

Senate Foreign Affairs, Defence and Trade Committee
Department of the Senate
PO Box 6100
Parliament House
Canberra ACT 2600

Submission for the

Inquiry into the provisions of the Australian Participants in British Nuclear Tests (Treatment) Bill 2006; and, the Australian Participants in British Nuclear Tests (Treatment) (Consequential Amendments and Transitional Provisions) Bill 2006

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Dear Committee Members,

As a child of a Maralinga Nuclear Test Participant I would like to welcome the Government's initiative, albeit decades late, in providing cancer health care and treatment for surviving participants in the British Nuclear Tests in Australia. Included here are brief comments from my perspective.

Although the Bill is a move in the right direction, the studies that the Bill is based upon are hopelessly flawed and therefore the Bill falls short of the recommendations made by the Clarke Review.

Of particular concern is the failure of the Study to properly investigate:

- Non-cancerous diseases
- Intergenerational and genetic effects on offspring
- Chromosomal damage
- Incorrect assumptions in dose reconstructions
- Dismissing the causal link between ionizing radiation and illness

The Bill fails our Nuclear Veterans by dismissing the Government's liability in carelessly exposing them to high levels of ionising radiation and other nuclear weapon contaminants. It is feared that by not accepting liability, the Government also will not accept liability for later proven genetic damage caused by the nuclear tests.

Study Findings

The Study's Main Findings provide for a statistically significant increase in lethal cancers suffered by the Nuclear Veterans. The study finds that lethal cancers are increased by 18%. According to the World Health Organisation, for every 1000mSv of ionising radiation that a group is exposed to, an increase of 5% in the mortality rate due to cancer, as a general rule, can be expected. On the surface, this suggests an average exposure of 3600mSv (compared to the 2.8mSv reported by the Study).

The Study correctly identifies other sources of cancer, for example the widespread use of asbestos in naval vessels and ventilation filters for face masks, but provides no corroborating evidence for other causes of cancer, for example no reason is given as to why fit and healthy soldiers would smoke more than the general population.

The study was also found to be flawed by the overuse of general and broad assumptions in calculating dose reconstruction. One example of many is Table 7.16 where the word “assume” appears no less than 6 times. This is hardly scientific.

Radiation in Perspective

It has been reported in the media that the Nuclear Veterans were exposed to no more than a medical CT Scan. In many cases this is no doubt true, particularly for observers from a distance, but for some this was not the case. Records exist that show that re-entry parties (including my father) were exposed to 290mSv/hour (the Study assumes 0.01mSv/Hour for these people).

In order for the Committee to understand these high rates of exposure the following table has been sourced from the US Food and Drug Administration:

Radiation Dose Comparison

Diagnostic Procedure	Typical Effective Dose (mSv)¹	Number of Chest X rays (PA film) for Equivalent Effective Dose²	Time Period for Equivalent Effective Dose from Natural Background Radiation³
Chest x ray (PA film)	0.02	1	2.4 days
Skull x ray	0.07	4	8.5 days
Lumbar spine	1.3	65	158 days
I.V. urogram	2.5	125	304 days
Upper G.I. exam	3.0	150	1.0 year
Barium enema	7.0	350	2.3 years
CT head	2.0	100	243 days
CT abdomen	10.0	500	3.3 years

1. Effective dose in millisieverts (mSv).

2. Based on the assumption of an average "effective dose" from chest x ray (PA film) of 0.02 mSv.

3. Based on the assumption of an average "effective dose" from natural background radiation of 3 mSv per year in the United States.

The Adelaide University Study would have us believe that a CT Scan is more radioactive than the 7 atmospheric nuclear devices detonated at Maralinga. This defies all logic.

Genetic Effects

The Study, at Volume 1 page 17 discusses the temporary sterility of participants. It is curious that a study focusing on cancer and ignoring all other non-cancerous effects of ionising radiation would indicate that a dose of 150mSv could cause male sterility (the World Health Organisation has stated this effect begins from 500mSv). The Donovan Report indicates that about 14% of respondents were affected.

This acknowledgement of radiation induced sterility creates a serious flaw in the non-liability clause of the Bill. The Study states that damage to male reproductive cells can occur, yet cancerous damage does not.

Furthermore, if reproductive cells are being damaged it is more than likely that genetic or chromosomal damage in these cells has also happened. This is confirmed by the Massey University 1st pilot study.

These changes will be passed on to future generations.

Genetic damage can range from a small change, perhaps changing the way a protein works, to major malformation or lethal conditions. After Hiroshima and Nagasaki, studies were undertaken, but they too were flawed. Only observable defects were recorded by midwives and doctors. Subtle defects and non observable defects were not recorded.

Numerous studies have been undertaken on the genetics of the fruit fly *Drosophila melanogaster*. So common are these experiments that hardly a biology faculty in any University would not have them on hand. Mutations (and cancers) on these flies are easily obtained by exposure to ionising radiation. Similarly, mice and rats exposed in laboratory situations to ionising radiation can have mutations and cancers readily induced. Some of these mutations have appeared in populations over 100 generations after the initial exposure.

There is no scientific reason why humans are not the same.

Recommendations

- 1) The Committee accept the proposal for immediate treatment for cancerous conditions suffered by Nuclear Veterans.
- 2) The Committee reject the notion of Government Non-Liability.
- 3) The Committee reject the flawed Adelaide University Studies.
- 4) The Committee recommends a new study covering all health effects including non-cancerous diseases.
- 5) A study of the health and genetic effects on the offspring of Veterans be undertaken as a matter of urgency.