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Honorable Charles A. Mosher  
House of Representatives

Dear Mr. Mosher:

I am pleased to reply to your letter dated January 18, 1971, which enclosed a letter from Mrs. Louise Becka protesting construction of the proposed Davis-Besse nuclear power plant near Port Clinton, Ohio.

A public hearing before an atomic safety and licensing board was concluded on February 12, 1970, in Port Clinton, although the board has not yet issued its initial decision as to whether a construction permit for the plant should be granted. The AEC's procedures for considering applications for nuclear power plant permits and licenses are described in the enclosed booklet, "Licensing of Power Reactors."

Background information on the AEC's regulatory program as related to the control of releases of radioactivity in effluents from nuclear facilities is included in the enclosed print of the Joint Committee on Atomic Energy hearings of the Environmental Effects of Producing Electric Power. I believe Mrs. Becka will be interested especially in the testimony by the late AEC Commissioner Thomas J. Thompson (pages 175-194), Commissioner Clarence E. Larsen (pages 236-276), and Dr. Paul Tompkins, Executive Director of the Federal Radiation Council (pages 391-415). This testimony discusses in detail sources of radioactive effluents from a nuclear power plant and how these effluents are processed, the bases for radiation protection standards, how these standards are applied as limits on normal releases of small quantities of radioactive material, the results of environmental monitoring programs around nuclear power plants, and environmental research programs on the effects of radiation that are carried out by the AEC.

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Venerable Charles A. Mosher - 2 -

Included also in the hearing print on pages 104-105 is a statement concerning the reported increase in cancer in the Montrose, New York, area. In addition, I am enclosing an ABC press release which provides information on a reported increase in infant mortality in the areas downwind from the Dresden nuclear power plant near Morris, Illinois.

I am enclosing for Mrs. Becka's information a copy of a recent press release issued by the National Council on Radiation Protection and Measurements concerning its ten year study on the validity of the basic radiation protection criteria presently used by governmental agencies to regulate the exposure of the population and of radiation workers.

If we can be of any further assistance, please let me know.

Sincerely,

( signed ) Harold L. Price

Harold L. Price  
Director of Regulation

Enclosures:

1. "Licensing of Power Reactors"
2. BEAR print - Part 1
3. ABC Press Release N-188
4. NCRP Press Release
5. Ltr fm Mrs. Becka, 1/13/71

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REVISED IN THE OFFICE OF THE DIRECTOR OF REGULATION 2/17/71.

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# NCRP

THE NATIONAL COUNCIL ON RADIATION  
PROTECTION AND MEASUREMENTS

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FOR RELEASE AT  
10:00 A.M. (EST) ON  
January 26, 1971

A ten year study by the National Council on Radiation Protection and Measurements (NCRP) has confirmed the validity of most of the basic radiation protection criteria presently used by governmental agencies to regulate the exposure of the population and of radiation workers.

"Our review of the current knowledge of biological effects of radiation exposure provides no basis for any drastic reductions in the recommended exposure levels despite the current urgings of a few critics," said Lauriston S. Taylor, of Washington, President of the NCRP. Dr. Taylor was one of the three spokesmen for the NCRP at a press conference held to announce a new Council report, NCRP Report No. 39, Basic Radiation Protection Criteria. Also speaking at the press conference were H.M. Parker, of Richland, Washington, Chairman of the NCRP scientific committee responsible for the preparation of the report and V.P. Bond, of Brookhaven, New York, a member of the scientific committee.



The results of the Council's 10-year study confirmed the values presently utilized for governing long-term cumulative occupational exposure and exposure of the general public.

Dr. Taylor emphasized that the major thrust of the new report is that in only a few cases were modifications in the previously utilized exposure levels required. He pointed out that the dose limits for individual members of the public remain at 0.5 rem per year and that the yearly dose limit of 0.17 rem per person averaged over the population will continue. The rem and roentgen (R) are radiation units.

The new recommendations lower the permissible exposure levels in a number of specific instances including the occupational exposure of pregnant women. Lower levels are also specified for exposure of the thyroid gland and parts of the skin. The report also includes new dose limits for exposure of individuals working in radiation accidents or emergencies. Exposure levels for families of patients containing radioactive materials are also specified.

Regarding the occupational exposure of fertile women, the Council's recommendations specify that, "During the entire gestation period, the maximum permissible dose equivalent to the fetus from occupational exposure of the expectant mother should not exceed 0.5 rem" (page 92).

Commenting on the basis for this recommendation, Dr. Bond stated, "There has been considerable controversy over the data on the biological effects of exposure of the fetus. Some of this data comes from studies of the effects of fetal irradiation incurred in pelvimetry (x-ray study of the pelvis). At present, one cannot say definitely that such fetal irradiation is capable alone of producing an increased incidence of cancer or leukemia, but, on the other hand, we cannot say that lesser exposure is incapable of causing these effects. Thus, the Council had only one course open to it and that was to make the conservative assumption that the low doses associated with pelvimetry are capable of producing increased incidence. This led to the recommendations restricting exposure of the fetus."

In the chapter on specific radiation effects, the new report deals with the induction of thyroid tumors by irradiation stating, "Only in the case of thyroid tumors is the evidence more than suggestive. Recent studies of the Marshallese [Marshall islanders] have shown the thyroid to be probably more sensitive than previously considered. A significant increment in the incidence of these tumors has been reported where x irradiation of the thymus gland and surrounding areas of the body of infants has been administered in exposures of the order of 200 R and higher" (page 38).

In connection with radiation exposure to others from patients who have been given radioactive materials, the new report summarizes the very detailed recommendations on this topic set out in NCRP report No. 37 which was published in 1970. The new report states (page 103):

"The exposure of hospital patients to radiation from adjacent patients containing radionuclides should be kept to a practicable minimum. The dose equivalent attributable to this radiation should not exceed 0.5 rem during a single hospital admission. It is considered unlikely that more than one such hospital admission will occur in any one year.

"There may be some relatively rare and unusual situations where it would be necessary or highly desirable to send a patient home in spite of his carrying a burden of radioactive material that could result in a dose to other persons in excess of 0.5 rem in one year. Such cases may be permitted, as exceptions provided that:

"(1) No person under age 45 shall be permitted to receive a dose in excess of 0.5 rem in a year.

"(2) No person over age 45 should be permitted to receive a dose in excess of 5 rems in a year.

"(3) The circumstances leading to the decision to make an exception, the evaluation of the exposure conditions and the means of controlling individual exposure shall be documented.

"(4) The local health authorities should be notified of the action."

Discussing the new report Mr. Parker pointed out that, "The Committee responsible for the preparation of the report made a major attempt to go back to first principles and try to erect a logical coherent theory of the case. In the report we say very flatly that we found this impossible. Thus, the new report is as empirical and pragmatic as its predecessor. We point out that if we had somehow filled in the missing scientific data and these had still pointed to any form of non-threshold situations, which I, for one, think they will when we get the data, we still would have to go beyond the realm of scientific statements and into that of value judgements. We mean to make no apology for that but we do make it sufficiently clear, I hope, that we in the NCRP do not profess to be the sole arbiters of those judgements."

"There appears to be a consensus of the informed scientific community that there is little need for concern over exposure at the levels recommended in the report, Dr. Taylor said. "Nevertheless, it is the Council's position to encourage protection practices that are better than any prescribed minimum level and this position is evidenced by the requirement that radiation exposure be kept at a level as low as practicable."

"In each case, the lowest practicable level must be established in the best balanced interests of appropriate combinations of employers, employees, practitioners of the healing arts, their patients and their aides, and the general public." The President of the NCRP said, "Ultimately, realistic interpretation in various applications derives from public understanding of, and eventual approbation of, practices developed from recommendations of responsible technical bodies. In particular, it is believed that while exposures of workers and the general population should be kept to the lowest practicable level at all times, the presently permitted exposures represent a level of risk so small compared with other hazards of life, and so well offset by perceptible benefits, that such approbation will be achieved when the informed public review process is completed," he concluded.



NATIONAL COUNCIL ON RADIATION PROTECTION / MEASUREMENTS

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January 19, 1971

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BACKGROUND INFORMATION ABOUT THE NATIONAL COUNCIL  
ON RADIATION PROTECTION AND MEASUREMENTS

The National Council on Radiation Protection and Measurements (NCRP) is a nonprofit corporation chartered by Congress to collect, analyze, develop and disseminate information and recommendations about radiation protection and measurements. The Council is made up of scientists who share the belief that significant advances in radiation protection and measurements can be achieved through cooperative effort. The Council is the successor to the unincorporated association of scientists known as the National Committee on Radiation Protection and Measurement and was formed in 1964 to carry on the work begun by the Committee in 1929. The work of the Council is carried out by 65 members (see attached list) and 150 participants serving on the 36 scientific committees of the Council. The members and participants are drawn from all the many disciplines that contribute to our understanding of the effects of radiation on man, and to the application of this knowledge in the formulation of recommendations on radiation protection and measurement. These include biology, physics, chemistry, radiology, genetics, pathology, mathematics, dentistry, veterinary medicine and many others. The resulting diversity of viewpoints is valuable in the Council's efforts to develop recommendations representing the consensus of leading scientific opinion. Members and participants in the Council's program voluntarily contribute their services in support of the Council's objectives. Their ability and experience represent the cornerstone of the Council's program.

### Why the Work is Significant?

The work of the NCRP has a significant impact on almost all activities in the United States which utilize or create radiation. The recommendations of the Council are important to medical, industrial and governmental radiation users, to the general public, and to other state, national and international groups concerned with radiation matters. Recommendations developed by the Council provide the scientific basis for radiation protection efforts throughout the country. Individuals and industrial organizations employing radiation sources turn to these recommendations to be sure that their equipment and practices embody the latest concepts of protection. Non-governmental groups concerned with improving protection efforts by disseminating information on radiation protection look to the Council for guidance. Governmental organizations such as the Public Health Service, the Atomic Energy Commission and state governments utilize NCRP recommendations as the scientific basis of their protection activities. The NCRP also works closely with international bodies concerned with radiation protection, such as the International Commission on Radiological Protection.

Similarly, the work of the NCRP on measurement of radiation has found application throughout the United States and the world. Effective dissemination of the information about radiation properties and effects requires that the measurement techniques employed, and the quantities and units used, be comparable throughout the United States and the world. The Council contributes to this goal by formulating and publishing the consensus of scientific opinion on various measurement problems.

### How Does the Council Accomplish its Objectives?

The Council seeks to formulate from available information recommendations on radiation protection and measurement. Areas in which this is possible are identified and then referred to one of the scientific committees of the Council. The committee, composed of experts having considerable knowledge and experience in the particular area of interest, examines the situation in detail and drafts proposed recommendations. These are then submitted to the Council members for careful review before being published. Frequently, the recommendations point out areas in which important data are missing and stimulate research which contributes again to the body of available information.

While the Council does not itself conduct any laboratory research, it has access to research programs throughout the United States and, in fact, the world through the more than 200 scientists participating in its program. In drafting NCRP recommendations, the Council's scientific committees review the current status of research in all fields related to the task of the committee. With Council members chosen from all the many scientific fields related to radiation protection and measurement, the NCRP is in a position to maintain cognizance of the developments in all of these fields.

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### What are the Council's Current Projects?

Currently, among the topics with which the Council is concerned are basic criteria for radiation protection, radiation exposure from consumer products, protection against radionuclides in the environment, and measurement of environmental radiation.

The Council has just concluded a ten-year effort aimed at a re-formulation of the basic radiation protection criteria. The last comprehensive statement on the bases of permissible radiation exposure was set out in NCRP Report No. 17 published in 1954. For the last several years, the Council has been reviewing the vast accumulation of data and information developed since the publication of that report and thus formulating the base on which NCRP Report No. 39, Basic Radiation Protection Criteria, is built. The Council recognizes that an up-to-date statement of basic criteria requires a sustained effort to evaluate new developments in medical and radiobiological research and hence, has determined to operate on a continuing basis a program concerned with basic criteria for radiation protection.

For some years the Council has been carrying on scientific committee activities related to radiation hazards resulting from the release of radionuclides into the environment. The first of reports on this topic, those covering radionuclides of strontium and cesium, are expected to be completed in the next few months. This too, however, is a continuing program and subsequently attention will be directed to other radionuclides.

In recognition of the fact that radiation sources are being utilized increasingly in such a way that exposure of the population from consumer products is possible, the Council has undertaken a study of radiation exposure from this source. Recommendations on this topic are expected to be completed in about two years.

The Council has organized new scientific committee activities related to environmental radiation measurement. These activities are just beginning but it is expected that they will result in recommendations relating to the adequacy of existing data and monitoring techniques, the implications of environmental exposure levels in the setting of permissible limits and the measurement problems related to the release of various radioactive wastes into the environment.

### How are the Council's Projects Funded?

The Council's activities are made possible by the voluntary contribution of the time and effort of its members and participants, and the generous support of various organizations interested in radiation protection and measurement. It is also supported by contributions from professional and scientific organizations concerned with radiation protection and measurement, by foundation and government grants, and by contracts with various government agencies. The Council has an established policy of maintaining diversity in its sources of funds.

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### Conclusion

The NCRP seeks to formulate information and recommendations based upon leading scientific judgment on matters of radiation protection and measurement, and to foster cooperation among organizations concerned with these matters. These efforts are intended to serve the public interest by providing objective and scientific evaluations of the benefits and risks inherent in the utilization of radiation and radioactive materials. The Council seeks out areas in which the development of recommendations on radiation protection and measurement can constitute a contribution to the public welfare. The Council will continue to be alert for areas where expanding technology brings forth new requirements for information and recommendations.

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