THE FEDERAL RADIATION COUNCIL: ITS RESPONSIBILITIES AND ACTIVITIES

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Abstract—Prior to 1959 there was no official agency within the Executive Branch of the United States Government assigned the responsibility for the formulation of radiation protection standards or guidance for all Federal agencies. Each agency was free to formulate whatever standards it deemed appropriate within the bounds of its radiation protection responsibilities. Consequently, the programs and responsibilities of many agencies and departments tended to impinge and overlap. Radiation protection regulations and practices generally were based on the recommendations of the National Committee (now Council) on Radiation Protection and Measurements (NCRP). Although the NCRP was a leading authority in this field and was in part sponsored by the U.S. National Bureau of Standards, it was not an official agency of the government.

At the direction of the President of the United States, a study was carried out on the radiation protection activities within the Federal Government. As a result it was decided that basic radiation protection standards and guidance involved health, economic, social and ethical considerations of such a nature that the person or persons making the decision represented by that guidance should be publicly accountable. Consideration was given to vesting that function in one of the several agencies with radiation protection responsibilities. However, none was found with the necessary breadth of responsibility or jurisdiction to establish such policies for the entire Federal Government. Consequently, the President approved the recommendation that he be advised by a Federal Radiation Council on radiation matters directly or indirectly affecting health, including guidance for Federal agencies in the establishment and execution of programs of cooperation with the individual states comprising the nation.

The author describes some of the problems and some of the benefits that have developed from the creation of the Federal Radiation Council which serves as a forum where all considerations can be brought together to establish and recommend to the President a national policy on radiation protection.

THE development and implementation of radiation protection standards may differ from one nation to another. The form and content of these standards depend to a large extent upon the specific needs of the nation, its involvement in the uses of atomic energy, and the various agencies within that nation that have radiation protection responsibilities.

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The Council consists of the heads of those Federal agencies having major responsibilities in atomic energy and radiological health activities. They are the Secretaries of Health, Education, and Welfare; Defense; Labor; Commerce; Agriculture; and the Chairman of the Atomic Energy Commission. The Special Assistant to the President for Science and Technology participates in the deliberations of the Council and also acts as its advisor. Staff work of the Council is carried on by a professional staff responsible for developing recommendations and proposals for consideration by the Council. In addition, the Council is required by law to consult with the National Academy of Sciences, the NCRP, and qualified experts in the field of biology and medicine and in the field of health physics.

The Federal Radiation Council is concerned primarily with the development of national policy in the field of radiation protection. Implementation of this policy requires cooperation between various Federal agencies and their counterparts at other levels of government. The Council is interested in developing a general framework within which such cooperation can be carried out. It does not issue or approve regulatory rules. These are issued by the Federal agencies according to their statutory authority within the policy framework recommended by the Council and approved by the President.

The President has approved twenty-one recommendations developed by the Federal Radiation Council, and the Council has published reports concerning the recommendations; it also has prepared reports on other aspects of radiation which are summarized here.

Report No. 1 provided a general philosophy of radiation protection for Federal agencies, introduced the term Radiation Protection Guide (RPG), and provided numerical values for the guides for the whole body and certain organs of radiation workers and for the whole body of individuals in the general population as well as an average population gonadal dose. These guides were generally compatible with similar values recommended by the NCRP and ICRP.

Report No. 2 extended the basic RPG's for normal peacetime operations, as issued in Report No. 1, to include specific numerical guides for organ doses to the thyroid, bone, and bone marrow for the general public. It also recommended that the radiological health activities of Federal agencies, in connection with environmental contamination by radioactive materials, be based on a graded series of appropriate actions related to ranges of intake of radioactive materials by exposed population groups.

Reports 3, 4, and 6 were concerned with inventories of radionuclides in the environment resulting from the testing of nuclear devices and levels of population exposures. The reports concluded that the health risks from radioactivity in foods were too small to justify protective actions to limit intake of radionuclides by diet modifications, or by altering the normal distribution and use of food, particularly milk and dairy products.

In reports 5 and 7 the Council provided Protective Action Guides (PAG) for accidental exposures of the population from iodine-131, strontium-89, strontium-90, and cesium-137. The PAG is defined as "the projected absorbed dose to individuals in the general population which warrants protective action following a contaminating event". The projected dose is the dose that would be received in the future by individuals in the population group from the contaminating event if no protective action is taken. A protective action is an action or measure taken to avoid most of the exposure to radiation that would occur from future

ingestion of foods contaminated with radioactive materials, and is appropriate when the health benefits associated with the reduction in exposure to be achieved are sufficient to offset the undesirable features of the protective actions.

The brevity of this summary has not allowed me to discuss in detail the socioeconomic or political implications which are evident in the Council's recommendations. The responsibility for establishing radiation protection guidance depends on so many factors that it has been said it is remarkable that any appropriate guides can be formulated under the complex conditions of our society.

In this regard, I would like to respond to Professor W. V. Mayneord in his Rock Carling Fellowship Monograph of 1964, "Radiation and Health". I consider his monograph to be an exceptional contribution to the field of radiation protection. The point raised concerns part of the definition of the Radiation Protection Guide, which is defined as "the radiation dose which should not be exceeded without careful consideration of the reasons for doing so; every effort should be made to encourage the maintenance of radiation doses as far below this guide as practicable". Professor Mayneord asks: "Who is going to do the considering, and what reasons might be advanced?"

In the United States the Federal Radiation Council serves as a forum where all considerations can be brought together to establish and recommend to the President a national policy on radiation protection. On the basis of conservative assumptions, radiation protection standards must be established by a process of balancing biological risk and the benefits derived from those activities related to sources of radiation. Such a balance cannot be made on the basis of a precise mathematical formula; it must be a matter of informed judgment on such factors as health and safety, feasibility of action, economic impact, the needs of the people, and the reasons for accepting exposure to radiation. The problem then is to find the best possible compromise between these conflicting considerations in order to develop the most appropriate guides possible.

Under these assumptions there can be no single "permissible" or "acceptable" level of exposure, without regard to the reasons for permitting the exposure. The radiation dose to the population which is appropriate to the benefits derived will vary widely depending upon the importance of the reasons for exposing the population to a radiation dose. For example, once weapons testing in the atmosphere has taken place, the dose to be permitted in lieu of such alternatives as depriving the population of essential foodstuffs might also be quite different from levels used in the planning phases for normal peacetime operations. As another example, for radiation workers emergency situations will almost certainly arise which make exposures in excess of those applicable to normal operations acceptable.

I must agree with Professor Mayneord that there have been social confusion and alarm when, at brief intervals, concentrations of radioactive materials in the environment have resulted in radiation doses approximating those of our RPG's and that the advice of Proverbs XI: 14, "In the multitude of counsellors there is safety," may apply to safety of the counsellors too; however, I suggest we consider an additional thought from Proverbs XV: 22, "Without counsel plans go wrong, but with many advisers they succeed."

It is not an easy task to determine the benefits and risks in the field of radiation protection. It takes careful consideration of more than pure scientific information. To this end, I feel as Professor Mayneord does: I hope we are not misunderstood, and that we in the United States, as well as various national and international bodies, may all act as advisers and counsellors so that our mission for radiation safety may succeed throughout the world.