

THE PLAN FOR INTERNATIONAL NUCLEAR WASTE STORES & DUMPS IN SOUTH AUSTRALIA

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"Tonnes of enormously dangerous radioactive waste in the northern hemisphere, 20,000 kms from its destined dump in Australia where it must remain intact for at least 10,000 years. These magnitudes – of tonnage, lethality, distance of transport, and time – entail great inherent risk." – Prof. John Veevers, Macquarie University

THE ROYAL COMMISSION

The Royal Commission (RC) was biased – the Royal Commissioner and most of the Expert Advisory Committee members were nuclear advocates, and there wasn't a single nuclear critic on the RC staff to provide any balance. That bias is now being replicated with the SA government's so-called 'Consultation and Response Agency' which is exerting influence on the Citizens' Jury – the Agency doesn't have a single, token critic to provide balance.

The RC report is littered with misinformation and it repeatedly ignores important issues. A critique of the RC's report is posted online, as is a detailed critique of the RC process (www.foe.org.au/import-waste). Using the RC report as a 'factual' basis for further discussions is highly problematic. The RC report should be read in conjunction with other literature such as the 257-page submission from national environment groups, the remarkable submission by British environmentalist Jean McSorley, reports by the Australia Institute, and David Noonan's briefing papers. All of that material is posted at www.foe.org.au/import-waste. See also Prof. Richard Blandy's important economic critique.¹

Royal Commission misinformation is now being fed into the statewide 'consultation' exercise and the Citizens' Jury. Statements made by Royal Commission personnel are at odds with established scientific knowledge. For example, Royal Commission personnel told the Citizens' Jury that there is disagreement as to whether exposure to low level radiation can cause fatal cancers. But in fact, the overwhelming weight of scientific evidence holds that even the smallest doses can cause fatal cancers. As the U.N. Scientific Committee on the Effects of Atomic Radiation states: *"The current balance of available evidence tends to favour a non-threshold response for the mutational component of radiation associated cancer induction at low doses and low dose rates."*

Recent scientific evidence finds that the radiogenic risks of leukemia among nuclear workers to be more than double the risk found in a previous similar study in 2005.² And in recent years the International Commission on Radiological Protection has upwardly revised (nearly doubled) its estimate of the carcinogenicity of radon.³

The Citizens' Jury was also told that there were only 28 radiation-related deaths from Chernobyl – but scientific estimates of the Chernobyl death toll range from the UN's estimate⁴ of 9,000 deaths in the most contaminated parts of Eastern Europe, to estimates of 16,000 to 93,000 deaths across Europe.⁵

ABORIGINAL TRADITIONAL OWNERS

Judging from submissions to the Royal Commission, and from other sources, it is clear that the plan to import nuclear waste for storage and disposal in SA is overwhelmingly opposed by Aboriginal people. Please see the many

¹ <https://blogs.adelaide.edu.au/policy-forum/2016/07/14/the-citizens-jury-and-the-proposed-nuclear-dump-dick-blandy/>

² www.ianfairlie.org/news/update-new-powerful-study-shows-radiogenic-risks-of-leukemia-in-workers-more-than-double-the-previous-estimate/

³ ICRP, 2010, 'Lung Cancer Risk from Radon and Progeny and Statement on Radon', ICRP Publication 115, Ann. ICRP 40(1), www.icrp.org/publication.asp?id=ICRP%20Publication%20115

⁴ www.who.int/mediacentre/news/releases/2006/pr20/en/

⁵ www.theecologist.org/News/news_analysis/2987515/radiation_harm_deniers_pronuclear_environmentalists_and_the_chernobyl_death_toll.html

statement of opposition posted at: www.anfa.org.au/traditional-owners-statements. Governments have a long history of promising to respect Aboriginal people, land rights and heritage protections – and a long history of breaking those promises. A recent statement from Traditional Owners calls on the Citizens' Jury to support them by rejecting Jay Weatherill's plan to impose a nuclear waste dump on Aboriginal land: *"Governments stripped Aboriginal people of land, land rights and heritage protections for atomic bomb tests and uranium mining, and exactly the same thing will happen with the high-level nuclear waste dump."*

INTERNATIONAL EXPERIENCE

The Royal Commission insists that a nuclear waste storage and dumping business *could* be carried out safely. But *would* it be carried out safely? The Royal Commission ought to have considered evidence that can be drawn upon to help answer the question – but it failed to do so.

What sort of evidence might be considered? The experience of the world's one and only deep underground nuclear waste dump – the Waste Isolation Pilot Plan (WIPP) in the US – is clearly relevant. And Australia's past experience with nuclear waste management (and mismanagement) is clearly relevant.

WIPP is a case study of a sharp decline in safety and regulatory standards over a short space of time (www.foe.org.au/wipp). A chemical explosion in a nuclear waste barrel in February 2014 was followed by a failure of the filtration system, resulting in 22 workers receiving small doses of radiation and widespread contamination in the underground caverns. WIPP has been shut down for 2.5 years since the accident. The long-term costs could exceed US\$2 billion.⁶ A US government report details the many failings of the operator and the regulator.⁷

Kevin Scarce said that WIPP was ignored in the RC's interim report because it involved different waste forms (long-lived intermediate level waste) of military origin. In fact, the high level nuclear waste that the RC recommends that SA import is *vastly more hazardous* than the waste managed at WIPP, so Scarce's argument is disingenuous. WIPP gets one token paragraph in the RC's final report – that speaks volumes about the RC's bias and selectivity.

Moreover the Royal Commission overlooks the fundamental lesson from the WIPP fiasco – initially high safety and regulatory standards gave way to complacency, cost-cutting and corner-cutting in the space of just 10–15 years. The Royal Commission notes that high level nuclear waste "requires isolation from the environment for many hundreds of thousands of years". How can we be confident that high safety and regulatory standards would be maintained in SA over centuries and millennia when WIPP shows that the half-life of human complacency, cost-cutting and corner-cutting is measured in years or at most decades?

There is no logical reason to believe that the SA government would perform any better than the US government. On the contrary, there are good reasons to believe that nuclear waste management would be more difficult here given that the US has vastly more nuclear waste management expertise and experience than Australia.

While ignoring the world's one and only existing deep underground nuclear waste dump, the RC talks at length about deep underground repositories under construction in Finland and Sweden. According to the RC, those two countries "have successfully developed long-term domestic solutions" for nuclear waste. But in fact, neither country has completed *construction* of a repository let alone demonstrated safe *operation* over any length of time.

The RC gives great weight to abstract, theoretical safety assessments while ignoring what is happening in the real world. It ignores examples of the spectacular mismatch between theoretical safety assessments and real-world experience. For example, a safety analysis conducted before WIPP opened predicted one radiation-release accident every 200,000 years. Yet WIPP was open for just 15 years before the chemical explosion in February 2014.

The Royal Commission had little or nothing to say about other problems overseas, e.g. fires at radioactive waste repositories⁸, the current project to exhumate 126,000 waste barrels from a dump in Germany following extensive water infiltration and corrosion, the liquid nuclear waste explosion at Mayak in the USSR, and many others.

⁶ www.latimes.com/nation/la-na-new-mexico-nuclear-dump-20160819-snap-story.html

⁷ www.wipp.energy.gov/Special/AIB_Final_WIPP_Rad_Release_Phase1_04_22_2014.pdf

⁸ www.foe.org.au/fire

Politicians are reinforcing the selectivity of the RC. Premier Weatherill recently visited the dump under construction in Finland (20 times smaller than that proposed for SA). Why didn't he visit WIPP, or the German repository, or Mayak? Why didn't he visit places whose names are synonymous with dangerous and hideously expensive nuclear waste mismanagement – Dounreay, Sellafield, Hanford, etc.? Why didn't he visit the wine producers in France who took the operator of a nuclear waste dump to court in a failed attempt to have the dump shut down?

The RC notes that most countries that have attempted to establish high level nuclear waste repositories have failed in those attempts. But it glosses over the implications of those failures. This is highly significant for the SA proposal since the plan is to import large amounts of nuclear waste *before* a repository is established.⁹ This is incredibly irresponsible. Australia has not been able to establish a repository for domestic low and intermediate level waste, yet the RC proposal assumes that it will be possible to establish a repository for vast amounts of foreign high level nuclear waste – 138,000 tonnes of high level nuclear waste and 390,000 cubic metres of intermediate level nuclear waste. No country has succeeded in completing construction and beginning operation of a repository for high level nuclear waste and many countries have failed, e.g. the USA wasted over 20 years and US\$13.5 billion on the Yucca Mountain project before abandoning it. Yet the RC – and now Jay Weatherill – are so confident that it can be achieved in SA that they propose importing the waste on the *assumption* that a repository can be established.

AUSTRALIA'S HISTORY OF MISMANAGING RADIOACTIVE WASTE

"The disposal of radioactive waste in Australia is ill-considered and irresponsible. Whether it is short-lived waste from Commonwealth facilities, long-lived plutonium waste from an atomic bomb test site on Aboriginal land, or reactor waste from Lucas Heights. The government applies double standards to suit its own agenda; there is no consistency, and little evidence of logic." – Nuclear engineer Alan Parkinson¹⁰

The Royal Commission largely ignored the mismanagement of radioactive waste in SA – and it did not recommend clean-up and rehabilitation of any contaminated sites.

A radioactive waste repository at Radium Hill "is not engineered to a standard consistent with current internationally accepted practice" according to a 2003 SA government audit.

The Port Pirie uranium treatment plant is still contaminated over 50 years after its closure. It took a six-year community campaign just to get the site fenced off and to carry out a partial rehabilitation. As of July 2015, the SA government's website states that "a long-term management strategy for the former site" is being developed.¹¹

SA regulators failed to detect Marathon Resource's illegal dumping of low level radioactive waste in the Arkaroola Wilderness Sanctuary. If not for the detective work of the managers of the Arkaroola Wilderness Sanctuary, the illegal activities would likely be continuing to this day. The incident represents a serious failure of SA government regulation. The Royal Commission report dealt with this scandal in two sentences and failed to note that the SA government regulator did not detect the illegal dumping of radioactive waste.

The explosion of nuclear bombs at Maralinga in the 1950s has nothing to do with the current nuclear waste import proposal. However, aspects of the Maralinga experience are highly relevant. In particular, the 'clean-up' of nuclear waste at the Maralinga nuclear test site in the late 1990s is relevant and it was a fiasco:¹²

- Nuclear engineer Alan Parkinson said of the 'clean-up': "What was done at Maralinga was a cheap and nasty solution that wouldn't be adopted on white-fellas land."
- Scientist Dale Timmons said the government's technical report was littered with "gross misinformation".
- Dr Geoff Williams, an officer with the Commonwealth nuclear regulator ARPANSA, said that the 'clean-up' was beset by a "host of indiscretions, short-cuts and cover-ups".
- Nuclear physicist Prof. Peter Johnston (now with ARPANSA) noted that there were "very large expenditures and significant hazards resulting from the deficient management of the project".

⁹ <http://www.foe.org.au/sites/default/files/Noonan%20-%20storage%20agenda%20without%20a%20disposal%20capacity%20DN%20Brief%20June2016.pdf>

¹⁰ Alan Parkinson, 2002, 'Double standards with radioactive waste', *Australasian Science*, www.foe.org.au/anti-nuclear/issues/oz/britbombs/clean-up

¹¹ http://minerals.dmitre.sa.gov.au/mines_and_developing_projects/former_mines/port_pirie_treatment_plant

¹² www.foe.org.au/anti-nuclear/issues/oz/britbombs/clean-up

The Maralinga experience is also relevant to current proposals because the racism associated with the bomb tests is just as acute now.¹³ The federal government tried but failed to impose a national nuclear waste dump on Aboriginal land in SA from 1998–2004, then tried but failed to impose a dump on Aboriginal land in the NT from 2005–14, and now the federal government is trying to impose a dump on Aboriginal land in SA despite the near-unanimous opposition of Adnyamathanha Traditional Owners.¹⁴

Federal Labor and the Coalition both supported the profoundly racist National Radioactive Waste Management Act, which permits the imposition of a dump on Aboriginal land without any consultation with or consent from Aboriginal Traditional Owners (to be precise, the nomination of a site is not invalidated by a failure to consult or secure consent).

The Royal Commission claims that "South Australia has a unique combination of attributes which offer a safe, long-term capability for the disposal of used fuel". But SA has a track record of mismanaging radioactive waste (Radium Hill, Maralinga, Port Pirie, Arkaroola, etc.) and no experience managing high level nuclear waste. The Royal Commission's claim that SA has "a mature and stable political, social and economic structure" needs to be considered in the context of the longevity of nuclear waste. Australia has had one profound political revolution in the past 250 years (European invasion/settlement) and is therefore on track for 1,200 political revolutions over the 300,000-year lifespan of nuclear waste.

If there was some honesty about the mismanagement of radioactive waste in SA, coupled with remediation of contaminated sites, we might have some confidence that lessons have been learnt and that radioactive waste will be managed more responsibly in future. But there is no such honesty from the SA government or the Royal Commission, and there are no plans to clean up contaminated sites. On the contrary, the plan is to make a bad situation worse with the importation of vast amounts of intermediate and high level nuclear waste.

A MORAL RESPONSIBILITY?

Some argue that Australia has a moral responsibility to accept the nuclear waste arising from the use of Australian uranium in power reactors overseas. But there are no precedents for Australia or any other country being morally or legally responsible for managing wastes arising from the use of exported fuels, or from the export of any other products. The responsibility for managing nuclear waste lies with the countries that make use of Australian uranium.

The World Nuclear Association – the industry's main international representative body – states: "At present there is clear and unequivocal understanding that each country is ethically and legally responsible for its own wastes, therefore the default position is that all nuclear wastes will be disposed of in each of the 50 or so countries concerned."¹⁵

If any moral responsibility lies with Australia, that responsibility rests with the uranium mining companies (which are foreign-owned or majority foreign-owned) rather than with Australian citizens or federal or state governments.

One plausible scenario is uranium being mined on Aboriginal land regardless of Aboriginal opposition, and high level nuclear waste being dumped on Aboriginal land, again without consent. That scenario is immoral twice over.

It is also argued that Australia has a moral responsibility to accept high level nuclear waste because Australia has more suitable geology than other countries, and/or a more stable political system. Those arguments rest on questionable assumptions. Australia is less tectonically stable than a number of other continental regions according to Dr Mike Sandiford.¹⁶ And there are social as well as technical dimensions to risk assessment. On the basis of Australia's track record of mismanaging domestic low and intermediate level waste, there is no reason to believe that a high level nuclear repository would be carefully and responsibly managed in Australia, or that regulation would be rigorous and independent.

¹³ <http://bit.ly/295cE9j>

¹⁴ www.foe.org.au/waste

¹⁵ See section on 'Responsibility for Wastes'. www.world-nuclear.org/information-library/nuclear-fuel-cycle/nuclear-wastes/international-nuclear-waste-disposal-concepts.aspx

¹⁶ www.abc.net.au/science/expert/realexpert/nuclearpower/08.htm