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- W. E. Hervik, LLL
- D. Wilson, LLL
- ✓ W. Schroebel, BER, HQ

COMMENTS ON TASK GROUP DRAFT MATERIAL

The enclosed letter from Bob Leachman, DHA, plus the comments sent October 7, 1973, from Claire Palmiter, EPA are the sum total received to date on our first draft sections. Bob's letter highlights the basic differences in philosophy and approach that confront us.

Tommy F. McCraw
Special Assistant to the
Assistant Director for
Health Protection
Division of Operational Safety

Enclosure:
As stated

cc: R. Ray, NV, w/encl.

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DEFENSE NUCLEAR AGENCY
WASHINGTON, D.C. 20305

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*From Box # 3108
JOB # 7238*

Mr. Tommy F. McCraw
Chairman, Task Group on Recommendation
for Cleanup of Eniwetok Atoll
Division of Operational Safety
U. S. Atomic Energy Commission
Washington, D. C. 20545

Dear Tommy:

This is in response to your DRAFT MATERIAL FOR REPORT BY AEC TASK GROUP ON RECOMMENDATION FOR CLEANUP OF ENIWETOK ATOLL, dated 26 September 1973 and sent on 25 September 1973. Although this is not a studied response, I am sending you my immediate reactions. I caution that these are personal reactions and do not necessarily represent the official views of the Defense Nuclear Agency nor the DOD.

Obviously, your drafting group have been very thorough and very careful. You are all to be complimented on this good work. You might want to consider the following in your further work:

Various Options for Standards

The information sent to me seems to consider only one possible standard. In reality, many factors will have to be weighed in determining the extent of the cleanup. Indeed, the cleanup might actually be to the extent determined by these other factors more than to the radiological standards suggested by your group. Some of these possible other considerations are:

1. the extent of ecological damage that will be tolerated in soil plowing and in de-vegetation,
2. the extent of the cleanup that is possible with the funds that might be made available by the Congress and/or the OMB, and

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3. the possibilities that bad publicity will be incurred and further cleanup might be necessitated if Eniwetok standards are approved that are more stringent than are the standards deemed satisfactory for previous cases, such as Bikini, Palomares, Thule, Hattiesburg, Grand Junction, etc.

To allow for the possibility that the cleanup might actually be to a lesser extent than is radiologically ideal, it would be wise to consider several alternative standards of cleanup, even those that are not radiologically ideal. Your Task Group can assess the radiological consequences of cleanup to the extent of each of these alternative standards. Similarly, some group can assess the dollar cost and ecological cost for cleanup to each of these alternate standards. Presumably, responsible bodies, such as the AEC Commissioners, can recommend one or another of these alternative standards while acknowledging the existence of the other standards.

Presenting alternative standards allows greater flexibility of approach and, furthermore, enables fall-back positions in the event that ideal radiological standards cannot be attained.

Assessment of the Problem

For the convenience of the reader, presenting an assessment of the radiological problems would be desirable. The problems, as I see them, can be summarized:

1. The short-range problem (decades) is internal radiation from strontium-90, principally from consumption of pandanus fruit.
2. In comparison with the pandanus problem above, the external exposure from fission products is, relatively, never important.
3. Over the long-term (centuries and milenia) the hazard is plutonium, principally in the ground on the northeast islands and, secondarily, from the plutonium belt on Runit.

In my view, it is very important to recognize the basic political and sociological fact that control over the movement and living habits of the Islanders over centuries and milenia (No. 3 above) is completely unrealistic. Similarly, control over decades (No. 1 and 2 above) is quite unlikely, but could possibly happen. This reaffirms my belief as stated above, that alternative standards of radiological levels need to be presented and the consequences of these other standards need to be openly established. This is preparation for the possibility that future events differ from present plans. (For example, the Islanders might consume more radioactive pandanus than is presently planned.)

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Radiological Standards Suggested in 26 September Draft

I am disturbed principally by two things:

1. Radiological limits proposed are more stringent than, to my knowledge, have ever been put into force anywhere at any time.
2. An inconsistency perhaps exists in the discussion of these standards.

In regard to the stringency of standards suggested, I am considering the whole body or the gonads and red bone-marrow limits. The 5 rems in 30 years suggested as a limit in No. 2 on page 7 is exactly the same as the 5 rems in 30 years for the U.S. general population (as results from the U.S. standard of 0.17 rems/yr for 30 years). However, this U.S. standard is for a population that receives appreciable natural and medical radiation; for Eniwetok, the natural radiation is relatively unimportant, as will be the medical radiation for some years to come. Furthermore, this figure for the U.S. general population has been scaled down by a factor of three from the national and internationally accepted figure of 0.5 rem per year, presumably to allow for the uncontrolled and unmonitored nature of the population. The Islanders are the opposite of this. Therefore, it seems to me that the most stringent condition imaginable to advance for Eniwetok would be 15 rems in 30 years, rather than the 5 rems being advanced.

The inconsistency mentioned in No. 2 above is that page I-6 and I-7 indicate the standards are reduced by a factor of two to allow for "future nuclear technology," but page I-13 indicates that the original number includes nuclear technology (by excluding only natural and medical radiations).

An example of how cautious the proposed standards are as applied to Eniwetok is provided on page I-13. At the radiological standard suggested, the increased incidence of leukemia for the Eniwetok people, if these standards are met, would be only a 0.005 probability of one leukemia case per year for the entire population. While such an objective is radiologically desired, the cost to achieve such a stringent standard must be weighed against the financial and ecological costs.

The plutonium standards that are mentioned also deserve some clarification. On page 4, the conditions under which 40 or 400 pCi/gm apply should be distinguished. Furthermore, the area over which a 400 pCi/gm average residual can be tolerated should be stated. (Is this over one square meter or over an entire island?)

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Philosophies of Applying Radiological Standards

I sense from this 26 September 1973 draft that some consideration is being given to reducing exposures from the most radioactive areas by possibly restricting movements of the occupants or by counting on anticipated living patterns. I am fearful about the consequences of such a philosophy for at least three reasons:

1. It is presumptuous to believe that we will have the ability to restrict movements over the decades applicable to the fission product half lives, let alone the milenia applicable to the plutonium half life.
2. The "worse case" conditions left even on remote and undesirable islands will likely be the subject of unfavorable publicity regarding residual radioactivity.
3. Population pressures and/or economic necessities might force the Islanders to use restricted islands within decades, even if they now intend to do otherwise.

It seems to me that a different philosophy will very simply avoid these problems. This is the philosophy of simply cleaning all areas, no matter how presently undesirable or remote these areas now are, to the same radiological standard. Of course, if dollars, precedences, or ecological difficulties require a less stringent standard than the ideal standards, then this less stringent standard that would apply for the entire Atoll must be justified from the outset (if not justified, then at least the costs and consequences spelled out).

Pandanus

During the short term (decades), strontium-90 from pandanus is the overwhelming problem your Task Group faces. Correspondingly, this should logically receive the major part of your attention as your work progresses. When both the time before the fruit yield and the half life are considered, the concern is seen to be for a decade or so.

Consistent with my own concerns about ability to control population movements over decades, I similarly have considerable reservations about our abilities to control pandanus plantings and consumption over a couple of decades by rules and policies alone. Therefore, one or both of the following would logically be the major concern of your Task Force:

1. Devise methods by which the Islanders would naturally be consuming uncontaminated pandanus unless they went to an unlikely extent of trouble to do otherwise.

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2. From the outset, acknowledge that the consumption of radioactive pandanus might be more than planned. Consistent with this, consider now what the radiological consequences would be for this increased strontium-90 retention.

In regard to No. 1 above, one method would be to plant far more pandanus trees on each of the islands of the North than the population could conceivably want on any particular island. These would be planted under proper soil conditions, perhaps on soil imported from the southern (uncontaminated) islands transported to the northern islands and substituted for contaminated soil throughout the root area of the tree.

My desire to cooperate fully to handle the Eniwetok situation properly is shared by my Agency. As you know, I am most willing to meet with you or any of the individuals in the Task Group at any time.

Sincerely,



ROBERT B. LEACHMAN
Special Assistant to the
Dep Dir (Scien & Tech)

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