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College of Fisheries
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Dear Nat:

Your letter of 12 February to the Survey and Data Evaluation Group for the Eniwetok program has prompted me to complete a letter to you that was begun upon my return from the Livermore meeting of 16 January. Part of the reason for procrastinating has been the difficulty in preparing comments that were both significant and objective.

The responsibility of the Group, as I understand it to be, is to make sure that the information obtained from the analyses of samples is sufficient for making a reliable prediction of the radiation dose to the Eniwetokese upon their return to Eniwetok Atoll. At this stage, comments can be made about two aspects of the program—planning and execution of the field work.

As the first meeting of the Group was on 16 January and at a time when a substantial part of the field program had been completed, comments about planning are no longer pertinent. However, I did gain the impression that although the field program was carefully and thoughtfully planned, the planners attempted to obtain all of the answers from the current program without benefit of field experience at Eniwetok and full recognition of what had been done previously. As a consequence, the program was over planned. The program would have benefited from a greater input by Dr. Held. Both Dr. Held and I attended the September planning meeting at Livermore and had the opportunity to comment, but Dr. Held did not participate as a speaker although his name appeared on the original agenda for the meeting.

In regard to the 16 January meeting, there are two principal comments: one, the discussion of "Historical Data on Radioactivity at Eniwetok Atoll" should have included the history of radiometric and radiobiological surveys at Eniwetok, Bikini and Rongelap Atolls and should not have been limited to the history of nuclear detonations; and two, the discussion of terrestrial and marine food webs was based, principally, upon the work of our Laboratory and hence could have been presented more effectively by our Laboratory.

Comments that I have for our Group are related to the most efficient use of the research effort, time, and dollars that are available to obtain the information needed for dose assessment, and are as follows:

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1. Food webs - It should be recognized that the food webs are not perfectly known, but to move beyond what is now known would require a major effort that probably is not needed for this program, at least for the gamma-emitting radionuclides. Held has described the food web relationships for gamma-emitting radionuclides in the figure, "Distribution of Fallout Radioisotopes, Rongelap Atoll, 1961," a copy of which is attached. From information obtained at Bikini and Eniwetok since 1961, there is no reason to expect that there would be any major surprises if the 1961 Rongelap model was used as the 1973 Eniwetok model. Held's work did not include analyses for alpha-emitting radionuclides and hence the food web studies at Runit need special attention.

2. Models - The use of models for quantitative estimates of the movement of radionuclides through the food web will be limited by the scanty information on transfer coefficients.

3. Limits of detection - The limits of detection should be established on the basis of their effects on the estimates of the total dose to the Eniwetokese.

4. Number of radionuclides - Undoubtedly, there are a few radionuclides in the samples that can be identified by use of involved chemical procedures and/or sophisticated instruments. Although a complete budget of all radionuclides present in the samples is of great academic interest, such information is being obtained from Bikini and, therefore, for practical reasons, the decision to seek out these radionuclides should rest on their contribution to the total dose.

5. Number of samples for specific radionuclides - All samples did not need to be analyzed for all radionuclides. The information from previous analyses and the use of indicator species should guide the decision about number of samples for specific radionuclides.

In regard to execution of the program, my observation based on the December trip to Eniwetok and our Laboratory's contract with LLL is that the program has been well executed.

Sincerely yours,



Allyn H. Seymour
Director, Laboratory of
Radiation Ecology

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cc: Dr. Edward Held

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