25th March 2020

[redacted]

Submission to the Senate Economics Legislation Committee
Inquiry into National Radioactive Waste Management Amendment (Site Specification, Community Fund and Other Measures) Bill 2020.

Intermediate level radioactive waste should not be stored above ground.
Low- and intermediate-level radioactive wastes are buried in geological repositories. These repositories must isolate the nuclear waste from the biosphere for as long as 100,000 years. Only solid wastes are stored; liquid wastes are solidified by cementation or bitumen.
The strategy adopted by many countries for the disposal of low and intermediate level radioactive wastes requires an engineered repository placed at considerable depth underground.
https://www.sciencedirect.com/topics/chemistry/intermediate-level-radioactive-waste

The National Radioactive Waste Management Amendment Bill amends the National Radioactive Waste Management Act to specify a site near Kimba in South Australia for a nuclear waste 'facility' – a repository for low-level waste and an above-ground 'interim' store for long-lived intermediate-level waste.

Moving Intermediate level waste from above ground temporary storage at Lucas heights to another above ground storage does not solve the problem. It only moves it around. Furthermore, if the waste contains Uranium, Thorium or Radium (which it almost certainly does) it will inevitably decay into Radon gas.

In nature the vast bulk of radioactive material is trapped underground; exposures are only possible if contaminated groundwater, that is circulating through the deposit, is used for drinking. Radon is of no concern for deep deposits, though it can travel through underground fissures, since it decays before it can reach the surface.
The situation changes completely, when the deposit is mined: Radon gas can escape into the air, through created fractures in the rock, from gas leaks, waste water evaporation ponds, slurry and ore dust and Radon gas can be blown by the wind decaying as it goes into solid highly radioactive materials and contaminants can be leached and seep into surface water bodies and groundwater.
Radon gas is the heaviest gas and so stays close to the surface of the atmosphere. It has a half life of 3.8 days or 91 hours. In a 10 km/ hr wind it will travel 912 km and there will still be half of it left to travel further. As it travels the radon gas decays into Lead210 and Polonium which is more radioactive than Plutonium 239 used in nuclear reactors and weapons. The Polonium 210 coats grass, leaves, soil and water and is absorbed by plants and animals alike thus transferring to the food chain and often being further concentrated along the way in milk, meat, sea food, fruit and vegetables.
Lead with the isotope signature of the Broken Hill deposits has been found across the entire continent of Antarctica, in ice cores dating back to the late nineteenth century.[6]

Lead weighs 8 times more than sand or dust. The wind did not blow it to Antarctica. Radon gas was blown to Antarctica and then decayed into lead and Polonium.

Radioactive Waste Repository & Store for Australia

Long-lived intermediate-level (category S) wastes will be stored above ground in an engineered facility designed to hold them secure for an extended period and to shield their radiation until a geological repository is eventually justified and established, or alternative arrangements made.

Hydro power dams have a design life of 125 years. Does "secure for an extended period" mean 100,000 years? If so let them prove it.
Does "eventually justified" mean on a $ and cents basis?
This material is highly carcinogenic and could cause 100's of thousands of cancers for a very long time. Once it escapes into the biosphere the genie is out of the bottle and it cannot be recovered.

Burden of disease

Between 1982 and 2010, the number of new cancer cases in Australia more than doubled (from 47,388 to 116,580 cases).1
In 2012, cancer was estimated to be the leading cause of burden of disease in Australia, accounting for approximately 19 per cent of the total disease burden.3
Cancer and other neoplasms $3,000 million (In 2013–14,)
Source: AIHW disease expenditure
Australian Institute of Health and Welfare 2016. Australia's health 2016. Australia's health series no. 15. Cat. no. AUS 199. Canberra: AIHW
https://www.aihw.gov.au/getmedia/3be568f2-d938-4575-bf1f-8742bad4d2ce/ah16-2-2-how-much-does-australia-spend-on-health-care.pdf.aspx

There is about 650 cubic metres of category S waste at various locations awaiting disposal, and future annual arisings will be about five cubic metres from all sources including states & territories, Commonwealth agencies and from radiopharmaceutical production. To this will be added about 30 m^3 of returned wastes from reprocessing spent ANSTO research reactor fuel in Europe. This will be conditioned by vitrification or embedding in cement.
https://www.world-nuclear.org/information-library/country-profiles/countries-a-f/appendices/radioactive-waste-repository-store-for-australia.aspx

To dig a shaft 4M diameter by 70M deep in a stable rock formation and in the absence of underground water would be a simple task for miners having been done all over the world for centuries. The containers could be lowered and covered with concrete.
It could also be done offshore as the oil and gas industry have demonstrated many times.

Even this would be better than what is being proposed. Uranium tailings were transported from Hunters Hill in Sydney to:
Radium Hill 110 Km SW of Broken Hill From 1981 an area of the site was gazetted as a low-level radioactive waste repository.[11] Approximately 16 separate consignments of waste, including contaminated soil from Thebarton in the Adelaide metropolitan area was deposited there. The last deposit was made in 1998.

Restoration works on the site were undertaken in 1962 and again in 1981 when the tailings impoundment was covered with about 75,000 m^3 of material from four adjacent borrow pits. Backfilling of old mine openings was also undertaken.[10] Why? Because they discovered that huge clouds of Radon gas were escaping from mine openings to the atmosphere all the time on an ongoing basis. *The greater the area exposed to the atmosphere the greater the emissions.* The same applies to tailings dumps.

The proposed nuclear waste facility is illegal under South Australia's Nuclear Waste Facility (Prohibition) Act, introduced by the SA Liberal Government in the year 2000 and strengthened by the SA Labor Government in 2002. The federal government is expected to take the draconian and unacceptable step of using regulations to specifically override the SA Nuclear Waste Facility (Prohibition) Act. South Australians are opposed to the proposed nuclear waste facility: a 2015 survey found just 15.7% support for a nuclear waste dump, and a 2018 survey found that those who strongly agreed with stopping the dump outnumbered those who strongly disagreed by a factor of three (41:14).

Only 4.5% of South Australia is arable land. It is of deep concern that a radioactive waste could be allowed to jeopardise the Eyre Peninsula's agricultural industries. Indeed the government's proposal is a clear breach of the National Health and Medical Research Council's 'Code of Practice for Near-Surface Disposal of Radioactive Waste in Australia' which states that "the site for the facility should be located in a region which has no known significant natural resources, including potentially valuable mineral deposits, and which has little or no potential for agriculture or outdoor recreational use"

Measured by radioactivity, long-lived intermediate-level waste currently stored at ANSTO's Lucas Heights site in NSW accounts for an overwhelming majority (>90%) of the waste destined for the nuclear waste facility in SA. There is no logic behind the proposal to move intermediate-level waste from interim above-ground storage at Lucas Heights to interim above-ground storage at the Kimba site. The proposed double-handling is illogical, it exposes communities to unnecessary risk, and ARPANSA's Nuclear Safety Committee says it breaches international best practice

There is no consent whatsoever from Barngarla Traditional Owners let alone free, prior and informed consent. The National Radioactive Waste Management Amendment Act systematically disempowers and dispossesses Traditional Owners, and the Amendment Bill worsens the situation. Legal advice in a Feb. 2020 report by the Parliamentary Joint Committee on Human Rights notes that the Bill "would enable native title to be extinguished, without the consent of the traditional owners", and it raises further concerns about the Bill's intention to permit the acquisition of land for an access route without any Parliamentary oversight or right of appeal.

Recommendations:

1. The Senate Economics Legislation Committee should recommend the withdrawal or rejection of the National Radioactive Waste Management Amendment Bill 2020 (in which case a number of following recommendations are redundant) and repeal of the National Radioactive Waste Management Amendment Act.

2. The Committee should recommend repeal of the NRWM Act 2012 Section 12(1)(c) & 13(1), and of the Bill's sections 34GA(1)(c) and 34GB(1), as unacceptable draconian overrides of existing State and Commonwealth legal protections for Indigenous people's heritage and traditions.

3. The Committee should undertake a review of the potential impacts of the existing Act, the proposed amendments, and the proposed nuclear waste facility, on Aboriginal rights, interests and traditions. This should include consideration of the impacts of the government potentially issuing a Regulation to override the SA Aboriginal Heritage Act 1988, so as to legally impose the nuclear waste facility over State law.

4. The Committee should assess the compatibility of the Act, the Bill and the proposed nuclear waste facility with the UN Declaration on the Rights of Indigenous Peoples, in particular the principle of free, prior and informed consent.

5. The Committee should recommend that the federal government adopt the proposal from then SA Premier Jay Weatherill in 2017 that traditional owners should have a right of veto over any proposed nuclear waste facility on their lands. Mr. Weatherill's letter noted that "Aboriginal people's history with the nuclear industry demonstrates a need for significant healing" and it noted the SA Labor Government's policy that a right of veto would apply to any comparable state initiative.

6. The Committee should investigate the government's plan to move intermediate-level waste from above-ground interim storage at ANSTO's Lucas Heights site to above-ground interim storage near Kimba, for no logical reason and despite the obvious inefficiencies and risks associated with this double-handling of nuclear waste.

7. The Committee should seek advice from the regulator ARPANSA as to whether the proposed double-handling of intermediate-level waste is consistent with national and international standards and what ARPANSA's approach will be to a licence application that proposes double-handling.

8. Given that the government has consistently failed to provide any logical justification for double-handling of intermediate-level waste, the Committee should recommend that intermediate-level waste stored at ANSTO's Lucas Heights site should remain there until a long-term solution is realised.

9. The Committee should recommend withdrawal or rejection of the Bill on the grounds that the government's own benchmark for broad community support has not been met (43.8% support among eligible voters in the combined ballots).

10. The Committee should recommend that the Bill is withdrawn, and the federal government's nuclear waste agenda put on hold, until such time as public opinion among other relevant stakeholders is determined (including state-wide opinion in SA; and opinion along potential transport corridors).

11. The Committee should recommend repeal of section 13(1)(b) of the Act, and withdrawal or rejection of section 34GB (1)(b) of the Bill, both of which seek to compromise and undermine operation of the Environment Protection and Biodiversity Conservation Act 1999.

12. The Committee should seek independent expert advice regarding the Federal Government's claim that 45 jobs will be created at the facility. That job figure is deeply inconsistent with comparable facilities overseas and it assumes that Australian workers are at least 10 times less productive than workers at comparable facilities overseas. Successive federal governments have claimed there would be zero, six or 15 jobs, and the current figure of 45 jobs is implausible.

13. My proposal above will require no extra personnel to monitor and mange the storage of low or intermediate level waste thus reducing the operating cost and minimizing the creation of potential jobs and costs in the health care system. Not to mention the pain and suffering caused to cancer patients and their families.

14. It should further be borne in mind that we in Australia currently enjoy an international reputation for clean green agricultural products and food. Are we prepared to put that at risk?

Thank you for your time

Yours Sincerely,

Ivan Quail