Australian Government
Australian Radiation Protection and Nuclear Safety Agency

arpansa

National Radioactive Waste Management Facility

Radioactive waste

In Australia, radioactive waste is generated from a variety of practices in medicine, industry and research. The radioactive substances in the waste may be of natural origin or may be artificially generated. The material is considered *radioactive* because of its content or concentration of radioactive substances. It is considered *waste* because no further use for the material is foreseen.

How is waste classified?

Australia has established a national system for classifying radioactive waste. It reflects the international classification scheme developed by the International Atomic Energy Agency.

The most important factor that determines the classification of the waste is the manner by which it can be safely disposed. This depends on the amount and concentration of radioactive substances, their properties including their half-lives (the time it takes for the activity to decay to half its original level), and other properties such as heat generation and chemical nature of the waste.

What waste will be managed at an NRWMF?

The proposed National Radioactive Waste Management Facility (NRWMF) would only manage waste generated in Australia. It will be designed to permanently dispose of low-level waste and potentially store intermediate-level waste on a temporary basis. The facility would only manage immobilised solid waste.

Low-level waste (LLW) emits radiation at levels which generally require minimal shielding during handling, transport and storage. Such waste is suitable for disposal in engineered near surface facilities and requires isolation and containment for periods of up to a few hundred years.

Examples of LLW are contaminated laboratory waste, such as paper, plastic, glassware and protective clothing, contaminated soil, and discarded smoke detectors and emergency exit signs.

Intermediate-level waste (ILW) emits radiation at levels which require shielding for safe handling and transport. It requires a greater degree of containment and isolation than that provided by near surface disposal.

Examples of ILW waste include waste from the production of radiopharmaceuticals, waste generated by the reprocessing of spent research reactor fuel and disused radioactive sources from industry and medicine.

What is the difference between disposal and storage?

Both options, disposal and storage, are designed to contain waste and to isolate it from the environment to the extent necessary.

Disposal refers to the emplacement of radioactive waste into a facility with no intention of retrieving the waste.

Storage refers to the temporary retention of radioactive waste in a facility or a location with the intention of moving the waste to a final disposal site at a later date. The period of storage may vary depending on the waste and the type of facility.

The ILW proposed to be temporarily stored at the NRWMF is an interim measure. Finding a site to permanently dispose ILW requires an entirely new process, with appropriate licencing and a technically suitable site.