

What is radioactive waste and how is it stored?

There are three types of radioactive waste:

LOW LEVEL.

Generated in hospitals and industry. Comprising paper, rags, tools, and gloves. It has short-lived radioactivity and does not require shielding during normal handling or transportation.

INTERMEDIATE LEVEL.

Typically metal and other materials from decommissioned reactors. It includes reprocessed nuclear fuel that emits higher levels of radiation and requires shielding during handling, transport and storage.

HIGH LEVEL.

Waste from a nuclear reactor - comprising used fuel assemblies (a series of rods containing uranium fuel pellets), has higher radioactivity and requires increased shielding, isolation and cooling due to its heat generating capacity.



BREAKDOWN OF THE WORLD'S RADIOACTIVE WASTE.

90%
LOW LEVEL

7%
INTERMEDIATE LEVEL

3%
HIGH LEVEL

AUSTRALIA'S RADIOACTIVE WASTE MANAGEMENT.

How much waste does Australia currently store?

OVER 4000
CUBIC METRES OF
LOW LEVEL RADIOACTIVE WASTE (LLW)

OVER 650
CUBIC METRES OF
INTERMEDIATE LEVEL WASTE (ILW).

This is equivalent to nearly a quarter of Adelaide Oval.



What waste is proposed to be stored in a facility near Hawker in SA?

The national facility will permanently dispose of Australia's low level waste and temporarily store Australia's intermediate level radioactive waste.

Waste is largely generated from the production of nuclear medicine, however it will also manage Australian waste created from nuclear science, hospitals and a range of other activities that benefit all Australians. The Facility will only store immobilised solid waste. No liquid, corrosive, organic, reactive or other potentially volatile materials will be accepted.

The Australian Government is currently undertaking further community consultations around the shortlisted site of Barndioota. No decision to site the facility has been made, rather technical and other studies are being carried out to allow the community to provide an informed view on their willingness to host the facility.

The Government will seek broad community support before the site proceeds to the next phase of the project. This process is separate to the high level waste facility proposed by the Nuclear Fuel Cycle Royal Commission.

For further information and enquiries about the Australian Government's National Radioactive Waste Management Facility, visit radioactivewaste.gov.au

What's the difference?



Australian waste (LLW and ILW)
Australian Government process.



International waste (HLW)
South Australian Government process.

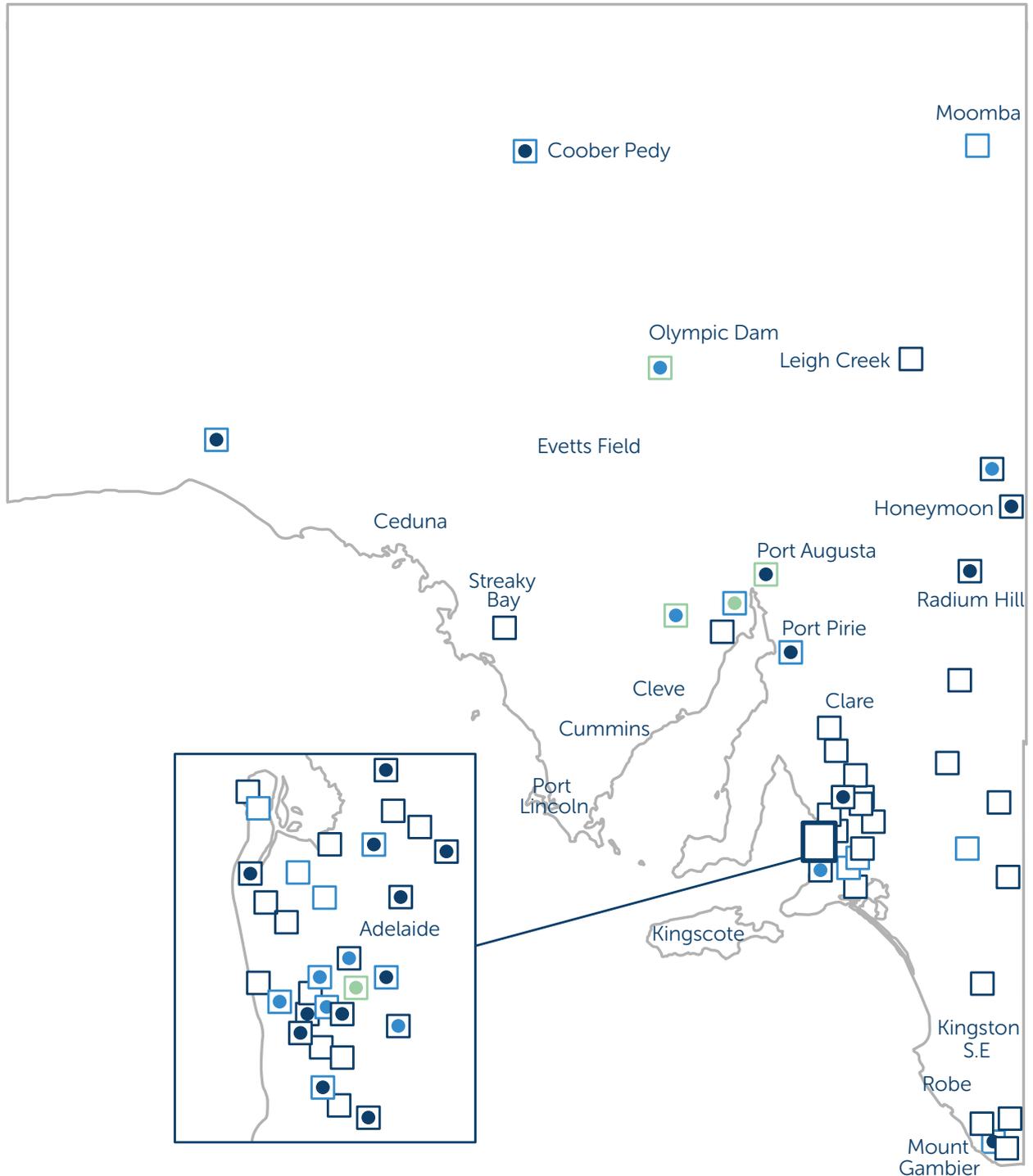
Where is LLW and ILW being stored?

Nuclear waste material is currently stored on a temporary basis at licensed locations across Australia, including South Australia.

This includes sites at the Australian Nuclear Science and Technology Organisation at Lucas Heights near Sydney, the Royal Adelaide Hospital, as well as in other metropolitan areas and regional towns and cities.

78

DIFFERENT FACILITIES IN SA.



Locations of radioactive material by postcode

- 1-9
- 10-30
- 31-111

Locations of radioactive waste by postcode

- 1-2
- 3-5
- 6-12

Number of locations of radioactive material and waste in the Adelaide metropolitan area and across South Australia

Data courtesy of the Environment Protection Authority, South Australia

Storage of high level waste (used fuel).

The Nuclear Fuel Cycle Royal Commission found that there is a significant economic opportunity for South Australia if it were to develop facilities for the storage and disposal of international (high level) used fuel and intermediate level waste.



There are currently 390,000 tonnes of used fuel and 9.9 million cubic metres of intermediate level waste around the world across 36 countries.

How is high level waste currently being stored?

The temporary solution to store high level waste is in cooling ponds for a minimum of 10 years. Waste is then moved in to dry cask storage in an above ground storage facility.



Cooling pond.



Dry cask storage facility.

Images courtesy of the Australian Nuclear Science and Technology Organisation.

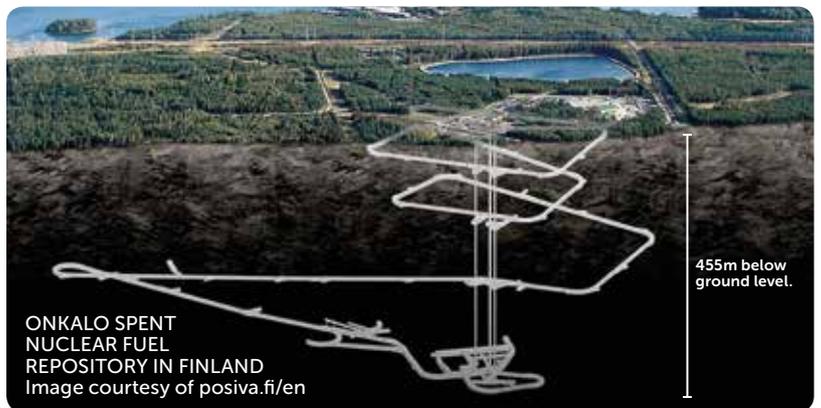
There is international agreement that these storage options are temporary solutions. The permanent, safe solution is to build a Geological Disposal Facility (GDF) to isolate and contain used fuel for 100,000 years.



What is a geological disposal facility?

A geological disposal facility (GDF) contains and isolates high-level radioactive waste from nuclear power generation.

The facility isolates hazardous materials from the human and natural environment in a stable, underground facility, where they will remain, protected from plants, humans and other animals at the surface.



Geological disposal concept.

The concept of using deep geological formations to dispose of high level radioactive wastes was first proposed in the 1950s by scientists in the United States.

With 60 years of global research and development, there is international consensus that a GDF is the safest and most cost effective permanent technique to store high level waste.

Several GDFs around the world are in development and scheduled to begin operation in the next few years.

Every South Australian has an opportunity to learn more about the nuclear fuel cycle by discovering the facts, understanding the choices, and providing their views on the Royal Commission's Report. This is a discussion about the state's future that all South Australians can have, and will help guide the Government's decision making on the next steps.

Visit nuclear.sa.gov.au to find out more.



Government of South Australia