



Australian Government
Department of Industry,
Innovation and Science

National Radioactive Waste Management Facility

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Regulatory frameworks

Regulatory frameworks will ensure a safe, secure facility for people and the environment

The nuclear industry is one of the most regulated industries in Australia and a number of stringent regulatory frameworks, administered by independent, expert regulators will apply to the National Radioactive Waste Management Facility.

All of these regulations in combination with open, effective management and processes, will ensure the safe operation of the Facility, and safety of the the surrounding communities and environment. The regulatory frameworks that will apply to the Facility include:

- the *Environment Protection and Biodiversity Conservation Act 1999*;
- the *Australian Radiation Protection and Nuclear Safety Act 1998*;
- the *Nuclear Non-Proliferation (Safeguards) Act 1987*; and
- the *Code for the Safe Transport of Radioactive Material*.



This document is part of a series of factsheets providing information on the process to site the National Radioactive Waste Management Facility.

For more information

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Environment

Environmental safety will be ensured by the design and operation of the Facility. Extensive environmental monitoring of the Facility and the surrounding environment will be undertaken and publicly reported.

The Facility and surrounding areas will be continuously monitored during the operational life of the Facility, and monitored through the period after its closure. It will include activities such as air sampling, soil sampling boreholes and general environmental health checks. These will be routinely collected, analysed and published to demonstrate that the environment surrounding the Facility is not affected by any radiation or contamination.

The Department of the Environment and Energy, and the *Environment Protection and Biodiversity Conservation Act 1999*

Prior to being established, the Facility will be referred for assessment in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The first stage of assessment will determine if the development and operation of the Facility will have any bearing on one or more of nine nationally protected matters under the Act.

The actions regulated under the Act that are most likely to be relevant to the National Radioactive Waste Management Facility are:

- nuclear actions (sections s21 & 22A of the EPBC Act);
- actions that impact threatened species & communities (sections 18 & 18A);
- Commonwealth actions (section 28); and
- actions on Commonwealth land (sections s26 & s27A).

For ‘nuclear actions’, ‘Commonwealth actions’ and ‘actions on Commonwealth land’, the matter protected is ‘the environment’ which is defined in the EPBC Act (section 528) as including:

- (a) ecosystems and their constituent parts, including people and communities; and
- (b) natural and physical resources; and
- (c) the qualities and characteristics of locations, places and areas; and
- (d) heritage values of places; and
- (e) the social, economic and cultural aspects of a thing mentioned in (a) to (d).

If the proposed action is determined as being

likely to have a significant impact on any nationally relevant protected matter, the Minister for the Environment and Energy will then undertake a rigorous and robust assessment of the action.

There are several methods of assessment. Among these is an ‘Environmental Impact Statement’. The Act provides for opportunities for public consultation and comment.

The Act requires the Minister to consider a range of factors when making a decision about whether to approve the Facility including environmental, economic and social matters. Relevant considerations include a wide range of environmental impacts of the proposal including:

- the principles of ecologically sustainable development (section 3A of the EPBC Act);
- referral and assessment documentation;
- the outcomes of the assessment of the impacts of the proposed action;
- any other relevant information available on the impacts of the proposed action (such as information on social and economic factors); and
- public comments, and the proponent’s response to public comments.

The Minister may attach a condition to the approval to ensure that the environment or other protected matters are protected during the construction and operational phases of the Facility.

More information on the EPBC Act can be found at: www.environment.gov.au/about-us/business-us/permits-assessments-licences

Example of Environmental Monitoring: ANSTO

ANSTO has extensive environmental monitoring in place, to assure the community of the safe operation of its facility.

Computer modelling that takes into account measurements from the surrounding environment is used to estimate the potential radiation dose to people from operations of the Lucas Heights campus.

Radiation Protection and Nuclear Safety

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is the independent regulator of Commonwealth entities that use or produce radiation. This includes any Commonwealth organisation involved in radioactive waste management.

The proposed facility will be a 'controlled facility' regulated under the *Australian Radiation Protection and Nuclear Safety Act 1998*, and the Australian Radiation Protection and Nuclear Safety Regulations 1999.

ARPANSA authorisations under licence will be required for various stages of the project including prior to the operation of the Facility. In considering whether to grant those authorisations, ARPANSA will take into account details including facility design, protection systems and operator capability. The authorisations required include authorisation to:

- prepare a site;
- construct the Facility;
- operate the Facility; and
- decommission / close the Facility.

ARPANSA will undertake public consultation during the licensing process. Full details on ARPANSA's role in the process can be found at: www.arpansa.gov.au.

In making a decision whether to grant an authorisation, ARPANSA has to take into account an extensive range of matters, including, in particular, whether the construction and operation of the Facility can be carried out without undue risk to the health and safety of people, and without undue risk to the environment.

Radiation and the National Radioactive Waste Management Facility

Radiation exists naturally in the environment, and the average Australian will receive a dose of 1.5 millisieverts (mSv) from natural background radiation sources each year.

Regulation 59 of the Australian Radiation Protection and Nuclear Safety Regulations 1999 states that the dose limit for a radiation worker is 20mSv per year.

ANSTO operates under the As Low As Reasonably Achievable (ALARA) principle, which means that radiation levels should be as minimal as possible.

The average ANSTO radiation worker receives about 3.25mSv per year (including background radiation), which is well below ARPANSA's limits. If you stood at the boundary of ANSTO for an entire year, you would get a maximum additional dose of 0.1 mSv. This is equivalent to exposure from cosmic radiation at altitude received in a return flight from Melbourne to London.

As this Facility will only contain shielded waste, the expectation is that workers at the Facility would be subject to an estimated 1.6–3.5 mSv per year (including background radiation).

At the Facility boundary we expect there will be no measurable radiation above existing background levels. There will be no increased radiation for the surrounding community and no plausible way for materials to enter the environment.

Agriculture, produce and the Facility

Currently there are no radiation standards or regulations relating to agricultural production and radioactive waste materials largely, due to the historically safe record of waste management in Australia.

The regulatory frameworks that will apply with respect to the Facility will ensure the safety and security of people and the environment, and the development and operation of the Facility will continue in line with contemporary regulatory requirements introduced in Australia.

Internationally, some countries have established standards for radioactivity in food, typically to address potential contamination resulting from fallout from atmospheric nuclear tests or from accidental releases from nuclear power plants. In contrast, levels of radioactivity in Australian agricultural produce are low and Australia has been able to provide our export markets with the necessary assurances when required.

Nuclear Security and Safeguards

The Australian Safeguards and Non-Proliferation Office (ASNO) is the independent regulator for nuclear security and safeguards in Australia.

The *Nuclear Non-Proliferation (Safeguards) Act 1987*, monitored and enforced by ASNO, sets up a system of accounting, control (i.e. safeguards) and security for nuclear materials and associated items. It will apply to the Facility and its construction and operation. This system has been set up in line with

Australia's various treaty-level commitments related to securing and accounting for nuclear material and activities.

In approving permits for the Facility, the Director General of ASNO must be confident that its operators can apply the appropriate levels of security for any relevant material held at the site, as well as apply suitable measures for nuclear accounting and control.

Transport

The regulatory frameworks also recognise the risks associated with the transport of radioactive material, and the ways it can be done safely. Each of the frameworks discussed above covers the transport of radioactive waste to and from the Facility. In particular, the transport of radioactive material (which includes radioactive waste) is governed by the *Code for the Safe Transport of Radioactive Material*. It is based on internationally accepted standards set by the International Atomic Energy Agency (IAEA).

The Code provides for:

- limits on the contents of individual containers of radioactive waste according to its radiation characteristics;
- standards for the design, construction and testing of packages or containers to be used in the transport of radioactive materials;

- accepted levels of radiation, temperature and pressure for such packages;
- labelling requirements for containers of radioactive waste; and
- handling and storage conditions during transport.

ASNO also regulates transport security of nuclear material through the *Nuclear Non-Proliferation (Safeguards) Act 1987*, for quantities of nuclear material above the thresholds set in the Safeguards Regulations.

Around the world, 20 million consignments of radioactive material are safely transported every year, on ships, by road and by rail.

International experience demonstrates that the transport of radioactive material in accordance with the internationally-accepted standards is safe.

