Central

January 10, 1973

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RESPONSE TO DIRECTIVE (NVO-121)-1972 ENIWETOK ATOLL RADIOLOGICAL SURVEY

I share your desire that Radiological Assessment Review by LLL produce a thorough and complete report. I plan to attend the meeting on January 16, 1973 and have attempted to update the October 4, 1972 planning operations with recent status reports. The differences between what was planned and what was carried out may be significant. They may, however, merely be details in the survey execution and the three objectives will still be able to be expedited. Those objectives are to: (1) locate contamination; (2) radiological hazards from the nuclear test debris and (3) evaluate the external and internal (food chain) dose to man from these radionuclides.

DBER's responsibilities according to NVOO (R. Ray) are to assess the radiological implications of sources of radiation both direct (external) and internal via the food chain transfer. These implications must be evaluated for each food chain and for each type of radionuclide, e.g., alpha emitters, fission or neutron activation products. These radionuclide concentrations should be assessed from all media such as air, foods, and water. As the LLL lead is Dan Wilson, I feel confident that these areas will have the "appropriate" samples collected in order to properly evaluate the environment for the radiation dose to man. This itemized list should be available at this meeting.

The techniques of processing these samples are the next critical areas of concern. In analyses of water, pumping large volumes (~2000L) through reduction sorption EMWL gear is no substitute for collection filtering, acidification, return to the lab and then scavenge the radioelements from solution by iron hydroxide

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coprecipitation. Sediment cores must also be processed according to the information needed from the samples, i.e., a depth distribution of activities throughout the cores or associations of separate radionuclides on various particle sizes can not be determined after the cores have been homogenized. The most critical areas of concern in preprocessing are in the bioassessment of associated radioactivity. Specifically two cautions are registered. One, the tissue distributions of each radionuclide is important therefore each macrosample should be dissected (questioned on page 25) into body parts, i.e., muscle, bone, skin, liver, etc. Two, the food web is best evaluated by looking at stomach contents in opposition to referenced food chain sequences, e.g., turtle grass--sea urchins--starfish.

Radionuclide Analyses: We strongly urge that all samples be evaluated by gamma spectroscopy for expected activities of expected radionuclides (page 29 Ic). Also, after dissolution of sample I suspect that Fe^{55} and Ni^{63} are important enough in total body burden that the extra effort spent in wet chemistry processing is well worth it.

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