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Ms Delwyn Lanning
Major Project Development Assessment Processes
Productivity Commission

Dear Ms Lanning,

Thank you for the opportunity to make a submission in response to the submission by the Australian Uranium Association.

It is indeed important that Australia's major project development assessment processes are benchmarked against international best practice.

I am writing to clarify the evidence that makes uranium mining a particular case to justify why the EPBC Act should continue to apply to this industry.

It is concerning that the uranium industry has used the expression "mild radiation" to describe its radiological environmental impacts, when there is no regulatory basis or definition to use this term, potentially giving the impression that the levels of radiation in the uranium mining industry are without risk to the environment. The evidence is clear and unassailable that this is not correct. Furthermore, it is appropriate that uranium mining continue to be considered a 'nuclear action' as specified by the EPBC Act as the radioactivity derives specifically from nuclear decay processes.

Tailings from uranium mining are radioactive for millennia, resulting in unique environmental considerations for every uranium mine.

The International Commission on Radiological Protection has determined that the dose coefficient for radon gas, one of the sources of radioactivity from uranium mining, needs to be doubled, indicating that it is actually thought to be double the previously estimated carcinogenic hazard.¹ ARPANSA is currently in the process of revising dose estimates to workers. It follows that risks to others is doubled and makes it even more essential appropriate mitigation strategies are introduced. It also follows that the environmental risk is also increased.

With regard to human exposure, all radiation regulatory frameworks around the world support the concept of the 'linear no threshold' (LNT) model of carcinogenesis. As the US

1 Statement on radon and lung cancer risk from radon and progeny. ICRP (2009)http://www.icrp.org/docs/ICRP_Statement_on_Radon_AND_Lung_cancer_risk_from_radon_and_progeny%28for_consultation%29.pdf



National Academy of Sciences, Biological Effects of Ionising Radiation VII (BEIR-VII) report (2006) summarised:

“..the current scientific evidence is consistent with the hypothesis that, at the low doses of interest in this report, there is a linear dose-response relationship between exposure to ionizing radiation and the development of solid cancers in humans. It is unlikely that there is a threshold below which cancers are not induced...”

This concept is also supported by all radiation regulators, the International Atomic Energy Agency, the United Nations Scientific Committee for the valuation of the Effects of Atomic Radiation (UNSCEAR) and many others. It follows that there is strong evidence that even at low doses any additional radiation over background levels increases the risk of malignancies. It logically follows that there are thus risks to non-human biota and the broader environment, even at low doses of radiation, or as the Australian Uranium Association would perhaps describe it, 'mild radiation.'

With regard to non-human species, the 2010 ARPANSA Technical Report No. 154 entitled *“Environmental protection: Development of an Australian approach for assessing effects of ionising radiation on non-human species”* made the following statements:

“It is now generally accepted that under certain circumstances, there is a need to demonstrate, rather than assume, that non-human species living in natural habitats are protected against ionising radiation risks from radionuclides released to the environment by human actions.

In an Australian context, there is a recognised need for specific national guidance on protection of non-human species, for which the uranium mining industry provides the major backdrop; it is Australian Government policy that uranium mining should be based on world best practice standards for assessing environmental impacts.

It is timely that Australia now consider the development of guidance in order to provide clear and nationally consistent advice to operators and regulators on protection of non-human species, including advice on specific assessment methods and models and how these might be applied in an Australian context.

This report reviews the ICRP and ERICA international frameworks for assessment and protection of non-human species and the applicability to the Australian context.

The general conclusions to be drawn from this report include:

- *At the international level, the International Commission on Radiological Protection has established a framework for radiological assessment and protection of non-human species based on a reference animal and plant approach;*
- *In an Australian context, there is a need for specific national guidance on protection of non-human species, identified through the National Directory for Radiation Protection, and realised by the need of the uranium mining industry to integrate world best practice standards for assessing environmental impacts;”*

Without federal oversight and reporting this is highly unlikely to happen in any consistent, coherent or comparable manner. So inclusion in the EPBC Act is essential.

Given the clear human health and environmental risks of even low dose radiation exposure, it is entirely appropriate that uranium mining and milling remain within the definition of "nuclear actions" in the EPBC Act .

Internationally radiation regulation is increasing, as the risks to human health and the environment become more apparent. The international emphasis (by the IAEA) is increasingly to consider radiation an environmental (as opposed to just a human) hazard so it is appropriate that uranium mining be subject to Commonwealth environmental legislation. There is no reason why uranium mining should be exempt from the remit of the EPBC Act.

In conclusion, the uranium mining industry produces radioactive materials that have impacts on both human health and environmental health. It is essential that appropriate environmental and human safeguards remain, and that uranium mining and milling remains within the definition of "nuclear actions" for the purposes of the EPBC Act. There is a clear need for federal oversight to ensure clear and consistent implementation of these measures.

Please feel free to contact me if you would like further information.

Yours sincerely,

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Vice President,
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