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From: Richard Wilson [mailto:wilson@huhepl.harvard.edu]

Sent: Sunday, November 25, 2001 11:48 AM

To: ocas@cdc.gov

Subject: irep

To CDC and NIOSH

Dear Sirs;

I have been looking at the procedure and calculation laid out in the computer program:

[http://216.82.51.38/irep\\_niosh/](http://216.82.51.38/irep_niosh/)

This program is hard to find although it is easy to use.

NONE of the search engines seem to find it. I only found it by calling Dr Owen Hoffman. I strongly urge making it clearly linked on the NIOSH website, the NCI website, the SENES website and as many others as you can think of. The public comment period mentioned in the Federal Register documents of October 6th 2001 should be extended until at least 90 days after that is done.

I have made comments earlier in this procedure in the proper manner. They were not acknowledged. I have no evidence that any one person has ever looked at them. The lack of acknowledgement is common in Federal Agencies such as EPA, NIOSH, OSHA. This is a lamentable failure and makes a mockery of the Freedom of Information act. Other agencies, NRC, NASA, routinely issue a document listing all comments and the agency comments thereon. I therefore make them again. My opinion can of course be discounted as only one of many. But it seems not even to have been included in an uncertainty analysis. The procedure is seriously flawed in its selection and use of data and uncertainties. I detail the most egregious of these below.

(1) By only using a formula fitted to the Hiroshima/Nagasaki data from RERF including an extrapolation (really an interpolation between the lowest point and zero) to low doses that is linear without a threshold, a huge assumption is made. I have urged that this assumption be explicitly stated and the enormous uncertainties inherent in the use of the assumption be included in the DEFAULT uncertainty model used in the public version of the program. It is not.

(2) It is stated that using a linear-quadratic fit to the data automatically takes account of a dose rate correction factor. This is wrong. The two factors, low dose extrapolation and low dose rate for the same dose are fundamentally distinct and should be separated. Doses at Hiroshima and Nagasaki were almost instantaneous. Those of DOE and

other industry exposures were over a long period. There is no way the former can mimic the latter without an assumption which **MUST BE and HAS NOT BEEN** carefully articulated. Data from the Techa River accident and from the Mayak occupational cohort suggest a dose rate reduction factor of three **FOR LEUKEMIA**. No other direct data exist. These should be accepted as a start and any uncertainty around that value. (For solid cancers we have no direct data). Whoever chose the Dose rate reduction factors was an extreme pessimist. I address this further below.

(3) Professional organisations who have studied this carefully argue that we do not know what the effect is of a cumulative dose less than 20 Rems. (e.g official statement by the Health Physics Society) Some scientists argue for low dose linearity, some for a threshold and others for hormesis. The formulae should take this into account. They do not.

(4) It seems that the procedure used is the procedure used, very reasonably, by public health authorities for a cautious protection of public health. In such a procedure one deliberately takes ALL uncertainties and errs "on the safe side." **BUT** these tables are NOT for protection of public health. Whatever has happened has happened. "What is done we never, never, can undo". These tables are explicitly for compensation. Unless there is a **SPECIFIC** statement that the compensation is to be done in a **VERY** generous way (some of the words already propose compensation at a 0.01 % probability so it could be argued that we need no more generosity), the low dose calculation should be considered more carefully.

As an example try finding POC for someone who develops a rare cancer (eg leukemia) at a young age. (40) The model which is based on Hiroshima/Nagasaki data with a linear no threshold extrapolation to zero, gives a high figure for someone who has always kept his exposure at the allowable radiation exposure limit.

POC for a rare cancer is an even higher figure for an exposure of 20 Rems, which is the number below which the Health physics Society say we know nothing.

At the very least NIOSH should say loudly and in large bold letters, in each and every document and webpage that these tables do not necessarily represent the truth but a guess of some people that is appropriate for whatever particular action NIOSH is contemplating and may have no relevance to any other action contemplated by NIOSH or any other agency or person

I would be happy to go over these arguments with you carefully on an appropriate occasion.

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