

Comments regarding findings as numbered, with references:

Findings 8-9

According to the evidence of much science and common sense, it is important that future energy technologies adhere to the highest standards of health and safety, as well as environmental effects.

All nuclear power plant designs currently on the market pollute the environment with radionuclides, even when operating normally. In light of known science and considering continued deficits in scientific understanding of the environmental and health effects of such radionuclide pollution, it is imperative that the precautionary principal be followed, which at present does not seem to occur in jurisdictions where nuclear energy is utilised. In contexts where evidence of safety does not exist, ignorance of unsafety is no defence for risk.

Findings 10-22

Currently, the safe operation and complete remediation of mines and associated facilities where the extraction of radioactive minerals has occurred has not been demonstrated. There is therefore no precedent for the feasibility of this.

<http://researchonline.jcu.edu.au/1598/1/Lottermoser%26Ashley.pdf>

DOI: [10.1080/08120090600632383](https://doi.org/10.1080/08120090600632383)

Findings 36-37 and 103-111

I would question whether it is the role of the Royal Commission to suggest ways which the expansion of activities relating to the nuclear fuel cycle could be politicised in order to garner community support. This would be highly irregular. As the Royal Commission is 'Royal' and associated with the monarchy and Her Majesty, the Queen, it would be reasonably expected for the Royal Commission to remain apolitical, politically impartial, and refrain from suggesting methods by which findings may be propagandised by politicians. Furthermore, it would be faux-naïve to suppose that the wording of these findings does not in some way suggest such a politicisation of the findings.

Findings 62-102

I would like to note that as the safe long-term storage of high level radioactive waste has not been demonstrated, there may be future unforeseeable costs involved.

Also, as reactor designs in development may be able to use such waste as a fuel source, it is common sense to allow such waste to be stored in a form usable by those reactor designs. This would involve short-term storage, not the longer-term storage methods suggested by the Royal Commission. This arguably would also be better achieved in the countries where such designs are being developed.

<http://terrapower.com/>

Some environmental concerns have not been adequately addressed. These include the production of radioactive ^{85}Kr and ^{133}Xe in various processes of the fuel cycle, the effects of which upon the atmosphere are uncertain, but include disruption of natural ozone distribution, action as greenhouse gasses, and possibly, according to the World Meteorological Organization, "If ^{85}Kr continues to increase, changes in such atmospheric processes and properties as atmospheric electric conductivity, ion current, the Earth's magnetic field, formation of cloud condensation nuclei and 57 aerosols, and frequency of lightning may result and thus disturb the Earth's heat balance and precipitation patterns.";

<https://www.empa.ch/documents/56101/249866/2.pdf/97387076-6407-414c-a138-b90e1648c5d6>

<http://www.osti.gov/scitech/biblio/7326032>

<http://www.sciencedirect.com/science/article/pii/S1352231014009121>
[doi:10.1016/j.atmosenv.2014.11.047](https://doi.org/10.1016/j.atmosenv.2014.11.047)

<http://www.tandfonline.com/doi/abs/10.1080/00223131.2014.888960>
DOI: 10.1080/00223131.2014.888960

and;

The production of ozone depleting gasses by low level radioactive waste.

<http://www.ncbi.nlm.nih.gov/pubmed/22751077>
doi: 10.2134/jeq2011.0480.

Finding 119

This finding seems to make a false, or at least misleading statement, that, "The levels of exposure to the public are in the vast majority of cases lower than what might be expected from natural sources." In fact, this does not take into account the difference in health effects of internal and external sources of radiation – be they inhaled, ingested, or otherwise in the external environment, respectively. This also does not take into consideration the specific chemical toxicity of radionuclides unique or effectively unique to anthropomorphic activities, such as plutonium. Nor does this finding take into consideration the specificity of health, evolutionary, environmental and ecological consequences of different forms of radiation, be they gamma, beta, alpha, etc. Additionally, synergistic detrimental effects could be considered, and the heterogeneity of effects to populations as opposed to individuals could be considered.

Recently published science has found the effects on nuclear industry workers of radiation to likely be more pronounced than some previous research has suggested.

<http://www.sciencedirect.com/science/article/pii/S1438463915000176>
[doi:10.1016/j.ijheh.2015.01.007](https://doi.org/10.1016/j.ijheh.2015.01.007)

Finding 117

The debate regarding the health effects of low dose radiation is between the vast majority of the scientific community, and a minority who promote the theory of radiation hormesis.

The metabolism of radionuclides in many cases is poorly understood, although science continues to examine these phenomena.

<http://www.pnas.org/content/112/33/10342>

doi: 10.1073/pnas.1508902112

Finding 124 a)

Although no death has been proven to have been caused directly by radiation associated with Fukushima Daiichi, the death of at least one worker at the plant, reportedly attributed to heart attack or other cardiovascular event, is almost certain to have been contributed to by radiation exposure during the individual's life and work, including the period after the accident. This is relevant to all nuclear industry workers and also the public, as science has found that cardiovascular health problems may be contributed to by such exposure to radiation.

<http://cardiooncologyjournal.biomedcentral.com/articles/10.1186/s40959-015-0007-6>

DOI: 10.1186/s40959-015-0007-6

<http://www.rjournal.org/doi/abs/10.1667/RR2629.1>

doi: <http://dx.doi.org/10.1667/RR2629.1>

Regarding the health effects of radiation exposure highly relevant to the terms of the Royal Commission, I would like to draw you attention to the following studies:

<http://www.ncbi.nlm.nih.gov/pubmed/25224806>

doi: 10.1179/2049396714Y.0000000077.

<http://www.ncbi.nlm.nih.gov/pubmed/26962458>

doi: 10.1186/s40557-016-0099-y.

<http://www.ncbi.nlm.nih.gov/pubmed/15107695>

Doi : RESP-02-2004-52-1-0398-7620-101019-ART9

Further comments:

Regarding the general economic opportunities for South Australia, I would note examples such as France, where majority-ownership scale investment of the nuclear industry was required to establish the industry in the first place, and now notable majority-state-owned companies have in recent years reported consecutive significant net losses, and have also lost share value, necessitating plans involving cutting thousands of jobs, sale of assets, and sale of company divisions.

<http://www.avea.com/EN/group-4266/avea-s-transformation.html>