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RADIATION PROTECTION FOR ENEWETAK ATOLL

Theodore R. Mitchell

Micronesian Legal Services Corporation
1424 Sixteenth Street, N.W.
Suite 300
Washington, D.C. 20036
Telephone (202) 232-5021

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I. INTRODUCTION

The purpose of this paper is to identify and discuss briefly the principles of radiation protection which apply at Enewetak Atoll. It is written on the eve of the Enewetak Dose Assessment Conference and its primary audience is those officials of the United States Government, in the Congress and in the Executive Branch, who will make decisions affecting the resettlement of the atoll by the people of Enewetak.

A group of scientists at Lawrence Livermore Laboratory, headed by Dr. W. L. Robison, have provided an assessment of the potential radiation doses for those resettling the atoll. Preliminary Reassessment of the Potential Radiological Doses for resident resettling Enewetak Atoll, UCID-18219 (July 23, 1979).

At the Dose Assessment Conference, which will be held at Ugelang Atoll September 18 and 19, 1979, representatives of the Department of Energy will make a presentation to the people of Enewetak and discuss with them the radiological status of Enewetak Atoll.

In consultation with Drs. A. Bertrand Brill, Michael A. Bender, Robert A. Kiste and William E. Ogle, and legal counsel, the people of Enewetak will decide upon a preferred course for use and resettlement of each of the islands in the atoll.

Representatives of the High Commissioner of the Trust Territory of the Pacific Islands and of the Department of the Interior are also expected to attend and participate.

Since the radiological status of the islands in the southern part of the atoll does not present a potential health hazard, the central question for discussion and decision is use of the islands in the north, with Enjebi have the greatest importance because it is the traditional home of the dri-Enjebi, one of the two subgroups of the people of Enewetak.

If the outcome of the Dose Assessment Conference is a decision to resettle Enjebi Island, this paper will be followed by a detail analysis of what we believe to be the relevant radiation protection standards and their application to that decision. For the time being, we will confine ourselves to an effort to identify the relevant principles and suggest the way in which they apply to the hypothetical question of resettlement of Enjebi.

An extensive appendix is provided, which includes materials thought to be of primary interest, some of which are not easily obtainable.

We shall set forth here our principal conclusions and then move on to a brief discussion of each.

Radiation protection standards and guidance for agencies of the United States government are developed by the Environmental Protection Agency (hereinafter referred to as "APA") and promulgated by the President. The source of the President authority to issue the guidelines is the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2021(h). None of these guidelines applies in Micronesia, because Micronesia is not included within the territorial scope of applicability of the Atomic Energy Act.

As the administering authority of the Trust Territory of the Pacific Islands, under the Trusteeship Agreement between the United States and the United Nations, the United States has obligated itself, among other things, "to give due recognition to the customs" of the people of Enewetak and "promote [their] economic advancement and self sufficiency," and to "protect [them] against the loss of their lands and resources." In addition, the United States is pledged to "protect the health" of the people of Enewetak. Trusteeship Agreement for the Former Japanese Mandated Islands, 61 Stat 3301, Article 6.

Decisions taken by officials of the United States with respect to the resettlement of Enewetak Atoll must give due consideration to all of these interests and where they are in conflict, take care to reconcile the conflicts wisely,

in full consultation with the people of Enewetak themselves.

The United States should look to the presidential memoranda on radiation protection for guidance in carrying out its responsibilities under the Trusteeship Agreement, notwithstanding the fact that these guidelines have no direct application in Micronesia.

The presidential memoranda which are relevant to radiation protection at Enewetak Atoll are those establishing "Protective Action Guides" [hereinafter sometimes referred to as "PAGs"] which were developed to inform the design and control of industrial sources of radiation, is not relevant to radiation protection at Enewetak Atoll.

The principle distinction between the conditions calling for use of the Radiation Protection Guides and the Protective Action Guides is that, in the former, those making decisions have a choice about design of the radiation source before a contaminating release has occurred; in the latter, a contaminating event has occurred and it is a matter of evaluating the radiation source as one finds it in the environment. In applying the RPGs, it is a matter of weighing the known benefits of the radiation against its potentially adverse effects. In application of the PAGs, there is no known benefit to the radiation source and, instead, one must weigh the disadvantages of the radiation

against the disadvantages of measures intended to limit or reduce human exposure to it. A cost, a disadvantage, a loss, is inevitable. The objective is to minimize that loss. The two sets of guides are mutually exclusive. The PAGs apply to the Enewetak case.

II. THE PRESIDENTIAL MEMORANDA SETTING STANDARDS FOR RADIATION PROTECTION ARE NOT APPLICABLE IN THE TRUST TERRITORY OF THE PACIFIC ISLANDS

The sovereignty of the United States does not extend to Micronesia. Instead, the authority of the United States with respect to Micronesia is defined by the terms of the Trusteeship Agreement for the Former Japanese Mandated Islands, [hereinafter referred to as "The Trusteeship Agreement"]. 61 Stat 3301 (1947).

Within the United States Constitutional framework, the Congress exercises authority with respect to all territories under Article 1, Section 8. The Congress has delegated to the Executive authority to conduct the civil administration of the Trust Territory. 68 Stat. 330, 48 U.S.C. §1648.

Article 3 of the Trusteeship Agreement provides that:

The Administering authority shall have full powers of administration, legislation, and jurisdiction over the territory subject to the provisions of this agreement, and may apply to the Trust Territory... such of the laws of the United States as it may deem appropriate to local conditions and requirements.

Under our constitution, the manner in which the

"laws of the United States" would be applied is determined by Congress in the enactment of legislation of one kind or another to be directly applicable in Micronesia or by applying existing laws with or without modification. The wisdom of Article 3 seems clear. Micronesia is not part of the United States and the role of the United States there is a special one, undertaken for the specific purpose of assisting the Micronesians in achieving the central objective of the Trusteeship: self-government or independence. Trusteeship Agreement, Article 6.

The requirement that the administering authority's own laws will not apply to Micronesia unless expressly made applicable, prevents the undesirable result of the indiscriminate application of federal laws. For example, the Fair Labor Standards Act, 29 U.S.C. §§201 et seq, would require a minimum level of dollar compensation, which, given present levels of productivity in the Trust Territory, would render almost the entire population economically unemployable. Similarly, the application of the Internal Revenue Code would be undesirable in an economy so underdeveloped that it does not provide an adequate tax base to support Micronesian governmental activities. Even U. S. statutes which attempt to foster goals which are unquestionably benign, such as the Highway Safety Act of 1966, 23 U.S.C. §§105 et seq, could have a negative impact when applied to a place with such meager

financial resources and such limited land area. Accordingly, Congress, in defining the territorial scope of applicability of this statute, enumerated Puerto Rico, American Samoa, and the Virgin Islands, but excluded the Trust Territory by failing to name it. 23 U.S.C. §401.

Article 3 of the Trusteeship Agreement has been the subject of judicial interpretation. In The People of Enewetak v. Laird, 353 F.Supp. 811, 814-15 (D. Haw. 1973), Judge Samuel King stated:

Although the United States, pursuant to Article 3 of the Trusteeship Agreement with the United Nations, has "full powers of administration, legislation, and jurisdiction," federal legislation is not automatically applicable to the Trust Territory. Instead, Congress must manifest an intention to include the Trust Territory within the coverage of a given statute before the courts will apply its provisions to claims arising there. Such an intention is usually indicated by defining the term "state" or "United States" as used in the legislation, to include the Trust Territory.

Judge King gave over thirty examples. Id. n.8. If the statute is silent on the territorial scope of its coverage, the court will look to the history, character, and general aim of the legislation — what lawyers and judges call the legislative history of the statute — in order to ascertain the intent of Congress, ibid, 815, but if the statute contains a provision defining its territorial scope, the Trust Territory must be included by name.

The original Atomic Energy Act of 1946 was enacted

before the Trust Territory came into existence on July 18, 1947. Although the statute has been amended a number of times and was completely overhauled in 1954, the Trust Territory has not been included, although other similar areas have been, such as Puerto Rico and the District of Columbia. 42 U.S.C. §2021(n) (1959). This explicit enumeration of areas other than states, underscores the intent of Congress not to include the Trust Territory within the scope of the Atomic Energy Act, and that necessarily precludes applicability of any regulations or guidelines issued under the authority of that statute.

The section of the Atomic Energy Act of 1954 from which the President derives his authority to issue radiation protection standards contains a definition of its territorial applicability. It includes "any state, territory or possession of the United States, the Canal Zone, Puerto Rico, and the District of Columbia." 42 U.S.C. §2021(n).

The federal courts which has spoken on the subject have held that the term "territory or possession of the United States" does not include the Trust Territory of the Pacific Islands, which is administered by the United States under the Trusteeship Agreement. People of Saipan v. Department of the Interior, 356 F.Supp. 645 (D.Haw. 1973), affirmed as modified 502 F.2d 90 (9th Cir. 1974), certiorari denied 420 U.S. 1003 (1975); and World Communications Corporation v. Micronesian

Telecommunications Corporation, 456 F.Supp. 1122, 1123 (D.Haw. 1978).

The same federal district court judge, Samuel P. King, who decided The People of Enewetak case, held that

The Trust Territory is technically not a territory or possession because the United States does not have sovereignty.

356 F.Supp. at 656. the Ninth Circuit Court of Appeals expressly agreed with him. 502 F.2d at 95.

On August 15, 1959 President Eisenhower established the Federal Radiation Council to advise the President with respect to radiation matters. Executive Order 10831, 3 C.F.R. 365 (1959-63 Comp.) (A copy of the Executive Order is set forth in Appendix A-3; the Appendix will hereinafter be referred to as "the App."). Within one month the Council's advisory role was institutionalized by an amendment to the Atomic Energy Act. 42 U.S.C. §2021 (h). In 1970 the advisory function was shifted from the Federal Radiation Council to the Environmental Protection Agency. Reorganization Plan No. 3 of 1970 §2(a)(6)(7), 35 F.R. 15623, 84 Stat. 2086. With all of the changes and substitutions, there has been no change in the territorial scope of applicability of the federal radiation protection standards. They apply in the United States, its territories and possessions, but not in Micronesia.

The net effect of this analysis, is that radiation protection standards developed by Americans (or by Americans

elected by other Americans), for Americans in the United States of America, cannot be mechanically applied to conditions in Micronesia. They cannot be used by United States officials to work out a convenient, if not expedient, decision affecting important Micronesian interests. Instead, the responsibilities which devolve upon the United States and each of its departments or officers, from the Trusteeship Agreement, must be the controlling principle, as we shall show. This does not mean that wise and perceptive counsel cannot be taken from those at the Federal Radiation Council and elsewhere who have worried about the same or similar problems, but it does mean that the issues presented by the resettlement of Enewetak Atoll do not have ready answers which can be found in the federal radiation protection standards.*

* The National Environmental Policy Act, 42 U.S.C. §§4321 et seq., does not empower the E.P.A. or any other agency to promulgate binding rules, regulations or guidelines with respect to ionizing radiation, or any other potentially harmful substance. It requires thorough study of proposed "major federal actions significantly affecting the quality of the human environment." Both the text of an environmental impact statement and the comments upon it must be taken into account in arriving at a decision on the project at issue, but there is nothing in this statute to preclude a course of action which has been conclusively condemned on environmental grounds.

After the study has been completed and a course of action undertaken, any proposed change which would itself constitute a "major federal action significantly affecting the quality of the human environment" must be studied before a decision is reached upon it.

III. THE TRUSTEESHIP AGREEMENT

Decisions with respect to the resettlement of Enewetak Atoll must be taken in accordance with the principles contained in Article 6 of the Trusteeship Agreement. Article 6 provides:

[T]he administering authority shall:

1. foster the development of such political institutions as are suited to the trust territory and shall promote the development of the inhabitants of the trust territory toward self-government or independence as may be appropriate to the particular circumstances of the trust territory and its peoples and the freely expressed wishes of the peoples concerned; and to this end shall give to the inhabitants of the trust territory a progressively increasing share in the administrative services in the territory; shall develop their participation in government; and give due recognition to the customs of the inhabitants in providing a system of law for the territory; and shall take other appropriate measures toward these ends;

2. promote the economic advancement and self-sufficiency of the inhabitants, and to this end shall regulate the use of natural resources; encourage the development of fisheries, agriculture, and industries; protect the inhabitants against the loss of their lands and resources; and improve the means of transportation and communication;

3. promote the social advancement of the inhabitants and to this end shall protect the rights and fundamental freedoms of all elements of the population without discrimination; protect the health of the inhabitants; control the traffic in arms and ammunition, opium and other dangerous drugs, and alcoholic and other spiritous beverages; and institute such other regulations as may be necessary to protect the inhabitants against social abuses; and

4. promote the educational advancement of the inhabitants, and to this end shall take steps toward the establishment of a general system of elementary education; facilitate the vocational and cultural advancement of the population; and shall encourage qualified students to pursue higher education, including training on the professional level.

The language of Article 6, like the rest of the Trusteeship Agreement, was drafted by the United States and ultimately approved in the same form as originally submitted to the Security Council. 1, Whiteman, Digest of International Law 788 (1963); see also, H.R. No. 889, 80th Cong., 1st Sess. 3-4 (1947).

The juridical status of the Trusteeship Agreement has been the subject of litigation three times. In 1958 the United States District Court of the District of Columbia, in an action brought by Dr. Linus Pauling and Dwight Heine, refused to enjoin the Hardtack series of nuclear weapons tests at Enewetak. Pauling and Heine argued that the detonation of the nuclear weapons would "produce radiation or radioactive nuclei [which] will inflict serious genetic and somatic injuries upon [the] plaintiffs and the population of the world in general, including unborn generations." Pauling v. McElroy, 164 F.Supp. 390, 392 (1958). On behalf of the Marshallese people, Heine alleged that the nuclear weapons testing would result in "contamination of their food supply." Id. Among other things, Pauling and Heine argued that the nuclear testing was a violation of the Trusteeship Agreement. The court disagreed and dismissed their complaint. On appeal, a panel of judges which included Judge David L. Bazelon and then Circuit Judge Warren E. Burger, disposed of the matter on different grounds, holding that since the plaintiffs

"set themselves up as protestants, on behalf of all mankind, against the risks of nuclear contamination," they did not have standing to bring the lawsuit in the first place.

Pauling v. McElroy 278 F.2d 252, 254 (D.C.Cir. 1960), certiorari denied 364 U.S. 835 (1960). A similar attempt to accomplish the same purpose was also rejected. Pauling v. McNamara, 331 F.2d 796 (D.C.Cir. 1964).

The United States Court of Appeals For the Ninth Circuit, reached a different result on the question of judicial enforceability of the Trusteeship Agreement in a 1974 case, People of Saipan v. United States Department of Interior, 356 F.Supp. 645 (D.Haw.1973), affirmed as modified 502 F.2d 90 (1974). The District Court Judge Samuel P. King, presiding, held that Article 6 of the Trusteeship Agreement could not be the source of judicially enforceable rights for Micronesians. The Appellate Court reversed his decision on that point and established for the first time that "the Trusteeship Agreement can be a source of rights enforceable by an individual [Micronesian] litigant in a domestic court of law." 502 F.2d at 97. The court went on to say that:

The preponderance of features in this Trusteeship Agreement suggests the intention to establish direct, affirmative, and judicially enforceable rights.

Moreover, the Trusteeship Agreement constitutes the plaintiffs' basic constitutional document...

502 F.2d at 97-98. The government sought review of this decision by the United States Supreme Court, but it was

refused. 420 U.S. 1003 (1974). Since the Court of Appeals for the District of Columbia said nothing about the juridical status of the Trusteeship Agreement, the Ninth Circuit decision is the ranking judicial pronouncement on the subject. Furthermore, decisions of the Ninth Circuit Court of Appeals are controlling for Micronesia.

IV. IF ANY UNITED STATES RADIATION PROTECTION GUIDANCE IS RELEVANT TO THE ENEWETAK CASE, IT IS THE PROTECTIVE ACTION GUIDES

We have established that it is the responsibility of those who must make decisions concerning resettlement of Enewetak Atoll, to give due consideration to all of the important interests reflected in Article 6 of the Trusteeship Agreement: customs and cultural values, economic development, protection of natural resources, education and health. It is not unique to the Enewetak situation that efforts to achieve some of these objectives necessarily preclude or diminish fulfillment of others. In a sense, the Enewetak case presents a sharp conflict between the radiological health hazards created by what is generally referred to as a "high" technology and some of the highest cultural values of a singularly non-technical society. Resolution of the conflict is not provided in a neat package of federal guidelines, but it is reasonable for responsible officials of the United States government to seek enlightenment from those who have worried about similar problems elsewhere. It is from this view, that

we will take a brief look at the protective action guides which were developed by the Federal Radiation Council and promulgated by President Lyndon B. Johnson in 1964 and 1965.

The Appendix contains what we believe to be the primary source materials for a discussion of the protective action guides, the circumstances under which they apply and a comparison of the PAGs with the standards for general population, contained in the radiation protection guides which were promulgated in 1960 and 1961.

The most useful single discussion will be found in Appendix 1, an excellent article by Dr. Paul C. Tompkins, who was Executive Director of the Federal Radiation Council during all of its most important work. We will rely heavily upon his written work and his testimony before congressional committees, because he seems to have given the most careful thought to the application of a scheme of radiation protection and guidelines to real-life situations.

We have included the radiation protection guides of 1960 and 1961 as Appendix 4 and Appendix 5 for direct comparison with the protective action guides which are contained in Appendix 6 and Appendix 7. Although the Federal Radiation Council's Staff Reports Numbers 1 and 2 are of some interest here, because of the limited space available here, they have been omitted. Federal Radiation Council Staff Reports Numbers 5 and 7 are set forth in full in Appendix 8 and Appendix 9.

A reading of these reports alone makes it clear that the PAGs are the only guidelines of any relevance to the Enewetak case. Finally, Appendix 10 includes an extensive excerpt of the hearings before the Subcommittee on Research, Development, and Radiation of the Joint Committee on Atomic Energy, held June 29 and 30, 1965. Entitled Federal Radiation Council Protective Action Guides, these hearings dealt specifically with the purpose of the PAGs and the distinction between them and the RPGs which had been promulgated five years earlier.

We shall attempt in the briefest possible way to describe the RPGs and the PAGs and the difference between the two sets of guidelines.

In 1963, at hearings before the Joint Committee on Atomic Energy, Dr. Tompkins made the following observations regarding the use and application of the 1960 and 1961 Radiation Protection Guides:

[T]hese guidelines were developed to control the release of radionuclides to the environment as the result of industrial and scientific activities, [hence] the values set for this purpose are judged to represent risks to health which are so low that protective action affecting some other segments of the economy is not required. Indeed, the [Federal Radiation] Council has pointed out, an action causing disruption in the normal production, distribution, and use of food might very well have an adverse rather than favorable effect on public well-being.

* * *

The principle point which I would like to establish at this time is that, although the basic [RPG]

guidance deals with exposures to people and to concentrations of radionuclides in the environment, these guidelines are intended to be communications from the radiation protection professional people to the administrators who must make decisions affecting the release of radioactive material to the environment. They are not intended, and should not be used to make decisions affecting a different sector of the economy and, in particular, they should not be used as a basis for making decisions affecting the food and agricultural activities of the nation. [emphasis added.]

"Fallout, Radiation Standards, and Countermeasures," Hearings Before the Subcommittee on Research, Development, and Radiation of the Joint Committee on Atomic Energy, 88th Cong., 1st Sess. 8-9 (1963). It should be noted that these hearings took place prior to the issuance of the first PAGs the following year. The RPGs were developed with "normal peacetime operations" in mind and that term was generally meant to include the industrial use of radiation and any exposures of the general population which might result from accidents associated with medical or scientific uses of radiation. The RPGs did not apply to diagnostic or therapeutic uses of radiation prescribed by physicians for their patients, nor to exposures to radioactive fallout.

The RPG numerical values of 500 mrem per year for the individual in the general population and 5 rem per thirty years were thought to approximate the level of background radiation with which "man has existed throughout his history..." Radiation Protection Guidance For Federal Agencies, Fed. Reg., May 18, 1960 (set forth in full in Appendix 4).

The RPGs were intended to set standards for the design of future sources of radiation. On the assumption that any exposure of human beings to ionizing radiation, including that from the natural background, can potentially have deleterious effects, the numerical guidance recommended by F.R.C.No.1 was deliberately set very low, in order to inspire those who had control over the design and construction of new sources of radiation to weight the relative benefits and risks carefully and to design the source accordingly.

An important assumption was that nuclear generation of electrical power and the industrial and scientific uses of radiation all had a strong element of benefit to them. At the same time, it was recognized that the radiation was potentially harmful. Decisions with respect to the design, manufacture, placement and use of these radiation sources were to be made employing a benefit/cost analysis which struck the best possible balance between the good and the bad effects of the radiation. But decisions regarding countermeasures to be taken with respect to radiation which has been released to the environment entails different considerations and requires a different approach.

For example, plans for the testing of nuclear weapons in the atmosphere are governed by the RPGs. The assumed benefit to be derived from the development of a nuclear arsenal must be weighed against the health hazards of radioactive fallout. As Dr. Tompkins observed in the

1963 hearings before the Joint Committee on Atomic Energy, management of the primary source of radiation in that case would require "transfer of the U.S. test series to the Pacific" in order to achieve radiation protection, presumably for the United States population. 1963 J.C.A.E. hearings 302. But:

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 food stuffs might also be quite different from levels used in the planning phases [of the weapons tests].

P. Tompkins, App. 1, pp. 279-80; see also id. pp. 282-83.

The protective action guides were developed and intended to provide guidance for the conditions where a contaminating event has occurred, introducing radioactive material into the environment in such a way that it constitutes a health hazard to human beings via the food chain. F.R.C. Staff Report No. 5 (set forth in full in Appendix 8). The "release of radioactive materials from the detonation of nuclear weapons or other nuclear devices" was expressly distinguished from the "normal peacetime operations" to which the RPGs apply. Ibid 1-2.

A protective action is defined as "an action or measure taken to avoid most of the exposure to radiation which would occur from future ingestion of foods contaminated with radioactive materials." Ibid 7. The F.R.C. expressly recognized that action of this sort, intended to be beneficial, could also have an adverse effect.

Protective actions are appropriate when the health benefit associated with the reduction in dose that can be achieved is considered sufficient to offset the undesirable factors associated with the action.

* * *

A decision to implement a protective action involves a comparison of the risk due to radiation exposure with the undesirable features of the contemplated action.

Ibid 7. And the greater "the degree of intervention in accustomed activity" the greater the radiation risk must be to justify it. Ibid 8.

The type of protective actions contemplated by the Protective Action Guides are generically the same as those which have been considered in connection with the resettlement of Enewetak Atoll:

1. Altering production, processing, or distribution practices affecting the movement of radioactive contamination through the food chain and into the human body. This action includes a storage of food and animal feeds supplies to allow for the radioactive decay of short-live nuclides.
2. Diverting affected products to uses other than human consumption.
3. Condemning foods.

Ibid 8. Also included are "alterations of the normal diet."

Ibid 9.

At Enewetak protective actions which have been recommended include modification of the diet by restriction

of the planting of coconut and other trees and restrictions in living patterns. These are all protective actions within the meaning of the PAGs. Unlike the conditions to which the RPG's apply, following a contaminating event one is no longer faced with the choice between benefit and risk, but rather a choice between the risks associated with exposure to the environmental sources of radiation and the risks associated with alteration of normal living patterns and, in the case of Enewetak, important cultural values. The Federal Radiation Council offered the following guidance for those who have to make these difficult decisions:

1. If the projected dose exceeds the PAG, protective action is indicated.
2. The amount of effort that properly may be given to protective action will increase as the projected dose increases.
3. The objective of any action is to achieve a substantial reduction of dose that would otherwise occur - not to limit it to some pre-specified value.
4. Proposed protective actions must be weighed against their total impact. Each situation should be evaluated individually. As the projected doses become less, the value of protective actions becomes correspondingly less.

Ibid 9. These observations seem to be especially appropriate to the Enewetak situation, where to forbid the resettlement of an entire island, or to require substantial alteration of the normal diet pose the threat of serious harm to the people of Enewetak.

The numerical values of the PAG's are considerably higher than the RPGs. Categories I and II are related to the internal dose in the first year following a contaminating event and Category III relates to internal exposure via the food chain after the first year. Category I deals specifically with the radionuclide pathway to man via pasture-cow-milk. The numerical guide for Category I is

a mean dose of ten rads in the first year to the bone marrow or whole body of individuals in the general population... provided... that the total dose from Category I not exceeds 15 rads.

Radiation Protection Guidance for Federal Agencies, Fed. Reg. May 17, 1965, page 6954 (see Appendix 7).

For Category II, which is concerned primarily with the transmission of stontium-89, stontium-90 and cesium-137 through food crops, the numerical value is

a mean dose of five rads in the first year to the bone marrow or whole body of individuals in the general population.

Ibid., page 6955.

Category III is concerned with the long-term effects of stontium-90 and cesium-137 in the food web, following the first year after the contaminating event. The F.R.C. expressly recognized that "there can be [such] extremely wide variations in the situations that might exist" under Category III, that no specific numerical protective action guide could be recommended. Instead, it was recommended

that:

The desirability of protective action against exposure to environmental radioactivity from situations in Category III be determined on a case by case basis. If it appears that annual doses to the bone marrow after the first year may exceed 0.5 rad to individuals or 0.2 rad to a suitable sample of the population such situations shall be appropriately evaluated.

Ibid., page 6955.

We will leave it to future discussions to determine precisely how the PAGs apply to the Enewetak situation, but we would like to raise a few questions here. What is the "contaminating event" in the Enewetak case, for purposes of the PAGs? Is it the detonation of each nuclear explosion at Enewetak, or would it be the day upon which some people resettle Enjebi Island? What are the relevant factors to be considered in an appropriate evaluation of the Enewetak case for purposes of Category III? What protective measures ought to be planned for the future to evaluate the radiological status of the islands from time to time and to measure the actual dose received by individuals there?

We close with some salient observations from FRC Report No. 7, p. 6, which is included as Appendix 9:

Caution should be exercised in decisions to take protection actions in situations where projected doses are near the numerical values of the RPGs, since the biological risks are so low that the [protective] actions could have a net adverse rather than beneficial effect on the public well-being.

V. CONCLUSION

We have been at some pains to insist that the RPGs do not apply and that the PAGs do, if one wants to look somewhere for guidance in resolving the issues presented by the resettlement of Enewetak Atoll, because throughout the planning of the program, the Atomic Energy Commission employed the RPGs without so much as mention of the Protective Action Guides. Because the RPG numerical values are so much lower than numerical values for the PAGs, that approach necessarily precluded resettlement of Enjebi Island. Precluded it, that is, because the guidelines were applied as though they were absolute upper limits of the exposure permitted, a question which we have been able to avoid here, because we think the RPGs do not apply at all.

When the problem is addressed within the framework of the Protection Action Guides, given the projected doses contained in UCID-18219, the principal question becomes: when all relevant factors are considered, including economic, cultural, social, and health factors, is it better for the dri-Enjebi to reside on their home island than to reside in the southern part of the atoll? This question must be asked and answered, first, by the people themselves and, thereafter, by the responsible government officials.