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A. Wayne Hawks, Acting Ass[illegible] Secretary

THE WHITE HOUSE [illegible]

THE WHITE HOUSE TODA[illegible]
MEMORANDUM TO THE PRESI[illegible]
OF THE FEDERAL RADIATION COUNCIL [illegible]
APPROVED RECOMMENDATIO[illegible]
OF THE MEMORANDUM [illegible]

MEMORANDUM FOR THE PRESI[illegible]

SUBJECT: Radiation Protectio[illegible]

Pursuant to Executiv[illegible] Radiation Council has made [illegible] herewith transmit our first repor[illegible] recommendations for the guidanc[illegible] radiation protection activitie[illegible]

It is the statutory respons[illegible] President with respect to radiation matt[illegible] health, including guidance fo[illegible] all Fe[illegible] ag[illegible]ies in the [illegible] radiation standards and in th[illegible] cooperation with States [illegible]

Fundamentally, setting [illegible] passing judgment on the exte[illegible] to accept in order to realize [illegible] evitably a balancing between [illegible] foregoing any activities incre[illegible] promotion of the use of radia[illegible] optimum benefits.

The Federal Radiatio[illegible] radiation effects and consulted wit[illegible] ment. Each member has als[illegible] memorandum in light of his statuto[illegible] does not cover all phases of radia[illegible] we find that the guidance whic[illegible] we [illegible] Federal agencies gives appropriat[illegible] health protection and the benefi[illegible] Our further findings and recomme[illegible]

(MORE)

Discussion

The fundamental problem in establishing radiation protection guides is to allow as much of the beneficial uses of ionizing radiation as possible while assuring that man is not exposed to undue hazards. To get a true insight into the scope of the problem and the [illegible] of the decisions involved, a review of the [illegible] is necessary.

It is important in considering both the benefits and hazards of radiation to appreciate that man has existed throughout his history in a bath of natural radiation. This background radiation, which varies over the earth, provides a partial basis for understanding the effects of radiation on man and [illegible] indicate [illegible] ranges of radiation exposures with [illegible] the human population has developed and increased.

The Benefits of Ionizing Radiation

Radiation properly controlled is a boon to mankind. It has been of inestimable value in the diagnosis and treatment of disease. It can provide sources of energy greater than any the world has had available. In industry, it is used as a tool to measure thickness, quantity or quality, to discover hidden flaws, to trace liquid [illegible] and for other purposes. So many [illegible] uses [illegible] have been found that scientists in many [illegible] fields [illegible] with the microscope in value as a working tool.

The Hazards of Ionizing Radiation

Ionizing radiation involves health hazards just as do [illegible] useful tools. Scientific findings concerning the biological [illegible] radiation of most immediate interest to the establishment of [illegible] protection standards are the following:

1. Acute doses of radiation [illegible] or delayed effects, or both.

2. As acute whole body doses [illegible] above approximately 25 rems (units of radiation [illegible]), immediate [illegible] effects increase in sev[illegible] beginning [illegible] barely detectable changes [illegible] biological signs [illegible] dicating damage, to de[illegible]

3. Delayed effects produ[illegible] acute irradiation [illegible] chronic irradiation are [illegible] kind, but the [illegible] the body to repair radiation [illegible] usually [illegible] in the case of chronic [illegible] irradiation.

4. The delayed effects fr[illegible] are in general [illegible] distinguishable from [illegible] pathological [illegible] usually present in the popu[illegible]

5. Delayed effects include gene[illegible] (effects [illegible] to succeeding generations), increased incidence [illegible] lifespan shortening, an[illegible] growth and development [illegible]

6. The child, the infant, [illegible] infant [illegible] more sensitive to radia[illegible]

7. The various organs [illegible] differ in their [illegible] to radiation.

8. Although ionizing radia[illegible] genetic and [illegible] effects (effects on the individual during his lifetime [illegible] than genetic effects), the [illegible] at the present [illegible] insufficient to justify pre[illegible] conclusions on the [illegible] the dose-effect relation[illegible] doses and [illegible] Moreover, the evidence is [illegible] to prove [illegible] hypothesis of a "damage [illegible] (a point below [illegible]) damage occurs) or the hypothesis [illegible] at low doses.

(cont)

9. If one assumes a dire[illegible] effect and the amount [illegible] relate very low dose to a[illegible] though it is not detectabl[illegible] generally a[illegible] effect that may actual[illegible] predicted by this ass[illegible]

Basic Biological Assumptions

There are insufficient dat[illegible] provide a firm bas[illegible] ating radiation effects for all t[illegible] is particular uncertainty with [illegible] very low doses and low-dose r[illegible] of prudent [illegible] assume that there is a level o[illegible] exposure be[illegible] is absolute certainty that no ef[illegible] This [illegible] in addition to the adoption of [illegible] relation between biologic al eff[illegible] our basic approach to th[illegible]

The lack of adequate scien[illegible] makes [illegible] additional research be undertaken a[illegible] data developed [illegible] a firmer basis for evaluating biolog[illegible] Appro[illegible] agencies of the Federal Radiat[illegible] couraging research in th[illegible]

Recommendations

In view of the findin[illegible] mendations are made:

It is recommended that:

1. There should not be any man-made radiation exp[illegible] the expectation of benefit resulting from such expos[illegible] resulting in man-made radiation exposure shoul[illegible] useful applications provide[illegible] are followed.

It is recommended that:

2. The term "Radiation Protection Guide" be adopte[illegible] use. This term is defined as the radiation dose whi[illegible] be exceeded without careful consideration of the reas[illegible] doing so; every effort should be made to encourage [illegible] tenance of radiation doses [illegible]

It is recommended that:

3. The following Radiation [illegible] peacetime operations:

Type of Exposure	[illegible]	[illegible]
Radiation Worker		
a) Whole body, head and trunk, active blood forming organs, gonads, or lens of eye	[illegible]	[illegible]
b) Skin of whole body and thyroid	[illegible]	[illegible]
c) Hands and forearms, feet and ankles	[illegible]	[illegible]
d) Bone	[illegible]	[illegible]
e) Other organs	[illegible]	[illegible]
Population		
a) Individual	[illegible]	[illegible]
b) Average	[illegible]	[illegible]

[illegible]

The following points are made [illegible] Guides herein provided:

(1) For the individual in the population, the basic [illegible] whole body dose is 0.5 rem. [illegible] Guide applies [illegible] individual whole body doses are known. As an operational technique, where the individual whole body doses are [illegible] a suitable sample of the exposed population should [illegible] whose protection guide for [illegible] whole body dose [illegible] 0.17 rem per capita per year. It [illegible] emphasized that [illegible] an operational technique [illegible] special situations.

(2) Considerations of population genetics impose a [illegible] dose limitation for the gonads [illegible] rems in 30 years. [illegible] operational mechanism described above for the [illegible] whole body dose of 0.5 rem [illegible] to assure that the gonadal [illegible] Guide (5 rems [illegible]) is not exceeded.

(3) These Guides do not differ substantially from [illegible] recommendations such as those made by the National [illegible] on Radiation Protection and Measurements, the National Academy of Sciences, and the International Commission on Radiological Protection.

(4) The term "maximum permissible dose" is used by the National Committee on Radiation Protection (NCRP) and the International Commission on Radiological Protection (ICRP). However, this term [illegible] misunderstood [illegible] words "maximum" and "permissible" both have [illegible] connotations not intended [illegible] NCRP [illegible]

(5) There can be no single permissible or acceptable [illegible] exposure without regard to the reason for permitting the exposure. It should be general practice to [illegible] to radiation, and positive efforts should be [illegible] fulfill the sense of these recommendations. It [illegible] that exposure to radiation [illegible] tion of its necessity.

(6) There can be different Radiation Protection Guides with different numerical values, depending upon the circumstances. The Guides herein recommended are appropriate for normal peacetime operations.

(7) These Guides are not intended to apply to radiation exposure resulting from natural background or the purposeful exposure of patients by practitioners of the healing arts.

(8) It is recognized that our present scientific knowledge does not provide a firm foundation within a factor of two or three for the selection of any particular numerical value in preference to another value. It should be recognized that the Radiation Protection Guides recommended in this paper are well below the level where biological damage has been observed in humans.

<u>It is recommended that</u>:

4. Current protection guides used by the agencies be continued on an interim basis for organ doses to the population.

Recommendations are not made concerning the Radiation Protection Guides for individual organ doses to the population, other than the thyroid [illegible]. Unfortunately, the complexities of establishing guides applicable to radiation exposure of all body organs preclude [illegible] recommendations concerning them at this time. [illegible] protection guides used by the agencies be continued on an appropriate interim basis.

<u>It is recommended that</u>

5. The term "Radioactivity Concentration Guide" be adopted for Federal use. This term is defined as the concentration of radioactivity in the environment which is determined to result in whole body or organ doses equal to the Radiation Protection Guide.

Within this definition, Radioactivity Concentration Guides can be determined after the Radiation Protection Guides are decided upon. Any given Radioactivity Concentration Guide is applicable only for the circumstances under which the use of its corresponding Radiation Protection Guide is appropriate.

(over)

It is recommended that:

6. The Federal agencies, as an [illegible] use [illegible] concentration guides which are [illegible] the [illegible] Radiation Protection Guides. Where [illegible] Radiation [illegible] Guides are provided, Federal [illegible]

No specific numerical recommendations [illegible] Radioa[illegible] centration Guides are provided at this [illegible] However, [illegible] guides now used by the agencies ap[illegible] appropriate on [illegible] Where appropriate radioactivity [illegible] and where Radiation Protection Guides [illegible] herein, the latter Guides can be [illegible] the Federal agen[illegible] starting point for the derivation [illegible] concentr[illegible] applicable to their particular problems. [illegible] has also initiated action directed [illegible] Guides for radiation protection.

It is recommended that:

7. The Federal agencies apply these Radiation Protection [illegible] judgment and discretion, to assure that reasonable [illegible] achieved in the attainment of the [illegible] goal of pro[illegible] from the undesirable effects [illegible] The Guide [illegible] exceeded only after the Federal agency having jurisdiction [illegible] the matter has carefully considered the reason [illegible] light of the recommendations [illegible]

The Radiation Protection Guides [illegible] general [illegible] the radiation protection requirements. It is expected that [illegible] agency, by virtue of its immediate knowledge of its operations, [illegible] will use these Guides as a basis [illegible] develop detail[illegible] tailored to meet its particular requirements. The Council [illegible] the activities of the Federal agencies [illegible] necessary coordination to achieve [illegible]

If the foregoing recommendations are approved by [illegible] guidance of Federal agencies in the [illegible] their radiation [illegible] activities, it is further recommended [illegible] in the Federal Register.

[illegible]

[illegible] Federal [illegible] Council

The recommendations numbered [illegible] through [illegible] contained in the above memorandum are approved for the guidance of Federal agencies, and the memorandum shall be published in the Federal Register.

DWIGHT D. EISENHOWER

May [illegible]

[illegible] (PLEASE TYPE OR PRINT)

Name of Researcher [illegible] Page Number [illegible]

Collection and/or Series (e.g. OF; PPF; [illegible] Papers)	Box No.	[illegible]	[illegible]	Date of Docs.	Number of Pages
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