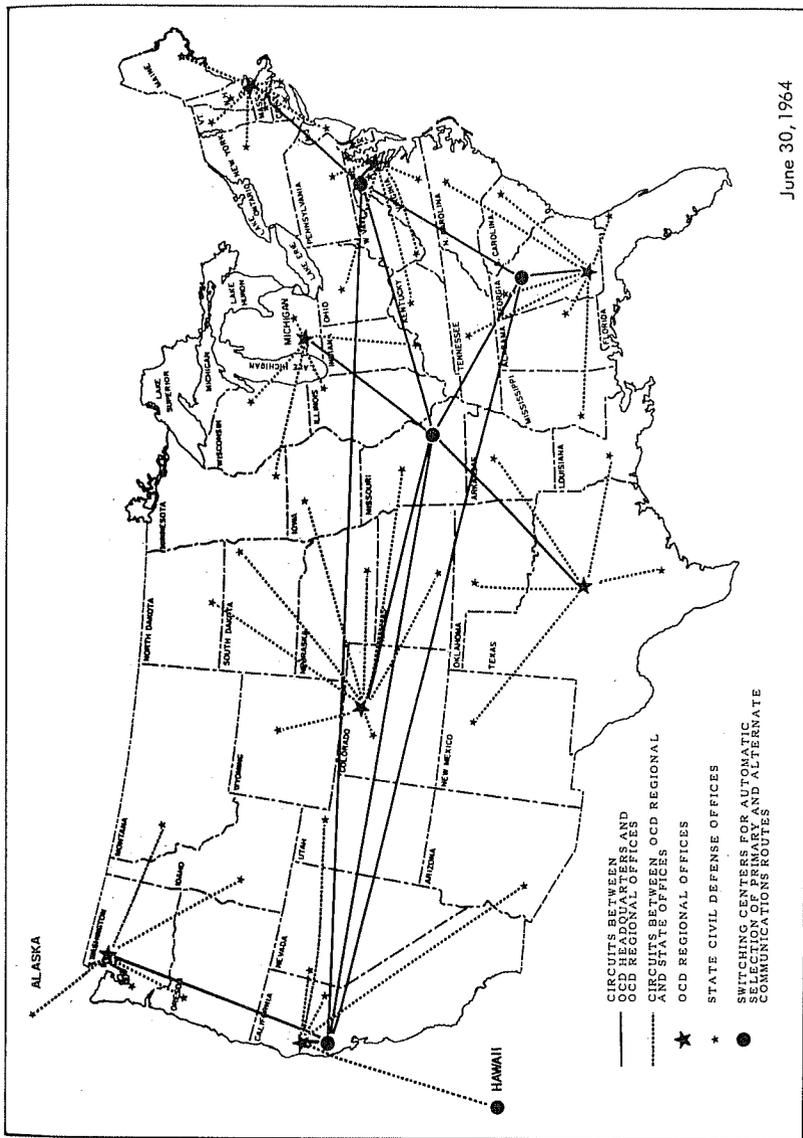
Operational Communications

Basic system.—Operational since 1955, the National Communications System No. 1 (NACOM 1) (see fig. 8) is the basic means of transmitting OCD operational communications. NACOM 1 is specifically designed for speed, flexibility, and continuity of service required in civil defense emergency operations. It consists of a leased teletype network, with alternate telephone facilities, connecting OCD national and regional headquarters, an OCD relocation site, and State civil defense offices. The system provides the primary means of communications for coordinating Federal and State civil defense emergency operations. Its connections extend to emergency relocation sites of selected Federal agencies and interconnect with commercial, military, and other Government teletype communication systems.

Several improvements were accomplished during fiscal year 1964. NACOM 1 was extended to Hawaii, and that portion connecting OCD regional and all State offices was converted from standby to full-time daily operational status, eliminating the one-hour activation delay formerly required; portions connecting OCD and its regional offices have been in full-time status since fiscal year 1962. Teletype equipment, upgraded from a speed of 75 to 100 words per minute, permits simultaneous exchange of messages and serves daily administrative communication needs in addition to its primary emergency function. Telephone communications facilities were also installed between OCD regional and State offices. In addition, new and more efficient NACOM 1 equipment was installed at several OCD regional offices and was ordered for others.

Backup system.—The backup system for NACOM 1 is National Communications System No. 2 (NACOM 2). (See fig. 9.) It is a high-frequency radio network using voice, code, and radioteletype transmissions. Control facilities for NACOM 2 stations are located in the same areas as NACOM 1 facilities, making use of either system equally available.

At the end of fiscal year 1964, NACOM 1 and NACOM 2 were operational in the following areas:



June 30, 1964

Figure 8.—National Communications System No. 1 (NACOM 1).

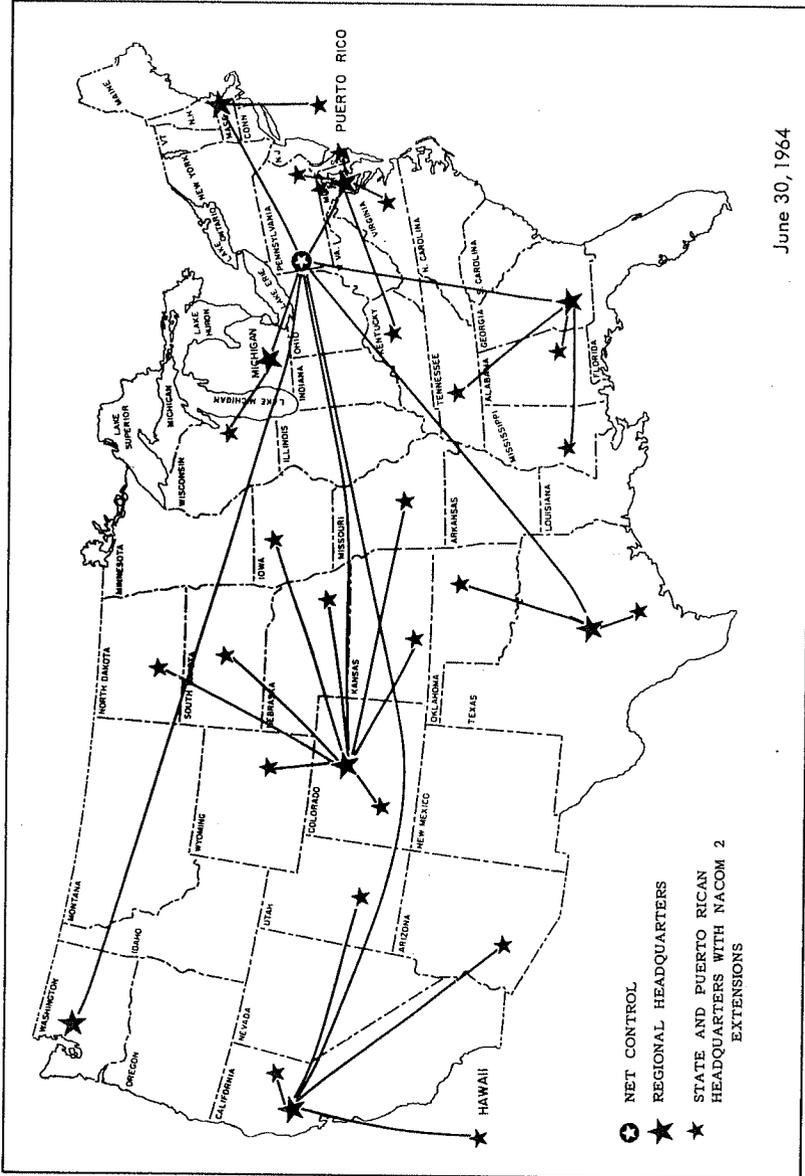


Figure 9.—National Communications System No. 2 (NACOM 2).

State installations, and in Puerto Rico. During the year, NACOM 2 facilities were improved at several OCD regional offices. Procurement of equipment was initiated for extending the system to additional States; extension agreements were signed, or under consideration, by 14 States. Future plans call for extending the network to include all States and U.S. possessions.

Emergency Broadcast System

The Emergency Broadcast System (EBS), relying upon use of nationwide selected radio broadcasting stations, is designed for communicating with the public during civil defense emergencies. On a priority basis, the EBS will be available, first, for Presidential messages; second, for local instructions; third, for State programing; and fourth, for national programing and news, including regional coverage.

The EBS plan, effective January 6, 1964, and superseding an interim plan effective August 5, 1963, was developed in accordance with Executive Order 11092 of February 26, 1963, assigning emergency preparedness functions to the Federal Communications Commission (FCC). Management of the EBS is primarily a responsibility of the FCC, and the plan for its operation is based on requirements of the White House, the Office of Emergency Planning, and the Office of Civil Defense.

The OCD worked with EBS stations to provide them with operational capability for civil defense emergency purposes. Minimum preparations include provisions for (1) fallout protection and radiological monitoring equipment, (2) emergency power generators, and (3) special communication links (wire line or radio) to local emergency operating centers. These items are not required for normal operations at most radio stations. Therefore, the OCD helps EBS stations obtain them by providing limited funds and equipment. (See *Shelter Support Activities, Protection of radio stations*, in part III.)

Support of State and Local Systems

In addition to providing technical guidance and information, the OCD continued to assist State and local governments in strengthening their communications systems by providing Federal matching funds for communications facilities.

An important emergency supplement to State and local communications systems is the Radio Amateur Civil Emergency Service (RACES). Operational since 1952, RACES enables amateur radio operators to perform emergency communications functions according to State approved plans. (See fig. 10.) At the end of fiscal year 1964 RACES remained operational in every State and included more

MONITORING AND REPORTING

Radiological Defense

The Nation's radiological monitoring and reporting system is designed to provide accurate and timely data on the extent, intensity, and duration of radioactive fallout hazards that would exist after nuclear attack. This information would be needed by local governments to conduct emergency operations; shelter managers would need it to select the best shielded areas and to advise shelterees when to emerge; the Nation's leadership at all levels would need it for guidance on the extent of contamination of essential agricultural and industrial facilities, including land, forest, food, and water resources, as well as for guidance in applying decontamination procedures.

In support of this system, OCD has a primary interest in providing public fallout shelters and radiological monitoring stations with

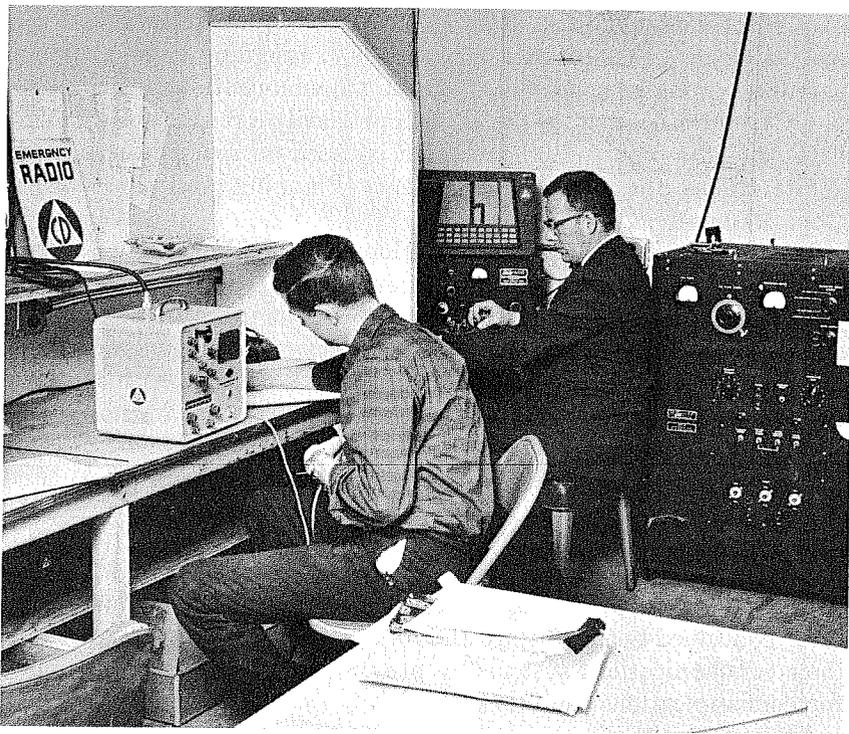


Figure 10.—Headquarters of the Radio Amateur Civil Emergency Service (RACES) at civil defense command post, Anchorage, Alaska. Following the Alaskan earthquake on March 27, 1964, RACES provided continuous communication service, including that needed for organizing rescue and relief activities, until normal communications facilities were restored.

instruments and in assuring that personnel are trained to maintain and use them. A minimum of 150,000 monitoring locations are needed, as well as facilities to evaluate fallout data and to maintain and calibrate radiation instruments. To assure nationwide standard procedures, training and operating manuals are also required.

Monitoring stations.—To provide fallout data covering habitable geographic areas of each political subdivision, a network of monitoring stations properly dispersed at protected locations is being established. Suitably located public fallout shelters having adequate communication facilities are used as sites for some of these stations. During periods of intense radiation, fallout data reported from these protected locations would be used as guidance for public warnings, for planning recovery missions, and to estimate required length of shelter occupancy. Upon sufficient decrease in radiation intensity, these stations would serve as bases from which mobile monitoring teams would gather data required for guidance of high-priority civil defense emergency operations.

During fiscal year 1964, more than 2,000 Federal and more than 7,700 State and local radiological monitoring stations were established, making a grand total of more than 48,200 stations (about 9,500 Federal and 38,700 State and local). (See fig. 11.) Most local monitoring stations are located at fire, police, health, welfare, sanitation, engineering, and conservation service facilities, public airports, and aircraft servicing facilities. Federal stations, located at military and other Federal agency field facilities, would join these local stations in supplying the local governments with fallout data pertaining to their areas of operations.

Approximately 1,000 Federal stations, located at facilities of the U.S. Weather Bureau, Air Force, Navy, and Federal Aviation Agency, would also send postattack fallout data to the OCD by teletypewriter. In addition, the Departments of Agriculture, Commerce, the Interior, and Health, Education, and Welfare would use their field monitoring facilities to carry out civil defense functions assigned to them under Executive Orders 10998, 10999, 10997, and 11001, respectively.

Aerial monitoring.—To supplement radiological monitoring by fixed stations and their mobile surface teams, OCD plans call for establishing aerial monitoring at approximately 5,000 airports and landing strips. Aerial monitoring would be necessary for several reasons; e.g., inoperability of some fixed stations as a result of damage; inoperability of surface mobile monitoring because of excessive radiation; and need for early, rapid monitoring to plan immediate post-attack emergency operations and for a practicable means of rapidly monitoring farming and grazing lands, as well as other large rural areas.

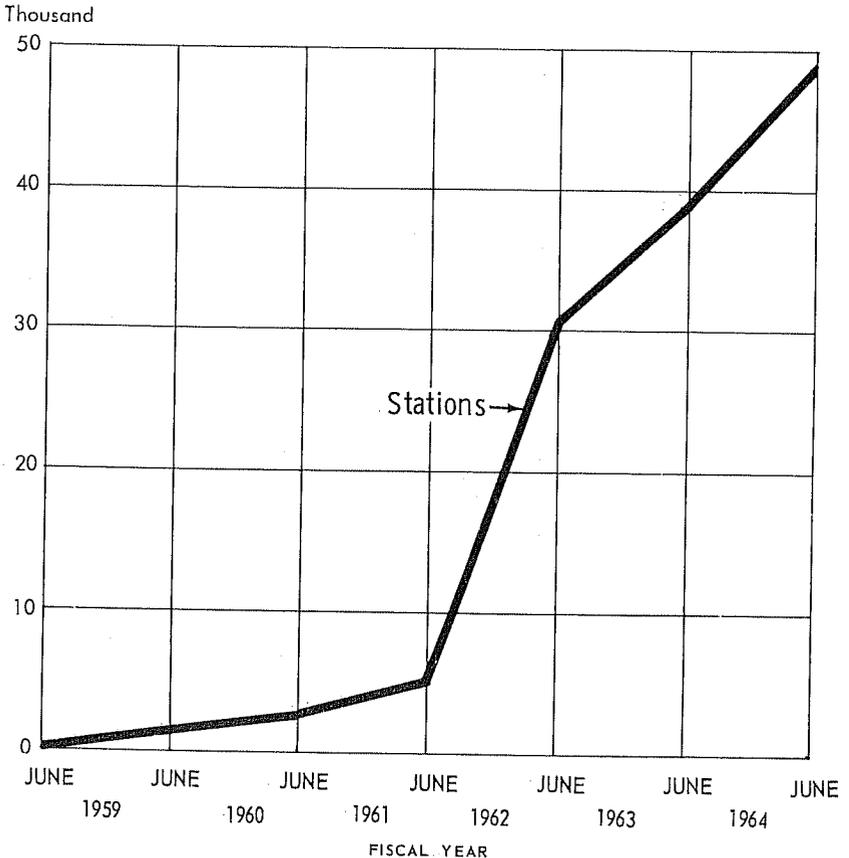


Figure II.—Growth in number of Federal, State, and local radiological fallout monitoring stations.

According to arrangements coordinated with the U.S. Air Force and the Federal Aviation Agency (FAA), the Civil Air Patrol (CAP) is expected to perform a major portion of aerial monitoring, and all States have made arrangements with the CAP for this service. Basic guidance for aerial monitor planning is contained in *State and Regional Airlift Planning*, Circular No. 00.7, prepared by the FAA with OCD assistance.

Delivery of 1,250 CD V-781, aerial survey meters, as a result of procurement initiated in fiscal year 1963, is expected in fiscal year 1965. Standard radiological monitoring instruments, issued to monitoring stations at airports and other locations, are usable for aerial monitoring on an interim basis, pending delivery of the aerial survey meters.

Instrument procurement and distribution.—OCD provides at least one radiological defense operational set CD V-777 for each Federal, State, and local civil defense monitoring station.

(see fig. 12) contains three survey meters, two dosimeters, and a dosimeter charger. At least one public fallout shelter radiation kit CD V-777-1 is furnished to each public shelter. (See *Shelter Stocking Operations* in part III, and appendix 2.) Except for one less survey meter, this kit contains the same instruments as the operational set.

At the end of fiscal year 1964, more than 900,000 dosimeters and more than 36,000 dosimeter chargers had been distributed for use by civil defense emergency workers; about 340,000 dosimeters were distributed in fiscal year 1964. During postattack operations, these would be worn by emergency personnel to measure their cumulative exposure to radiation. Precautions could then be taken to control additional exposure and avoid unnecessary radiation injury.

More than 500,000 radiological instruments were distributed during fiscal year 1964, making a cumulative distribution of more than 2 million. This included approximately 330,000 radiological defense items that were distributed for training and educational purposes prior to fiscal year 1962. Since they have been used considerably for monitor training, their reliability for operational use is questionable, unless recently checked and calibrated. At the end of the fiscal year, cumulative distribution was as follows:

To high schools and colleges for training and educational purposes (prior to fiscal year 1962)-----	159, 599
To States for training purposes (170,000 prior to fiscal year 1962)-----	232, 579
To States for public fallout shelters-----	281, 210
To States for operational purposes-----	1, 176, 398
To Federal agencies for training and other purposes-----	161, 911
To various other users for training and other purposes-----	855
 Total-----	 2, 012, 552

Approximately \$2 million of radiological defense funds was used in fiscal year 1964 to continue a special calibration and maintenance study and to procure more than 424,000 dosimeters for civil defense workers, as well as spare parts and various items for training and instrument calibration purposes. (See fig. 13.)

Instrument calibration and maintenance.—Pending development of adequate maintenance and calibration facilities in each State, the OCD continued to provide maintenance service at federally operated repair depots. At the end of fiscal year 1964, 16 States and Puerto Rico had established maintenance services, which in some cases included instrument calibration. To States participating in this program, the OCD (1) grants tools, electronic testing and shop equipment, spare parts, and batteries required to maintain radiological defense instruments, and (2) provides Federal matching funds for personnel and administrative expenses. When operational calibrators become available, they will

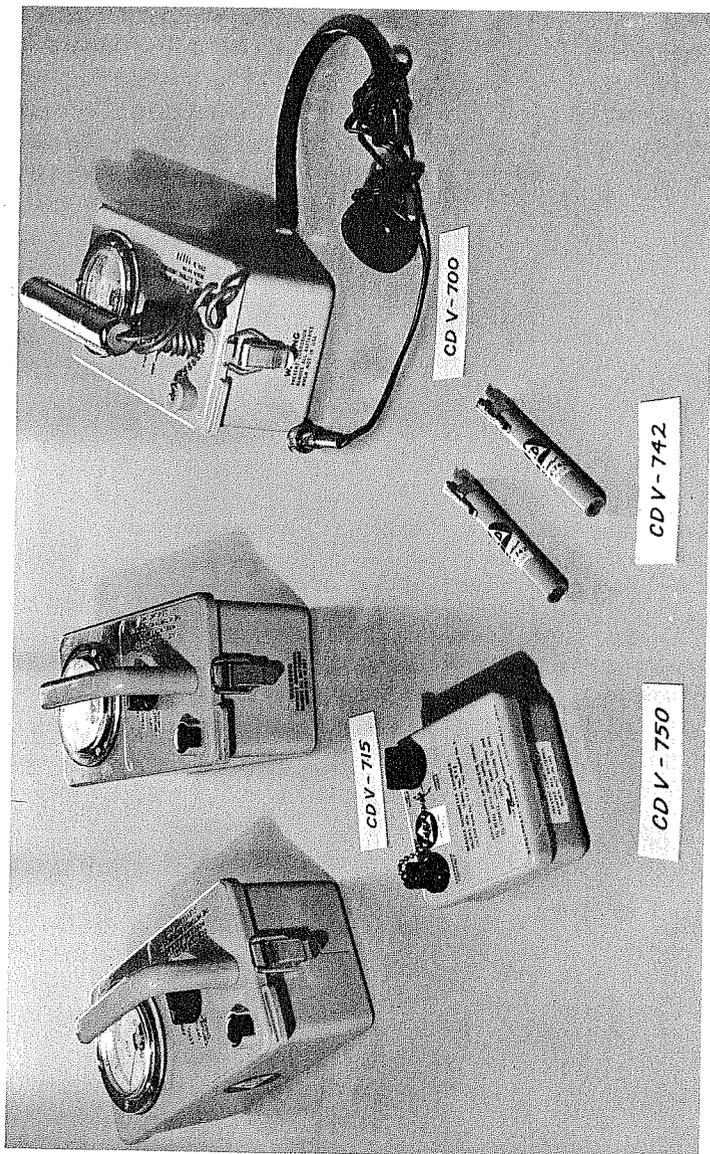


Figure 12.—Radiological defense operational set CD V-777.

- 2 CD V-715 (high range gamma survey meters) 1 CD V-750 (dosimeter charger)
 1 CD V-700 (low range beta-gamma survey meter) 2 CD V-742 (dosimeters)

be loaned to each State shop having qualified operators licensed by the Atomic Energy Commission.

The State of Nebraska, under OCD contract, conducted a pilot project in fiscal year 1964 to explore ways of making maximum use of facilities and personnel of the Army National Guard for servicing radiological instruments. Guided by the experience gained from this project, OCD will provide financial support for similar arrangements in ten additional States during fiscal year 1965.

Training and guidance.—At the end of fiscal year 1964, each of approximately 48,000 radiological monitoring stations had at least two trained monitors. Many stations had two additional trained monitors to provide for continuous 24-hour emergency operations. Trained radiological monitors are also needed for each public fallout shelter. Instructors for these personnel are trained at OCD schools and facilities of State college and university extension services; some monitors are trained at U.S. Army bases. Plans call for training other personnel, decontamination specialists, and radiological defense officers at OCD schools as well as locally by OCD-trained instructors. (See *Training and Education* in part V.)

Through OCD arrangements with the U.S. Weather Bureau, modern computer techniques are used to provide fallout forecasts for all upper wind observations throughout the continental United States. This information is transmitted twice daily to civil defense officials of several hundred cities for their guidance and for redistribution as needed.

State and local governments are provided guidance for planning, implementing, and operating a radiological monitoring, reporting, and decontamination system. Standard operating procedures and instructions for this purpose are published in the *Federal Civil Defense Guide*.

Chemical and Biological Defense

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. However, 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

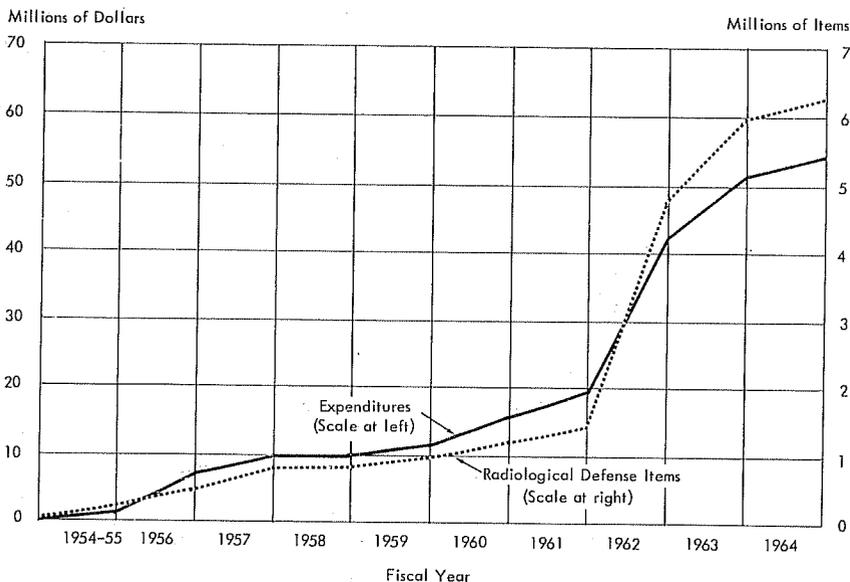


Figure 13.—Procurement of radiological defense instruments.

The OCD has tested mass production techniques for a protective mask; these techniques could be made available to manufacturers should the need arise.

DAMAGE ASSESSMENT

Developing plans and operating systems for nationwide postattack assessment of damage to the Nation's resources are responsibilities which devolved upon OCD as a result of Executive Order 10952, July 20, 1961. Based on other Executive orders, and in consonance with OCD plans and programs, Federal departments and agencies are responsible for maintaining damage assessment capabilities related to their normal functions and for providing pertinent data to the Department of Defense, OCD.

Plans and Systems

The primary purpose of OCD damage assessment plans and systems is to provide guidance for postattack survival operations. During the preattack period, this is accomplished by a series of vulnerability analyses (probability studies) of possible effects of various enemy attacks on human and material resources and services. In the post-attack period an assessment of surviving resources, based upon actual attack, will provide necessary data for this purpose.

Preattack assessment.—During fiscal year 1964, an extensive analysis was completed covering the cost and effectiveness of various alternative civil defense programs in the event of a nuclear attack.

magnitudes. Data from this study will be used for guidance in planning the future civil defense program.

For the purpose of preattack planning, OCD continued to advise (1) the Departments of Agriculture, and Health, Education, and Welfare on the location of civil defense stockpiles and (2) regional and State civil defense offices on possible hazards to areas within their jurisdiction. This was made possible by use of data derived from analyzing the effects of a range of hypothetical attacks. Data from the same source were used to study the effectiveness of the shelter program and shelter program proposals, as well as to determine the feasibility and effectiveness of other civil defense programs.

Postattack assessment.—The most feasible survival operations conducive to recovery after an attack would be determined by the amount of damage to human and material resources and an evaluation of those remaining. For this reason OCD provides training and reference data for postattack damage assessment at OCD regional headquarters and at State and local levels. A means of easily estimating damage to resources in principal metropolitan areas has been developed. Quantitative amounts of resources existing in each 2.5 kilometer square area have been computed and graphed for use in a quick method of manual damage assessment. This independent means of appraising damage will reduce the need for information from OCD headquarters. In addition, OCD will develop initial postattack damage estimates quickly by using centrally located automatic data-processing computers to indicate casualties and damage to facilities and resources.

During fiscal year 1964, the U.S. Air Force's responsibility for aerial reconnaissance of damaged areas was reaffirmed. Comparison of pre-attack and postattack photographs of damaged areas will provide more accurate estimates of damage than that initially obtainable from automatic data computers.

Finally, damage assessment will be based on exact data obtained by onsite inspection. OCD has also arranged for the Bureau of the Census to provide postattack estimates of the surviving population.

Survival Resources and Requirements

Throughout fiscal year 1964, OCD continued to work with Federal agencies and other organizations to program civil defense requirements for emergency operations and to develop plans and procedures for meeting these postattack requirements. This was in response to a requirement of Executive Order 10952 providing for postattack emergency assistance to State and local governments, including water supply, debris clearance, health, traffic, police, and population evacuation capabilities.

An example of the results of this work is the understanding reached

(See appendix 3.) This agreement enables local governments to work out detailed operational plans with local NDTA chapters for voluntary use of transportation facilities and personnel in preattack planning and postattack operations. At the end of fiscal year 1964, 35 agreements between local governments and NDTA chapters had been signed or were under consideration. These agreements provide guidance to local carriers for maintaining operations under disaster conditions as well as for assisting in radiological defense, and in providing fallout shelter space and voluntary transportation of supplies in stocking shelters.

In preattack planning, OCD continued to work on techniques and procedures for determining emergency supply demands and on providing continuing data on survival resources for governments at all levels. Supply-demand requirements, examined in cooperation with other agencies, were used to analyze means for providing emergency resources and services under various emergency conditions and to develop recommendations for meeting estimated postattack deficiencies for civil defense operations.

For guidance in operational planning to supply postattack deficiencies, work was continued on policies and programs for implementing a nationwide system of claiming emergency survival supplies at national and regional levels, if not available at State and local levels.

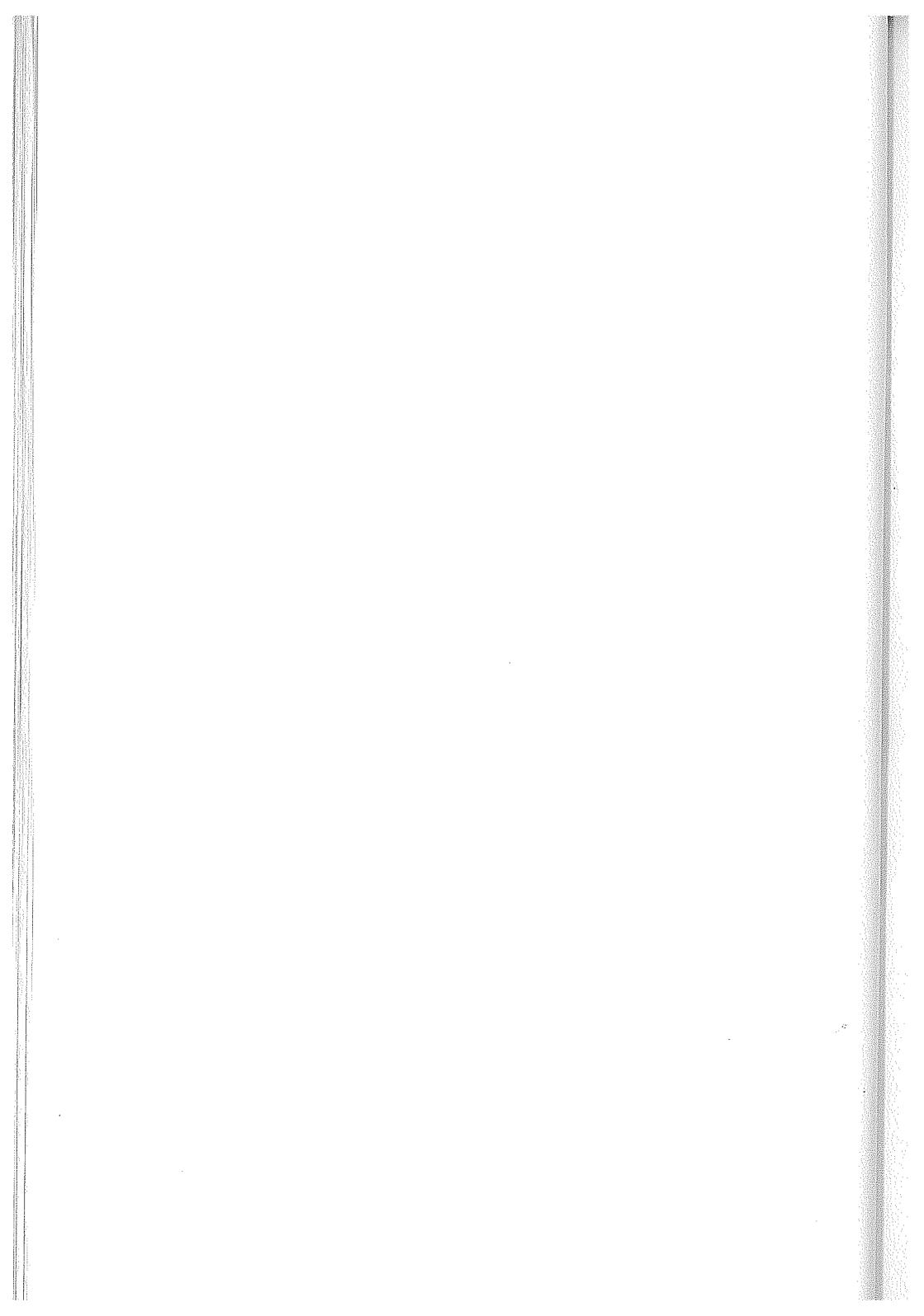
Data Base Improvements

Information maintained by OCD on resources essential for survival and for which damage assessments are made or planned is known as the OCD data base.

The principal improvement of the data base during fiscal year 1964 was the development and adoption of a data base concept more suitable for civil defense purposes. It is designed to make data more readily available and adaptable for use in applying several methods of determining vulnerability of resources at specific locations. It will also make possible the application of simpler methods of making damage assessments.

The concept provides for arrangement and storage of survival resources data by automatic data processing equipment in a manner permitting quick summarization according to any combination of individual items or categories for any geographic or government location; e.g., standard location, city, county, standard metropolitan statistical area, State, or region. In addition, the data summaries will be available in forms adaptable to either manual or automatic methods of damage assessment for preattack planning and postattack operations.

private organizations; it is also obtained from data provided by the Bureau of the Census in its statistical programs. Portions of the data base have been acquired from the National Resource Evaluation Center and the National Military Command Service and Evaluation Center. Major resources covered, including many detailed items, are food supplies and facilities, fuel and power supplies, engineering and construction equipment, water systems, and medical, health, and educational manpower and facilities.



FEDERAL ASSISTANCE PROGRAMS AND ACTIVITIES

The purpose of all OCD Federal assistance programs and activities is to help State and local governments develop maximum civil defense capabilities efficiently and economically. Technical assistance and guidance are provided in support of all civil defense programs and activities. Specific operational programs are maintained to train key personnel and educate the public for civil defense, and to provide Federal matching funds and surplus Federal property in support of civil defense programs. In addition, OCD maintains an inventory of supplies and equipment available for emergency use.

TECHNICAL ASSISTANCE AND GUIDANCE

The standard means for issuing policy and program guidance as well as instructions to civil defense directors and other Federal, State, and local officials is the *Federal Civil Defense Guide* (FCDG). As portions of this OCD publications series are printed, they are released for controlled distribution to OCD regional offices and to Federal, State, and local offices. Other publications of an operational or program nature are keyed to it.

Some major accomplishments during fiscal year 1964 in providing technical assistance and guidance are summarized in this section of the report.

Shelter projects.—Several projects, specially designed to provide technical guidance for improvement and use of fallout shelters, included:

1. *Water supply studies.*—Sample surveys of more than 1,800 facilities, located nationwide, revealed that water retained in approximately 90 percent of existing fallout shelter facilities can be made available for shelterees. This would generally require minor adaptations in water mains, pipes, tanks, or other plumbing fixtures containing water. However, it would conserve storage space and alleviate several other problems associated with water storage in containers. For future use, data on retained water has been obtained for all facilities surveyed for fallout shelter since May 1, 1964.

Consideration was also given to the possibility of using water con-

for conducting sample surveys of four types of water systems to determine the feasibility and cost of making water from this source available to shelterees.

2. *Home shelters.*—A pilot survey was conducted to develop techniques and procedures for evaluating fallout protection capability of single-family homes and to provide residents with information on plans and designs for improving fallout protection in selected areas of their homes. This preliminary survey resulted in development of a more rapid system of evaluating home fallout protection. Based on this information, a more extensive survey was started to determine the feasibility of using this method to assist residents and local governments in incorporating home fallout protection capabilities into the community fallout shelter plan.

3. *Ventilation.*—Plans were developed for installing packaged ventilation units (see *Research*, part VI) to increase shelteree capacity of public fallout shelters. Contingent upon future availability of funds, shelter space for nearly 31 million persons could be provided in this manner.

4. *Expedient fallout shelter.*—From a pilot study, OCD obtained data showing how expedient fallout shelter can be used in an emergency to supplement existing shelter space in helping provide fallout protection for the entire population of a community. These are shelters that can be constructed expeditiously and made ready for use within 1 to 14 days. The study was conducted in five counties: Clarke, Ala., Kalamazoo, Mich., Tarrant, Tex., Sacramento, Calif., and Montgomery, Md. Based partly on data from this study, further study was started to produce nationwide estimates of expedient shelter needs to be used for policy and program guidance.

5. *Community shelter planning.*—OCD continued efforts to gain experience and develop data for local use in tailoring community plans for effective use of public fallout shelters. Based on experience and on information developed in conducting a prototype shelter utilization and planning project in Montgomery County, Md., each OCD regional office staff conducted similar projects in two communities. This resulted in incorporation of fallout shelter utilization directions into civil defense plans of 16 communities and in producing guidance material for community shelter planning.

Contractual arrangements were made to implement at least one community shelter management and planning project in each State, including the District of Columbia. Guidance and instructional material developed from this source is expected to be used ultimately by Federal, State, and local personnel in developing shelter management and planning programs in each political subdivision.

Survival resources planning—Effective Jan. 14, 1964, the OCD

Planning (OEP) covering the management of survival resources. Under this agreement, the OCD in coordination with other Federal agencies provides guidance and assistance to State and local governments in the preparation of plans for the conservation, distribution, and use of secondary resources to meet essential needs in the event of nuclear attack. This includes the development of procedures to claim for the resupply of secondary resources from primary sources under either Federal or State jurisdiction. The OCD and the Federal agencies will also provide, for inclusion in State and local plans, procedures for the redistribution of secondary resources from one locality to meet urgent needs in other localities in that State or nearby States. Secondary resources generally include retail stocks and intrastate wholesale stocks and are used to meet essential needs within a State. Primary resources are those resources, generally interstate wholesale stocks and manufacturers' inventories, which by their nature have a national or major interstate use.

By providing funds for personnel and administrative expenses under section 205 of the Federal Civil Defense Act of 1950, as amended, the OCD assists State and local governments to accomplish preparations at the State and local levels for the use of secondary resources. In connection with the May 1964 issuance for State use of the *Example of a State Plan for the Emergency Management of Resources*, headquarters personnel of OCD and OEP held meetings in June 1964 with regional representatives of both agencies to launch survival resources planning at the State level.

Fire protection.—The Forest Service of the U.S. Department of Agriculture, under contract with the OCD, started five prototype rural fire defense training programs. These are designed to provide a pattern for (1) organizing, equipping, and training rural firefighters nationwide and (2) planning rural firefighting operations to protect approximately 1.75 billion acres of forest, woodland, brush, range, pasture, and cropland in the event of nuclear attack. This contract also calls for the design and development of a mobile fire command post simulator to be used in training command officers in decision making during mass firefighting operations. The Forest Service similarly undertook a comprehensive study of fire research and the selection of data to be used in developing guidance on firefighting in nuclear attack situations. In addition, a contract with Oklahoma State University of Agriculture and Applied Science provided for developing material to be used in training auxiliary firemen for civil defense emergency operations.

Law enforcement.—Michigan State University, under contract with the OCD, worked on developing a manual to be used for training police in civil defense. The manual will provide for training both

regular police and civil defense volunteer or auxiliary police. It is designed to be used primarily by regular police instructors in courses offered at established police schools under existing policies of State and local police departments. Coordinated with the International Association of Chiefs of Police, as well as with OCD staff, the manual is expected to result in a more uniform understanding of the role of the police in civil defense emergencies.

Under long standing arrangements with the U.S. Continental Army Command (USCONARC), training of State and local police in explosive ordnance reconnaissance was continued; 5,570 were trained during fiscal year 1964, making a cumulative total of approximately 27,570.

Highway traffic regulations.—The OCD cooperated with the Bureau of Public Roads of the Department of Commerce to develop highway traffic regulations for use in civil defense emergencies. Plans for fiscal year 1965 call for use of these regulations as a basis for State and local emergency transportation planning.

Military Standby Reserve officers.—At the end of fiscal year 1964, local civil defense offices had requested the services of 7,362 officers; 3,793 officers were available, and 2,061 had been assigned civil defense work. This arrangement is based on a fiscal year 1962 decision of the Secretary of Defense, permitting Standby Reserve officers to acquire retirement point credit for participating in local civil defense work.

The American National Red Cross (ANRC) advisory services.—Advisory services of the ANRC, as applicable to State and local civil defense, were made available at all OCD regional offices by contractual arrangements. Local ANRC chapters conducted training in support of civil defense; e.g., first aid, home nursing, and emergency mass feeding. In addition, local ANRC chapters assisted in the Medical Self-Help Program and in community shelter management planning and training.

TRAINING AND EDUCATION

During fiscal year 1964, OCD training and education activities were continued in pursuit of objectives defined in fiscal year 1962 to: (1) Train key leaders for planning and directing civil defense operations, (2) provide skilled civil defense workers, and (3) educate the public in the use of fallout shelters. Fiscal year 1964 accomplishments are described in this section of the report.

OCD schools.—Key Federal, State, and local civil defense personnel were trained principally at the Staff College, Battle Creek, Mich. (see fig. 14), the Western Training Center, Alameda, Calif. (see fig. 15), and the Eastern Training Center, Brooklyn, N.Y. Graduates of 137 classes conducted during the year totaled 3 654 · 1 582 from 42 classes

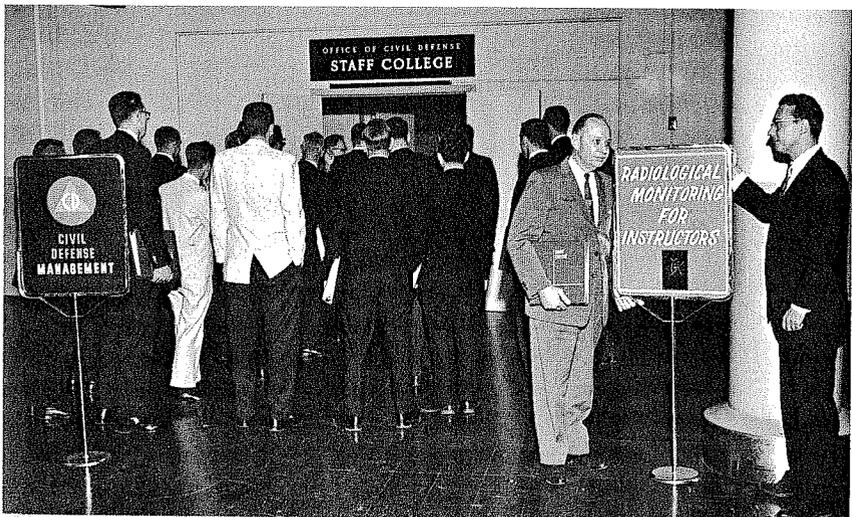
at Staff College, 1,242 from 52 classes at the Brooklyn center, and 830 from 42 classes at the Alameda center.

Courses regularly offered were: *Civil Defense Management*, *Civil Defense Planning and Operations*, *Shelter Management (Instructor)*, *Elements of a Shelter System Capability*, *Radiological Defense Officer I*, and *Radiological Defense Officer II—Decontamination*. In addition, special courses were offered in support of the Civil Defense Adult Education and University Extension Programs.

Other activities at OCD schools during fiscal year 1964 included: (1) Developing additional training materials for student use in shelter management and radiological decontamination courses and (2) providing technical advice on training films being produced in support of shelter management and radiological monitoring.

Civil Defense Adult Education Program.—Throughout fiscal year 1964, the Civil Defense Adult Education Program (CDAEP) operated in 43 States, the District of Columbia, and Puerto Rico. Initiated in fiscal year 1960, the CDAEP was designed to develop the individual's understanding of civil defense as it applies to him, his family, and the community. During the last three years, this has meant primarily the development of knowledge and awareness of civil defense plans and organization for achieving an effective community shelter system.

The CDAEP is operated through regular adult education channels and contractual arrangements with the U.S. Office of Education. Selected State personnel, upon completing CDAEP seminars at the OCD Staff College, train local teachers who are then certified by the State to teach an OCD-prescribed 12-hour civil defense course to



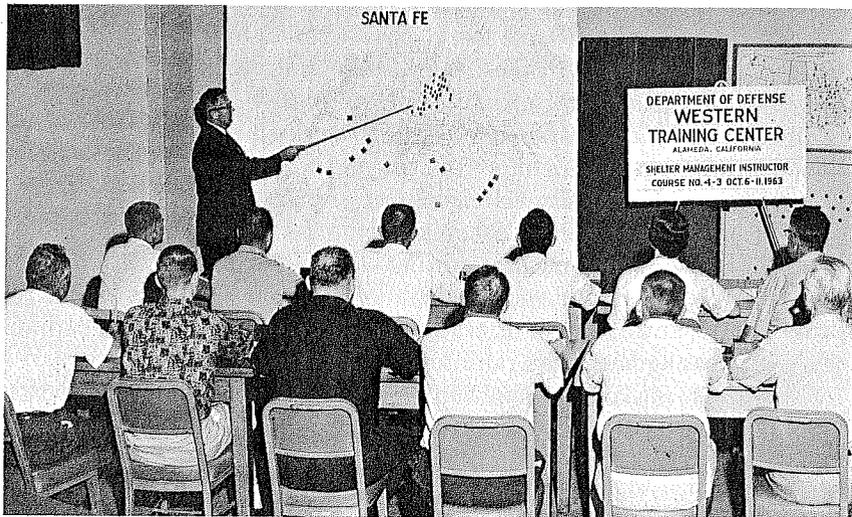


Figure 15.—Instruction in progress at the OCD Western Training Center.

adults. Federal funds allocated under State contracts are used to finance instruction, without expense to the students.

The number of persons trained in this program in fiscal year 1964 totaled 194,801; of these, 7,175 were teachers and 187,626 were other adults graduated from the 6,613 courses offered. The cumulative number of graduates, including teachers, totaled almost 900,000. Other less readily apparent benefits obtained from this program included the training received by persons who completed less than the 12 hours of training required for graduation and the extent to which the teachers incorporated civil defense concepts into their school curriculum and other educational activities.

A new project started in fiscal year 1964 will adapt, service test, and evaluate the course for television presentation. Louisiana State University and Agricultural and Mechanical College has a contract for this purpose; completion is scheduled for fiscal year 1965.

Civil Defense University Extension Program.—Initiated in fiscal year 1963, the Civil Defense University Extension Program (CDUEP) operates through the extension divisions of State universities and land grant colleges. In fiscal year 1964, contracts with 51 colleges and universities located in 49 States, the District of Columbia, and Puerto Rico resulted in conducting 551 conferences with key State and local officials and in training 8,519 instructors: 5,155 in shelter management and 3,364 in radiological monitoring. Through the conferences, 25,125 key officials were acquainted with the civil defense program.

Contracts negotiated for fiscal year 1965 include institutions in each of the 50 States, the District of Columbia, and Puerto Rico. These contracts provide for 691 conferences with public officials, 304 courses for shelter management instructors, 304 courses for radiological monitoring instructors, 602 courses for shelter managers, and 38 refresher courses for radiological monitoring instructors.

Medical self-help training.—The Medical Self-Help Program, developed for the OCD by the U.S. Public Health Service in cooperation with the American Medical Association, was tested in fiscal year 1962 and implemented nationwide in fiscal year 1963. During fiscal year 1964, approximately 1 million persons were trained, making a total of approximately 1.7 million. Training is conducted by classroom instruction, television, and other more informal means. The purpose of the program is to train at least one person in every household, approximately 60 million, to meet civil defense emergency health needs in the absence of professional medical services.

Medical self-help training has been included in the curriculum of many high schools; major business and military organizations have also made this training available to their personnel. To standardize the training further for this type of instruction, as well as for classroom and television use, 11 training films were prepared. These are in color and cover each medical self-help lesson. The films were prepared by the Communicable Disease Center of the U.S. Public Health Service, under contract, in consonance with an OCD work order agreement.

Radiological monitor training by the Army.—In April 1963, OCD made contractual arrangements with the U.S. Continental Army Command (USCONARC) to train radiological monitors to help staff fixed radiological monitoring stations and public fallout shelters. Army instructors for this purpose are trained at OCD schools, and the Atomic Energy Commission is requested to license the instructors to handle radiation source sets that the OCD provides in addition to other radiological instruments and materials needed to carry on the instruction. At the end of fiscal year 1964, OCD had trained 160 instructors from 26 Army posts.

As requests for training of radiological monitors originate at State and local levels, they are directed through OCD regional offices to appropriate military channels. Training locations and schedules are then arranged by agreement between local civil defense officials and the Army post providing the training. Approximately 3,600 radiological monitors were trained by the Army in fiscal year 1964.

National education organizations.—Liaison with national education organizations is OCD's principal means of meeting the need for civil defense guidance requested by school officials and teachers. This

demand continued to increase as school personnel learned more about their responsibility and the role of the schools in the nationwide shelter system. Major OCD activities in response to educators' interest in civil defense included participating in their annual meetings and contracting with some of their organizations to prepare and distribute school disaster preparedness literature.

Through participation in group discussion and by distribution of suitable guidance material at their annual meetings, OCD staff briefed members of the following organizations on technical aspects of shelter development and disaster preparedness in schools: American Association of School Administrators, National Education Association (NEA), Adult Education Association, National School Boards Association, and the National Safety Council.

As the result of contractual arrangements, several publications were distributed to professional educators in fiscal year 1964. The March 1964 NEA Journal carried a 2-color, 16-page article *You and Civil Defense* that was sent to nearly a million teachers and school administrators. NEA's National Commission on Safety Education distributed a revision of the publication *Civil Defense Education Through Elementary and Secondary Schools*. More than 200,000 teachers and school officials were sent revised copies of *Schools and Civil Defense*. In addition, a contract with the National Commission on Safety Education, NEA, provided for developing a study titled *Disaster Preparedness in Schools* to be published in fiscal year 1966.

Rural civil defense.—Throughout fiscal year 1964, OCD continued contractual arrangements with the Field Extension Service of the U.S. Department of Agriculture (USDA) to conduct a special civil defense information and education program in rural areas, including cities of less than 10,000 population. These arrangements are designed to help approximately 67.3 million people meet their civil defense needs. About 13.4 million live on farms, 13.3 million live in small towns, and 40.6 million are rural non-farm residents. Since most public fallout shelters are located in large cities, and farmers need to make special arrangements for protection of livestock and feed, water, and food products, the importance of this program is self-evident.

At the end of fiscal year 1964, each State and Puerto Rico had a rural civil defense information and education program. Each State Extension Service had at least one full-time person providing leadership and direction to State and county USDA Field Extension Service personnel, totaling about 15,000 nationwide, who were cooperating in implementing and operating the program. These personnel, briefed on their responsibility in the program, are incorporating civil defense into all aspects of agricultural extension work, and they are enlisting the help of leaders of Home Demonstration Clubs, 4-H Clubs, and

Training materials.—Training materials are prepared primarily for use by State and local governments in conducting standard civil defense training supported by Federal matching funds. This material includes instructor guides, student manuals, and visual aids needed to train civil defense workers in special skills.

In fiscal year 1964, OCD revised two instructor rescue guides, developed a textbook for shelter management instructors, and produced a handbook and an instructor guide on shelter marking and licensing. In cooperation with the American National Red Cross and the Department of Health, Education, and Welfare, considerable progress was made in revising an instructor guide on emergency mass feeding.

Five universities, under contractual arrangements, continued work on sets of training materials for auxiliary firemen and police, rescue workers, radiological decontamination workers, and civil defense instructors. In addition, contracts were made to develop training material on basic civil defense and on professional orientation in programmed instruction (self-teaching techniques).

Contracts with the U.S. Army Pictorial Center were continued; production of 13 training films was completed and work was started on 12 additional films. The training films supported instruction in civil defense management, shelter management, and radiological monitoring. OCD provided technical advice for their production. Increased demand for civil defense training films, available for local use through Army facilities, resulted in OCD purchase of 200 additional prints of each film during fiscal year 1964.

Training requirements, status, and evaluation.—Through contractual arrangements, OCD conducted several projects to define specific training needs and to find more effective training techniques. The qualification standards of selected positions needed by State and local governments to carry out civil defense functions, including management of shelters, were determined. Training requirements were then established in keeping with these standards.

The feasibility of using programmed instruction or self-teaching techniques to meet training needs in some phases of civil defense was established. In addition, projects were started (1) to field test a radiological achievement test designed to measure the proficiency level of students trained as instructors in radiological monitoring courses, (2) to evaluate courses offered in OCD schools, (3) to establish standards for training small groups in civil defense, and (4) to determine the availability of training aids for local instruction.

Training exercises.—On December 11 and 12, 1963, 46 State and 60 local civil defense offices participated with OCD regional offices and warning centers in an exercise that provided training primarily

for State civil defense staffs in handling command and control procedures related to warning, communications, and damage assessment.

During April 20–May 2, 1964, 48 State and approximately 400 local civil defense offices carried out an exercise under guidance of OCD regional directors. This exercise provided training primarily for emergency operating center staffs in dealing with radiological defense, communications, damage assessment, emergency information, and activation of postattack emergency operations. The experience was especially effective in calling attention to dangers of radioactive fallout and the universal need for fallout protection for the citizenry.

Preparations were made for a fiscal year 1965 exercise for local government executives who have not had recent training in emergency operations. In addition, three field exercises were planned to include emergency use of public fallout shelters.

FINANCIAL ASSISTANCE

In accordance with provisions of the *Federal Civil Defense Act of 1950*, as amended, the OCD continued to provide Federal matching funds to States, territories, and possessions. All recipients of these funds were required to submit an official program paper showing objectives, specific activities, and points of emphasis of the State or local civil defense program.

Approximately \$9.4 million was obligated during fiscal year 1964 for civil defense supplies, equipment, training, and emergency operating centers. (See table 5.) More than \$4.4 million of this total was for emergency operating centers. Other major obligations were for communications, warning, and training equipment.

Approximately \$14.3 million was made available to help State and local governments pay essential personnel and administrative expenses. During fiscal year 1964, all States, the District of Columbia, Puerto Rico, American Samoa, the Virgin Islands, and 1,387 of their political subdivisions participated in this program. (See table 6.) State and local employment supported by these funds is required to be under a merit system satisfying Federal standards. The number of participating political subdivisions in fiscal year 1964 was about 10 percent greater than it was the preceding fiscal year. According to available staffing plans, paid State and local employees performing civil defense functions totaled approximately 5,350, an increase of about 7 percent since the end of fiscal year 1963.

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 fiscal year 1964 totaled 1,144.

was \$84,032. Cumulative expenditures since the inception of the program in fiscal year 1960 totaled \$551,074; completion certificates issued totaled 9,245.

SURPLUS PROPERTY

Public Law 655, 84th Congress, authorized the donation of Federal surplus property for use in any State for civil defense purposes. Since the program was started in fiscal year 1957, property having an acquisition cost of approximately \$272 million has been transferred to the States. Federal surplus property valued at approximately \$33 million was donated to the States in fiscal year 1964. (See table 7.) Recipients of surplus property donations during fiscal year 1964 were required to submit the same type of official program paper as that required of recipients of Federal matching funds.

TABLE 5.—Fiscal year 1964 Federal contributions for supplies, equipment, training, and emergency operating centers

Area	Amounts obligated		
	Total	Supplies, equipment, and training	Emergency operating centers
Total.....	\$9,414,152	\$4,975,799	\$4,438,353
REGION ONE.....	1,767,194	1,321,443	445,751
Connecticut.....	51,201	49,526	1,675
Maine.....	113,057	87,940	25,117
Massachusetts.....	237,331	178,172	59,159
New Hampshire.....	21,654	19,992	1,662
New Jersey.....	120,632	70,504	50,128
New York.....	1,109,477	859,632	249,845
Rhode Island.....	19,608	19,608	—
Vermont.....	14,509	12,983	1,526
Puerto Rico.....	79,725	23,086	56,639
Virgin Islands.....	—	—	—
REGION TWO.....	951,276	376,216	575,060
Delaware.....	9,523	5,617	3,906
District of Columbia.....	8,139	1,347	6,792
Kentucky.....	14,551	12,051	2,500
Maryland.....	154,016	91,201	62,815
Ohio.....	84,180	45,356	38,824
Pennsylvania.....	412,571	197,722	214,849
Virginia.....	256,042	11,868	244,174
West Virginia.....	12,254	11,054	1,200
REGION THREE.....	424,992	247,858	177,134
Alabama.....	45,326	31,326	14,000
Florida.....	108,233	33,533	74,700
Georgia.....	137,596	50,871	86,725
Mississippi.....	16,958	15,285	1,673
North Carolina.....	70,091	70,055	36
South Carolina.....	33,039	33,039	—
Tennessee.....	13,749	13,749	—
Canal Zone.....	—	—	—
REGION FOUR.....	1,021,686	427,572	594,114
Illinois.....	101,958	100,106	1,852
Indiana.....	13,445	13,445	—
Michigan.....	108,294	77,384	30,910
Minnesota.....	318,688	75,499	243,199
Wisconsin.....	479,291	161,138	318,153

TABLE 5.—Fiscal year 1964 Federal contributions for supplies, equipment, training, and emergency operating centers—Continued

Area	Amounts obligated		
	Total	Supplies, equipment, and training	Emergency operating centers
REGION FIVE	556,990	294,025	262,965
Arkansas.....	189,773	32,628	157,145
Louisiana.....	27,216	22,180	5,036
New Mexico.....	5,278	4,273	1,000
Oklahoma.....	76,549	66,013	10,536
Texas.....	258,174	168,926	89,248
REGION SIX	1,919,036	1,487,698	431,338
Colorado.....	151,236	30,017	121,219
Iowa.....	665,047	573,764	91,283
Kansas.....	62,709	62,164	545
Missouri.....	289,508	249,240	40,268
Nebraska.....	30,157	24,487	5,670
North Dakota.....	282,441	215,975	66,466
South Dakota.....	422,108	323,796	98,312
Wyoming.....	15,830	8,255	7,575
REGION SEVEN	2,633,295	759,474	1,873,821
Arizona.....	25,136	24,470	666
California.....	2,480,239	626,222	1,854,017
Hawaii.....	63,858	55,303	8,555
Nevada.....	41,421	41,421	-----
Utah.....	12,076	5,202	6,874
American Samoa.....	-----	-----	-----
Guam.....	10,565	6,856	3,709
REGION EIGHT	139,683	61,513	78,170
Alaska.....	6,090	3,590	2,500
Idaho.....	27,000	6,132	20,868
Montana.....	21,671	10,630	11,041
Oregon.....	19,896	10,484	9,412
Washington.....	65,026	30,677	34,349

TABLE 6.—Fiscal year 1964 Federal contributions for civil defense personnel and administrative expenses

Area	Amount obligated	Political subdivisions	
		Number participating	Staff
Total	\$14,320,896	1,387	5,346
REGION ONE	4,147,212	145	1,415
Connecticut.....	179,136	13	54
Maine.....	170,600	22	75
Massachusetts.....	489,200	25	149
New Hampshire.....	53,024	2	18
New Jersey.....	393,100	36	183
New York.....	2,572,400	27	807
Rhode Island.....	97,400	5	33
Vermont.....	50,897	5	16
Puerto Rico.....	131,924	10	76
Virgin Islands.....	9,531	-----	4

TABLE 6.—Fiscal year 1964 Federal contributions for civil defense personnel and administrative expenses—Continued

Area	Amount obligated	Political subdivisions	
		Number participating	Staff
REGION TWO.....	1, 573, 823	136	606
Delaware.....	67, 757	3	26
District of Columbia.....	82, 300		23
Kentucky.....	151, 234	25	68
Maryland.....	342, 286	16	110
Ohio.....	213, 990	16	94
Pennsylvania.....	453, 115	42	183
Virginia.....	160, 201	19	61
West Virginia.....	102, 940	15	41
REGION THREE.....	2, 066, 253	306	892
Alabama.....	334, 400	50	135
Florida.....	400, 800	42	172
Georgia.....	409, 658	83	181
Mississippi.....	157, 000	29	89
North Carolina.....	384, 000	49	145
South Carolina.....	213, 900	34	100
Tennessee.....	160, 495	19	70
REGION FOUR.....	1, 627, 598	281	664
Illinois.....	301, 260	48	143
Indiana.....	143, 049	14	49
Michigan.....	353, 380	59	130
Minnesota.....	417, 342	93	178
Wisconsin.....	412, 567	67	164
REGION FIVE.....	1, 013, 091	96	426
Arkansas.....	154, 618	18	66
Louisiana.....	326, 699	11	124
New Mexico.....	72, 774	6	30
Oklahoma.....	165, 000	24	71
Texas.....	294, 000	37	135
REGION SIX.....	1, 012, 181	241	509
Colorado.....	154, 104	22	62
Iowa.....	132, 891	27	73
Kansas.....	118, 834	46	77
Missouri.....	230, 500	41	112
Nebraska.....	127, 887	23	62
North Dakota.....	120, 812	45	53
South Dakota.....	73, 263	23	40
Wyoming.....	53, 900	14	30
REGION SEVEN.....	2, 319, 233	102	604
Arizona.....	147, 222	10	53
California.....	1, 826, 422	73	446
Hawaii.....	152, 926	4	38
Nevada.....	97, 886	9	32
Utah.....	72, 000	6	26
American Samoa.....	5, 477		3
Guam.....	17, 300		6
REGION EIGHT.....	561, 505	80	230
Alaska.....	97, 879	4	32
Idaho.....	93, 300	31	58
Montana.....	79, 716	21	41
Oregon.....	29, 139	7	12
Washington.....	262, 471	17	87

TABLE 7.—Federal surplus property transferred to State and local governments for civil defense purposes

(In thousands of dollars)

Area	Acquisition cost of transferred property ¹		Area	Acquisition cost of transferred property ¹	
	Fiscal years 1957-64	Fiscal year 1964		Fiscal years 1967-64	Fiscal year 1964
Total.....	\$272,485	\$32,805			
REGION ONE.....	46,928	6,348	REGION FOUR—Con.		
Connecticut.....	5,346	371	Minnesota.....	3,809	373
Maine.....	6,196	1,104	Wisconsin.....	2,335	164
Massachusetts.....	11,983	2,226	REGION FIVE.....	33,283	4,200
New Hampshire.....	2,096	230	Arkansas.....	5,766	593
New Jersey.....	7,787	1,125	Louisiana.....	8,180	600
New York.....	8,521	575	New Mexico.....	1,018	7
Rhode Island.....	2,119	439	Oklahoma.....	4,060	582
Vermont.....	845	74	Texas.....	14,259	2,418
Puerto Rico.....	2,030	204	REGION SIX.....	18,160	2,175
Virgin Islands.....			Colorado.....	3,701	324
REGION TWO.....	25,336	1,996	Iowa.....	1,151	173
Delaware.....	338	107	Kansas.....	1,472	242
Kentucky.....	2,865	371	Missouri.....	4,448	688
Maryland.....	4,927	365	Nebraska.....	1,464	46
Ohio.....	3,625	212	North Dakota.....	1,743	196
Pennsylvania.....	7,777	454	South Dakota.....	2,420	394
Virginia.....	4,423	221	Wyoming.....	1,761	112
West Virginia.....	1,381	266	REGION SEVEN.....	46,458	5,280
REGION THREE.....	57,382	8,113	Arizona.....	1,821	323
Alabama.....	9,094	1,583	California.....	38,413	3,992
Florida.....	15,506	1,227	Hawaii.....	416	91
Georgia.....	12,910	1,846	Nevada.....	1,350	382
Mississippi.....	6,102	1,425	Utah.....	4,458	492
North Carolina.....	8,047	935	American Samoa.....		
South Carolina.....	2,906	403	Guam.....		
Tennessee.....	2,817	693	REGION EIGHT.....	11,804	1,169
Canal Zone.....			Alaska.....	1,256	37
REGION FOUR.....	33,134	3,524	Idaho.....	2,191	108
Illinois.....	8,145	643	Montana.....	650	97
Indiana.....	4,897	412	Oregon.....	2,375	196
Michigan.....	13,947	1,933	Washington.....	5,332	731

¹ Figures may not add to exact totals due to rounding.**EMERGENCY SUPPLIES AND EQUIPMENT INVENTORY**

OCB continued to maintain an inventory of supplies, stored at various locations through the Nation, for emergency use. This included 45 ten-mile units of engineering equipment (see fig. 16), valued at approximately \$10 million, available for local use to pump water during periods of natural disaster or postattack operations. The remaining part of the inventory, valued at approximately \$1.8 million, contained chemical and biological defense equipment; e.g., protective masks, chemical detection kits, decontamination sets, and water purification units.

Radiological defense equipment, formerly included in this inventory, is no longer considered part of it. This equipment is distributed

it is more readily available for emergency use than it would be at centralized warehouse locations.

Procurement and management of medical supply inventories for civil defense use are responsibilities of the Department of Health, Education, and Welfare in accordance with Executive Order 10958, effective August 14, 1961.

During fiscal year 1964, OCD engineering equipment was loaned to 15 States for use in 61 communities. In 46 of these communities, the equipment was used to help overcome water shortages and in 5 to combat flood conditions. At the end of the year, equipment was on loan to 8 States for use in 16 communities.

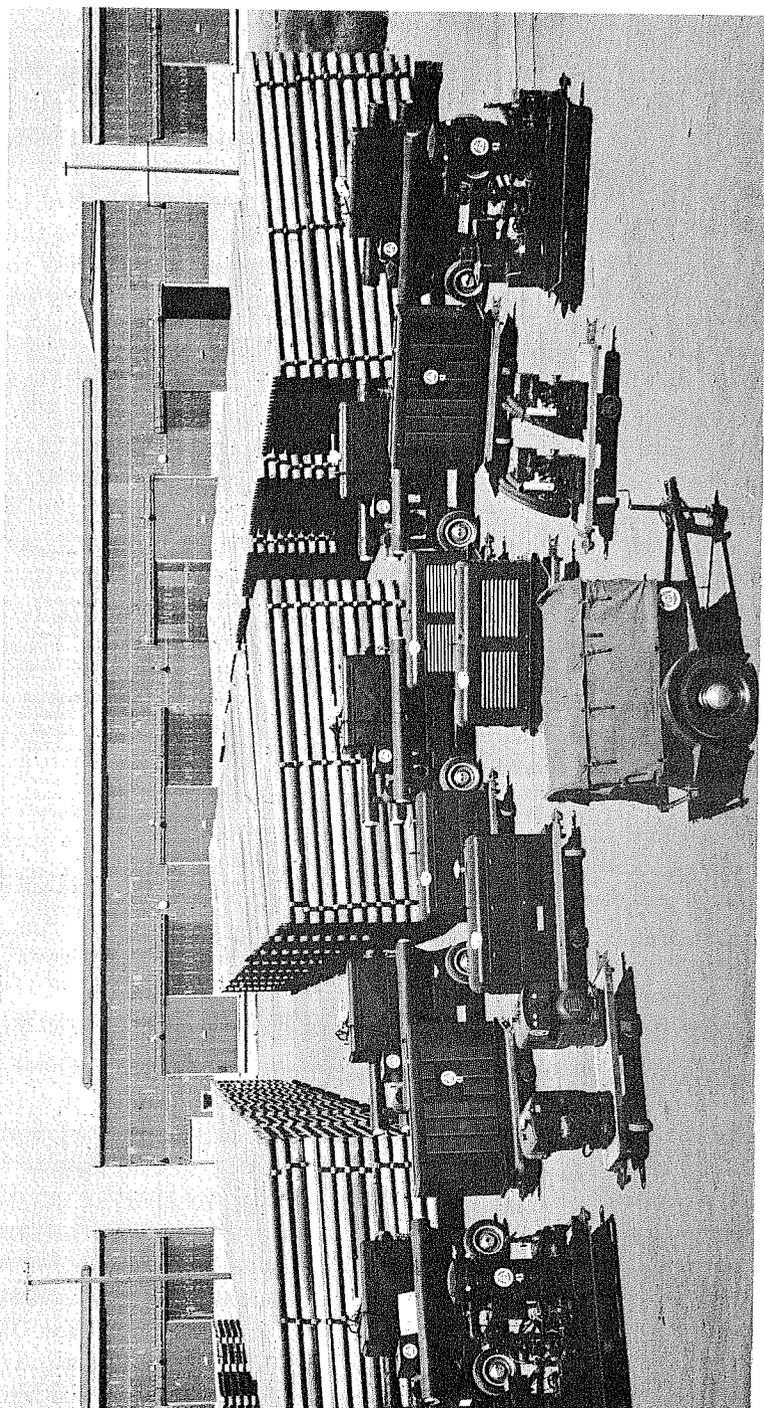


Figure 16.—Engineering equipment unit.

RESEARCH

The substantial progress achieved in civil defense research during fiscal year 1964 was partly a result of the \$19 million made available for research in fiscal year 1962. The impetus provided by those funds carried research to higher levels of achievement in the next 2 years when smaller sums became available: \$11 million in fiscal year 1963, and \$10 million in fiscal year 1964. Many research activities initiated previously produced results during fiscal year 1964.

Continuity of effort was assured by following objectives of fiscal year 1962 when civil defense research activities were redirected to: (1) Identify and develop more economical hardware and operational procedures, (2) improve effectiveness of operational systems, (3) increase capability of men and equipment for postattack operations, (4) improve readiness of the entire civil defense program, and (5) provide more useful data for making basic decisions in planning and operating civil defense programs.

Contractors selected for OCD research are recognized as being among the most capable in their fields; e.g., Stanford Research Institute, the U.S. Naval Radiological Defense Laboratory, Institute for Defense Analyses, and the Illinois Institute of Technology Research Institute. Those contractors whose past performance for OCD had demonstrated the highest level of technical competence and productivity were assigned additional and larger research projects. Consequently, the fiscal year 1963 trend of assigning fewer contractors larger workloads continued throughout fiscal year 1964.

Comparative percentages of funds committed to various types of research groups during the last three fiscal years were:

	Percent Fiscal year		
	1962	1963	1964
Department of Defense (DOD).....	18.1	17.9	16.6
Federal agencies exclusive of DOD.....	15.8	22.1	15.2
Educational institutions.....	5.0	9.6	10.6
Private organizations, including industrial laboratories, research institutes and foundations, and quasi-Government agencies.....	61.1	50.4	57.6
Total.....	100.0	100.0	100.0

Close coordination of OCD research with that conducted by other

projects. For example, the Advanced Research Projects Agency of the Directorate of Defense Research and Engineering gave mutual support with OCD to fire research projects in which both had a common interest. This included research on an infrared airborne scanner (a special camera) to detect and map large-scale fires not detectable by ordinary cameras because of smoke cover.

Major functional categories.—OCD continued to conduct research in four major functional categories. These and the percentage of funds allotted to each during fiscal year 1964 were:

	<i>Percent</i>
Shelter.....	29.2
Support systems.....	25.0
Postattack.....	22.4
Systems evaluation.....	23.4
Total.....	100.0

Since the research categories are based on projected known civil defense requirements, they remain relatively constant from year to year. However, contingent upon the amounts of available funds and research completed, as well as upon other factors, the funds committed to individual projects under these categories vary considerably. The distribution among these categories and projects of the \$10 million programed for research during fiscal year 1964 is shown in table 8.

Impact on perspective and operations.—The impact of research on the civil defense program perspective and operational procedures became evident in numerous instances during fiscal year 1964. This was the result of research conducted during recent years. For example, more reliable calculations of the radiation protection factor were made possible. These calculations promote maximum use of existing fallout shelter space and contribute to improvement in shelter designs for new buildings, as well as to more effective and more economical modification of existing structures for shelter purposes. The feasibility of using radio for indoor warning purposes was established. Several radio systems, currently being further developed and tested, gave new perspective to the indoor warning problem. Development of a packaged ventilation unit offered the prospect of greatly expanding the capacity of many public fallout shelters. These and other research contributions are discussed in greater detail in the following sections of this report.

SHELTER

Shelter research, primarily concerned with shelter design, construction, management, and use is expected to continue to contribute to improvements in the effectiveness and reliability of shelters. This ex-

TABLE 8.—Research funds programed, committed, and obligated, fiscal year 1964 appropriation

Type of research (category and project)	Programed	Committed	Obligated
Total.....	\$10,000,000	\$2,058,985	\$7,765,057
Shelter.....	2,885,000	568,175	2,262,542
Protection studies.....	771,000	160,750	579,494
Shelter environment.....	719,000	37,570	668,090
Subsistence and habitability.....	128,000	-----	128,337
Component development.....	173,000	38,800	122,649
Shelter management.....	317,000	136,873	181,260
Shelter systems.....	299,000	194,182	104,712
Development, test, and evaluation.....	478,000	-----	478,000
Support systems.....	2,357,000	860,046	1,477,969
Monitoring systems.....	211,000	176,111	35,000
Communications and warning.....	415,000	200,161	214,918
Reduction of vulnerability.....	320,000	152,474	167,781
Emergency phase medical research.....	155,000	40,000	118,000
Fire, rescue, and damage control.....	1,047,000	291,300	734,000
Emergency operations research.....	209,000	-----	208,270
Postattack.....	2,199,000	546,753	1,597,961
Radiological phenomena and effects.....	852,000	37,439	769,136
Radiological countermeasures.....	661,000	176,898	473,982
Repair, reclamation of damage.....	296,000	162,416	134,873
Postattack medical, health, and welfare.....	160,000	-----	160,000
Recovery and maintenance systems.....	230,000	170,000	59,970
Systems evaluation.....	2,309,000	84,011	2,176,585
CD systems analysis.....	992,000	24,011	969,950
Strategic analysis.....	225,000	-----	225,000
Vulnerability and requirements.....	250,000	-----	199,476
Organization and training.....	190,000	-----	189,750
Planning support.....	110,000	-----	110,000
Intelligence systems analysis.....	125,000	-----	125,000
Physical environment.....	-----	-----	-----
Social and psychological studies.....	417,000	60,000	357,409
Other ¹	250,000	-----	250,000

¹ Research covered by two or more of above categories.

major weapons effects, improvement of shelter habitability, provision of shelter supplies and equipment, and adequate shelter management in emergencies.

Special efforts were concentrated on several immediate objectives in fiscal year 1964. Model and full-scale experimental research were used in seeking improved shielding from radiation derived from contaminated strips, such as streets, and from fallout radiation scattered in the air. Experimental data were obtained on the effectiveness of shielding provided by structures exposed to radiation from these sources. Additional experimental data were obtained to show how radiation from these sources should be related to improving methods for determining the radiation protection factor of buildings.

Studies were conducted to evaluate the feasibility of improving blast protection of existing buildings by inexpensive means. A series of prototype blast valves was developed for experimental use as a possible means of improving blast protection afforded by certain types of

As the result of research on inexpensive methods to improve shelter ventilation without making permanent, fixed installations, the first prototype of a packaged ventilation unit was developed. (See fig. 17.) The unit may be operated electrically or manually. It requires only 12 cubic feet of storage space and can be stocked in public fallout shelters for emergency use. The capacity of presently unventilated fallout shelters would be substantially increased by the use of this unit, at an estimated cost of \$2.50 per additional shelteree.

Other accomplishments included studies conducted to evaluate (1) methods of measuring ventilation and humidity in identified shelters, (2) nutritional values and packaged shelf life of shelter rations, (3) cost of shelter management, based on present stocking activities, and (4) factors involved in establishing a community shelter system. Information for some of these studies was derived from four 30-person shelter occupancy tests especially designed to feature habitability conditions contingent upon use of supplies furnished by the OCD for public fallout shelters. (See fig. 18.)

During fiscal year 1964, shelter research efforts were extended to place greater emphasis on converting research findings into practical use in the interest of greater economy and efficiency in the national shelter system; e.g., development, testing, and evaluation of the packaged ventilation unit.

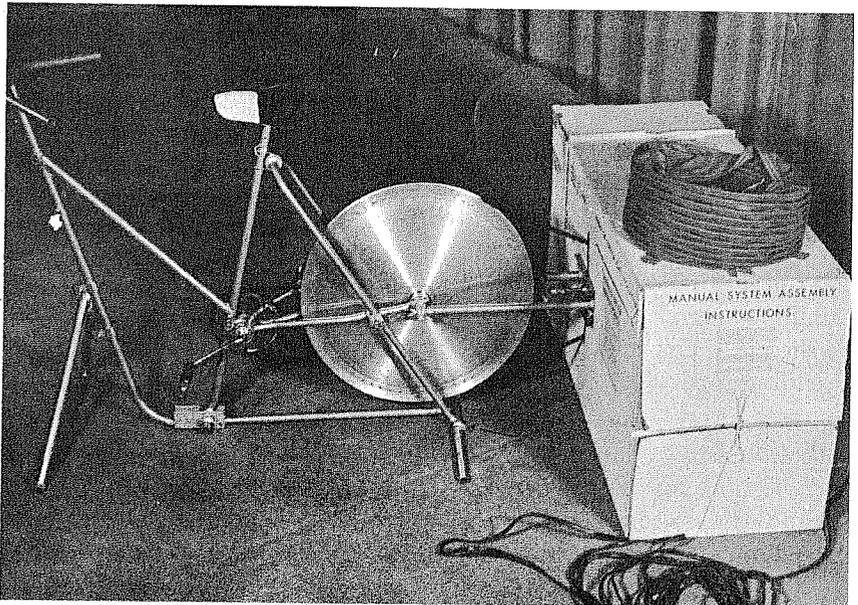


FIGURE 17. Prototype of a packaged ventilation unit.



ure 18.—Fallout shelter habitability test in progress. Shown in the upper background is a plastic ventilation duct used during portions of the test. Cartons of civil defense survival supplies are shown in the left background.

SUPPORT SYSTEMS

Support systems research, primarily concerned with studies in support of civil defense functions and operations, was conducted on several subjects during fiscal year 1964: vulnerability reduction, warning, command and control, communications, damage control, medical aid, radiation detection, population movement, and disaster study for organizational use.

In the field of radiation detection, special studies were designed to develop inexpensive instruments that could be easily maintained and that would be suitable for personal use as well as for remote radiological monitoring surveys conducted from fixed or aerial monitoring stations.

Studies in the use of radio for indoor warning purposes resulted in the development and testing of prototype equipment. (See *Indoor warning systems* in *Federal Warning Systems*, part IV.) Use of the low-frequency, long-range electronic navigation system (LORAN-C) was found suitable for nationwide transmission of warning signals, and a prototype warning receiver was developed for use in this system. Also, AM radio receivers were designed and found, by tests, to be feasible for indoor warning. Cost and marketing studies on suitable AM receivers were also conducted.

From research in vulnerability reduction, formulas and techniques were developed permitting use of electronic computers in planning movement of populations from target to reception areas. Based on current social, economic, and technological changes, a preliminary analysis was made of the possibilities of reducing vulnerability of present and future urban patterns through various means.

Studies in emergency medical research were continued to define practicable and effective countermeasures for dealing with major health and medical problems that would result from nuclear attack.

Several fire research studies were conducted. The feasibility of using a special aerial infrared camera to detect and map forest fires through dense smoke or cloud cover was established. A technique under development is designed to assess fire hazard to fallout shelter occupants, and a preliminary outline under development is designed to identify immediate postattack fire control problems.

A preliminary analysis of resources available for coping with major fires in small communities was made. Use of information obtained by simulating simple fire disaster appeared favorable for guidance to local officials in dealing with fire control problems. However, preliminary analysis of urban fire problems that would exist after nuclear attack showed a wide disparity between human and material resources required and those available.

A survey of firefighting techniques used by industry resulted in introducing scientific techniques to improve performance, reliability, and safety in civil defense firefighting. *Five Aspects of Civil Defense*, TR-25, was published and distributed to civil defense officials to acquaint them with civil defense fire problems.

POSTATTACK

Projects in postattack research deal with the exploration and development of systems and functions applicable to civil defense during the restoration period. Included are investigations of long-term effects and hazards of nuclear attack as well as available means of recovering from them. Radiological decontamination, damage repair, and other activities dealing with postattack conditions are appropriate subjects for this type of research.

During fiscal year 1964, considerable progress was made in developing a more specific quantitative definition of the radiation hazard that would result from early fallout. This was achieved by further physical and chemical analysis of data from previous weapons tests, as well as by further theoretical and laboratory studies. Mathematical formulas or models were developed or refined to describe more accurately the: (1) Relationship of types and sizes of nuclear weapons to the amount of fallout radiation they would produce, (2) amount of radioactive fallout produced by ground bursts of nuclear weapons and the resulting airborne distribution of the fallout, and (3) biological manifestation of radiation effects, including ecological factors; e.g., retention of fallout particles and radioactive isotopes by foliage and the intake by plants and animals. Data from these sources are applicable not only to immediate postattack effects of fallout, but also to indirect, delayed effects brought about by ecological and sociological factors.

Concurrently, as radiation hazards were more precisely defined, OCD continued to investigate methods to alleviate them. Next to fallout shelters, decontamination is the countermeasure most generally applicable. Research to evaluate and improve decontamination techniques included laboratory tests demonstrating the effectiveness of electro dialysis in removing radioactive isotopes of strontium, barium, cesium, lanthanum, and cerium. Analyses of wet and dry methods of decontaminating urban areas produced data for developing means of controlling radiation exposure of workers in a manner consistent with required decontamination efficiency. Civil defense problems of utility systems were investigated. This resulted in publication of a prototype manual on civil defense aspects of operating water systems and maintaining water supplies under postattack fallout conditions.

In addition to research on radioactive fallout, the OCD continued its study of other postattack hazards, especially the vulnerability and emergency repair of essential industrial establishments. A study of selected representative plants of the food industry provided data on their vulnerability to blast, fire, and fallout. Estimates were prepared indicating the feasibility of restoring the productivity of these plants by emergency repairs. Studies of debris hazards and their removal were continued.

Having completed general studies of probable postattack health problems, the OCD focused greater attention on more detailed studies of sanitation, waste disposal, and pest and vector control. At the end of fiscal year 1964, there was in progress an assessment of civil defense readiness to cope with sanitation and waste disposal problems associated with emergency medical care at all government levels.

SYSTEMS EVALUATION

Systems evaluation research provides data on requirements, probable cost, and effectiveness of alternative systems designed to support civil defense efforts. This includes consideration of the sociological, psychological, and economic feasibility of the alternatives as they relate to separate but interdependent activities.

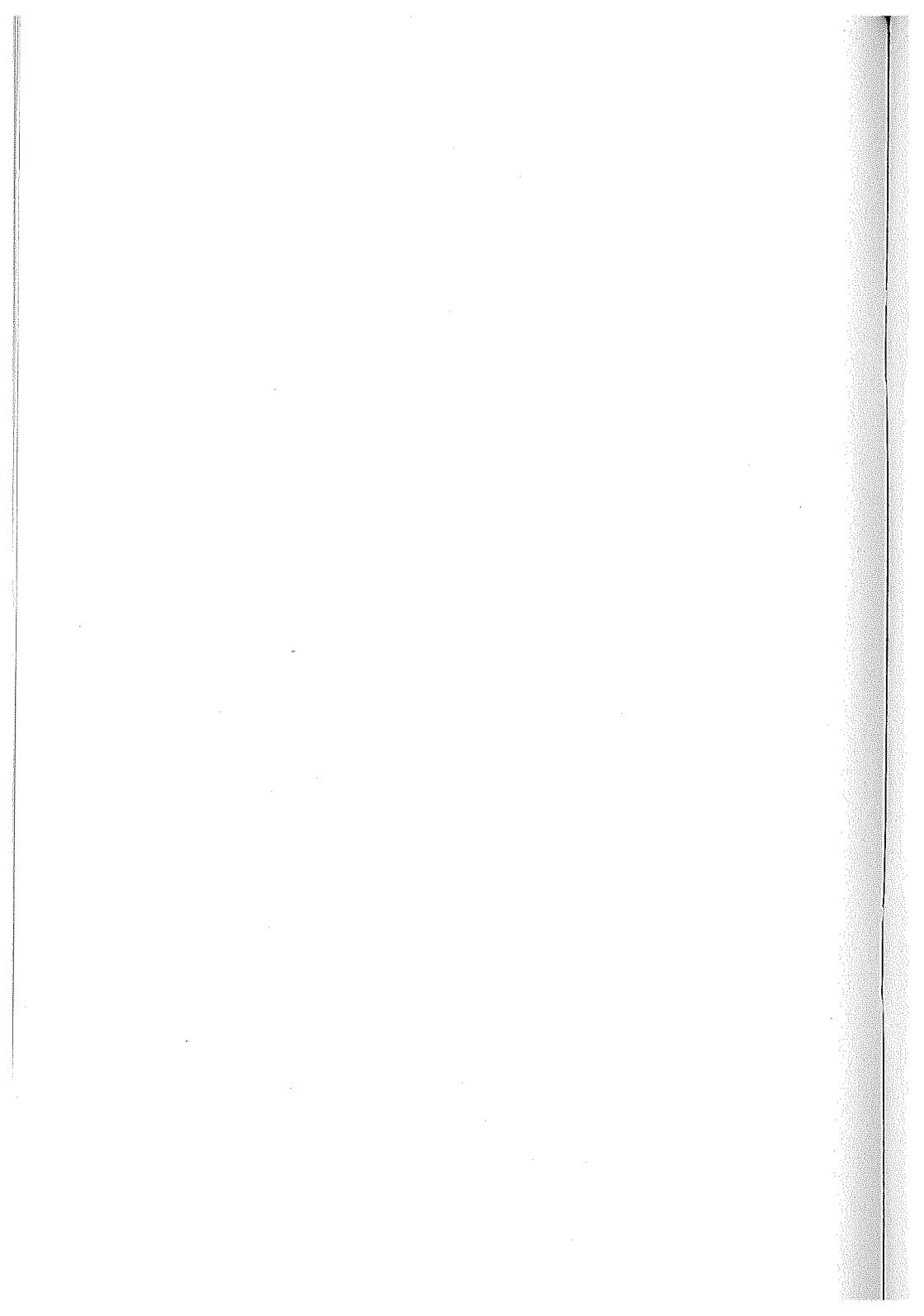
The long-range objective of this type of research is to provide evaluations of possible civil defense alternatives in response to a wide scope of possible future developments. These evaluations, rendered at any time, add appreciably to the understanding of civil defense. However, as the research data become more comprehensive and are developed further, these evaluations will become even more reliable and practicable.

During fiscal year 1964, OCD continued its analysis of civil defense functions relative to concepts of balanced systems based primarily on the use of fallout shelters in conventional buildings. Attention was focused on research designed to show the relationship of civil defense to existing and future military systems and to estimate the role of civil defense in international affairs. Analyses of threats from new or improved weapons systems were accelerated; these data serve as a basis in seeking new or modified civil defense systems to meet the threats.

Studies were conducted on the probable effectiveness of alternative civil defense organizations and training requirements resulting from marking and stocking community fallout shelters. Studies designed to improve techniques for developing and testing local civil defense plans, based on use of community shelters, were continued.

Research on concepts for developing alternative systems to handle

conducted. Studies were designed to evaluate public attitudes toward civil defense relative to knowledge and beliefs, as well as to evaluate communications problems within the nationwide civil defense structure. Survey methods used in these studies and the analytical treatment applied to the results derived from them were constantly improved. Similarly, research was directed to improving methods used to estimate extent of vulnerability to nuclear attack and to estimate requirements, cost, and effectiveness of suitable countermeasures.



SUPPORTING ACTIVITIES

An informed public, the support and understanding of industry and national organizations, and a nationwide and worldwide program perspective 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.

PUBLIC INFORMATION

Throughout fiscal year 1964, the OCD concentrated its public information activities on producing informational material needed by civil defense directors in describing the purpose and scope of the civil defense program to important leadership groups, and on preparations to carry out essential information activities in times of emergency.

New informational tools produced included two 30-minute motion pictures: *One Week in October*, a documentary film on the Cuban missile crisis, and *The Day That Made a Difference*, describing the 1-day public shelter stocking activities in San Francisco and New Orleans. In addition, three other films produced earlier, *About Fallout*, *Town of the Times*, and *Shelter on a Quiet Street*, were released for national distribution early in the fiscal year. Prints of the Department of Defense annual film report *Partners in Freedom* also were made available to OCD regional, State, and local civil defense offices. Based on reports from the Army Pictorial Exchange, which handles the major distribution of OCD films through its 127 Audio-Visual Communications Centers, each new OCD film is shown about 16,000 times during the first year that it is available for nationwide use.

A new series of speaker's guide kits was started during the year to assist State and local civil defense directors in making person-to-person contacts. *Speaker's Guide Kit No. 1* (K-27-1), published in February 1964, contains the texts for three suggested speeches: *Civil Defense and National Defense*, *Radioactive Fallout*, and *Shelter: The Core of Civil Defense*. At the end of the fiscal year, *Speaker's Guide Kit No. 2* (*Military Support of Civil Defense and Lesson in Alaska*) was ready for printing and will be distributed early in fiscal year 1965.

OCD continued its series of information bulletins intended primarily

issued on such subjects as the status of shelter legislation, a study by scientists of the national civil defense program, civil defense action following the Alaskan earthquake, and a plan for improving the method of providing military support to civil defense.

Material also was prepared for use by mass communications media. Production was completed on three films of a series for television. The series titled *A Primer for Survival* is designed for use by local civil defense directors on local television programs. Two new television announcement kits *Civil Defense Adult Education* and *How Can Shelters Save Lives?* were produced and distributed, bringing to 12 the total number of civil defense announcement kits now available at 653 U.S. television stations. The announcements are also produced on 35-mm. film for use in motion picture theaters. Estimates indicate that the television industry has contributed about \$16 million worth of public service time to civil defense since the program became a responsibility of the Department of Defense.

Approximately 2,600 radio stations devoted broadcasting time, valued at more than \$3 million, to the *Stars for Defense* weekly civil defense series during the year. *Entertainment USA* and *Startime USA* were also used regularly by the Columbia Broadcasting System and the American Broadcasting Company. All three programs have an entertainment-information format.

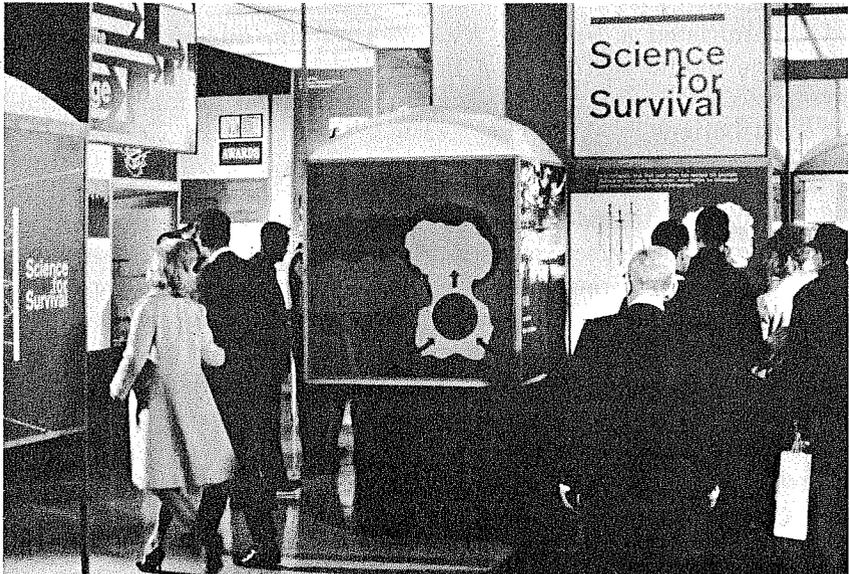
Civil defense information was provided to daily and weekly newspapers, magazines, encyclopedias, and trade journals. OCD prepared one *CD Newsfeature* and two *CD Newspicture* pages and distributed them to 11,000 daily and weekly newspapers. Material from each of these pages is frequently carried by 850 weekly and 85 daily newspapers representing a total circulation of 3 million.

OCD exhibits were shown at 690 locations during the year to a total audience estimated at more than 24 million. A special major exhibit *Science for Survival* was built for display in the Hall of Science building at the New York World's Fair. This walk-through exhibit, consisting of 21 related, sequential displays, describes the hazard of radioactive fallout and the measures being taken to meet this possible hazard through the development of a nationwide system of dual-purpose shelter areas in public buildings, schools, hospitals, factories, retail stores, and other structures. (See fig. 19.)

As a public service, members of the Outdoor Advertising Association of America continued to display the 24-sheet billboard of the public shelter sign, and members of the Transit-Advertising Association placed more than 9,000 civil defense posters on public transportation vehicles. Also, 70,000 posters were displayed by the Post Office Department and the General Services Administration in Federal buildings throughout the country.



19a.—New York World's Fair President Robert Moses inspects exhibit with OCD officials. *Left to right:* Messrs. Vincent A. Otto, Director of Program Support Division; Robert Moses; Charles J. Arnold, Acting Assistant Director of CD (Public Information); and Walmer E. Strope, Assistant Director of CD (Research).



19b.—A portion of the exhibit.

As part of its program of working with national organizations, OCD produced three basic information items during the year: (1) *Community and Family Service for Civil Defense* a publication which suggests ways in which club leaders can motivate members and organize them to support civil defense at the local level, (2) *The Citizen and Civil Defense* a filmstrip outlining specific actions that organizations and individual citizens can show to support civil defense, and (3) *Civil Defense Director's Guide to Citizen Participation* published in the *Federal Civil Defense Guide* publication series which describes ways in which local civil defense directors can make use of the talent available in local organizations.

In addition, the OCD information kit *Organized Action for Civil Defense* was distributed, on request, to the National Exchange Club, B'nai B'rith, Veterans of Foreign Wars Auxiliary, American Legion Auxiliary, National Federation of Business and Professional Women, and Catholic War Veterans.

In support of the Boy Scouts of America (BSA) *Family Alert* month for Cub Scouts in January, OCD distributed 370,000 civil defense information packets to Cub Scout leaders and later supplied 1.5 million copies of civil defense publications for use by Cub Scouts and their families. OCD also worked with the BSA in the preparation of a 65-page guidebook *Emergency Preparedness, BSA*, designed to train Scouts in emergency actions for both nuclear war and natural disasters.

OCD initiated a National Awards Program during the year to encourage public participation in, and support of, civil defense by giving recognition to individuals and organizations making outstanding contributions.

TECHNICAL LIAISON

The OCD continued to rely on technical liaison activities to improve operational effectiveness and efficiency by assuring that OCD policies, plans, programs, and executive actions were consistent with and predicated on sound technical and scientific concepts. A major effort of these activities is to assure that proper use is made of past experience and current research and knowledge in developing civil defense plans, operational systems, and training programs.

Technical liaison activities extended to many technical and scientific organizations outside of OCD, as well as to its own staff members having working contacts that facilitate the flow of ideas and data potentially useful to civil defense. Major emphasis was designed to accelerate application of research information to operational features of civil defense. Most of the work was carried on by direct consultation, discussion groups, presentation of technical papers, and similar

INDUSTRIAL PARTICIPATION

Industrial participation activities deal with all aspects of civil defense preparations at industrial facilities. These activities are designed to encourage industrial and commercial enterprises to make appropriate preparations for the protection of life and property in civil defense emergencies.

Throughout fiscal year 1964, the OCD continued to help business and industry make necessary provisions for (1) protecting industrial personnel in the event of attack, (2) minimizing the effects of attack on industrial facilities, and (3) assisting local governments in the development of effective community fallout shelter plans. In addition, liaison with industry helped expand the nationwide system of public fallout shelters. Guidance and assistance in carrying out the civil defense program were given to industry by means of publications and exhibits as well as by conferences with industrial leaders. Other Federal agencies and national trade and professional organizations joined the OCD in furnishing civil defense information and guidance to local industrial facilities.

Federal agency liaison.—In cooperation with the OCD, other Federal agencies prepared and disseminated guidance and training materials that are especially adapted to the needs of industries with which these agencies normally conduct business. For example, the Agricultural Marketing Service of the USDA prepared the *Guide to Civil Defense Management in the Food Industry*. About 81,000 copies were distributed to managers of food processing facilities.

OCD provided leadership and guidance to 21 Federal departments and agencies that have facility preparedness responsibilities assigned to them by Executive orders. In consonance with OCD plans, several of these agencies, at the end of fiscal year 1964, were developing publications and other guidance materials for use in meeting these responsibilities.

More than 10,000 senior military officers and key civilian leaders attended national security seminars conducted by the Industrial College of the Armed Forces in 14 cities. These seminars included a description of the national defense posture and made civil defense guidance materials available to the participants. OCD also provided guidance materials to the Departments of the Army, Navy, and Air Force for use at various field headquarters in their work with industry.

Liaison with industry.—The OCD assisted various organizations that conducted industrial civil defense conferences and seminars during fiscal year 1964. In all liaison activities of this nature, the role of fallout shelters was emphasized as the key element of community civil defense programs.

In addition to responding to about 2,500 requests for industrial civil defense information, OCD negotiated with the headquarters of 110 multiplant industrial corporations to encourage them in adopting policies authorizing their local managers to sign public fallout shelter license agreements. They were also urged to provide dual-use shelter space in new construction. At the end of fiscal year 1964, favorable policies had been adopted by 52 corporations, making fallout shelter space available for many thousands of additional persons.

During fiscal year 1964, approximately 25,000 business, professional, and civic leaders were informed of civil defense in conferences and seminars conducted by professional and civic organizations, colleges and universities, and governments at all levels. The meetings were held in 38 cities.

As the result of OCD liaison with industrial and business leaders, several organizations developed publications of particular importance to industrial civil defense. For example, the American Society of Corporate Secretaries, Inc., prepared an 89-page booklet *Continuity of Corporate Management in Event of Nuclear Attack*. More than 36,000 copies were distributed to business and industrial personnel during fiscal year 1964. Many industrial establishments distributed civil defense information to their employees and included guidance on personal and family survival in company magazines and newspapers. More than 350,000 copies of industrial civil defense publications were distributed with the help of industry, various Federal agencies, and State and local governments.

LABOR SUPPORT

The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) reaffirmed support of civil defense on November 19, 1963, when the Fifth Constitutional Convention of the AFL-CIO Council unanimously adopted Resolution No. 193, *Civil Defense and Emergency Planning*. (See appendix 4.) Among other recommendations, the resolution specifically urged greater support to strengthen and expand the nationwide system of public fallout shelters. AFL-CIO support is generally available for planning, programming, and establishing major efforts of organized labor to strengthen civil defense.

Some examples of tangible manpower and technical support provided by labor organizations included the following:

1. The International Brotherhood of Teamsters in many cities transported shelter supplies from local warehouses to shelter sites without cost to the government. The AFL-CIO Building and Con-

generous in donating labor for this purpose. Cities served included Newark, N.J., Pittsburgh, Pa., Seattle, Wash., Grand Rapids and Detroit, Mich., San Francisco, Calif., St. Louis, Mo., Louisville, Ky., New Orleans, La., and St. Paul, Minn.

2. Following the Alaskan earthquake on March 27, 1964, labor organizations made a pool of 19,000 skilled workers available to the Civil Defense Director, with two labor officials serving as advisors. The Culinary Workers Union and the AFL-CIO Community Services Workers established and operated mass feeding facilities for four days. AFL-CIO members donated more than \$250,000 to Alaskans and presented a strong resolution in support of Alaskan disaster legislation.

3. AFL-CIO manpower assisted in combating flood and other disaster effects in Missouri, Montana, Nebraska, Iowa, and Kentucky, as well as hurricane disaster effects on the eastern seaboard.

4. AFL-CIO Building and Construction Trades supported training of labor personnel for disaster relief work in 30 States and training of apprentice labor personnel for similar purposes in 24 States.

Labor organizations strongly supported proposed legislation for disaster relief and civil defense operations. On May 20, 1964, the AFL-CIO president and executive council sent a strong policy statement to the Congress in support of Alaskan disaster legislation. The secretary-treasurer of the AFL-CIO and the president of the AFL-CIO Building and Construction Trades Department gave continuous support to civil defense legislation. Sixty-four AFL-CIO State officials sent statements to appropriate congressional committees in support of civil defense legislation. In addition, the AFL-CIO Legislative Department supported proposed appropriations and other civil defense legislation before the Congress.

The AFL-CIO cooperated with OCD in bringing civil defense information to the public, as illustrated by the following examples:

1. Three programs sponsored by the AFL-CIO Public Relations Department featuring civil defense were broadcast over the 700-station radio network of the American Broadcasting Company: (1) *Civil Defense Progresses*, October 6, 1963; (2) *Shelters Can Save Lives*, December 27, 1963; and (3) *Why Air Raid Shelters Now?* February 24, 1964.

2. On four occasions civil defense informational materials were sent to National and State labor leaders and to organizations representing 13.5 million persons. More than 47,000 copies of OCD's 6-page booklet *Labor Participation in Civil Defense* were sent to labor organizations.

3. *The AFL-CIO Weekly News*, mailed to 85,000 labor officials and used for reprinting in many of the 600 local and State publications,

4. The AFL-CIO Union Label Industry Show, Louisville, Ky., showed OCD exhibits to more than 203,000 persons. With the help of Explorer Scouts, more than 200,000 copies of civil defense educational material were distributed.

INTERNATIONAL ACTIVITIES

The OCD, in coordination with the Department of State, contributed to strengthening the mutual defense of the United States and friendly foreign nations. Principal activities included mutual civil defense planning and exchange of personnel visits and information in cooperation with the North Atlantic Treaty Organization (NATO) and the Central Treaty Organization (CENTO), as well as special working relationships with Canada.

The Director of Civil Defense attended the meeting of the NATO Civil Defense Committee in May 1964 as did his predecessor, the Assistant Secretary of Defense for Civil Defense, in October 1963. OCD staff represented the United States at the May 1964 meeting of the NATO Working Party on Publicity and Public Relations and prepared United States position papers for the NATO Senior Emergency Planning Committee and additional papers for the working groups of committees on telecommunications, shelter, firefighting, warning, and scientific matters. In addition, OCD, with the assistance of the Office of Emergency Planning, presented a program on damage assessment to NATO countries in May 1964.

OCD research teams, in support of a study of civil defense organization and doctrine in friendly nations, visited England, France, West Germany, and Switzerland. Similar visits to Italy, Costa Rica, and Japan were made to observe organizational reaction and response to natural disasters.

A technical representative attending the Symposium on Scientific and Practical Foundation of Shelter Construction and Related Problems at Zurich, Switzerland, in July 1963, also conferred with his counterparts in England, West Germany, and the Netherlands. Other OCD participation included a meeting in England in October 1963 on accuracy requirements of radiological dosimetry and the May 1964 Annual Conference of Regional Scientific Advisers for Civil Defense of the British Home Office.

The 1951 civil defense agreement with Canada was renewed on November 15, 1963, and a joint Civil Emergency Planning Committee (JCEPC) was established. Canadian committee members are the Secretary of the Cabinet and the Director of the Emergency Measures Organization; United States committee members are the Director of the Office of Emergency Planning and the Director of Civil

to strengthen cooperation in solving mutual civil defense problems in warning, communications, radiological defense, and emergency public information.

In support of continued interest of friendly foreign countries in U.S. civil defense, the OCD responded to more than 200 requests for information from 44 countries. In addition, CENTO member nations were sent copies of information bulletins, the *OCD Annual Report for Fiscal Year 1963*, and other issuances. To NATO countries, OCD sent 106 research reports, several technical reports, public information issuances, and congressional reports on civil defense; to the NATO Civil Defense Library, OCD sent 15 additional research reports and 4 films on loan.

Many friendly nations responded by providing information on their civil defense programs. Belgium, Iceland, New Zealand, the Republic of the Philippines, Spain, Sweden, Switzerland, and West Germany sent copies of their civil defense laws. West Germany also sent copies of pending civil defense legislation. From Great Britain and Canada, OCD received annual statements on defense, and from Belgium, the Netherlands, Norway, and Sweden, information on emergency organization and mandatory shelter requirements. In addition, the NATO library furnished, on a loan basis, seven civil defense films from Denmark, England, France, and West Germany for use in briefing OCD staff.

Briefings and conferences were arranged for officials from Australia, Canada, England, Finland, France, Iceland, India, Indonesia, Norway, South Korea, and West Germany. The Civil Defense Adviser of the NATO International Staff, as well as five officials from the French Secretariat General for National Defense and the Ministry of the Interior, visited OCD training centers and regional offices as well as State civil defense officials. One Canadian and five Indonesian representatives attended OCD training courses; two representatives from Canada and one representative each from England, France, Sweden, West Germany, and Turkey attended summer institutes on protective construction; one engineer from Iceland attended the course in *Fallout Shelter Analysis*.

THE AMERICAN NATIONAL RED CROSS

The American National Red Cross (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. In addition, the ANRC continued to encourage local chapters to assist in the program.

The ANRC assisted Federal, State, and local governments in devel-

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.

Through widely dispersed ANRC field chapters, millions of persons have been trained in skills essential to civil defense preparedness; e.g., first aid, home nursing, and emergency mass feeding. This work was continued during fiscal year 1964. In addition, local ANRC chapters assisted in the Medical Self-Help Program and in community shelter management planning and training. At its May 1964 convention, the ANRC reaffirmed the 1963 recommendation urging field chapters to continue this work and to assist the civil defense effort in any manner consistent with Red Cross policy.

ADVISORY COMMITTEES

This section of the report and referenced appendixes contains the information on advisory committees required by section 10(a) of Executive Order 11007, February 27, 1962. Advisory committees that served the Office of Civil Defense during fiscal year 1964 were:

1. Advisory Committee on the Design and Construction of Public Fallout Shelters. (See appendix 5 for establishing directive, membership list, and meeting dates.)

2. Industry Advisory Committee on the National Alarm Repeater (NEAR) System. (See appendix 6 for establishing directive, membership list, and meeting dates.) Having completed its mission, this committee was discontinued during the year, and each member was so informed by letter on April 21, 1964.

The chairman of each advisory committee is a full-time salaried Government official, and the committee members are outstanding representatives in such fields as industry, business, science, engineering, education, medicine, and government. Each member is a person whose position, experience, and talent enable him to make a major contribution to achievement of OCD objectives. The sole function of each committee is to advise the Director of Civil Defense, as it formerly was to advise his predecessor, the Assistant Secretary of Defense, for Civil Defense.



WILLIAM P. DURKEE,
Director of Civil Defense.

Appendix I

DEPARTMENT OF DEFENSE OFFICE OF CIVIL DEFENSE FALLOUT SHELTER LICENSE OR PRIVILEGE	SEE INSTRUCTIONS ON REVERSE SIDE
<p>WHEREAS, The President of the United States has undertaken for the Nation an accelerated and strengthened civil defense program, including a fallout shelter program; and</p> <p>WHEREAS, a fallout shelter survey has indicated that certain areas of the hereinafter described premises will afford persons protection from the hazard of fallout in the event of enemy attack;</p> <p>NOW, THEREFORE, the undersigned, being the owner of the hereinafter described premises, or the person otherwise authorized to grant such license or privilege, does hereby voluntarily and without compensation, in consideration of the mutual promises expressed herein and in cooperation with the Federal, State, and local civil defense programs for measures to protect persons against the threat of fallout radiation from enemy attack, grant to the Federal Government, the State of _____</p> <p>and the political subdivision of _____ and to the general public for use in accordance with civil defense shelter plans, the following license or privilege;</p> <p>I. A. Use of the basements, corridors, and other common areas of the building or structure situated at _____</p> <p>and known as _____ as well as any other common use parts of the said building or structure which the Federal Government and the political subdivision shall determine appropriate, including without limitation the rights to the public of ingress to and egress from the premises, for the sole purpose of temporarily sheltering persons during and after any end every actual or impending attack.</p>	<p>B. Further, the right to designate the said building or structure as a civil defense shelter, and to affix thereto, and maintain thereon, at no expense to the Grantor, such civil defense shelter and other signs as are determined appropriate, so long as there is no interference with the usual use of the premises for the carrying on of business therein.</p> <p>II. The Federal Government, said State and said political subdivision may place and maintain on the premises such appropriate shelter equipment and stocks as may be determined necessary, estimated to require approximately one (1) cubic foot per person of the shelter capacity; and it is expressly understood that the Grantor shall have no responsibility or liability for the care, protection, or maintenance of the shelter stocks, willful damage or bad faith excepted. The shelter stocks and equipment placed in the licensed or privileged area are to be cared for and maintained by said political subdivision at no expense to the Grantor.</p> <p>III. The Grantor agrees that, during such reasonable periods as the premises are open for business, the political subdivision and the Federal Government, their authorized officers, agents, or representatives, shall have the right to inspect the premises, including any equipment and supplies stored thereon, so long as this license or privilege is in effect.</p> <p>This license or privilege is granted on the express condition that it shall be valid and binding upon the heirs, assigns, or successors in interest of any nature whatsoever, this license or privilege may be revoked by ninety (90) days' written notice to the political subdivision and the Federal Government, sent by registered mail.</p>
<p>Signed, sealed, and delivered this _____ day of _____, 19____.</p> <p>WITNESSES:</p> <p>_____</p> <p>_____ GRANTOR(S) SEAL</p>	
<p>The acceptance and approval of the above license or privilege is authorized by the political subdivision of _____</p> <p>_____</p> <p>Standard Location Code _____</p> <p>_____</p> <p>Facility Number _____</p> <p>_____ (Official Title)</p>	
<p>KNOW ALL MEN BY THESE PRESENTS:</p> <p>The United States of America acknowledges the voluntary cooperation of the above-named Grantor in the civil defense program of the Nation, and his Government extends its appreciation for his uncompensated assistance. The above license or privilege is accepted and approved by the United States of America when completed in accordance with its terms and conditions and filed with its authorized representative.</p> <p style="text-align: right;"><i>William F. Shuber</i></p> <p style="text-align: right;">Director of Civil Defense</p>	

INSTRUCTIONS FOR USE OF FALLOUT SHELTER LICENSE OR PRIVILEGE

LOCAL GOVERNMENT OFFICIAL

1. Forms may be signed by local official prior to contacting persons in control of structures for signature. Local government official's signature and title may be imprinted by rubber stamp or by using carbon paper, if so desired. Entries in blanks common to a given locality, such as, name of State and political subdivision and standard location code number, facility number, address of building or structure and name of building or structure may

be typed, stamped, lettered or in longhand prior to contacting person in control of premises.

2. When forms have been executed by owner, retain original, return a copy to local field office of Army Corps of Engineers or Navy Bureau of Yards and Docks conducting the survey in your area; present owner with one copy. The local field offices are:

- Alabama US Army Engineer District, Mobile, PO Box 1169, Mobile, Alabama 36601
- Alaska US Army Engineer District, Alaska, PO Box 7002, Anchorage, Alaska 99501
- Arizona US Army Engineer District, Los Angeles, PO Box 12727 Foy Station, Los Angeles, California 90017
- Arkansas US Army Engineer District, Little Rock, PO Box 867, Little Rock, Arkansas 72203
- California US Army Engineer District, Sacramento, PO Box 1739, Sacramento, California 95808
Director, Southeast Division, Bureau of Yards and Docks, 1200 Pacific Highway, San Diego, California
District Public Works Officer, 12th Naval District, San Bruno, California
- Colorado US Army Engineer District, Los Angeles, PO Box 12727 Foy Station, Los Angeles, California 90017
- Connecticut US Army Engineer District, Omaha, 215 North 17th Street, Omaha, Nebraska 68101
- Delaware District Public Works Officer, Third Naval District, 90 Church Street, New York, New York
- Florida District Public Works Officer, Fourth Naval District, Building 3, Naval Base, Philadelphia, Pennsylvania
- Georgia US Army Engineer District, Jacksonville, PO Box 4970, Jacksonville, Florida 32201
- Hawaii US Army Engineer District, Savannah, PO Box 489, Savannah, Georgia 31402
District Public Works Officer, 14th Naval District, US Naval Base, Pearl Harbor, Hawaii
- Idaho US Army Engineer District, Honolulu, Building 306, Ft. Armstrong, Honolulu, Hawaii 96813
- Illinois US Army Engineer District, Walla Walla, Building 602, City-County Airport, Walla Walla, Washington 99362
- Indiana US Army Engineer District, Chicago, 536 South Clark Street, Chicago, Illinois 61202
- Iowa US Army Engineer District, Rock Island, Clock Tower Building, Rock Island, Illinois 61202
- Kansas US Army Engineer District, Louisville, PO Box 39, Louisville, Kentucky 40201
- Kentucky US Army Engineer District, Kansas City, 1800 Federal Building, 911 Walnut Street, Kansas City, Missouri 63102
- Louisiana US Army Engineer District, Louisiana, PO Box 59, Louisiana 70160
- Maine District Public Works Officer, 8th Naval District, Building 16, Naval Station, New Orleans, Louisiana
- Maryland US Army Engineer District, 1st Naval District, 495 Summer Street, Boston, Massachusetts
District Public Works Officer, Baltimore, PO Box 1715, Baltimore, Maryland 21203
Director, Atlantic Division, Bureau of Yards and Docks, Naval Base, Norfolk, Virginia
- Massachusetts US Army Engineer District, New England, 424 Trapelo Road, Waltham, Massachusetts 02154
- Michigan US Army Engineer District, Detroit, PO Box 1027, Detroit, Michigan 48231
- Minnesota US Army Engineer District, St. Paul, 1217 USPC, 180 E. Kellogg Boulevard, St. Paul, Minnesota 55101
- Mississippi US Army Engineer District, Vicksburg, PO Box 60, Vicksburg, Mississippi 39181
- Missouri US Army Engineer District, St. Louis, 420 Locust Street, St. Louis, Missouri 63102
- Montana US Army Engineer District, Vicksburg, PO Box 60, Vicksburg, Mississippi 39181
- Nebraska US Army Engineer District, Walla Walla, Building 602, City-County Airport, Walla Walla, Washington 99362
- Nevada US Army Engineer District, Omaha, 215 North 17th Street, Omaha, Nebraska 68101
- New Hampshire District Public Works Officer, 12th Naval District, San Bruno, California
- New Jersey US Army Engineer Division, New England, 424 Trapelo Road, Waltham, Massachusetts 02154
- New Mexico US Army Engineer District, Philadelphia, PO Box 8629, Philadelphia, Pennsylvania 19106
- New York US Army Engineer District, Albuquerque, PO Box 1538, Albuquerque, New Mexico 87103
- North Carolina US Army Engineer District, New York, 111 East 16th Street, New York, New York 10003
- North Dakota US Army Engineer District, Buffalo, Fort of Bridge Street, Buffalo, New York 14207
District Public Works Officer, Third Naval District, 90 Church Street, New York, New York
Director, Southeast Division, Bureau of Yards and Docks, US Naval Base, Charleston, South Carolina
- Ohio US Army Engineer District, Wilmington, PO Box 1890, Wilmington, North Carolina 28402
- Oklahoma District Public Works Officer, Bureau of Yards and Docks, Naval Base, Norfolk, Virginia
- Oregon US Army Engineer District, Omaha, 215 North 17th Street, Omaha, Nebraska 68101
- Pennsylvania US Army Engineer District, Buffalo, Fort of Bridge Street, Buffalo, New York 14207
US Army Engineer District, Tulsa, PO Box 91, Tulsa, Oklahoma 74102
US Army Engineer District, Huntington, PO Box 2127, Huntington, West Virginia 25721
District Public Works Officer, 4th Naval District, Building 1, Naval Base, Philadelphia, Pennsylvania 19106
US Army Engineer District, Pittsburgh, Manor Building, 544 Forbes Avenue, Pittsburgh, Pennsylvania 15219
District Public Works Officer, 1st Naval District, 495 Summer Street, Boston, Massachusetts
- Rhode Island District Public Works Officer, 4th Naval District, Building 1, Naval Base, Philadelphia, Pennsylvania 19106
- South Carolina US Army Engineer District, Charleston, PO Box 905, Charleston, South Carolina 29402
- South Dakota US Army Engineer District, Omaha, 215 North 17th Street, Omaha, Nebraska 68101
- Tennessee US Army Engineer District, Nashville, PO Box 1070, Nashville, Tennessee 37202
- Texas US Army Engineer District, Memphis, 668 Federal Office Building, Memphis, Tennessee 38103
US Army Engineer District, Ft. Worth, PO Box 1600, Ft. Worth, Texas 76101
US Army Engineer District, Albuquerque, PO Box 1538, Albuquerque, New Mexico 87103
US Army Engineer District, Galveston, PO Box 1229, 606 Sante Fe Building, Galveston, Texas 77551
District Public Works Officer, 8th Naval District, Building 16, Naval Station, New Orleans, Louisiana
- Utah US Army Engineer District, San Francisco, 160 New Montgomery Street, San Francisco, California 94105
- Vermont District Public Works Officer, 4th Naval District, Building 1, Naval Base, Philadelphia, Pennsylvania 19106
- Virginia US Army Engineer District, Norfolk, Fort of Front Street, Norfolk, Virginia 23540
Director, Atlantic Division, Bureau of Yards and Docks, Naval Base, Norfolk, Virginia
US Army Engineer District, Chesapeake, US Naval Weapons Plant, Washington, D. C.
Director, Northwest Division, Bureau of Yards and Docks, Seattle, Washington
- Washington US Army Engineer District, Seattle, 1518 South Alaskan Way, Seattle, Washington 98134
US Army Engineer District, Walla Walla, Building 602, City-County Airport, Walla Walla, Washington 99362
- West Virginia District Public Works Officer, 4th Naval District, Building 1, Naval Base, Philadelphia, Pennsylvania 19106
- Wisconsin US Army Engineer District, Huntington, PO Box 2127, Huntington, West Virginia 25721
- Wyoming US Army Engineer District, Omaha, 215 North 17th Street, Omaha, Nebraska 68101
- District of Columbia District Public Works Officer, 4th Naval District, Building 1A, NTC, Great Lakes, Illinois
- American Samoa US Army Engineer District, Omaha, 215 North 17th Street, Omaha, Nebraska 68101
- Canton Zone Director, Pacific Division, Bureau of Yards and Docks, Pearl Harbor, Hawaii
- Guam US Army Engineer District, Jacksonville, PO Box 4070, Jacksonville, Florida 32201
Officer in Charge of Construction Mariners, Public Works Center, Guam
- Virgin Islands Area Public Works Officer, Caribbean, US Naval Station, San Juan, Puerto Rico
Area Public Works Office, Caribbean, US Naval Station, San Juan, Puerto Rico

OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE

1. If the owner is granting a license or privilege for other than the specified parts of the building or structure, insert description of all area in space provided in the form. The grantor must initial all changed insertions.

2. Owner's or his authorized representative's signature on all copies

may be imprinted by rubber stamp or by using carbon paper, if so desired.

3. Retain one copy.

LOCAL FIELD OFFICES OF THE CORPS OF ENGINEERS AND BUREAU OF YARDS AND DOCKS

1. File returned copy and notify State of Receipt.

DESCRIPTION OF PUBLIC FALLOUT SHELTER SUPPLIES

Water containers (see fig. 20).—The containers are 17½-gallon, lightweight metal 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 shelterees, 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 into chemical toilets by using appropriate items contained in the sanitation kits.

Food rations (see fig. 21).—Food rations, providing 10,000 calories per shelteree and averaging 5 pounds in weight, 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 the special formulation of the food products are expected to assure that the food will remain usable from 5 to 15 years after storage.

The Armed Forces Food and Container Institute, now the Army Natick Laboratories, developed specifications for the food items. They 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 shelteree contains proper components of protein, carbohydrate, and fat. A minimum amount of protein is included, since consumption of high-protein foods over prolonged periods with limited consumption of water would be harmful. In accordance with estab-

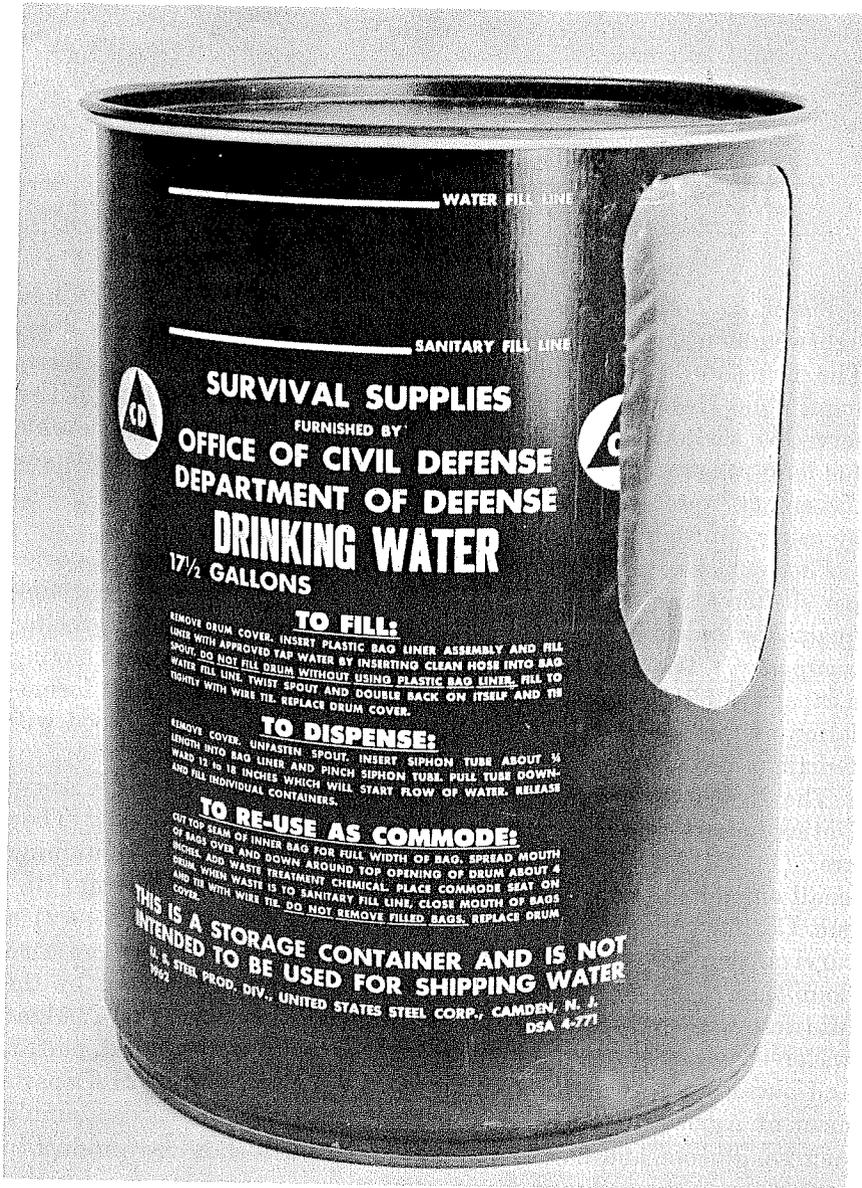


Figure 20.—Public fallout shelter water container showing polyethylene liner.

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.

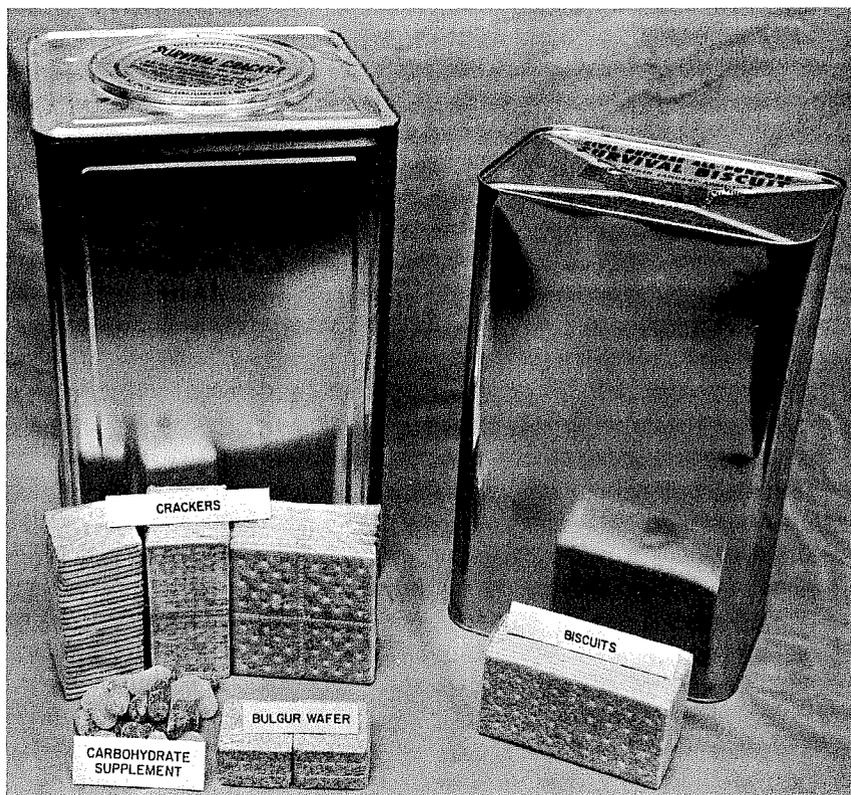


Figure 21.—Public fallout shelter food items.

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 (see fig. 22).—Sanitation kits, designed for waste disposal during shelter occupancy, are provided in two sizes: one to serve 25, and another to serve 50 persons.

The 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. Tests supervised by the U.S. Public Health Service have proved this method of waste disposal to be satisfactory.

Assembly of the kits is on the schedule of *Blind Made Products*



Figure 22.—Public fallout shelter sanitation kit SK-4 (designed to serve 50 persons).

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 (see fig. 23).—Medical kits are provided in two sizes: one to serve 50-65 persons, the other to serve 300-325. The 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 U.S. Public Health Service, Division of Health Mobilization, and DOD medical authorities have approved the items in the kit. Contents



Figure 23.—Public fallout shelter medical kit A (designed to serve 50–65 persons).

persons. Persons having special health problems will need to make provisions for them prior to entering a shelter.

Radiation kit (see fig. 24).—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), commonly known as a Geiger counter, for monitoring personnel, food, and water; (2) 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.

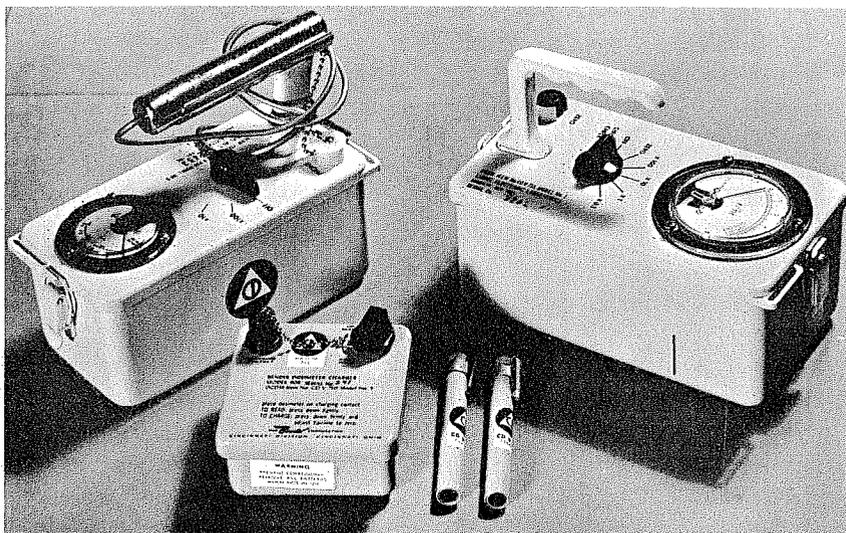


Figure 24.—Public fallout shelter radiation kit CD V-777-1.

- 1 CD V-700 (low range beta-gamma survey meter)
- 1 CD V-715 (high range gamma survey meter)
- 2 CD V-742 (dosimeters)
- 1 CD V-750 (dosimeter charger)

Appendix 3

UNDERSTANDING BETWEEN THE NATIONAL DEFENSE TRANSPORTATION ASSOCIATION AND THE DE- PARTMENT OF THE ARMY ON NDTA SUPPORT TO CIVIL DEFENSE IN EMERGENCIES

1. Purpose

This understanding between the National Defense Transportation Association (NDTA) and the Department of the Army, Office of Civil Defense (OCD), is for the purpose of making arrangements through local NDTA chapters to identify and obtain transportation personnel, equipment, and facilities for use during civil defense emergency operations, or in preparation therefor.

2. Organization of the Office of Civil Defense (OCD)

a. OCD is headed by the Director of Civil Defense. The following major civil defense functions and responsibilities delegated to the Secretary of Defense by Executive Order 10952 were redelegated to the Secretary of the Army and assigned to the Director of Civil Defense with appropriate support from all elements of the Department of Defense.

- (1) A fallout shelter program.
- (2) A chemical, biological, and radiological warfare defense program.
- (3) All steps necessary to warn or alert Federal military and civilian authorities, State officials, and the civilian population.
- (4) All functions pertaining to communications, including a warning network, reporting on monitoring, instructions to shelters.
- (5) Emergency assistance to the States and local governments in postattack period, including water, debris, fire, health, traffic, police, evacuation capabilities, and the repair of vital facilities and utilities.
- (6) Protection and emergency operational capability of State and local government agencies in keeping with the Office of Emergency Planning plans for the continuity of government.
- (7) Programs for making financial contributions to the States (including personnel and administrative expenses) for civil defense purposes.

b. In addition OCD also is responsible for:

- (1) Developing plans and operating systems to undertake a nationwide postattack assessment of the nature and extent of the damage resulting from enemy attack and the surviving resources, including systems to monitor and report specific hazards resulting from the detonation or use of special weapons; and
- (2) Making necessary arrangements for the donation of Federal surplus property.

3. Organization of the National Defense Transportation Association (NDTA)

a. NDTA is a nonprofit organization dedicated:

- (1) to uphold and defend the Constitution of the United States of America and the principles for which it stands
- (2) to assist in securing the national defense
- (3) to foster the promotion and development of the art of transportation in the national military establishment
- (4) to disseminate transportation knowledge dealing with the military establishment.

b. The association supports an efficient and economical transportation system, utilizing all modes, under private management and ownership, as a resource vital to the welfare of our country in peace and to its survival in war. The national headquarters are located in Washington, D.C. All local NDTA chapters are autonomous within the framework of its national constitution and by-laws.

4. Method of Cooperation

In order that the resources of NDTA and OCD may be coordinated and utilized to the fullest advantage in rendering assistance to the civilian population in time of civil defense emergencies, the following has been agreed upon by both organizations:

a. OCD, the State civil defense organizations and local civil defense organizations are the agencies primarily responsible for the protection and survival of the civilian population during civil defense emergencies.

b. NDTA, through its Executive Vice President, will at all times maintain close and continuous liaison with OCD.

c. In a civil defense emergency or in preparation therefor, local civil defense directors may request needed assistance through NDTA local chapters. The requested transportation assistance may include, but is not limited to:

- (1) Surveys and damage assessment;
- (2) Transportation of essential supplies and equipment from depots, warehouses, stores, or other locations to relief centers or

(4) Movement of people and things.

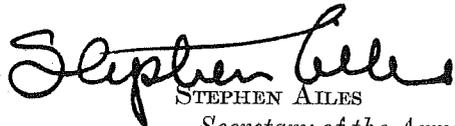
d. The assistance to be rendered by NDTA is intended to maximize local transportation responsiveness to civil defense requirements within the framework of applicable transportation allocations, priorities, and controls, and is to be in coordination with the local transportation task group established pursuant to State or local governmental authority.

e. Local NDTA chapters will assist local governments in the development of local agreements and detailed operating plans for the full utilization of transportation resources in preattack planning and post-attack operations. Such voluntary arrangements will extend only through the immediate emergency survival period. NDTA vice presidents-territorial chairmen will cooperate with regional offices and State governments to insure that both regional and State civil defense requirements are recognized and that provisions are made for regional and State emergency civil defense demands.

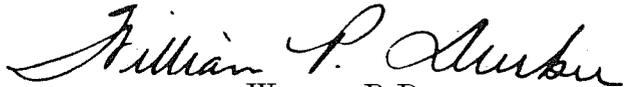
f. Since the local arrangements are the means by which this understanding will be effectively implemented, OCD will furnish copies of this national understanding to its Regional Directors and to State and local civil defense authorities, and NDTA will similarly furnish copies to its vice presidents-territorial chairmen and domestic chapters so that implementing local agreements may be consummated.

5. Supersession

The Understanding Between the National Defense Transportation Association and the Department of Defense on NDTA Support to Civil Defense in Emergencies, dated 12 November 1963 is superseded hereby.



STEPHEN AILES

Secretary of the Army


WILLIAM P. DURKEE

Director of Civil Defense


I. SEWELL MORRIS

President, National Defense Transportation Association


WILLIAM B. JOHNSON

AFL-CIO RESOLUTION ON CIVIL DEFENSE AND EMERGENCY PLANNING

The following Civil Defense and Emergency Planning policy resolution was unanimously adopted at the 5th Constitutional Convention of the AFL-CIO Council at the Americana Hotel, New York City, November 19, 1963.

CIVIL DEFENSE AND EMERGENCY PLANNING

Resolution No. 193

The President has stated that the apparent lessening of cold war tensions should not, and will not, lead to any relaxation of military preparedness by the U.S. Neither should it lead to any relaxation of our concern over civil defense and emergency planning.

Indeed, the limited steps that have been taken to reduce the possibilities of a nuclear war are in no small way tied to the obvious readiness of the U.S. and the free world to defend itself. Accordingly, continued steps away from the brink of a nuclear holocaust can come about only if our total defense preparedness—both military and non-military—remains strong.

A vital part of our defense preparedness measures consists of the ability of our people and our basic production capacity to survive even the worst possible attack. Despite the unprecedented horror that would attend a nuclear war, there would be remaining in the U.S. major parts of our population, our communications and transportation systems, and our productive capacity. Whether these could be restored to a viable economy and an acceptable level of social order depend upon the plans we have made in advance for our survival and recovery.

That is why it is important that while we negotiate for world peace and, indeed, so that we can engage successfully in such negotiations, we maintain both our military establishment and our non-military preparedness. Therefore, be it

RESOLVED: 1. While the AFL-CIO commends the President for his leadership in advancing the necessary civil defense programs in the Department of Defense, and the mobilization preparedness program in the Office of Emergency Planning, we believe that much more needs to be done. We call upon the federal government, both the Executive and the Congress, to provide the greater measure of national leadership that is required, including financing, for a completely adequate and far-reaching national program of civil defense. Although the survival of no individual can be insured by any measures, the survival of our nation and many millions of our people can be assured and provided for with adequate preparations.

2. Recognition should be made that radiation from fallout can be lethal, where no fallout protection is provided, or that Americans can survive if adequate fall-

in our heavily populated cities for whom a program of individual shelters is meaningless—must be accelerated. The present program, as provided by Congress, is inadequate.

3. Survival itself would be of little meaning if we failed to reconstruct our society on a democratic basis. Therefore, it is essential that the Office of Emergency Planning in the Executive Office of the President be urged to increase its efforts to develop its program to assure political and economic continuity, together with its plans for a continuity of representatives of civil government.

4. Economic stabilization programs, both in their determination and in their administrative application, should be accomplished under the policy guidance of governing bodies representative of all groups in our society, including organized labor, at all levels of government.



NUMBER 5030.21
DATE *April 27, 1962*

ASD(CD)

DEPARTMENT OF DEFENSE INSTRUCTION

SUBJECT: Advisory Committee on the Design and Construction of Public Fallout Shelters

References: (a) DoD Directive 5030.13, "Regulations for the Formation and Use of Advisory Committees"
(b) Executive Order 11007, "Prescribing Regulations for the Formulation and Use of Advisory Committees," February 26, 1962

I. GENERAL

A Department of Defense Advisory Committee on the Design and Construction of Public Fallout Shelters is hereby established to advise the Assistant Secretary of Defense (Civil Defense). The purpose, membership, and operation of the Committee are set forth below.

II. PURPOSE

The purpose of the Advisory Committee on the Design and Construction of Public Fallout Shelters is to:

- A. Review and make recommendations on the operating problems of providing incentives for shelter construction and of effecting proper utilization of shelter space in existing buildings.
- B. Provide means for effective communications relating to shelter design and construction between the Office of Civil Defense, Department of 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 to the building trades and building owners technical information conducive to shelter construction.

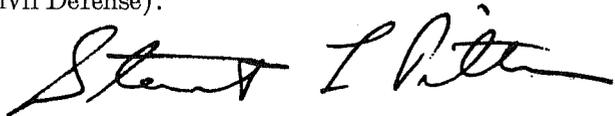
III. MEMBERSHIP

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, and the American Institute of Planners. Total membership shall consist of 13 members.

- A. There shall be two members from each of the six 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 Assistant Secretary of Defense (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.

IV. OPERATION

- A. The Committee shall be organized and operated in accordance with references (a) and (b) above.
- 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 Assistant Secretary of Defense (Civil Defense).



STUART L. PITTMAN,
Assistant Secretary of Defense
(Civil Defense)

MEMBERSHIP LIST

ADVISORY COMMITTEE ON THE DESIGN AND CONSTRUCTION OF PUBLIC FALLOUT SHELTERS

Meeting Dates—July 10, and October 28, 1963.

<i>Designate</i>	<i>Name, Title, and Affiliation</i>	<i>Address</i>
1. Chairman-----	Mr. James E. Roembke, staff director, Architectural and Engineering Development Division, Technical Operations, Office of Civil Defense.	The Pentagon, Washington, D.C., 20310.
<i>Representatives from the American Institute of Architects:</i>		
2. Officer-----	Mr. John McLeod, board member, Washington Metropolitan Chapter, American Institute of Architects.	1223 Connecticut Ave. NW., Washington, D.C., 20036.
3. Staff member..	Mr. William H. Scheick, executive director, American Institute of Architects.	1735 New York Ave. NW., Washington, D.C., 20006.
Alternate staff member.	Mr. Kenneth C. Landry, director, Public Services Division, American Institute of Architects.	Do.
<i>Representatives from the American Society of Civil Engineers:</i>		
4. Officer-----	Mr. Howard G. Dixon, senior vice president, Johnson, Drake & Piper, Inc.	1214 Mamaroneck Ave., White Plains, N.Y., 10600.
5. Staff member..	Mr. William H. Wisely, executive secretary, American Society of Civil Engineers.	345 East 47th St., New York, N.Y., 10000.
Alternate staff member.	Mr. D. P. Reynolds, assistant secretary, American Society of Civil Engineers.	Do.
<i>Representatives from the Associated General Contractors of America, Inc.:</i>		
6. Officer-----	Mr. John E. Healy II, John E. Healy & Sons.	707 Tatnall St., Wilmington, Del., 19800.
7. Staff member..	Mr. William Dunn, executive director, Associated General Contractors of America, Inc.	20th and E Sts. NW., Washington, D.C., 20006.
Alternate staff member.	Mr. John K. Bowersox, director, Building Contractors' Division, Associated General Contractors of America, Inc.	Do.

<i>Designate</i>	<i>Name, Title, and Affiliation</i>	<i>Address</i>
<i>Representatives from the National Society of Professional Engineers:</i>		
8. Officer-----	Mr. John H. Stufflebean, president, National Society of Professional Engineers.	211 West Pennington St., Tucson, Ariz., 85700.
9. Staff member_	Mr. Paul Robbins, executive director, National Society of Professional Engineers.	2029 K St. NW., Washington, D.C., 20006.
Alternate staff member.	Mr. Leo Ruth, Ruth and Going, Civil Engineers.	919 The Alameda, San Jose, Calif., 95100.
<i>Representatives from the Engineers Joint Council:</i>		
10. Officer-----	Mr. R. H. Tatlow III, president, Abbott, Merkt & Co., Inc.	630 Third Ave., New York, N.Y., 10000.
11. Staff member_	Mr. L. K. Wheelock, secretary, Engineers Joint Council.	345 East 47th St., New York N.Y., 10000.
Alternate staff member.	Mr. Donald A. Buzzell, executive director, Consulting Engineers Council.	World Center Building, 16th and K Sts. NW., Washington, D.C., 20006.
<i>Representatives from the American Institute of Planners:</i>		
12. Officer-----	Mr. Lachlan F. Blair, Blair Associates, Inc.	36 Exchange Pl., Providence, R.I., 02900.
13. Staff member_	Mr. Robert L. Williams, executive director, American Institute of Planners.	917 15th St. NW., Room 800, Washington, D.C., 20005.

Appendix 6



NUMBER 5030.20 ¹
DATE *March 12, 1962*

ASD (CD)

DEPARTMENT OF DEFENSE INSTRUCTION

SUBJECT: Industry Advisory Committee on the National Emergency Alarm Repeater (NEAR) System

References: (a) DoD Directive 5030.13, "Public Advisory Committees"

(b) Executive Order 11007 dated February 27, 1962, Prescribing Regulations for the Formation and Use of Advisory Committees

I. GENERAL

A Department of Defense National Emergency Alarm Repeater (NEAR) System Industry Advisory Committee is hereby established to advise the Assistant Secretary of Defense (Civil Defense). The purpose, membership, and operation of the committee are set forth below.

II. PURPOSE

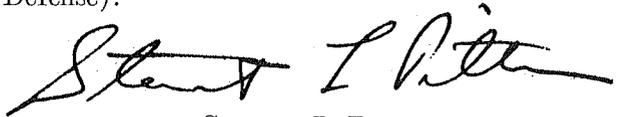
The purpose of the NEAR System Industry Advisory Committee is to provide advice to the Office of Civil Defense, Department of Defense, regarding the ongoing NEAR system investigation and implementation program. The NEAR system involves the utilization of the nationwide facilities of the power companies and introduces complex problems of installation and testing.

III. MEMBERSHIP

- A. The total membership shall consist of twelve (12) members; three each from the private, public, and rural electrification utilities, and three from the Department of Defense.
- B. The Chairman of the Committee shall be a full time, salaried government official, designated by the Assistant Secretary of Defense (Civil Defense).

IV. OPERATION

- A. The Committee shall be organized and operated in accordance with references (a) and (b) above.
- B. The Chairman will call each meeting of the Committee, formulate the agenda for each meeting, and 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 Assistant Secretary of Defense (Civil Defense).

A handwritten signature in black ink, appearing to read "Stuart L. Pittman". The signature is fluid and cursive, with a prominent initial "S" and a long, sweeping underline.

STUART L. PITTMAN
Assistant Secretary of Defense
(Civil Defense)

MEMBERSHIP LIST

INDUSTRY ADVISORY COMMITTEE ON THE NATIONAL EMERGENCY ALARM REPEATER (NEAR) SYSTEM

Meeting Dates—The committee did not meet during fiscal year 1964.

CHAIRMAN: Mr. Walter F. Lineberger, Jr.
Deputy Assistant Secretary of Defense (Civil Defense)
Department of Defense

Mr. T. M. Blakeslee, Electrical Engineer in Charge of Operation Department of Water and Power, Los Angeles, Calif., 90000

Mr. H. Dean Miller, Electric Utility Manager, Office of Municipal Electric Light Plant, City of Hagerstown, Md., 21740

Mr. Herbert Blinder, Staff Engineer, American Power Association, Washington, D.C., 20000

Mr. Charles Robinson, National Rural Electric Cooperative Association, Washington, D.C., 20000

Mr. Charles Custer, Executive Director, Southwest Power Pool, Little Rock, Ark., 72200

Mr. Jack E. Smith, Mecklenburg Electric Cooperative, Chase City, Va., 23924

Mr. James M. McCutchen, Engineer, Basic Engineering Branch, Electric Standards Division, Rural Electrification Administration, Department of Agriculture

Mr. Ed Frye, Assistant to the Director, Economics and Statistics, Edison Electric Institute, New York, N.Y., 10000.

Mr. G. M. McDaniel, Head, Systems Operating Division, American Electric Power Service Corporation, New York 6, N.Y., 10000

KEY STATISTICAL DATA

UPDATED TO FEBRUARY 1966

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

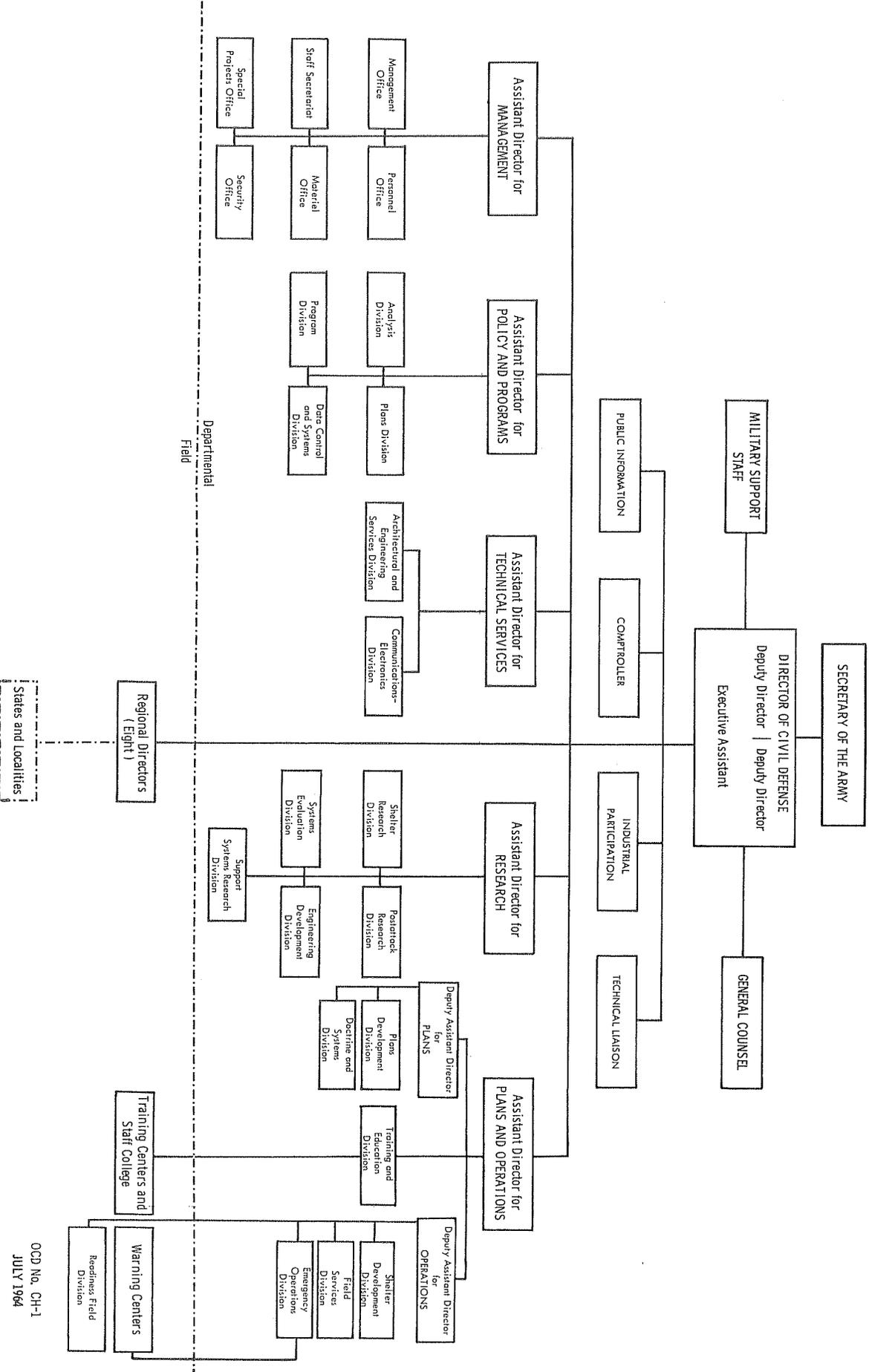


Figure 1.—OCD organization chart.