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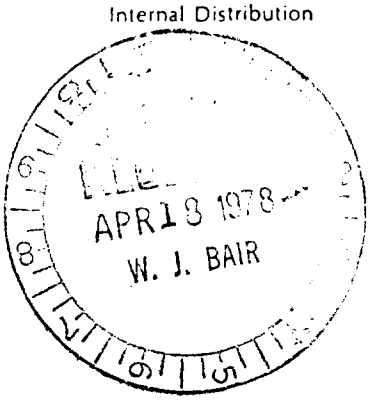

Date April 18, 1978

To Bill Bair

From Dick Gilbert Dick Gilbert

Subject Comments on "Assessment of Potential Doses to Populations From the Transuranic Radionuclides at Enewetak Atoll" by W. L. Robison, W. A. Phillips and V. E. Noshkin.

REPOSITORY PNNL
COLLECTION Marshall Islands
BOX No. 5685
FOLDER Enewetak April 1978

In my view the subject manuscript suffers primarily from an inadequate data base upon which to base dose estimates. Little data exist with regard to resuspension and fruit (particularly coconut). Transuranic concentrations from fish collected in 1976 are substantially lower than those from fish samples obtained during the 1972-73 Enewetak survey, casting doubt on the utility of the 1976 data used in the present paper. No direct estimates of drinking water concentrations are available for Enewetak. A ratio estimate obtained using Pu cistern water concentrations from Bikini is used instead.

Proposed EPA guidelines are written with reference to the top 1 cm of soil, whereas the present paper considers hypothetical surface soil in the 0-3 cm zone. It's possible, perhaps likely, that dose estimates based on the 0-3 cm zone could be less than if based on 0-1 cm deep samples.

Finally, if this paper is to be used to guide the cleanup effort, it would seem important to base dose predictions on actual soil concentrations presently existing on islands or on anticipated levels after the cleanup has been completed. This paper relies on purely hypothetical soil concentrations, which, while showing how dose estimates vary with soil concentration, may not adequately reflect actual soil concentrations. Average soil concentrations for transuranics over 1/4 or 1/2 hectare areas on most Enewetak islands based on IMP readings and soil samples are currently available. For each island these averages could be used to obtain dose estimates more closely tied to actual conditions than the hypothetical averages used in this paper.

In what follows I offer some suggestions for improving the manuscript.

1) References should be given relative to the Pu to ^{241}Am ratio of 2 to 1, and the root zone soil concentration (last paragraph, page 3). Also, the Stuart reference (page 5) is not given.

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Reviewed by [signature] Date 4/27/82

2) There is a totally inadequate description of the data that are used in the paper. We are given no information on the number of samples or on their variability. In Tables 2, 5, and 6, the authors should provide the number of samples, minimum and maximum values, arithmetic mean, median, and the standard deviation for each group of data.

3) The use of the term "average" island soil concentration (Tables 3, 10, 11, and 12) is confusing since the authors do not define this average. For example, is it the average of 1/4 or 1/2 hectare areas, or might it be the average of all the raw soil data as a whole collected on the island? I suggest the authors either define the world average or delete it.

4) In the last line of Table 9, the datum 1.11×10^{-2} is incorrect and should apparently be 1.11×10^{-1}. Also, in Table 4, the datum 0.159 in the row for 20 g/day should be, I believe, 0.149. The tables should be carefully proof-read since there may be other errors.

5) It would be helpful to the reader if the dose estimates for at least one of the tables (perhaps Table 12) were plotted on graph paper (% time versus dose for each hypothetical soil concentration). This would make clear the simple multiplicative relationships between the dose estimates in the table.

6) The $^{241}Am/^{239-240}Pu$ ratio data in fish muscle mentioned on page 9 (last paragraph) should be presented, especially since the data are described by the authors as being "insufficient" to arrive at "meaningful averages".