Submission to the Australian Radioactive Waste Management Framework Consultation

Nick Deane
Marrickville, NSW

I am an ordinary citizen, with a limited understanding of the processes of radioactive decay and radioactive waste management. I view all radioactive materials as presenting dangers to human health, so that the benefits of their use must be weighed against the possible health costs of their containment and eventual disposal.

“While Australia does not currently have any HLW awaiting disposal, it is expected that the future decommissioning of Australia’s conventionally armed, nuclear-powered submarines will produce spent nuclear fuel that will need to be managed.” (Framework Report) My main concern is that the disposal of High Level Waste (HLW) presents costs that far outweigh any possible benefit.

I am particularly disturbed by the prospect of Australia going down the path of acquiring nuclear-powered submarines. The submarines that Australia proposes to acquire will be fuelled with Highly Enrich Uranium (HEU), which is ‘weapons-grade’.

The use of HEU in a reactor inevitably produces HLW. My understanding is that one of the radioactive elements resulting from the process that goes on within a reactor is creation of the man-made isotope Plutonium 239. Pu-239 has a half-life of 24,000 years. It is highly poisonous because of the emission of alpha particles and is a raw material for the creation of nuclear weapons. On each of those counts, it is utterly inimical to human wellbeing.

At time of writing, the UK has no fewer than 23 nuclear submarines in storage, awaiting final ‘disposal’. It has almost completed the disposal of only one of those submarines. It has had about 60 years of experience and still has no permanent waste disposal arrangement in place. As a nuclear-armed state, it probably retrieves Pu-239 from its HLW, for the purpose of manufacturing nuclear weapons. Whatever remains still presents authorities with intractable difficulties. How it will protect people and the environment from radioactive contamination over the time-period involved (tens of thousands of years) is unresolved. Even in the comparatively short term “HLW generates significant quantities of heat from radioactive decay, and normally continues to generate heat for several centuries.” (IAEA)

I do not know the names or half-lives of other radionuclides contained in HLW. However, with Pu-239 present, the time-scale required for ‘safe disposal’ is beyond anything known to any human society. Indeed, in view of the question of the time involved, I doubt that it is reasonable to assume (as the Framework does) that ‘safe disposal’ is even possible.

The inevitable presence of Pu-239 leads me to some questions:

- Will the HLW from the AUKUS submarines go to recycling or permanent disposal?

- Does the Agency know of plans to extract Pu-239 from AUKUS submarine HLW?
- (If so, to what use might that Pu-239 then be put?)

The presence of Pu-239 in the HLW makes it attractive to two possible users. It will either be sought as fuel for generating nuclear power, or it will be attractive to any party (state or otherwise) wishing to create nuclear weapons. Neither prospect is good, from a human health aspect. From the perspective of waste management, the attractive nature of Pu-239 means that whatever facility is established will need to be a 'securitised' facility, unless the Pu-239 (and U-235?) have been extracted before storage. I find it impossible to imagine a facility for which security can be guaranteed for hundreds of years, let alone thousands of years, and I shudder at the prospect of Australia becoming custodian of a material like Pu-239.

* * *

I recently followed, attended and submitted to the Public Inquiry into the AUKUS project. Persons much more eminent than I contributed, and concern about waste management was a consistent theme.

I would like to draw the Agency's attention to the Inquiry's Commissioners Report ("Surrendering Australia, the AUKUS Deception" Australia Peace and Security Forum, Nov.2026).

I recommend the entire report and take the liberty of quoting selected, relevant passages from it:

(Page 18)

- **High-level nuclear waste storage problems**.

  AUKUS would change Australia from a nation that over generations had decided not to develop a nuclear industry, to one that would have to manage high-level weapons-grade radioactive waste for tens of thousands of years – a challenge that our AUKUS partners have failed to resolve.

(Page 25)

- The (AUKUS) budget does not include design, planning, construction, management and permanent long-term storage of long-lived highly enriched weapons-grade nuclear waste, a figure estimated to exceed $180 billion.

(Page 29)

- … the legal basis for the storage of radioactive waste needs clarification. The government has declared this will be on Defence land, but despite the Defence Minister's promise to do so, the location has not been identified and there has been no consultation with local communities. The potential impact on First Nations people is of particular concern, particularly given the history and consequences of nuclear testing at Maralinga, Emu Field and Monte Bello Islands.
- While protection of potential nuclear waste sites is necessary, the full responsibilities of AUKUS Command need to be confirmed…

(Page 31)

- **A consistent opinion expressed during the Inquiry was that AUKUS must not proceed unless and until an accepted safe and affordable method to manage and store high-level weapons-grade radioactive waste was assured.**

  Without a proven and agreed plan in place the government did not have a mandate to leave this legacy for future generations to manage. Submissions noted that 60 years on, neither the US nor the UK had satisfactorily resolved this intractable problem with far greater resources and expertise than Australia.

(Page32)

- Based on evidence presented, the Inquiry concluded that it would not be feasible for Australia to build in time a completely new, safe and permanent below ground nuclear waste repository. It is fanciful to claim that Australia can successfully undertake and complete this highly complex, dangerous and expensive task, especially given that successive Australian governments have failed for over thirty years to develop a national facility for the management of low and intermediate level waste.
- Weapons-grade material must be protected and monitored long after the submarines are forgotten.

(Page 33)

- First Nations communities are affected by potential nuclear waste storage on their lands; and have already experienced adverse impacts and continuing harms from nuclear testing. To date there has been no commitment from the government to the foundation principle of Free, Prior and Informed Consent (FPIC) for First Nations peoples in relation to AUKUS radioactive waste management.

On Page 49, the report recommends the following:

- **12. Disband ANNPSR and transfer any legacy responsibilities to the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)**

  The cancellation of AUKUS Pillar I would negate the need for ANNPSR, established on 1 November 2025 as Australia's independent regulator for naval nuclear propulsion, reporting through the Minister for Defence to the Commonwealth Parliament. This reporting arrangement is an example of 'regulatory capture', where the organisation's 'independence' is conflicted and constrained.

  Should a future LEU (not HEU) nuclear-powered submarine be selected to replace the Collins-class (or its successor), the independent regulatory responsibilities should remain with ARPANSA. ARPANSA was established in February 1999 to protect the Australian public, workers and the environment from the harmful

effects of radiation. ARPANSA currently reports to Parliament through the Assistant Minister for Health and Aged Care, and resides in the Department of Health, Disability and Ageing.

(Page 63)

- Submissions highlighted the impact of waste storage on First Nations communities, and the history of injustice to indigenous peoples on nuclear issues. Successive Australian Governments have failed to recognise and respect First Nations rights in relation to over three decades of unsuccessful attempts to site a national radioactive waste facility for domestic low and intermediate civil nuclear waste.

Conclusion

The ‘safe disposal’ of HLW has been achieved by no existing nuclear power. It may even be a goal that cannot be reached. The presence of Pu-239 in HLW is at the heart of the problem. The Australian Radioactive Waste Agency is faced with an intractable problem and what could well be an impossible task. The government has handed it a ‘poisoned chalice’, expecting it to drink from it.

Whilst the ARWA has a valuable, ongoing role in the disposal of Low Level Waste, it should not automatically move on to accepting HLW.

I recommend that the Waste Management Framework Consultation rejects the idea of dealing with the HLW from nuclear submarines.

Nick Deane
6 November 2026