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UNITED STATES ATOMIC ENERGY COMMISSION

CIVIL DEFENSE ACTIVITIES OF THE ATOMIC ENERGY COMMISSION

Authority for Aid in Civil Defense

Oct 12-49

The Atomic Energy Act of 1946 authorizes and directs the Atomic Energy Commission to carry on various types of activities pertinent to a program for civil defense against attack by atomic weapons. Applicable provisions of the

Act include the following:

Sec. 1(a) which states as a declaration of policy that the development and utilization of atomic energy shall be "subject at all times to the paramount objective of assuring the common defense and security." Sections 3(a), 4(c)(2), 5(a)(4), 5(c)(2), 7(c) and 12(a)(2) which express, in part, a policy of guarding against the hazards of atomic energy. These provisions deal with the control of hazards in research, production and use of fissionable material. Sections 1(b)(2) and 10(a)(2) which enunciate the policy of dissemination of information in the interests of scientific progress.

Development of general Federal Civil Defense Activities

The following actions for development of Federal guidance for civil defense operations have been taken in 1948-49.

1. By directive of March 27, 1948, Secretary of Defense Forrestal created an Office of Civil Defense Planning within the National Military Establishment "to provide for the development of detailed plans for, and the

establishment of, an integrated national program of civil defense; to secure proper coordination and direction of all civil defense matters affecting the NME; and to provide an effective means of liaison between the NME and other

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Governmental and private agencies on questions of civil defense." Mr. Russell J. Hopley was appointed OCDP Director, being responsible directly to the Secretary of Defense.

2. A comprehensive report, "Civil Defense for National Security," was submitted by the Director of OCDP to the Secretary of Defense on October 1, 1948. This report, commonly referred to as the "Hopley Report," recommended establishment of a permanent Office of Civil Defense in the NME to be responsible for both the planning and operational aspects of civil defense in accordance with a detailed scheme outlined in the Report. This included direction and coordination at the Federal level of the work of state and local civil defense organizations. By letter of December 16, 1948, the Commission commented briefly on this Report. The letter appears as Appendix A. The recommendations of the Hopley Report were not put into effect. The OCDP continued to function in its planning capacity until recently.

3. By Presidential directive of March 3, 1949, the National Security Resources Board was instructed "to assume * * * * * leadership in civil defense planning and to develop a program which will be adequate for the Nation's needs." The Presidential directive stated "Under present conditions the essential need of the Federal Government in the area of civil defense is peacetime planning rather than operation of a full-scale civil defense program. Therefore I see no need to establish at this time a permanent organization, such as a proposed Office of Civil Defense. Rather, I see a definite necessity to continue planning for civil defense and an immediate need to fix in a responsible agency definite leadership for such planning. Since peacetime civil defense planning is related to, and

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a part of, over-all mobilization planning of the Nation in peacetime, I have concluded that the NSRB, which is charged with advising me concerning the coordination of such over-all mobilization planning, is the appropriate agency which should also exercise leadership in civil defense planning."

4. In accordance with a directive from the Acting Chairman, NSRB, dated March 29, 1949, "A Report on Civil Defense Planning" was prepared by the Office of Mobilization Procedures and Organization, NSRB. As an aid to the preparation of the Report, AEC among other concerned agencies was asked to contribute a statement as to its activities in civil defense. This statement is attached as Appendix B. The Report envisaged the broad field of civil defense as comprised of the following separable functions:

- (1) Civilian participation in active defense
- (2) Wartime disaster relief
- (3) Peacetime disaster relief
- (4) Internal security
- (5) Volunteer war activities

The Report recommended that "primary responsibilities" for the first two functions only be made at this time to the appropriate agencies--the NME in the case of (1) above and the General Services Administration* in the case of (2). The AEC is included as one of several "participating agencies" associated with the GSA in its primary responsibility for wartime disaster relief.

5. The "participating agencies" were asked to submit to NSRB directly, comments on these proposals. The reply of AEC is contained in a letter from Chairman

*Formerly Federal Works Agency

[REDACTED]

Lilienthal to Mr. Steelman, dated July 7, 1949, stating in part:

"We note the proposed assignment to the GSA of primary planning responsibility in the immediate future for wartime disaster relief and the listing of the AEC as a participating agency in this planning program. The Commission will, of course, be glad to assist the GSA in the fulfillment of its responsibilities....The Commission feels that it can make an important contribution....by making available to the GSA technical information on which planning for disaster relief against radiological warfare must necessarily be based....We anticipate that the Commission's role in civil defense planning will be in large measure one of supplying information to other agencies with primary responsibility for civil defense planning."

The fulltext of this letter is attached as Appendix C.

In planning and preparing for defense against atomic warfare civilian communities need facts about:

- a. damage caused by atomic weapons to persons, structures, highways, utility services;
- b. after-effects from radiation released by atomic weapons
- c. protection of people, structures, services against damage
- d. relief of suffering, restoration of services, decontamination of areas, etc., after atomic attack.

Much of this same information is required in military planning for atomic warfare. Research and study developing such facts have been carried on by the Manhattan Engineer District and subsequently by the Atomic Energy Commission and by a number of agencies of the Department of Defense. Some of the results of the studies have been classified and restricted in distribution; other results are unclassified or have been ^uclassified.

The Atomic Energy Commission has continued to carry on such studies and publish the results under the appropriate classification, as did the Manhattan District. More than 400 documents issued by the MED or the AEC are useful in civil defense planning and operations. Some 160 of these are unclassified or have been declassified. The majority have been published in professional and technical journals and most of the medical and biological work will be included in the National Nuclear Energy Series of volumes. If the national interest demands it, some or all of the remaining 240, after careful editing for security may be declassified. In addition, several hundred other classified studies provide background information.

[REDACTED]

Many of the classified papers already have been made available to selected officials and to agencies entitled to such information. In the case of medical papers -- about 90 percent of all in this category are unclassified -- 1200 hospitals and institutions regularly receive the material.

Papers and reports developed by the MED and AEC which are of especial value in civilian defense includes material in the following categories:

RADIATION DETECTION

RADIATION PROTECTION

RADIATION SICKNESS (Biological and Medical Effects)

SHIELDING AGAINST RADIATION

EFFECTS OF ATOMIC BOMBINGS ON HIROSHIMA AND NAGASAKI

CITY AND INDUSTRIAL VULNERABILITY TO ATOM BOMBING

DECONTAMINATION AND DISPOSAL OF RADIOACTIVE MATERIALS

A bibliography of these reports is attached as appendix D.

In addition to the 400-odd studies putting special emphasis on these subjects, there are scores of other papers which will have partial bearing on matters of particular concern to civilian defense. These are not included in the bibliography.

Other Government agencies, particularly the military, have published extensive material valuable in this field. The Navy has issued radiological safety regulations for orientation and safety of naval personnel. The Navy has issued more than 50 classified studies or reports on radiological decontamination. The Radiological Defense Division of the Armed Forces Special Weapons Project has collected and assisted in the preparation of training materials. The Army has issued, among others, "Nuclear Physics for the Medical Officers,"
Joint NME -
(unclassified). A/ AEC Panel on Radiological Warfare with both military and scientific members has prepared an extensive report on this subject, which is

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[REDACTED]

classified. The United States Strategic Bombing Survey reports on "The Effects of Atomic Bombs on Hiroshima and Nagasaki," are in four classified and one unclassified volume. A bibliography of publications and reports of this type is attached.

This official compilation and publication of information has been supplemented, and greatly enlarged, by a vast outpouring of published material by private groups and in popular and technical magazines. The titles in this field run into thousands. A few of the more significant titles include: "America Can Be Made Bomb Resistant," in the Military Engineer, and the "General Report of the Atomic Bomb Casualty Commission." A selected bibliography indicating the content of this type of informational publication is attached as Appendix E.

As this summary indicates, much material of greater or lesser value to civilian defense, is steadily being prepared and published.

The process of compiling material that will be valuable to those concerned with defense against atomic attack goes on continuously. As was reported to the Congress in the Fifth Semiannual Report of the Commission, a Joint NME-AEC project undertaken by the Los Alamos Scientific Laboratory calls for preparation of a handbook on the effects of atomic weapons. The 20 chapters of this volume are now in first or second draft. There is a large problem of declassification to be solved before the volume can be published.

The project was first proposed by a joint NME-AEC Weapons Effects Classification Board. Its purpose was to aid in establishing limits on the unclassified areas of information on weapons effects, and to assist developing programs both for military training and for civil defense. The basic scientific

[REDACTED]

and technical data on which the handbook draft is based are available in classified or unclassified form in voluminous reports within the Commission and the Department of Defense.

The individual chapters have been done by 21 experts in various fields. Their drafts are being reviewed by AEC and military personnel, some 300 copies having been distributed for this purpose. An experienced editor of technical books is editing them into final form for concurrence of the authors, approval of the Commission and the Department of Defense, and publication. If possible, the final technical volume will be published in its entirety as an unclassified document. If it is impossible to declassify some information deemed vital, the whole volume will be published in classified form, with an abridged volume in unclassified form. The Commission will assist in preparing public informational materials for the use of civil defense planning, training, and operations. The draft volume includes the following information:

Atomic explosions, what they are and how caused

The detailed technical nature of an explosion

The effects of air, water and ground bursts

The kinds of construction which will resist atomic explosions

The importance of weather in the use of atomic bombs

The heat and radiation of atomic explosions

Types of materials most vulnerable to the heat and blast of atomic explosions

The theory of detection of radiation, the instruments used, how they work, what they cost, and their availability

The distribution and absorption of gamma rays in atomic explosions

The hazards of radioactive contamination

Decontamination; methods that may be used to get rid of the after-effects on atomic bomb explosions

Radiological warfare

Contamination of underwater organisms by underwater blasts

[REDACTED]

Medical aspects of atomic bomb explosions; estimates of what may happen in a bomb attack on a city

Radioactive contamination from underwater atomic explosions including possible effects of an atomic bomb exploded beneath the waters of New York Harbor

A half-dozen technical and scientific appendices will be a part of this volume to extend the usefulness for the professional reader.

Much of the material in the draft chapters as they now stand is technical and is useful in the main to technicians. It must be interpreted and applied to be of direct value to non-professional people. A considerable amount of the material is useful to non-professional people engaged in civil defense planning and operations. All is available in its present preliminary form under appropriate classification.

In the process of preparation at present by AEC staff members are four unclassified papers and manuals which will provide basic information.

These are:

1. A paper on the treatment of persons exposed to radiation.
2. A paper, "Atomic Bombs vs Buildings," on character of damage to structures and means of minimizing damage.
3. A manual for operation and maintenance of monitoring instruments with standards of tolerance.
4. A paper on decontamination.

Responsibilities of Commission Staff for Civil

Defense Aid

The Division of Biology and Medicine has responsibility for the coordination of activities of the Commission and contractors which have a bearing on civil defense, and for liaison between the Commission and the



Government planning and operating agencies in the field -- NSRB, GSA; etc. The Division has designated one officer as fully responsible for coordination and liaison. This is as recommended by the Commission's Advisory Committee on Biology and Medicine which has maintained a close interest in the relation of the Commission's program to civil defense and periodically makes recommendations for strengthening of lines of activity which will be of service in civil defense.

Division of the Commission staff listed below are responsible for the gathering and preparation of information and provision of technical assistance in the following categories:

- | | |
|---|--|
| (1) Blast effects on structures and utilities | Division of Engineering
Division of Biology & Medicine |
| (2) Shielding and shelters | Same as (1) |
| (3) Blast effects on personnel | Division of Biology & Medicine |
| (4) Burns | " " " " " |
| (5) Ionizing radiation injuries | " " " " " |
| (6) Radioactive decontamination | Division of Biology & Medicine
Division of Engineering |
| (7) Medical care for casualties and refugees | Division of Biology & Medicine |
| (8) Radiological safety detection and measurement | Division of Production
Division of Biology & Medicine |
| (9) Educational and information programs | Division of Public and Technical Information Service
Division of Biology & Medicine |

Commission Activities Helpful in Civil Defense

In the course of its planning and operations, both in the production and the research fields, the Commission has developed many projects and activities that can give aid in general civil defense. It has been necessary, of course, to formulate programs protecting Commission installations against possible atomic weapons attack.

[REDACTED]

This has been done, and the general outline of the plans, which are classified, can be made available for aid in civil defense planning. Radiation detection instrument stocks have been accumulated and crews trained to use them at the major installations. This also is a resource for civil defense. In general activities of this sort bearing on civil defense the Commission has:

1. Reviewed the hazards that might exist in its own installations in event of an atomic disaster or attack and considered the best ways of meeting them. Special studies have been made of Oak Ridge, Hanford, and the Washington Office, as presenting problems of fairly typical nature.
2. Studied and determined upon and is assembling sample quantities of types radiation detection instruments for use in event of an emergency.
3. Initiated organization in Atomic Energy Commission major installations of groups of emergency monitoring personnel trained to make radiation hazard surveys.
4. Collected (and is continuing to collect) all available data on the effects of atomic explosions on man, animals, plants, and physical structures. Knowledge gained from September 1945 up to now from Hiroshima and Nagasaki is of great value, as are the Bikini and Eniwetok data. The forthcoming Eniwetok tests are being planned to fill in gaps in that knowledge and to orient it in terms of modern types of bombs.
5. Carried on (and is continually emphasizing) research in the effect of radiation on living matter and its constituents. This is being done both in Atomic Energy Commission, university, hospital, and other research laboratories. This work is essential to any attempts toward protection or treatment.

- [REDACTED]
6. Cooperated with the NME in providing data for and reviewing the Hopley Report on Civil Defense Planning.
 7. Considered with NME the problem of radiological warfare.
 8. Engaged in a fellowship program which includes the medical and biological sciences as they relate to atomic energy and health physics. The primary objective is to add to the pool of trained personnel for the country's atomic energy enterprise but such trained personnel may well prove useful also in radiological defense measures and in training others for such purposes.
 9. Sponsored, in cooperation with the Armed Forces special training courses in the medical aspects of atomic energy for selected military, naval, airforce, and PHS officers at Oak Ridge, Los Alamos and four AEC regional training centers.
 10. Participated on the Interdepartmental Working Committee of the NSRB on underground structures and protective construction.
 11. Through participation on another classified Committee, is assuring that civil defense problems are considered in future tests of explosives.

APPENDIX A

December 16, 1949

Honorable James Forrestal
Secretary of National Defense
Washington 25, D. C.

Dear Mr. Secretary:

Acknowledgment is made of your letter of November 9, 1948 forwarding several copies of the report submitted to you by the Director of the Office of Civil Defense Planning. Your letter states that, before submitting your own recommendation to the President, you are anxious to receive the views of other interested Federal agencies by 15 December 1948.

As you are aware, the programs conducted by the Commission touch upon many phases of the report on Civil Defense for National Security. The report is still under consideration and review by the Commission and its staff, but the following preliminary comments are submitted in response to your request.

In general the Commission endorses the emphasis which the report places on the values of a program of public education concerning the potentialities and limitations of atomic warfare. With respect to such a program the Commission believes that appropriate factual information, properly disseminated through existing local educational channels, will do much to allay unjustified fears and possible panic, while, at the same time, create a wholesome appreciation of atomic dangers and the extent of the means of protection against them.

The Commission is now engaged in developing a program for making available to the public such factual information as is consistent with the common defense and security. As an example the Commission, in cooperation with the National Military Establishment, is proceeding with the preparation of an authoritative handbook of unclassified information relating to the effects of nuclear weapons. This volume is being written by outstanding men in the various fields as a project of the Los Alamos Scientific Laboratory. It should prove of some assistance in civil defense activities.

Another program of the Commission upon which the recommendations of the report have a bearing relates to the field of procurement of radiation detection equipment. For some time the Commission has been engaged in steps to assure an adequate supply of radiation detection equipment for the needs of the atomic energy enterprise.

APPENDIX A

In addition, the Commission recently requested the views of the Military Liaison Committee regarding the initiation of a modest stockpile program, as an interim measure, in order to have some radiation equipment available for purposes of disaster control.

The Commission is likewise engaged in a fellowship program which includes the medical and biological sciences as they relate to atomic energy and health physics. The major objective is to add to the pool of trained personnel for the country's atomic energy enterprise. Such trained personnel may well prove useful also in radiological defense measures and in training others for such purposes.

The Commission realizes that there are various aspects of this report which will require continuing study and in which the staff of the Commission may be able to offer useful comments. If you would consider it helpful the Commission would suggest that there be close and continuous liaison between appropriate members of our respective staffs concerning the further development of the civilian defense program. The Commission is keenly interested in keeping abreast of these developments and in furnishing to you whatever assistance it can.

Sincerely yours,

UNITED STATES ATOMIC ENERGY COMMISSION

Summer T. Pike
Acting Chairman

A P P E N D I X B

STATEMENT OF A.E.C. ACTIVITIES IN THE FIELD OF CIVIL DEFENSE
SUBMITTED TO NSRB APRIL 18, 1949

The Atomic Energy Act designates a number of functions to the AEC which are pertinent to a program of planning for and activities in civil defense. First, the AEC is required to establish a program for the control of scientific and technical information relating to atomic energy in such a manner as to assure the common defense and security. Second, the AEC is directed to arrange for the conduct of research and development activities relating to the utilization of fissionable and radioactive materials for medical, biological, health or military purposes and for the protection of health during research and production activities. Third, the AEC is authorized to establish such standards and instructions as may be indicated to protect health and to minimize danger from explosions.

In view of these and other provisions of the Act, the Commission feels that it may properly assume a responsibility for the dissemination of atomic energy information to appropriate agencies within the government or to the public. The AEC recognizes its unique position in regard to the accumulation of information in the field of atomic energy and is anxious to cooperate in furnishing information to any agency designated with responsibility for planning and action in regard to civil defense.

The AEC has information on a number of pertinent problems and there is a considerable volume of research and development in the facilities of the AEC and its contractors which is pertinent to civil defense. The AEC also supports through direct contracts related research in a number of colleges, universities and hospitals. Thus, the AEC could be looked to for information in the following fields under atomic weapons:

1. Blast effects on structures
2. Blast effects on utilities
3. Blast effects on personnel
4. Burns
5. Ionizing radiation injury
6. Shielding and shelters
7. Medical care for casualties and refugees
8. Psychological problems
9. Radiological safety - including instrumentation for the detection and measurement of atomic energy.
10. Training of personnel

In regard to the problem of training, the Commission has already established several programs which include the training of physicians, biologists and biophysicists in the broad field of atomic energy and the training of technicians to detect and measure radioactivity. Within these groups it is anticipated that there will develop the future teachers in these fields.

The AEC is conscious of the necessity for planning to meet any eventuality in the case of disaster at a Commission installation. Accordingly, we are organizing at our major installations disaster teams skilled in the use of detection instruments who would be available in the event of an accident within Commission facilities. It is apparent that these could contribute to any program of civil defense.

Since a majority of the activities of the AEC in this regard fall within the responsibility of the Division of Biology and Medicine, the members of this Division will represent the Commission in the field of Civil Defense Planning.

A P P E N D I X C

July 7, 1949

Dear Mr. Steelman:

This is in reply to your letter of June 6, 1949, requesting our comments on the preliminary report on Civil Defense Planning prepared by the staff of the National Security Resources Board.

Our comments on the report are confined at this time to those portions dealing with "wartime disaster relief" against radiological warfare. The Commission would, of course, also have an interest in the development of plans for "peace time disaster relief" and "internal security." The report indicates, however, that recommendations concerning planning and the assignment of responsibilities in those areas are to be made at a later date.

We note the proposed assignment to the Federal Works Agency of primary planning responsibility in the immediate future for wartime disaster relief and the listing of the Atomic Energy Commission as a participating agency in this planning program. The Commission will, of course, be glad to assist the Federal Works Agency in the fulfillment of its responsibilities.

One of the first and most obvious responsibilities in a planning program will be a further determination of the scope of planning activities. The Commission feels that it can make an important contribution to this determination by making available to the Federal Works Agency technical information on which planning for disaster relief against radiological warfare must necessarily be based. The Commission can also make a substantial contribution to civil defense planning by a detailed study of these present activities of the Commission which, while related primarily to the Commission's own programs, have a bearing on civil defense planning. This study is now being undertaken by the Commission and upon its completion we will be glad to make the results of the study available to the Federal Works Agency and to the National Security Resources Board. We would recommend to the Federal Works Agency and to the National Security Resources Board that similar studies of the present activities of other participating agencies be compiled.

Pending the development of a more detailed definition of the scope of planning activities, the Commission feels that long-term assignments of responsibility should be kept as flexible as possible.

The National Security Resources Board staff report (Part V Section 3c) recommends that the planning activities of Federal agencies assigned responsibility under any of the planning programs be presented and justified separately in their budget documents. We anticipate that the Commission's role in civil defense planning will be in large measure one of supplying information to other agencies with primary responsibility for civil defense planning. There will, of course, be some aspects of planning, such as in

Mr. John R. Steelman

research, training and public education, where the Commission may play a more active role. These activities would, however, be largely incidental to the fulfillment of the Commission's programs and responsibilities under the Atomic Energy Act. It would not, therefore, seem appropriate for the Commission to budget these activities separately under the heading of civil defense planning.

Sincerely yours,

UNITED STATES ATOMIC ENERGY COMMISSION

David E. Lilienthal
Chairman

Mr. John R. Steelman, Chairman
National Security Resources Board
Washington, D. C.

CC: Dr. Alan Gregg