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REPORT OF TRIP TO BROOKHAVEN NATIONAL LABORATORY (BNL) ON MAY 4, 1989

While in New York on other business I took advantage of the opportunity to visit BNL concerning the plutonium-in-urine analyses of Marshall Islands samples being performed for the Department of Energy (DOE). I met with C. Sun, S. Banerjee, A. Moorthy, D. Henze, and C. Meinhold.

We discussed the samples that have been prepared to send to the University of Utah for the comparison study between the two laboratories. Thirty samples were ready to send. Twelve of these are 1-liter aliquots of two-week composites from Bikini Island, 16 are Utrik split samples that have already been analyzed by BNL, and two control samples. It was agreed that the final 20 samples will be prepared from Enewetak urine after the Utrik samples are analyzed and the results have been compared between the two laboratories. The final set of samples will be prepared by BNL, following complete dissolution of any sediments that may be present, and blinded so that the laboratories cannot compare results before they are reported to DOE.

BNL reported that 120 samples were collected during the September 1988 trip. Eighty of these samples have been analyzed and I compared the number of tracks from these samples with those analyzed for the same persons previously. None of the previously high readings have been duplicated. Most of the results are comparable with the levels reported for the general populations of Rongelap and Utrik. No quantitative analysis was made to see if Rongelap concentrations are lower than the levels obtained while the people were still on Rongelap Island. This comparison can be made about mid June after all of the samples have been analyzed. BNL showed me the results of samples provided by Battelle of persons exposed occupationally. Three control samples from an uncontaminated individual had activities of about 100 attocuries. This is higher than I would expect from the general public. This increases, in my mind, the importance of conducting the baseline study.

Sujit Banerjee explained that BNL is capable of doing the process with greater sensitivity but has resisted changing the procedure midstream. I recommended that they do the one or two months developmental work required to improve their sensitivity prior to analyzing the samples that will be collected this summer. At present they are confident that activities greater than 100 attocuries are discernable above background. The minor change in chemistry will provide greater recoveries and the minimum discernable activity will be below 50 attocuries. They also would like to work on a new procedure that will simplify the process and provide much greater precision using high performance liquid chromatography (HPLC). This will take one to two years of research effort.

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It was made clear to me that if significant funding cuts are made to this program the personnel will go elsewhere and the capability of measuring plutonium at ultra-low concentrations will be lost at BNL. Until resettlement is complete and bioassays are no longer required for the Marshallese, it is important to maintain the capability at BNL. In planning for the future, I recommend that approximately 300 urine samples be collected in 1989 with analysis of those samples during FY 1990. The following year should be used in developing the HPLC technique and conducting a 1991 bioassay trip to the Marshall Islands. Those samples will be analyzed in FY 1992. FY 1993 can be used in assisting the University of Utah complete the baseline study and the final bioassay trip to the Marshalls can be conducted on the summer of 1993. By that time we should be able to settle for good the question of plutonium uptakes in the Marshalls.

I also discussed with Casper Sun the trip this summer. I will meet him in Honolulu on July 5, 1989, accompany him to Enewetak, Bikini, Majetto, and Ebeye. I will then leave Kwajelein on July 28, 1989, arriving in Las Vegas on July 29, 1989.

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