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July 1, 1982

Dr. Bruce W. Wachholz  
 Office of Environmental Protection,  
 Safety & Emergency Preparedness  
 Office of Operational Safety  
 Department of Energy  
 Washington, DC 20545

Dear Bruce:

The following pertains to the Epidemiology Research Institute Bikini Report.

In Table 10, dose and risk values are given which are purported to be those published by DOE, reference 2. Neither the dose or the risk values are accurate representation of the values published by DOE. The "DOE" dose values in the table apparently have been reduced to account for radioactive decay, although that is not stated. While the cancer risk coefficients given are the BEIR-I values used by the DOE authors, but rounded off, the doses are not. DOE chose to use the bone marrow doses because they were slightly higher than the whole body doses and thus were less likely to contribute to an underestimate of the risk. The risk coefficient for genetic effects ascribed to DOE and the ERI "recalculation" of DOE's estimate of genetic effects misrepresents DOE's approach. The following shows DOE's recalculations using the DOE dose values as reduced by ERI to account for radioactive decay. Numbers of affected persons are given for the Bikini population of 550, as was done in reference 2, and also for a base population of 1000 as was done by ERI. Numbers of affected persons are calculated using risk coefficients from BEIR-I as was done in reference 1 and also using risk coefficients from BEIR-III for comparison with similar values in the ERI report.

Sincerely yours,

*Bill*

W. J. Bair, Ph.D.  
 Manager  
 Environment, Health and  
 Safety Research Program

WJB:lm

Attachment

REPOSITORY

PNNL

COLLECTION

Marshall Islands

BOX No.

5684

FOLDER

Bikini 1982

DOCUMENT DOES NOT CONTAIN ECI

Reviewed by [Signature] Date 4/30/97

## CANCER DEATHS

	30 Year Dose	Risk Factor	Cancer Deaths Per Relevant Population**	Per 1000 Persons Exposed
ERI	61 (Whole body)	0.07 - .17 (BEIR-III)		4 - 10
DOE	23 - 43* (Bone marrow)	0.087 - 0.458 (BEIR-I)	2 - 20	2 - 20
	23 - 43* (Bone marrow)	0.067 - 0.158 (BEIR-III)	1.6 - 7	1.5 - 6.8

## GENETIC EFFECTS

	30 Year Whole Body Dose	Risk Factor	First Generation Genetic Effects Per Relevant Population***	Per 1000 Live Births
ERI	61	5 - 65/million live births (BEIR-III)		0.3 - 4
DOE	22 - 40*	0.2%/rem above spontaneous defects (BEIR-I)	6 - 11	5 - 9
		5 - 75/million live births (BEIR-III)	.14 - 3.9	.11 - 3

\* corrected for decay, original DOE value x 0.91

\*\* 550 plus 1300 new born over 30 year period

\*\*\* 1300 live births