

Department of Industry, Innovation and Science meeting with Anti-Nuclear Coalition of South Australia

November 2018

Questions and Answers

Has there been communication with the South Australian government about the proposal, and has the South Australian State legislation been considered?

Information on the proposed facility has been shared with the state government. Once a site is selected, further consultation will occur.

The facility will be sited on land acquired by the Commonwealth, and in accordance with the *National Radioactive Waste Management Act 2012*. While the Commonwealth Act can override state laws, the government will seek to develop and operate the facility in partnership with the relevant state or territory government at the site that is selected.

Have there been any descriptions of the facility design at this stage?

Concept designs have been presented to both communities. Fact sheets describing the concept design and preliminary site characterisation reports have been made public and are available [here](#) under latest reports.

Does the government have an inventory of Radioactive Waste?

The [Australian Radioactive Waste Management Framework](#) contains information on the radioactive waste inventory. See the table below.

Table 2. Radioactive waste inventory volumes (cubic metres) as at 10 January 2018^a

	Low Level Waste		Intermediate Level Waste	
	Legacy	Future ^b	Legacy	Future ^b
Commonwealth				
ANSTO	2,771	4,685	1,211	1,849
ARPANSA	6	36	1	43
CSIRO	1,967	40	419	62
Defence	224	83	60	9
Subtotal C'wth	4,967	4,843	1,691	1,963
States and Territories	8	Not reported	66	Not reported
Industry, hospitals, universities ^c	Not reported	Not reported	13	Not reported
Total	4,975	4,843	1,771	1,963

a. Expected waste arising from current or future activities until 1 January 2070.

b. Data reported for these bodies only includes nuclear material held under permit from the Australian Safeguards and Non-proliferation Office (ASNO). There may be other radioactive waste held by these bodies which does not require an ASNO permit, and that is not currently reported in the inventory.

Is the waste at Woomera the only radioactive waste held by Defence?

Defence does not comment on the details of Defence-managed radioactive waste.

Will there be repackaging facilities at Woomera; and if so, do they have the facilities there?

There are no repackaging facilities at Woomera, and no plans to establish ongoing repackaging capability at the site.

The Waste Acceptance Criteria (WAC) will specify how radioactive waste needs to be packaged before it comes to the facility. It will be up to CSIRO to ensure their waste meets the WAC.

CSIRO is in the process of better understanding the nature of its radioactive waste at the Woomera Test Range.

This work will inform a proposed project, to separate, characterise, treat and repack waste as appropriate. The details of this project are yet to be developed, and are the responsibility of CSIRO.

This project will be supported by CSIRO's relevant expertise in waste management, and research and development work.

Why is the Intermediate Level Waste (ILW) being temporarily located at the new facility?

The Lucas Heights campus is only licenced by the independent nuclear regulator ARPANSA, to store waste on a temporary basis, and on the condition that a plan is developed by the end of the decade for a final disposal pathway for ANSTO's waste.

ILW will require below ground disposal and so will be subject to separate site selection process. Consequently, the department noted ILW will only be temporarily stored at the NRWMF whilst the site and associated design for ILW disposal is determined. Commonwealth and State and Territory controlled ILW will be consolidated and temporarily stored, for several decades, at the National Radioactive Waste Management Facility, until a permanent disposal facility is developed. This strategy also addresses the need for further storage to be built at ANSTO.

The licencing conditions for the TN-81 store are listed under section 5.2 of the Regulatory Assessment Report from 2015, which is available [here](#).

- Section 5.2 of the report states:
“The licence holder must submit to the CEO, no later than 30 June 2020 and in a form acceptable to the CEO, plans for the removal of waste stored in the facility.”

Who will be responsible for designing the ILW facility?

The Australian Government has committed to establishing an entity to undertake the Waste Management Function. It will be responsible for determining an ILW disposal path, consistent with international good practice, and managing Australia's national inventory.

What is the difference between High Level Waste (HLW) and ILW?

The classifications and criteria are listed on page 3 of the Australian Radioactive Waste Management Framework (consistent with IAEA and ARPANSA guidance), available [here](#).

The Framework states:

- ILW contains higher levels of long lived radioactivity than LLW. It can be safely disposed of at depths of a few hundred meters.
- HLW contains levels of radioactivity high enough to generate significant amounts of heat during the radioactive decay process. The recognised safe disposal pathway is that it needs to be in deep, stable geological formations, several hundred meters below the surface.

Further information about waste classification can be obtained from [ARPANSA Radiation Protection Series RPS20](#).

Why do countries classify radioactive waste differently?

There is no universal waste classification system. Australia's radioactive waste definitions are set by legislation and by the independent regulator, the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), in accordance with the international best practice guidelines established by the International Atomic Energy Agency (IAEA).

In Australia, ANSTO is compliant with ARPANSA regulations (the IAEA guidelines as reflected in ARPANSA RPS20).

The waste category classifications are not readily comparable between countries despite using similar terminology around classification. For example, France classifies all waste derived from the reprocessing of spent reactor fuel as HLW. However, some of the vitrified waste produced when spent fuel is reprocessed (the type of waste which is returned to Australia and stored at ANSTO in the TN-81) contains less radioactivity and generates less heat and on this basis meets Australia's criteria for ILW, as agreed by ARPANSA.

Do we get back exactly what we send overseas for reprocessing?

Australia sends spent nuclear fuel overseas for reprocessing because we don't have that capability here on account of our small but important, nuclear program. The spent fuel sent overseas is not reprocessed in isolation, but rather in batches with other waste from other countries.

Careful measurements are undertaken to make sure we receive waste that is equivalent to the spent fuel we sent there.

How is the ILW stored at Lucas Heights?

The ILW from fuel reprocessing is stored in a TN-81 in an Interim Storage Facility. Other ILW that is produced at ANSTO is safely and securely held in purpose built storage facilities on the Lucas Heights site.

How do you ensure that TN-81 canisters are safe?

The TN-81 canisters have been tested under a range of different conditions to ensure they are robust and will not cause a release of material. This testing includes drop testing, fire exposure, and simulated jet plane impacts. This testing highlights the safety of materials stored within the TN-81 canisters and ensures that the canisters meet or exceed IAEA standards, which have ensured the safety of transport of radioactive waste around the world for many decades.

The canisters are licenced for 50 years. The licences can be renewed if the canister meets the licence requirements set by the regulator. These canisters are inspected on a six-monthly basis.

Is the ILW too dangerous to keep near suburban Sydney?

ANSTO has and continues to safely manage the interim storage of ILW at its Lucas Heights campus under a licence granted by the regulator. This will continue until an alternative storage facility or a disposal facility is developed.

Why won't the Department of Defence allow the facility to be sited in Woomera?

The Department of Defence noted that there are safety and operational reasons why it cannot be sited at Woomera. These reasons are:

- The presence of the Facility could compromise essential Defence capability and is incompatible with Defence's operational needs.
- Defence use of the Woomera Protected Area (WPA) has increased since the late 1990s and will continue to increase due to the introduction of the new air warfare capability.
- Areas around the WPA are closed periodically to allow for Defence weapons testing operations, with access being limited to Defence personnel only:
 - Exclusion periods last for up to 56, 70 or 140 days each year depending on the location.
- The operation of a national radioactive waste facility in an operational Defence area would lead to the following complexities:
 - During periodic shut downs of the facility, waste could not be accepted and there would be complications for ongoing environmental and radiological monitoring if operators were not permitted to access the Facility during periods of Defence weapons testing.
 - The NRWMF also requires its own permanent security presence, which would need to be factored into Defence operations and shutdowns.
- Missile testing on the site poses an unacceptable risk to the safety of the Facility.

Are there other places in the world that co-locate their LLW and ILW waste?

The Centre de Stockage de l'Aube facility in France is designed to receive short lived waste that would be classified in Australia as 'low- and intermediate-level' waste. In France, the long lived waste that would be characterised in Australia as 'intermediate and high level waste' will be disposed of in a deep geological facility, which is currently planned and has been researched since the 1990s.

The COVRA Storage facility in The Netherlands has established a treatment and storage facility in the province of Zeeland, in Vlissingen-Oost in the municipality of Borsele. All radioactive waste produced over the next hundred years will be stored at the COVRA site, which covers an area of about 20 hectares. COVRA has 60 employees, a 20M Euro turnover per year and has been state owned since 2002. COVRA provides storage for multiple waste types including 100m³ HLW, 11,000m³ LILW (low and intermediate) and 20,000m³ NORM waste.

The ZWILAG Central Interim Storage Facility in Switzerland has provided interim storage for radioactive waste since 2001. The facility houses multiple waste types, with LLW, ILW and HLW currently being stored. The facility stores ILW on reinforced concrete floors surrounded by concrete walls, which are designed to withstand earthquakes and air crashes. This ensures there is no credible risk to the general public outside the perimeter of the facility. The current waste inventory includes spent fuel from Swiss nuclear power stations, waste from fuel reprocessing, and waste from medical and research activities. The waste at ZWILAG will remain in storage until the completion of a deep geological disposal facility.

Why is ANSTO's business case for producing more medicine not publicly available? Why is it commercial in confidence?

ANSTO produced the business case to gain government approval to spend the money to produce the medicine. Releasing that information would be at odds with ANSTO's commercial business model.