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AEC 604/68

September 17, 1962

COPY NO. 67

ATOMIC ENERGY COMMISSION

APPLICATION OF RADIATION PROTECTION STANDARDS

Note by the Secretary

The Office of the Chairman has requested that the attached JCAE press release and enclosures be circulated for the information of the Commission.

W. B. McCool

Secretary

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From the Office of the Joint
Committee on Atomic Energy

For Release August 23, 1962
Thursday A.M. papers

EXCHANGE OF LETTERS CONCERNING APPLICATION
OF RADIATION PROTECTION STANDARDS BETWEEN JOINT
COMMITTEE AND FEDERAL RADIATION COUNCIL RELEASED
BY JOINT COMMITTEE ON ATOMIC ENERGY

An exchange of letters between the Joint Committee on Atomic Energy and the Federal Radiation Council on major unresolved questions concerning the applications of radiation protection standards were released today by Congressman Chet Holifield, Chairman of the Joint Committee on Atomic Energy, and Congressman Melvin Price, Chairman, Subcommittee on Research, Development and Radiation.

Following testimony by Surgeon General Luther Terry at the Joint Committee hearings on "Radiation Standards, Including Fallout" held June 4-7, 1962, the Joint Committee requested the Federal Radiation Council to clarify its position on the criteria being used to determine when undesirable levels of radioactive debris from fallout were reached. This important question was posed by the Joint Committee as early as its 1959 hearings on "Fallout From Nuclear Weapons Tests."

On June 18, 1962 Chairman Holifield and Congressman Price wrote to Chairman Ribicoff of the Federal Radiation Council requesting information concerning (1) the role of the FRC's Radiation Protection Guides (RPG), particularly in relation to iodine-131; and (2) what Federal agencies were responsible for invoking protective countermeasures in the event radiation levels became unduly high. The need for resolving these matters was indicated as "increased by the recent resumption of atmospheric nuclear tests by the Soviet Union and the United States."

The first question in the letter of June 18 was concerned with whether the numerical values in the Radiation Protection Guides establish the sole or principal criteria for evaluating undesirable levels of radiation from fallout. Secondly, if so, are these numerical values sufficient to indicate when and what action is appropriate to protect public health? Thirdly, if not, is further or supplementary criteria needed and whose responsibility is it to develop and implement such criteria? An additional request was made in the Joint Committee letter of June 18, concerning the views of the FRC on the current status of legal authority and responsibility for invoking countermeasures or taking any other action should radioactivity from fallout reach undesirable levels.

On August 16, 1962 Congressmen Holifield and Price sent a letter to the FRC to further supplement the letter of June 18, 1962. The letter stated in part:

"The urgency of this review is pointed up by the recent resumption of atmospheric nuclear testing by the Soviet Union and reports of sharp increases in radioiodine levels in Nevada and Utah from U.S. tests. The latter situation, as you know, caused local public health officials in Utah to invoke plans for the diversion of

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fresh milk into forms carrying lower levels of radioactivity."

"We do not imply that the current levels of radioactivity have reached a danger point. Indeed, we are satisfied that they are apparently within the current acceptable limits of the Radiation Protection Guides. However, we are not convinced that these Guides presently apply to fallout, nor that they should apply to fallout as presently set forth....."

"Thus, there is a necessity to clarify the meaning of the Radiation Protection Guides in order that they may be understood by the public and by those officials of the Government who will have the responsibility for invoking countermeasures in the event radioactivity levels reach undesirable proportions."

The Federal Radiation Council under the chairmanship of Chairman Celebrezze replied by letter dated August 17, 1962. The letter pointed out the differences between fallout and other sources of radiation which the RPGs were developed to control, stating:

"As applied to fallout, the Guides can be used as an indication of when there is a need for detailed evaluation of possible exposure hazards and a need to consider whether any protective action should be taken under all the relevant circumstances.

"But once we are alerted to the need to consider protective action, the Guides do not tell us when to act or what to do. These judgments require careful consideration of local conditions and the impact of available health protection measures. The Council believes that individual fallout situations require individual evaluation before specific action is taken."

As a summary with respect to the Guides, the Council stated:

"The Guides are not intended to be a dividing line between safety and danger. We have assumed that there is some slight risk to health from any level of radiation exposure, however low, even at or below the low levels set by the Guides. At the same time we do not believe there is any risk of a major health hazard until exposure levels are many times above the Guide levels. For example, there is borne out in relation to iodine-131 by the report to the Federal Radiation Council of the National Academy of Sciences, 'Pathological Effects of Thyroid Irradiation,' July 1962."

As to responsibilities for invoking protective measures, the Council stated:

"Within the Federal Government, authority now exists under the Federal Food, Drug, and Cosmetic Act to control the shipment of adulterated food in interstate commerce. By definition, foodstuffs containing excessive radioactivity would be adulterated. States have the authority to control intrastate distribution or sale of

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adulterated foods, which would include foodstuffs containing excessive amounts of radioactivity. State food and drug laws vary widely in their scope and adequacy with respect to the problem of radioactivity in foods. The Public Health Service has the general responsibility to recommend appropriate health protection measures to States and local authorities and to the general public."

Congressmen Holifield and Price stated that the Joint Committee would study the FRC letter to determine whether the answers were adequate, but indicated:

"We seem to be making some progress in clarifying this important subject."

Copies of the exchange of correspondence are attached.

Attachments:

- (1) Letter from JCAE dated 6/18/62 to Chairman, Federal Radiation Council with letter dated 1/16/62 from Cong. Holifield to the President
- (2) Letter dated 8/16/62 from JCAE to Jones, HEW
- (3) Letter dated 8/17/62 from Chairman FRC to JCAE

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CONGRESS OF THE UNITED STATES
Joint Committee on Atomic Energy

June 18, 1962

Honorable Abraham Ribicoff
Chairman
Federal Radiation Council
Washington, D. C.

Dear Mr. Chairman:

In reviewing the record of our recent hearings on "Radiation Standards, Including Fallout," there are apparently a number of unresolved questions, which had also been left open after our 1960 hearings on "Radiation Protection Criteria and Standards." The need for resolving these matters is increased by the recent resumption of atmospheric nuclear tests by the Soviet Union and the United States.

Our first question concerns the relation between the Radiation Protection Guides (RPG) promulgated by the Federal Radiation Council and the incidence of radioactive fallout as a result of nuclear weapons testing.

At the 1960 hearings, Dr. Chadwick, then secretary of the FRC, was asked by Mr. Hollifield whether the new RPGs applied to "problems which may develop in relation to fallout . . ." His response was:

"Sir, as indicated in the testimony, special problems would require special consideration by the Council."

When requested by the Committee to further clarify this matter, the Federal Radiation Council commented as follows:

" . . . The Council is aware that the numerical values of the Radiation Protection Guides and Radioactivity Guides may also be interpreted to apply to normal peacetime situations in contrast to 'normal peacetime operations.' When used in this way, the Guides may be considered to define environmental levels consistent with normal peacetime situations based on the levels of environmental radioactivity regardless of its source. In this sense, the graded series of ranges related to the intake of radioactive materials provided in Report No. 2 may be taken to indicate the general conditions under which special consideration must be given and possible corrective actions considered."

The testimony on this point at our recent hearings continued to be clouded. The testimony of Dr. Russell Morgan implied that countermeasures should be ordered when radiation doses reached,

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or showed signs of reaching, the levels prescribed in the radiation protection guides. The thrust of the recent National Advisory Committee on Radiation (NACOR) report is to the same effect.

Surgeon General Terry's statement, in releasing the NACOR report, was as follows:

"If daily intakes are above this level (Range II of the RPG) and into Range III and are likely to persist, then exceeding the RPG becomes a distinct possibility, and in such circumstances countermeasures are to be considered."

It is thus the implication of the Surgeon General's statement, the NACOR report, and Dr. Morgan's testimony, that the FRC's radiation protection guides may be applicable in determining when unacceptable concentrations of radioactive nuclides from fallout have been reached.

On the other hand, we have seen plain evidence from the Introduction to Report No. 1 of the Federal Radiation Council that, "Only peacetime uses of radiation which might affect the exposure of the civilian population are considered at this time." Report No. 2 repeated the statement contained in Report No. 1 that, "The guides recommended herein are appropriate for normal peacetime operations."

Furthermore, the guides have been repeatedly described as consistent with, and based on, the same evidence as NCRP levels and recommendations, which are universally acknowledged to be based on non-military activities.

Moreover, testimony at our hearings, particularly that of Dr. Gordon M. Dunning of AEC, emphasized that the RPGs are based on a balancing of risk against benefit in the context of peacetime operations and that to use them in deciding when to invoke countermeasures against fallout is an "improper use of those guides." Dr. Dunning emphasized that the questions of the applicability of the guides to fallout "should be clarified at once before there is further confusion and before there may be an ill-advised action taken by some regulatory body."

We deem it of utmost importance to have your response to the following questions:

- (1) Are the numerical values of the radiation protection guides established by the Federal Radiation Council the sole or principal criteria now used in evaluating when undesirable levels of radioactive nuclides from fallout have been reached?

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- (2) If so, is this use of the present numerical values of the guides sufficient to indicate when and what action is appropriate to protect public health?
- (3) If not, is the development of further or supplementary criteria needed; and if so, is it the responsibility of the Federal Radiation Council or of the Public Health Service or others to develop and implement such criteria?

You are undoubtedly aware that the Chairman of the Joint Committee, in a letter to the President dated January 16, 1962, suggested that the FRC should review the possible effect of fallout from proposed U.S. testing (copy attached). We, of course, do not necessarily believe that the FRC guides should constitute the criteria if they were not so intended. However, we do believe that all significant additions of radioactivity to the environment including fallout should be reviewed by the FRC and evaluated against appropriate standards.

The other important matter left open after our hearings is, where does the legal responsibility and authority lie for invoking countermeasures?

During the testimony of the Surgeon General, he was asked the following question by the Committee staff:

"Does the Public Health Service have the legal authority to initiate such countermeasures as banning the sale of fresh milk and requiring special processes to decontaminate food stuffs?"

His reply was:

"We certainly have the responsibility for the surveillance and for making the recommendations. I am not absolutely certain just exactly where our legal authority is or how far our legal authority extends."

It was noted in the hearings that the actual implementation of countermeasures would have to be accomplished by state health authorities, but no indication was given as to whether the states have the necessary authority and means of administration to accomplish the countermeasures.

We believe it is extremely important that this matter be clarified, in order to alleviate public concern over the hazards of ionizing radiation and to minimize the possibility of uncoordinated and ill-advised actions being taken should certain radio-nuclides reach undesirable levels in the environment.

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We wish, therefore, to request your views on the current status of legal authority and responsibility for invoking countermeasures or taking any other action, including any recommendations you may have in this regard.

Because we regard these matters as being of considerable importance and urgency, we would request your consideration at the earliest possible date. To that end we would like to suggest that our respective staffs should meet together on June 21 or June 22 to explore these problems further.

Your cooperation is appreciated.

Sincerely yours,

/s/ Melvin Price
Melvin Price, Chairman
Subcommittee on Research,
Development and Radiation

/s/ Chet Holifield
Chet Holifield
Chairman

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JOINT COMMITTEE ON ATOMIC ENERGY
Congress of the United States

January 16, 1962

Dear Mr. President:

I would like to endorse the suggestion that our Staff Director, Jim Ramey, made to Mac Bundy and Adrian Fisher to the effect that prior to any formal decision or announcement by you on the resumption of atmospheric testing a review of the extent of the fallout hazard be made by the Federal Radiation Council. At the time of any such announcement of the resumption of atmospheric testing a "white paper" should be issued which would not only explain affirmatively why we are resuming testing but also explain the extent of the fallout hazard (which would be minimal).

As you know, there is still a great deal of confusion and misinformation on the fallout hazard from weapons testing. The Joint Committee's fallout hearings in 1957 and 1959, and our hearings on the radiation standards in 1960, helped to put these hazards in proper perspective. In the latter hearings several suggestions were made that any possible significant addition of radioactivity to the environment should be reviewed in advance by the Federal Radiation Council, even though it would fall within acceptable maximum limits. This would prevent various uses from gradually absorbing the present safety factor under our existing maximum permissible dosages. Such a review would be helpful to you in your evaluation of the hazards versus the benefits of resumption of atmospheric testing.

A "white paper" written in simple terms might have some effect on the scientific community as well as the public at large. We are presently considering the desirability of holding public hearings later in this year which would update our 1959 fallout and 1960 radiation standards hearings.

Following our executive hearings on Thursday and Friday, January 18 and 19, on the status of our plans and preparations for testing, we will probably wish to communicate with you further.

Sincerely yours,

/s/ Chet Holifield
Chet Holifield
Chairman

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The President
The White House

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CONGRESS OF THE UNITED STATES
Joint Committee on Atomic Energy

August 16, 1962

Mr. Boisfeuillet Jones
Special Assistant to the Secretary
(Health and Medical Affairs)
Department of Health, Education, and Welfare
Washington 25, D. C.

Dear Mr. Jones:

This is with further reference to our letter of June 18, 1962 to Secretary Ribicoff concerning the need for a re-evaluation of the Radiation Protection Guides established by the Federal Radiation Council and a further examination of the administrative means and legal authority for invoking countermeasures.

The urgency of this review is pointed up by the recent resumption of atmospheric nuclear testing by the Soviet Union and reports of sharp increases in radiiodine levels in Nevada and Utah from U. S. tests. The latter situation, as you know, caused local public health officials in Utah to invoke plans for the diversion of fresh milk into forms carrying lower levels of radioactivity. Recent newspaper reports state that this action by the Utah officials "came as a complete surprise to the United States Public Health Service" and was not coordinated with appropriate Federal officials.

You will recall that in our letter of June 13 .

"We believe that it is extremely important that this matter be clarified, in order to alleviate public concern over the hazards of ionizing radiation and to minimize the possibility of uncoordinated and ill-advised actions being taken should certain radio-nuclides reach undesirable levels in the environment."

The recent events in Utah demonstrate the very real importance of our earlier admonition. Moreover, in view of the resumption of Soviet atmospheric testing, we believe that incidents such as this may likely occur in the future in widely-scattered portions of the United States. It is therefore important that the Federal Radiation Council proceed without delay with the consideration called for in our letter of June 18.

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We do not imply that the current levels of radioactivity have reached a danger point. Indeed, we are satisfied that they are apparently within the current acceptable limits of the Radiation Protection Guides. However, we are not convinced that these Guides presently apply to fallout, nor that they should apply to fallout as presently set forth. We are heartened by the recent panel report of the National Academy of Sciences which indicates that no case of thyroid cancer ascribable to radioactive iodine has been found in man.

Thus, there is a necessity to clarify the meaning of the Radiation Protection Guides in order that they may be understood by the public and by those officials of the Government who will have the responsibility for invoking countermeasures in the event radioactivity levels reach undesirable proportions. We do not want to see another "cranberry" emergency develop as a result of Government inertia or ill-timed action. Moreover, the authority under which these public officials act must have a clear legal basis, and efficient administrative machinery must be available to assure that any action taken will be prompt and well-considered.

We hope that these matters will receive your prompt attention.

Sincerely yours,

/s/ Chet Holifield

Chet Holifield
Chairman

/s/ Melvin Price

Melvin Price, Chairman
Subcommittee on Research,
Development and Radiation

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FEDERAL RADIATION COUNCIL
Executive Office Building
Washington 25, D.C.

August 17, 1962

Dear Mr. Chairman:

Your letter of June 18, 1962, points out that following the recent hearings of the Subcommittee on Research, Development and Radiation of the Joint Committee on Atomic Energy, there were unresolved questions concerning the application of radiation protection standards. Following the questions are comments of the Council.

No. 1: Are the numerical values of the Radiation Protection Guides established by the Federal Radiation Council the sole or principal criteria now used in evaluating when undesirable levels of radioactive nuclides from fallout have been reached?

No. 2: If so, is this use of the present numerical values of the Guides sufficient to indicate when and what action is appropriate to protect public health?

Comments on First Two Questions: No, the Guides are not the sole criteria used in evaluating the significance of fallout.

Since there has been widespread misunderstanding concerning these Guides, it may be useful to explain how they were developed and how they are to be used.

As you know, to be prudent we assume that there is always some slight risk to health from any level of radiation exposure, however low. Hence, setting basic radiation protection guidance involves a balancing between the requirements of total health protection (which, ideally, would tolerate no exposure) and the promotion of the use of radiation and atomic energy to achieve worthwhile benefits (which may involve exposure). With this principle in mind, the Guides were originally developed for application as guidelines for the protection of radiation workers and the general public against exposures which might result during "normal peacetime operations" in connection with the industrial use of ionizing radiation. In this connection, as noted in Chairman Ribicoff's letter of June 1 to you transmitting "Comments on the Major Unresolved Questions Concerning the Federal Radiation Council" the term "normal peacetime operations" referred specifically to the peaceful applications of nuclear technology where the primary control is placed on the design and use of the source. Since the numerical values in the Guides were designed for the regulation of a continuing industry, they were of necessity set so low that the upper limit of Range II can be considered to fall well within levels of exposure acceptable for a lifetime. Furthermore, to provide the maximum margin of safety, the upper limits of Range II were related to the lowest possible level at which it was believed that nuclear industrial technology could be developed.

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It is necessary to watch the build-up of exposure levels as radiation exposures occur. A one year cumulative total has been recommended for this purpose. Obviously, this one-year span is an arbitrary measure, and no special significance should be attached to the precise cumulative exposure at the end of a 365 day period. Far more relevant are the sources of the exposure, their frequency, and their likelihood of continuing.

The Guides are not intended to be a dividing line between safety and danger in actual radiation situations. Nor are they intended to set a line at which protective action should be taken or to indicate what kind of action should be taken. Some actions might in some circumstances be appropriate at levels below the Guides. Other actions might be completely inappropriate and even harmful except at levels many times above the Guide levels.

While the Guides were not specifically designed for fallout situations, they have some relevance for the assessment of fallout conditions. There is, of course, an essential difference between environmental radioactivity resulting from a long-term or permanent industrial operation and that related to intermittent production from individual weapons tests or series of weapons tests. With the former, it is predictable that introduction of radioisotopes into the environment will persist at a known rate throughout the life of the source. On the other hand, weapons tests are likely to be sporadic in nature and the radioactivity produced will rise at the time of testing and decline at varying rates for different isotopes after conclusion of a test or series of tests. While "normal peacetime operations," for which the Guides were recommended as appropriate, imply that environmental radioactivity will persist at a predetermined level throughout the human lifetime, that from fallout is likely to be extremely variable.

As applied to fallout, the Guides can be used as an indication of when there is a need for detailed evaluation of possible exposure hazards and a need to consider whether any protective action should be taken under all the relevant circumstances.

But once we are alerted to the need to consider protective action, the Guides do not tell us when to act or what to do. These judgments require careful consideration of local conditions and the impact of available health protection measures. The Council believes that individual fallout situations require individual evaluation before specific action is taken. Such an evaluation must involve a careful examination of the source and magnitude and duration of the probable exposure levels as well as a careful evaluation of the health significance of these probable exposures, and national security considerations are inevitably involved. The judgment as to when to take action and what kind of action to take to decrease exposure levels involves consideration of all of these factors. The Guides have some relevance for making this judgment, but they do not and were never intended to provide the sole basis for deciding how and when to act. It must be kept in mind that radiation exposures anywhere near

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the Guides involve risks so slight that countermeasures which themselves involve any slight hazard may have a net adverse rather than favorable effect on the public well-being.

In summary then, the Guides are not intended to be a dividing line between safety and danger. We have assumed that there is some slight risk to health from any level of radiation exposure, however low, even at or below the low levels set by the Guides. At the same time we do not believe there is any risk of a major health hazard until exposure levels are many times above the Guide levels. For example, this is borne out in relation to iodine-131 by the report to the Federal Radiation Council of the National Academy of Sciences, "Pathological Effects of Thyroid Irradiation," July 1962.

No. 3: If not is the development of further or supplementary criteria needed and if so is it the responsibility of the Federal Radiation Council or the Public Health Service or others to develop and implement such criteria?

Comment: There is a continuing need for the development of guidance in this field. In accordance with Public Law 86-373, "The Council shall advise the President with respect to radiation matters, directly or indirectly affecting health, including guidance for all Federal agencies in the formulation of radiation standards and in the establishment and execution of programs of cooperation with States." The appropriate Federal agencies will develop specific modes of action in accordance with such guidance.

Your letter of June 18 mentioned another important matter left open after the hearings, that of the legal responsibility and authority for invoking countermeasures.

Within the Federal Government, authority now exists under the Federal Food, Drug, and Cosmetic Act to control the shipment of adulterated food in interstate commerce. By definition, foodstuffs containing excessive radioactivity would be adulterated.

States have the authority to control intrastate distribution or sale of adulterated foods, which would include foodstuffs containing excessive amounts of radioactivity. State food and drug laws vary widely in their scope and adequacy with respect to the problem of radioactivity in foods. The Public Health Service has the general responsibility to recommend appropriate health protection measures to States and local authorities and to the general public.

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In closing, on behalf of the Council, I should like to acknowledge the Joint Committee's responsible efforts to delineate problems relating to fallout, requiring further study and clarification, and in promoting more widespread public understanding of the issues involved.

Sincerely yours,

/s/ Anthony J. Celebrezze
Anthony J. Celebrezze
Chairman

The Honorable Chet Holifield
Chairman, Joint Committee on
Atomic Energy
Congress of the United States
Washington 25, D.C.

The Honorable Melvin Price
Chairman, Subcommittee on Research,
Development and Radiation

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