

BROOKHAVEN NATIONAL LABORATORY  
ASSOCIATED UNIVERSITIES, INC.

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Safety &amp; Environmental Protection Division

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August 3, 1978

Dr. Charles A. Sondhaus  
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Dear Chuck:

As indicated in our telephone conversation, I am presenting herewith an update of what has been done so far.

The funding for this project came through during late February, which has put certain constraints on getting the necessary work assigned to outside Laboratories in order to be completed by September 1978. However, we hope that preliminary discussions can be launched with the information we already have and with interim results from laboratories.

The  $^{129}\text{I}$  determination in soil samples is being done by Dr. Fred Brauer (Battelle Labs-Dr. Ballou is the group leader). Dr. Seymour, Director, Laboratory of Radiation Ecology, University of Washington has kindly provided us with soil samples from Rongelap and Utirik collected in March 1954 and from subsequent years. These samples should provide us with information on  $^{129}\text{I}$ . Enclosed is a paper outlining the procedure. Discussions with Drs. Ballou and Brauer indicated that they would check for loss of iodine during storage of samples using their own historic samples; and also look for  $^{99}\text{Tc}$ , if feasible. Dr. Soldat indicated that  $^{99}\text{TcO}_4^-$  ion dose could be similar to  $^{129}\text{I}$  and possibly could contribute to the dose delivered to the thyroid gland at time of fallout. He also suggested that the data on ingestion of dirt by children as documented by Dr. Healy (UC-41, LASL-LA-6337 PR) should prove valuable in assessing pathways. Dr. Ballou will have a first look at the  $^{129}\text{I}$  data as it comes out.

We are at present looking through all the reports in our possession and pulling out every bit of information concerning the March 1, 1954 fallout on Ailinginae, Rongelap, Rongerik and Utirik. In this way, we hope to have access to data that would be required to estimate internal and external dose. Also, such collating will help evaluate the validity of observations. I am sending by separate mail all your reports. We appreciate the opportunity to have had access to these valuable references.

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August 3, 1978

Our discussion with Mr. Paul Gudiksen (Lawrence Livermore Laboratory) has indicated that they could provide us with a "state-of-the-art" computer simulation of the transport and deposition of radioactive fallout on Rongelap and Utirik Atolls. Their results should give us,

- a) plots of integrated air concentration isopleths for fission products iodine, cesium and strontium
- b) deposition isopleths for the aforementioned fission products, plus  $^{239}\text{Np}/^{239}\text{Pu}$  if possible, and
- c) time plots of the buildup and decline of airborne fallout concentrations near sea level at the points of interest, and/or the buildup of ground deposited fallout.

In order for LLL to provide us with the above, BNL will have to provide the following information:

- a) windspeed and direction
- b) charts on general weather conditions-regional, balloon soundings
- c) temperature (vertical profile)
- d) windshift in time and space
- e) particle size information (data from subsequent shots could also be used)
- f) cloud shape-fraction of cloud in stem
- g) source term (fly-through data)
- i) old fallout pattern estimates for BRAVO
- j) hard dose-rate data to cross check

We have so far been able to locate 50% of the information in classified files. Mr. Telegades (NOAA) who was with the Meteorology Group of the Air Force for the BRAVO shot has been contacted, and he will in all probability provide the balance.

Discussions with Dr. Hugh Pratt (BNL Medical Team) have indicated the possibility of acquiring excised thyroid glands. Dr. Brauer (B-PNL) feels confident that these tissues could be successfully analyzed for  $^{129}\text{I}$ . However, this may require additional funding and this is being explored.

In our conversation, you had mentioned Dr. Ed Alpen (Donner Lab., Berkeley(?)). I have not yet contacted him. Could I impose upon you to do the same on our behalf?

The above summarizes our work to date. We are hoping to have all the information in by the middle of September at which time we can arrange a meeting place and time that is mutually agreeable. Mr. Greenhouse who is passing through San Francisco will try to reach you some time this week if time permits, or he may do so on his return from the Marshall Islands around August 25.

Wishing you the best.

Yours truly,



Janakiram R. Naidu, Ph.D.  
Ecologist

sls

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