

KEY QUESTIONS REGARDING NUCLEAR WASTE

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Is the waste facility needed for nuclear medicine to continue?

No. Nuclear medicine in Australia will continue, regardless of timing or location of a waste facility.

There have been many misconceptions created by confident claims that a waste facility is immediately essential for availability of nuclear medicine in Australia. It is important also to be clear: X-Rays and radiotherapy are NOT nuclear medicine.

Is ANSTO's site at Lucas Heights full?

No. The Australian Nuclear Science and Technology Organisation (ANSTO) operates a small nuclear reactor at Lucas Heights in Sydney which both generates and is home to most of Australia's radioactive waste. ANSTO's successful licence application in 2014 was based on a 40 year operating life for the Interim Waste Store at Lucas Heights¹. **There is no rush.** ARPANSA has acknowledged at public meetings that there is future capacity to expand storage at the Lucas Heights facility.

What is the most worrying issue with nuclear waste?

There are two types of nuclear waste, needing two different facilities and two different licenses.

Long lived intermediate level waste (ILW) is highly radioactive and needs to be kept safe from accidents, attacks and without leaks for over 10,000 years. This is the elephant in the room. No-one wants this waste.

This waste is very expensive to move and has risks in transport. International best practice standards recommend that a final disposal solution should be in place before any movement of waste.

The money and energy spent on moving ILW can be better spent on research into ILW disposal that meets world's best practice.

The current proposal has sub-standard processes and a sub-standard facility with NO clear long term disposal plan.

It is likely the chosen community could be left stranded with it.

Low level waste is much less dangerous. It needs to be disposed of and kept isolated for 300 years. The current proposed facility appears to be consistent with best practice. However, the site selection process has been extremely poor.

Will this site take more reactor waste if we develop a nuclear power industry?

Nuclear power is expensive, unpopular and unlawful in Australia. It is very unlikely that a domestic nuclear power industry would ever start. But bad decisions get made and there is always a risk and a need for caution.

Will this site take international waste?

The legislation underpinning the planned national facility precludes it receiving international waste. There have been two previous serious proposals for Australia to take international waste, both of which have been halted by community opposition. Internationally, long lived highly toxic nuclear waste from power reactors is a major and unresolved problem and it is likely that this will be proposed again. Under the current framework international waste as this site is not permitted but who knows what a future government might do?

WHAT SHOULD HAPPEN?

Why is Australia massively increasing its production of Intermediate Level Waste, if we don't know what to do with it?

The current major expansion of Intermediate Level Waste production is due to an ANSTO export business. The means now a lot of the ILW is not from the reactor but from the production of isotopes after reactor irradiation.

Using the main nuclear medicine isotope (Tc^{99}) in a person, it rapidly loses its radioactivity over a few months and is safe to go in the normal rubbish. It does not need long term storage.

Making the isotopes is the big issue. ANSTO has a business massively ramping up its production - most countries like the US and the UK import it. As a result we have the reactor waste (also from industrial/other uses) plus a lot more highly radioactive waste from the export business.

This will double the highly radioactive ILW to be "temporarily stored" for 100 years.

ANSTO did not consult those likely to end up with the increased waste, has no business case including decommissioning and waste disposal, and has no plan for waste disposal.

1. https://www.arpana.gov.au/sites/g/files/net3086/f/legacy/pubs/comment/iws/IWS-O-LA-WCP-WasteContingencyPlan_Final_ARPANSAs.pdf
2. <http://www.tai.org.au/content/down-dumps>
3. <https://www.ctvnews.ca/health/cyclotron-could-fill-alberta-s-demand-for-medical-isotopes-reduce-wait-times-1.3929944>
4. <https://www.telegraph.co.uk/news/2017/07/15/britain-may-produce-radioactive-cancer-medicine-brexite/>
5. <http://www.world-nuclear-news.org/Articles/First-neutron-accelerator-delivered-to-Mo99-facility>
6. <https://www.iaea.org/publications/10990/cyclotron-based-production-of-technetium-99m>

We urgently need an inquiry into nuclear waste production and disposal. Every aspect of the process and any planned facility needs to meet world's best practice.

Better processes for communities

Communities have been pressured. People need accurate information in order to give informed consent. Medical claims have been exaggerated. Ever increasing promises of funds and jobs don't stack up on close analysis².

This process has caused divisiveness and major stress affecting both communities. There are significant mental health concerns, and cases of abuse directed at others in the community and even between family members.

Reducing waste production

Canada³, the UK⁴ and the USA⁵ are all turning to non-reactor production of Tc^{99} isotopes⁶ in the future as it will produce much less nuclear waste. Multiple production sites will be more reliable than a single reactor process which breaks down, as happened with two major reactors last year. Australia should be exploring this approach and transitioning to cleaner and more secure production.

Research

ANSTO needs to take responsibility for final disposal, learn from existing research and act to meet global best practice standards.

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