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# NUCLEAR WASTE AND NUCLEAR MEDICINE IN AUSTRALIA

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## Background

- We have 535m<sup>3</sup> of intermediate nuclear waste, which is radioactive for over 10,000 years.<sup>1</sup>
- Australia's radioactive waste is produced by the use of radioactive materials in scientific research and industrial, agricultural and medical applications.<sup>2</sup>
- There are claims that storage at the Lucas Heights reactor site is reaching capacity, and that failure to find a new temporary storage site will impact on nuclear medicine supplies.<sup>3</sup>

## Key points

- **Dr Carl-Magnus Larsson, CEO Australian Radiation Protection and Nuclear Safety Agency, clearly stated in parliamentary testimony in 2020: “Waste can be safely stored at Lucas Heights for decades to come”.<sup>4</sup> A new facility is not needed for continued availability of nuclear medicine.**
- Nuclear medicine is used for medical imaging and to treat some cancers. It should not to be confused with X-rays using iodine contrast, radiotherapy or chemotherapy, which are used much more commonly.
- Arguments that radioactive waste should all be at one site overlook the ongoing need for hospitals to store clinical waste. After nuclear medicine is used in a patient, the vast majority is stored on site while it decays. Within a few days, it has lost so much radioactivity that it can go to a normal rubbish tip. There will always need to be multiple waste locations.
- Countries such as Finland are building deep geological disposal sites for their long-lived radioactive waste, which is world's best practice.
- ANSTO is rapidly increasing production of nuclear waste from its isotope export business. This plan ramps up production from 1% of global supply of technetium<sup>99m</sup>, (enough for Australia), to 25-30% of global supply.<sup>5</sup>
- When all costs, including final waste disposal, are considered, this business costs the taxpayer and leaves Australia with much more radioactive waste.<sup>6</sup> The government subsidy to ANSTO for 2019-20 alone was \$282 million.
- Clean cyclotron production of technetium<sup>99m</sup> has recently been approved in Canada, and should rapidly become the future of isotope production. It avoids the high cost, serious accident and terrorist risks of nuclear reactors, has no weapons proliferation potential, and creates very little nuclear waste.<sup>7</sup>
- Cyclotron isotope manufacture at multiple sites will also be more reliable than our single reactor, which has a record of multiple unplanned outages.<sup>8</sup>

## Recommendations

Current plans to move and temporarily store nuclear waste in a regional location should be abandoned.

Australia urgently needs a thorough independent review of both nuclear waste disposal and production. We need a long-term disposal plan that avoids double-handling and unnecessary movement of radioactive materials and meets world's best practice standards.

Cleaner, safer and more reliable cyclotron nuclear medicine manufacture should be developed and deployed as a priority.

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6. Report of the Expert Review Panel on Medical Isotope Production 2009 Presented to the Minister of Natural Resources Canada  
[https://www.google.com.au/search?q=Canadian+review+nuclear+isotope+production&ie=utf-8&oe=utf-8&gws\\_rd=cr&ei=SE-XVvHLFMbA0gSL4YrAAw](https://www.google.com.au/search?q=Canadian+review+nuclear+isotope+production&ie=utf-8&oe=utf-8&gws_rd=cr&ei=SE-XVvHLFMbA0gSL4YrAAw)
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