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Sweden
Switzerland
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United Kingdom
United States

Nuclear Legislation in OECD Countries

Regulatory and Institutional Framework for Nuclear Activities

Australia

Australia

I. General regulatory regime

1. Introduction

Australia has no nuclear power plants and has legislation in place preventing these plants from being constructed and operated. There is one operational nuclear reactor, used for research purposes and for the manufacture of radiopharmaceuticals, and two further research reactors which await decommissioning.

Radioactive waste in Australia is generated by mining activities and the use of radionuclides in research, medicine and industry.

Australia is a federation of states, with a division of power between the national government (the Commonwealth Government) and the six State Governments.[1] The Commonwealth Government does not have the capacity to legislate on all aspects relevant to nuclear activities. For this reason, State laws are discussed in some areas in this document, for example, radiation protection and transport. In addition to the States, Australia has two internal Territories (the Northern Territory and the Australian Capital Territory) whose constitutional position is different from that of the States. Essentially, the Territories have fewer legislative powers than the States and are subject to Commonwealth intervention in areas where the States are not. In all, Australia has nine separate legal jurisdictions.

Australian Government Legislation

Nuclear activities in Australia are subject to the following legislation:

- *South Pacific Nuclear Free Zone Treaty Act 1986;*
- *Nuclear Non-proliferation (Safeguards) Act 1987;*
- *Comprehensive Nuclear Test-Ban Treaty Act 1998;*
- *Australian Nuclear Science and Technology Organisation Act 1987;*
- *Australian Radiation Protection and Nuclear Safety Act 1998;* and
- *Commonwealth Radioactive Waste Management Act 2005.*
- *Environment Protection and Biodiversity Conservation Act 1999*

Each of these Acts will be discussed in more detail below but, briefly, their scope is as follows.

The first three Acts were prompted by the need for domestic legislation to implement Australia's international obligations in the areas of non-proliferation, safeguards and physical protection.

The *South Pacific Nuclear Free Zone Treaty Act 1986* implements Australia's obligations under the Treaty. The manufacture, possession and testing of nuclear weapons in Australia is prohibited, as is research and development relating to the production of nuclear weapons.

1. The individual States are New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania.

The *Comprehensive Nuclear Test-Ban Treaty Act 1998* implements Australia's obligations under the Treaty to which it refers. The Act prohibits the conduct of nuclear weapon test explosions, or any other nuclear explosions, and makes provision for verification of the Treaty.

The *Nuclear Non-Proliferation (Safeguards) Act 1987* (the 'Safeguards Act') provides the legislative basis for Australia's safeguards system, implementing its obligations under the *Nuclear Non-Proliferation Treaty*, Australia's bilateral safeguards agreement with the International Atomic Energy Agency and the Convention on the Physical Protection of Nuclear Material. The Act regulates the possession, transport and communication of nuclear material, and associated material, facilities, equipment and technology, as well as arrangements for the physical protection of nuclear material and facilities.

The *Australian Radiation Protection and Nuclear Safety Act 1998* (ARPANS Act) established a regime to regulate the operation of nuclear installations and the management of radiation sources, where these activities are undertaken by Commonwealth Government entities.[2] It created the position of the Chief Executive Officer (CEO) of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), who is entrusted to perform functions and exercise powers under the ARPANS Act.

The CEO regulates nuclear installations through five stages of operation from preparing a site for a controlled facility through to construction, operation, possess and control and finally to decommissioning, through a licensing system.

The ARPANS Act also regulates the use of radiation by Australian Government entities. With a few minor exceptions, other parties using radioactive sources are controlled by the legislation of the relevant State or Territory.[3] The ARPANS Act also establishes the Radiation Health and Safety Advisory Council and two supporting Committees. The Council's tasks include advising the CEO on matters relating to nuclear safety and radiation protection

The *Commonwealth Radioactive Waste Management Act 2005* clarifies the Commonwealth government's decision to locate a facility for the management of the Commonwealth's radioactive waste in the Northern Territory.

The *Environment Protection and Biodiversity Conservation Act 1999* (the EBPC Act), establishes requirements for environmental impact assessment processes for actions in relation to seven defined matters of national environmental significance. One of those matters is the protection of the environment from "nuclear actions" as defined under that Act. Like the ARPANS Act, the EBPC Act specifically prohibits approval of actions involving the construction or operation of a nuclear fuel fabrication plant, a nuclear power plant, an enrichment plant, or a reprocessing facility.

Although largely repealed by the ANSTO Act in 1987, parts of the *Atomic Energy Act 1953* continue to operate with respect to the regulatory regime governing uranium mining in the Northern Territory.

2. Commonwealth Contractors and persons in a prescribed Commonwealth place are also subject to the requirements of the ARPANS Act.

3. New South Wales: Radiation Control Act 1990; Queensland: Radiation Safety Act 1999; South Australia: Radiation Protection and Control Act 1982; Tasmania: Radiation Control Act 1977; Victoria: Health Act 1958 (as amended), Division 2AA Radiation Safety; Western Australia: Radiation Safety Act 1975. Australian Capital Territory: Radiation Act 1983; Northern Territory: Radiation (Safety Control) Act 1979.

The *Australian Nuclear Science and Technology Organisation Act 1987* (ANSTO Act) transformed the Australian Atomic Energy Commission into the Australian Nuclear Science and Technology Organisation (ANSTO). The change affected a move away from work on power generation and the nuclear fuel cycle, to focus on the development and utilisation of nuclear and associated technologies, concentrating in particular on radiation and radioisotope applications in medicine, industry, science and agriculture. ANSTO operates Australia's only operational nuclear research reactor as well as the two currently shut down research reactors that await decommissioning. All three reactors are located at Lucas Heights, South of Sydney in the State of New South Wales.

Also relevant to the regulation of nuclear activities in Australia are the *Environment Protection (Sea Dumping) Act 1981* and the *Environment Protection and Biodiversity Conservation Act 1999.*

2. Mining Regime

Australian uranium mining output represents 19 per cent of world supply, which is second only to Canada. Australia has three operating uranium mines: the Ranger mine in the Northern Territory; and the Olympic Dam and Beverley mines in South Australia. A fourth mine, Honeymoon, is under construction in South Australia. In 2006, the combined production of uranium oxide was 8954 tonnes.

The State and Territory Governments have separate roles and responsibilities with regard to uranium resource exploration and development. While the day to day regulation of mining operations is a State and Territory government responsibility, certain aspects of uranium mining involve Commonwealth regulation.

State and Territory laws require that a mine operator have approval to carry out mining activities such as a licence to mine and additional obligations in respect of environment, health and safety and other mine management and monitoring matters.

At present, uranium mining in Australia occurs in the state of South Australia and the Northern Territory. New South Wales and Victoria have legislation that expressly prohibits uranium exploration and mining.

Commonwealth legislation covers particular requirements in areas including safeguards, environment (usually undertaken jointly with the relevant State or Territory government), exports and access to Indigenous land.

Under the Safeguards Act, a party seeking to mine uranium must obtain a permit from the Australian Safeguards and Non-Proliferation Office (ASNO).

New uranium mines or a significant expansion to an existing mine would be subject to assessment for environmental approval under the EPBC Act.

Under the Customs (Prohibited Exports) Regulations 1958, a mine operator must obtain export permission from the Minister prior to the export of radioactive material, including refined uranium and thorium.

The *Aboriginal Land Rights (Northern Territory) Act 1976* requires a grantee applying for a mining interest over Aboriginal land in the Northern Territory to make an application to both the relevant Minister and to the relevant land council, for consent to the grant of a mining interest. Other legislation relating to indigenous interests in relation to uranium mining includes the *Native Title Act 1993.*

More detailed information about Commonwealth, State and Territory legislation governing uranium mining activities can be found http://www.dpmc.gov.au/umpner/reports.cfm.

3. Radioactive Substances and Equipment

The regulation of radioactive substances and equipment used in medical and industrial contexts by organisations or persons other than the Commonwealth is largely a matter for the States. Each State, the Northern Territory and the Australian Capital Territory have legislation establishing a permit or licensing system to cover the sale, use, possession, disposal, etc., of radiation apparatus and radioactive substances. Uniformity of these jurisdictions is implemented through by the *National Directory for Radiation Protection* (for further details on this subject, see, *infra*, Section 6 "Radiation Protection")

Where the substance involved is uranium, plutonium, thorium, heavy water or nuclear grade graphite, or where the equipment is related to the nuclear fuel cycle, the Safeguards Act may apply (for further details, see, *infra*, Section 8 "Nuclear Security").

4. Nuclear Installations

a) Licensing and inspection, including nuclear safety

All nuclear installations are regulated by the Safeguards Act[4] and the ARPANS Act. While non-Commonwealth installations would be governed by State or Territory legislation, no such installations exist.

The ARPANS Act expressly prohibits the construction or operation by controlled persons (Commonwealth Government entities or their contractors) of nuclear fuel fabrication plants, nuclear power plants, uranium enrichment plants and reprocessing facilities [section 10].

Australia has one operational research reactor, two shut-down research reactors, radiopharmaceutical production facilities, accelerators, other research facilities using radioactive material and radioactive waste management facilities. Under the ARPANS Act, the Chief Executive Officer (CEO) of ARPANSA is the principal regulator with respect to the safety of nuclear installations.

The CEO is empowered to issue a controlled facility licence which authorises controlled persons to prepare a site for, construct, have possession or control of, operate, decommission, dispose of, or abandon, nuclear installations. Under the ARPANS Act, a "controlled person" is defined as a Commonwealth entity, a person who has a contractual relationship with a Commonwealth entity or a person in a prescribed Commonwealth place. A controlled facility is defined to include a nuclear facility [section 13]. A nuclear installation is defined as any of the following:

(a) a nuclear reactor for research or production of nuclear materials for industrial or medical use (including critical and sub-critical assemblies);

(b) a plant for preparing or storing fuel for use in a nuclear reactor as described in paragraph (a);

(c) a nuclear waste storage or disposal facility with an activity that is greater than the activity level prescribed by regulations made for the purposes of this section;

(d) a facility for production of radioisotopes with an activity that is greater than the activity level prescribed by regulations made for the purposes of this section [section 13].

Where the CEO receives an application that relates to a nuclear installation the CEO must publish a notice in a daily newspaper circulating nationally and in the Australian Government Gazette stating that the CEO intends to make a decision on the application. That notice must include:

4. For further details, see, *infra*, Section 8 "Nuclear Security".

(a) an invitation to people and bodies to make submissions about the application; and

(b) a period for making submissions; and

(c) procedures for making submissions [Regulation 40 of the ARPANS Regulations].

In deciding whether to issue a licence the CEO must take into account International Best Practice in relation to radiation protection and nuclear safety [section 32] and any matters specified in the regulations.

The ARPANS regulations specify a number of requirements including:

(a) whether the application includes the information asked for by the CEO; and

(b) whether the information establishes that the proposed conduct can be carried out without undue risk to the health and safety of people, and to the environment; and

(c) whether the applicant has shown that there is a net benefit from carrying out the conduct relating to the controlled facility; and

(d) whether the applicant has shown that the magnitude of individual doses, the number of people exposed, and the likelihood that exposure will happen, are as low as reasonably achievable, having regard to economic and social factors; and

(e) whether the applicant has shown a capacity for complying with these regulations and the licence conditions that would be imposed under section 35 of the Act (requiring access to ARPANSA's inspectors); and

(f) whether the application has been signed by an office holder of the applicant, or a person authorised by an office holder of the applicant; and

(g) if the application is for a facility licence for a nuclear installation — the content of any submissions made by members of the public about the application.[Regulation 41].

There are additional matters identified by the Regulations that are specific to the type of Nuclear Installation and the conduct sought to be licensed [Regulation 39(2) and Part 1 of Schedule 3].

Once issued all licences are issued subject to:

- the licence condition imposed by the ARPANS Act requiring that the licensee must allow the CEO, or a person authorised by the CEO, to enter and inspect the site and the facility.
- any licence conditions imposed by the CEO at the time of issue or amendment. These usually include a requirement that the licence holder comply with relevant codes; and
- the licence conditions prescribed under the Australian Radiation Protection and Nuclear Safety Regulations 1999 (the ARPANS regulations) summarised as follows:
    a. The licence holders must take all reasonably practicable steps to prevent breaches of licence conditions [Regulation 44];
    b. The licence holder must investigate suspected breaches of licence conditions. If a licence holder identifies a breach, he must rectify the breach and any consequences of the breach as soon as reasonably practicable. If the licence holder identifies a breach, he must also tell the CEO as soon as reasonably practicable [Regulation 45];
    c. The licence holder must take all reasonably practicable steps to prevent accidents. If an accident happens, the licence holder must:
        - take all reasonable practicable steps to control the accident;

- take all reasonably practicable steps to minimise the consequences of the accident, including injury to any person and damage or harm to the environment;
- tell the CEO about the accident within 24 hours of it happening; and
- give the CEO a written report about the accident within 14 days of it happening [Regulation46].

d. The Licence holder must ensure that conduct and dealings comply with the *National Standard for Limiting Occupational Exposure to Ionizing Radiation* [Regulation 47];

e. The licence holder must ensure that all conduct and dealings with the facility are in accordance with;

- the Recommendations for limiting exposure to ionizing radiation;
- the Code of Practice for the Safe Transport of Radioactive Material;
- the Code of Practice for the Disposal of Radioactive Waste by the User;
- the Code of Practice for the Near-Surface Disposal of Radioactive Waste in *Australia*.

f. The Licence Holder must comply with their plans and arrangements for managing safety mentioned in the licence application [regulation 49];

g. The licence holder must, at least once every 12 months, review and update any plans and arrangements for managing the Facility to ensure the health and safety of people and protection of the environment and, after conducting a review, give the CEO information about the review [regulation 50];

h. The licence holder must seek the CEO's prior approval to make a change to the details in the application for the licence or a modification of the facility that will have significant implications for safety [regulation 51];

i. The licence holder may make changes to the details in the application for the licence or modifications of the facility that are unlikely to have significant implications for safety without the CEO's approval. However, licence holder must, at least once every 3 months, tell the CEO about any such changes [regulation 52];

j. The licence holder must only dispose of controlled apparatus and controlled material with the approval of the CEO. If the licence holder transfers controlled apparatus or controlled materials to the possession of another person or body, he must within 7 days of the transfer tell the CEO that the transfer has happened, the name of the other person or body; the number of the licence held by the other person or body and the location of the controlled apparatus or controlled materials after that transfer. The licence holder must not dispose of the facility, or transfer facility to the control of another person or body, without the CEO's approval [Regulation 53];

k. The holder of a licence, or a person covered by a licence, must not construct an item that is important for safety, and that is identified in a safety analysis report, as part of the construction of a controlled facility, unless the CEO has given the holder, or the person, approval to construct the item [Regulation 54];

l. The holder of a licence, or a person covered by a licence, must not load nuclear fuel into a controlled facility, as part of the construction of the facility, unless the

CEO has given the holder, or the person, approval to load the fuel [Regulation 55].

Once issued licences remain in force until cancelled by the CEO or surrendered by licensees [Section 37].

The CEO may suspend or cancel a licence on grounds prescribed in the ARPANS Act, including for breach of a condition of the licence. At the request of the applicant for a licence or the holder of a licence, licence decisions can be reviewed by the Minister, after which they may be reviewed by the Administrative Appeals Tribunal. The tribunal is an independent body established by legislation for the purpose of reviewing a wide range of administrative decisions. Upon application by a person adversely affected by such a decision, the Tribunal is empowered to examine the merits of the decision, as well as its procedural correctness (*Administrative Appeals Tribunal Act, 1975*) [Section 40].

The ARPANS Act empowers the CEO to appoint inspectors. They have a number of powers including: the power to enter licensed premises and inspect, examine, take measurements of, or conduct tests concerning anything on the premises which relates to controlled material, apparatus or a facility [refer Part 7 of the ARPANS Act].

The *Australian Radiation Protection and Nuclear Safety (Licences Charges) Act 1998* requires licence-holders of both nuclear installations and radioactive materials to pay an annual charge, to be prescribed by regulation.

At the international level, Australia is a Party to the following safety related conventions:

- *The Convention on Nuclear Safety;*
- *The Convention on Early Notification of a Nuclear Accident;*
- *The Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency; and*
- *The Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.*

b) Protection of the environment against radiation effects

The Minister for the Environment, Heritage and the Arts, and the Department of Environment, Heritage, Water and the Arts, are responsible for the administration of the environment impact assessment and approvals provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Under the environmental assessment provisions of the EPBC Act, actions that are likely to have a significant impact on a matter of National Environmental Significance are subject to a rigorous assessment and approval process. An action includes a project, development, undertaking, activity, or series of activities.

Nuclear actions are one of the seven matters of National Environmental Significance the EPBC Act identifies. The definition of a nuclear action includes, inter alia, mining or milling uranium ore, transporting spent nuclear fuel, and establishing, significantly modifying, decommissioning or rehabilitating a research reactor. In addition, any action involving radioactive material with an activity level above that specified in the Environment Protection and Biodiversity Conservation Regulations 2000 (which cross reference to the ARPANS Act) is also deemed a nuclear action. The 'matter protected' in relation to nuclear actions is 'the environment' as defined in the EPBC Act. This definition includes social, economic and cultural aspects as well as biophysical.

This means that nuclear actions should be referred for examination in terms of the EPBC Act. However only those that are considered likely to have a significant impact on the environment will be considered to be a 'controlled action', that is an action that requires formal environmental assessment and approval if it is to proceed. In practice, a new uranium mine or research reactor would likely be considered to be a controlled action and be formally assessed by way of the

production and public review of an environmental impact statement or other similar documentation. However, there are small scales nuclear actions which have been referred and found not to be controlled actions in terms of the EPBC Act, for example short term in-situ-leach uranium mining trials, and the remediation of historical uranium diggings.

Each of the Australian States and Territories has also enacted environmental impact assessment legislation. The EPBC Act [Section 45] provides for the conclusion of a bilateral agreement between the Commonwealth and any State or Territory to minimise the duplication of environmental assessment and approval processes through the Commonwealth accreditation of the State or Territory process (or vice versa).

Section 140A of the EPBC Act repeats the prohibition in section 10 of the ARPANS Act specifically prohibiting the Minister from approving actions involving the construction or operation of a nuclear fuel fabrication plant, a nuclear power plant, an enrichment plant, or a reprocessing facility.

5. Trade in Nuclear Materials and Equipment

In the absence of a domestic nuclear power industry, Australia's trade in uranium is all exported. As already mentioned, the Commonwealth Government exercises control over this trade by virtue of its constitutional power in relation to international trade and commerce. Specifically, the Customs (Prohibited Exports) Regulations, made under the *Customs Act 1901,* prohibit the export of uranium unless the approval of the Minister for Resources, Energy and Tourism has been obtained. The Minister's decision is affected by government policy and by the need to comply with Australia's obligations under, for example, the *Non-Proliferation Treaty*, Australia's network of bilateral safeguards agreements and the South Pacific Nuclear Free Zone Treaty. Australia's membership of the Nuclear Suppliers' Group and the Zangger Committee is also relevant in this regard. These restrictions extend to other nuclear materials and to nuclear equipment and technology, including items which also have non-nuclear applications.

6. Radiation Protection

In 1998 the *Environment Protection (Nuclear Codes) Act 1978*, was replaced by the ARPANS Act. The CEO of ARPANSA is now the regulatory authority in this field, in relation to radiation sources under Commonwealth control.

The CEO may issue a radiation source licence which authorises controlled persons to deal with a controlled apparatus or material [Section 33].

A "controlled apparatus" is defined as

(a) an apparatus that produces ionising radiation when energised or that would, if assembled or repaired, be capable of producing ionising radiation when energised;

(b) an apparatus that produces ionising radiation because it contains radioactive material; or

(c) an apparatus prescribed by the regulations that produces harmful non-ionising radiation when energised.

"Controlled material" means any natural or artificial material, whether in solid or liquid form, or in the form of a gas or vapour, which emits ionising radiation spontaneously [Section 13].

In determining whether to issue a licence the CEO must have regard to the matters referred to in regulation 42 of the ARPANS Regulations. They include:

(a) whether the application includes the information asked for by the CEO; and

(b) whether the information establishes that the controlled apparatus or material can be dealt with without undue risk to the health and safety of people, and to the environment; and

(c) whether the applicant has shown that there is a net benefit from dealing with the controlled apparatus or material; and

(d) whether the applicant has shown that the magnitude of individual doses, the number of people exposed, and the likelihood that exposure will happen, are as low as reasonably achievable, having regard to economic and social factors; and

(e) whether the applicant has shown a capacity for complying with these regulations and the licence conditions that would be imposed under section 35 of the Act; and

(f) whether the application has been signed by an office holder of the applicant, or a person authorised by an office holder of the applicant.

There are additional matters identified by the Regulations that are specific to the type of item for which a licence is sought and the conduct sought to be licensed [Regulation 39(3) and Part 2 of Schedule 3].

A source licence is issued subject to:

- the licence condition imposed by the ARPANS Act requiring that the licensee must allow the CEO, or a person authorised by him, to inspect a controlled apparatus or material [Section 35].
- The licence conditions prescribed under the ARPANS Regulations [Division 4 of the ARPANS Regulations] (see licence conditions imposed by the ARPANS Regulations in Chapter 4 supra); and
- Any licence conditions imposed by the CEO at the time of issue or amendment [Section 35] These generally include a requirement that the licence holder comply with relevant codes and standards.

Sections 35, 37, 38, and 40 of the ARPANS Act, which were described under Section 4 "Nuclear Installations" *supra*, also apply to the delivery of source licences.

The ARPANS Regulations cover, *inter alia*, facility and source licences, exemptions and applications for licences. They:

- list matters that the CEO must take into account when issuing licences;
- lay down the effective dose limit for occupational exposure, which is set at 20 mSv annually, averaged over five consecutive calendar years, and the effective dose limit for public exposure, set at 1 mSv annually.

Nuclear Codes were developed under the *Environment Protection (Nuclear Codes) Act 1978*. When this Act was repealed in 1998, these Codes were reviewed and incorporated into the new Radiation Protection Series of Publications developed by ARPANSA namely:

- *The Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005), Radiation Protection Series No.9;*
- *The Code of Practice for the Safe Transport of Radioactive Material (2001), Radiation Protection Series No. 2.*

The *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing* was prepared by ARPANSA in consultation with industry, trade unions, and the Governments of the States and Territories.

It addition, ARPANSA has published new versions of the previously adopted Codes incorporating amendments to the radiation protection standards. In particular:

- the International Commission on Radiological Protection (ICRP) Recommendations and the International Atomic Energy Agency (IAEA) Basic Safety Standards for Protection Against Ionizing Radiation and for the Safety of Radiation Sources (IAEA 1996) reflected in the *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005)*, which provides for radiation protection in mining and mineral processing industries and for protection of human health and the environment from the effects of radioactive waste from mining and mineral processing.
- The *Code of Practice for the Safe Transport of Radioactive Material (2001)* adopted the International Atomic Energy Agency (IAEA) *Regulations for the Safe Transport of Radioactive Material* 1996 Edition [No. TS-R-1]

States and Territories have committed to adopting the codes and standards as they become part of the National Directory for Radiation Protection (NDRP). States and both Territories had incorporated them prior to publication of the 1st edition of the NDRP, usually into licence or registration conditions implemented under their own radiation protection legislation.[5] .

State or Territory legislation is not identical; however, there is a common approach, the major elements of which include that:

- a permit or licence is required before a person can make, store, transport, sell, possess or use radioactive materials and ionising radiation-emitting equipment;
- the permit will not be issued unless the responsible authority is satisfied that the person is appropriately trained and is, in other respects a "fit and proper person";
- the permit is granted for a limited period and may be made subject to conditions;
- if a condition is breached, or the permit-holder contravenes the legislation, the permit may be revoked;
- permit-holders must keep records indicating the nature, purpose, usage, manner of storage etc., of radioactive substances and radiation-emitting equipment in their possession;
- specified precautions must be adopted for the protection of workers and persons undergoing medical diagnosis or treatment;
- maximum limits of radiation dosage are prescribed for radiation workers and medical patients;
- controls are imposed on methods of radioactive waste disposal;
- compliance with the regulatory system is achieved through the appointment of inspectors with statutory powers to enter and search premises and to collect information; and
- contraventions of the relevant Act or regulations are criminal offences.

National Uniformity

The Australian Health Minister's Conference (AHMC) made up of Ministers from each of the nine jurisdictions, at its meeting of 29 July 2004, endorsed the 1st Edition of the National Directory for Radiation Protection as the uniform national framework for radiation protection in Australia with

5. New South Wales: Radiation Control Act 1990; Queensland: Radiation Safety Act 1999; South Australia: Radiation Protection and Control Act 1982; Tasmania: Radiation Control Act 1977; Victoria: Health Act 1958 (as amended), Division 2AA Radiation Safety; Western Australia: Radiation Safety Act 1975. Australian Capital Territory: Radiation Act 1983; Northern Territory: Radiation (Safety Control) Act 1979.

a view to achieving uniformity in radiation protection practices between jurisdictions. The National Directory for Radiation Protection provides:

- uniform requirements for the protection of people and the environment against exposure or potential exposure to ionising and non-ionising radiation;
- uniform requirements for the safety of radiation sources, including provision for the national adoption of codes and standards; and
- clear regulatory statements for adoption by the Commonwealth, States and Territories into their legislation.

With regard to the specific issue of radiation protection in relation to uranium mining, the Northern Territory Mines Safety Control (Radiation Protection) Regulations 1981 set safety standards by direct reference to the *Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores* (superseded by the *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing 2005)*.

The Code also sets out its own safety precautions, imposing detailed duties on the owner and the manager of the mine and on the employees at the mine. The owner's responsibilities include:

- ensuring that new employees are instructed in the radiation risks in their work and how to avoid them;
- regular inspections of safety facilities are made and recorded;
- a radiation safety officer, responsible to the manager, is appointed; and
- the health of employees is monitored regularly (Section 4).

Duties are also imposed on the employees. They are obliged to:

- report any defect which may contribute to a radiation hazard; and
- use the protective equipment that is provided to them and submit to health assessments as required by the Code (Section 5).

A person who contravenes any of the Regulations, whether owner, manager or employee, is guilty of an offence and may be fined.

7. Radioactive Waste Management

Management of radioactive waste in Australia is the responsibility of the government in whose jurisdiction it is produced. Australia's radioactive waste comes from two main sources: mining activities and the use of radionuclides in research, medicine and industry.

Waste from uranium mining activities is managed and disposed of near the site of origin at the cost of the mine operator and in accordance with the requirements of the *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005)*. These requirements have been incorporated in the Northern Territory's Mines Safety Control (Radioactive Wastes Management) Regulations and, by reference, in South Australia's *Roxby Downs (Indenture Ratification) Act 1982*.

The 1992 amendments to the ANSTO Act added to ANSTO's functions that of conditioning, managing and storing radioactive materials and waste, but only if the materials or waste had arisen either from ANSTO's own activities or from the activities of persons specified in the regulations [ANSTO Act, Section 5(1)]. The Act specifically states that ANSTO's premises were not to become a permanent national nuclear waste repository [Section 5(1)(a)]. The 2006 amendments to the ANSTO Act widen ANSTO's waste management powers to allow it to also manage and store radioactive materials and waste owned by other Commonwealth agencies or at the request of emergency management or law enforcement authorities. It also confirmed ANSTO's

authority to manage waste arising from the reprocessing of its spent fuel in the United Kingdom and France.

The State of Western Australia has established its own near surface disposal facility for low level radioactive waste. Regulations made under Western Australia's *Radiation Safety Act 1975* have incorporated the requirements of the *Code of Practice for the Near–Surface Disposal of Radioactive Waste in Australia*.

The *Code of Practice for the Near–Surface Disposal of Radioactive Waste in Australia* (issued in 1992 by the National Health and Medical Research Council) sets out requirements for sitting, design and operation of a new near–surface disposal facility.

Controlled persons[6] seeking to establish a waste store or repository are required under the ARPANS Act to apply for licences to site, construct and operate the facility and to obtain these licences before a site can be prepared for any proposed repository.

Low–level and short-lived intermediate–level radioactive waste resulting from research and the medical and industrial uses of radionuclides is at present held at over 100 sites throughout Australia. A proposed national waste repository project site to store this material was abandoned in 2004.

On 15 July 2005, the Commonwealth Government announced that it would proceed with its waste management policy by investigating three sites that it owned in the Northern Territory and passed the *Commonwealth Radioactive Waste Management Act 2005* (the "CRWM Act"). This Act provides that the Minister may declare one, or a specified part of one, of the sites or approved nominated sites specified in that Act, as the place where a facility may be established and operated.[7] It further provides that the Minister may declare land to provide for suitable road access to the site. The CRWM Act ensures that Minister for Resources, Energy and Tourism must comply with the ARPANS Act, the EPBC Act and the Safeguards Act.

The CRWM Act specifies three sites which are to undergo further investigations to determine their suitability as facility: the Mt Everard site, the Harts Range site and the Fishers Ridge site. Further amendment to this Act allowed for either, the Northern Territory Government or an Aboriginal land council (within the meaning of the *Aboriginal Land Rights (Northern Territory) Act 1976*) to nominate additional sites for a facility. The Minister may approve the nomination at his or her absolute discretion.

The Northern Land Council nominated land on Muckaty Station as a potential site on 18 June 2007. The nomination was approved by the Minister on 24 September 2007.

The storage and disposal of radioactive substances and apparatus is also addressed by the *Code of Practice for the Disposal of Radioactive Wastes by the User (1985)* and by the radiation control acts and regulations of the States and Territories.[8]

The *Environment Protection (Sea Dumping) Act 1981* regulates the dumping at sea of radioactive material. Until 1986, this Act prohibited dumping of high level radioactive waste, but did allow dumping under permit of other radioactive wastes and materials. In 1986 amendments were made to the Act following Australia's ratification of the *1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter* (the London Convention, ratified on

6 As defined under the ARPANS Act ie Commonwealth Government entities and their contractors etc [section 13]

7 Facility under the CRWM Act means: a facility for the management of controlled material generated, possessed or controlled by the Commonwealth or a Commonwealth entity

8 Supra 4 above.

21 August 1985) and of the *1985 South Pacific Nuclear Free Zone Treaty (the Rarotonga Treaty*, ratified on 11 December 1986). The result of the amendments is that all dumping of radioactive material in Australia's territorial sea is now prohibited [Section 9(a)]. Australia ratified the *1996 Protocol to the London Convention* on 4 December 2000.

"Radioactive material" is defined as material that has an activity of more than 35 Becquerels per gram [Section 4(1)]. If radioactive material is dumped in contravention of the *Environment Protection (Sea Dumping) Act*, the owner and the person in charge of the vessel, aircraft or platform from which the dumping occurred are both guilty of an offence, as is the owner of the material dumped [Section 9(a)]. The amendments did not alter the exemptions contained in the original 1981 Act. It does not apply to the disposal of wastes arising from exploration and exploitation of seabed mineral resources [Section 5], nor does it apply in relation to a vessel, aircraft or platform belonging to the defence forces of Australia or of a foreign country [Section 7].

In September 1995 Australia signed the *1995 Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes with the South Pacific Region* (Waigani Convention). The *1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management* was ratified by Australia on 5 August 2003.

8. Non-Proliferation and Physical Protection

Australia has ratified the following international instruments in the field of nuclear non-proliferation and physical protection:

- *1968 Treaty on the Non–Proliferation of Nuclear Weapons on 23 January 1973;*
- *1985 South Pacific Nuclear Free Zone Treaty on 11 December 1986;*
- *1996 Comprehensive Nuclear Test Ban Treaty on 9 July 1998; and*
- *1979 Convention on the Physical Protection of Nuclear Material on 22 September 1987.*

Other relevant international instruments are Australia's Safeguards Agreement of 10 July 1974 with the International Atomic Energy Agency (IAEA), the additional Protocol to that Agreement of 23 September 1997 and Australia's bilateral nuclear safeguards agreements with individual countries and Euratom.

The *Nuclear Non–Proliferation (Safeguards) Act 1987*, the *South Pacific Nuclear Free Zone Treaty Act 1986* and the *Comprehensive Nuclear Test-Ban Treaty Act 1998* establish the legal framework that is required at a national level by the *Non–Proliferation Treaty, the South Pacific Nuclear Free Zone Treaty and the Comprehensive Nuclear-Test-Ban Treaty.* An account of each of these elements now follows.

a) Bilateral Safeguards Agreements

The Commonwealth Government permits exports of nuclear material only to countries with which Australia has concluded a bilateral safeguards agreement. These agreements are designed to guarantee that Australian uranium can be used only in the civil nuclear fuel cycle of partner countries. In entering the Agreement each foreign state undertakes that:

- Australian obligated nuclear material will not be used in the manufacture of nuclear weapons or other nuclear explosive devices, or in related research or development;
- Australian obligated nuclear material will not be used for any military purpose;
- Australian obligated nuclear material will be covered by IAEA safeguards;
- fallback safeguards will apply if at any stage IAEA safeguards cease to operate;

- the enrichment of Australian uranium beyond 20% U^{235}, the reprocessing of spent fuel from Australian uranium, or the retransfer of Australian uranium to another country will not occur without prior Australian consent;
- physical security to internationally agreed levels to prevent theft of nuclear material will be applied; and
- the foreign state will participate in consultations with Australia, as and when required, particularly in respect of reprocessing and plutonium use questions.

Each of these bilateral agreements is supplemented by an administrative arrangement which sets out details as to the manner in which the obligations under the agreement are to be performed, including arrangements for accounting for Australian obligated nuclear material as it passes through each phase of the recipient's fuel cycle.

b) International Atomic Energy Agency Safeguards Agreement

In 1974 Australia concluded a safeguards agreement with the IAEA, as required by the *Treaty on the Non-Proliferation of Nuclear Weapons*. Although the main function of the Agreement is to establish a system of safeguards to apply to nuclear material within Australia, it also requires Australia to notify the IAEA of intended transfers of material subject to IAEA safeguards out of Australia. On 23 September 1997 Australia became the first country to sign a Protocol supplementing and strengthening its basic safeguards agreement with the IAEA, based on the Model Protocol developed by the IAEA's Programme 93+2.

c) The South Pacific Nuclear Free Zone Treaty Act

The *South Pacific Nuclear Free Zone Treaty Act 1986* gives effect to all the substantive provisions of the Treaty. Its main provisions are contained in Part II (a series of prohibitions relating to nuclear explosive devices) and in Part IV (dealing with inspections to ensure Australia's compliance with the Treaty).

Part II of this Act prohibits the manufacture, production and acquisition of nuclear explosive devices [Section 8]. Research and development directed towards the manufacture of a nuclear explosive device is forbidden [Section 9], as is the possession of, or control over, such a device [Section 10]. It is an offence to station a nuclear explosive device in Australia [Section 11] or to carry out a test of such a device [Section 12]. Section 14 extends all these offence provisions to acts occurring outside Australia if those acts are committed by the Commonwealth Government, or an Australian State or Territory government or government authority, or if those acts are committed on an Australian ship or aircraft.

However, this Act does not seek to affect the visits of foreign ships or aircraft visiting Australia, navigating through Australian waters or flying through Australian airspace [Section 15]. The penalty for any of these offences is, in the case of an individual, a fine of 100 000 Australian dollars (AUD), a prison sentence of 20 years, or both, and, in the case of a body corporate, a fine of AUD 500 000.

Part IV of the Act also provides for the appointment of special Treaty inspectors to investigate a complaint brought against Australia under the Treaty [Section 19]. While the Treaty inspectors are given certain powers to enter premises with the consent of the owner or occupier, to examine, take samples, make copies of documents, etc. [Section 22], it is envisaged that their inspections will be facilitated by Australian inspectors who have been appointed under the Safeguards Act. These Australian inspectors are given extensive powers, for example, to apply to a magistrate for a search warrant [Section 21] and to require information from a person suspected of committing an offence against the Act [Section 24].

d) The Comprehensive Nuclear Test-Ban Treaty Act

The *Comprehensive Nuclear Test-Ban Treaty Act 1998* (CTBT Act) gives effect to Australia's obligations as a Party to the CTBT. It prohibits the causing of any nuclear explosion at any place

within Australian jurisdiction or control and establishes a penalty of life imprisonment for an offence against the provision. This Act also prohibits Australian nationals from causing a nuclear explosion in any other place.

The CTBT Act requires the Commonwealth Government to facilitate verification of compliance with the Treaty provisions, including the obligation to arrange for the establishment and operation of Australian IMS stations and the provision of data from these. It provides the Government with the authority to establish IMS stations and to make provision for access to them for CTBT monitoring purposes. The Act makes provision for the Minister for Foreign Affairs to enter into arrangements with the CTBT Organization to facilitate cooperation in relation to monitoring stations under Australian control.

Article IV of the Treaty obliges States Parties to allow CTBT inspectors to inspect any place within their jurisdiction or control in an on-site inspection. The CTBT Act provides comprehensive powers for inspection arrangements, including the right for inspectors to gather information, to collect and remove samples, and to apply a range of monitoring and sensing techniques over a designated area. Access to locations by inspectors is by consent of the occupier of any premises, or by warrant issued by a magistrate.

The CTBT Act was assented to on 2 July 1998 but was not able to enter into effect, absent the entry-into-force of the CTBT, until amended by the *Non-Proliferation Legislation Amendment Act 2003*. On 11 June 2004 sections 3 to 7, Part 2, Division 1 of Part 4, Division 1 of Part 5, sections 68 to 72, sections 74, 75 and 78, and Schedule 1 to the CTBT Act came into effect following proclamation by the Governor-General. The proclaimed provisions were to:

- create the offence of causing a nuclear weapons test explosion, or any other nuclear explosion; and
- provide a framework for the establishment and operation of IMS facilities in Australia, and a legal basis for the functioning of Australia's CTBT National Authority.

e) The Nuclear Non-Proliferation (Safeguards) Act

Until the enactment of the *Nuclear Non–Proliferation (Safeguards) Act 2003* (the Safeguards Act), those aspects of the Non–Proliferation Treaty which required domestic implementation through control of the possession, use and transport of nuclear material were dealt with by means of the Customs Act [No. 6 of 1901] and regulations made under it, and by relying on cooperation from holders of nuclear items. The Safeguards Act and the Nuclear Non-Proliferation (Safeguards) Amendment Regulations 2006 regulate the possession, use and transport of nuclear items in Australia. There are express provisions in the Safeguards Act stating that its objects are to give effect to certain obligations under the *Non–Proliferation Treaty and the Physical Protection Convention* [Section 3], and that this Act will be administered in accordance with these Treaties [Section 70].

The Safeguards Act establishes a national system regulating the possession of nuclear material, equipment and technology. In practice, the bodies chiefly affected by this system are uranium mining companies and ANSTO. The Safeguards Act seeks to subject all nuclear material and associated items within Australia to a system of stringent and detailed controls.

"Nuclear material" is defined in Section 4(1) to mean any source or special fissionable material, as defined in Article XX of the IAEA Statute, but not including ore or ore residue. "Associated item" means associated material, associated equipment or associated technology [Section 4(1)]. Broadly speaking, this means:

- material of a kind specially suited for use in the construction or operation of a nuclear reactor;
- equipment or plant that is specially suited to the production of nuclear weapons or for use in other nuclear activities; and

- information (other than information available to the public) that is applicable primarily to nuclear weapons or to equipment for the enrichment of nuclear material, the reprocessing of irradiated material, or the production of heavy water [Section 4(1)].

The Minister for Foreign Affairs and Trade (DOFAT) has the power to exempt certain nuclear material and associated items from the Safeguards Act [Section 11] and this has been done under the Nuclear Non-Proliferation (Safeguards) Regulations 1987. The regulations exempt, for example, depleted uranium and heavy water in non-nuclear use; thorium incorporated in electronic components and aircraft parts; source material incorporated in ceramic glazes; and source material contained in certain chemical mixtures in which the uranium or thorium content is less than 0.05% of the weight of the mixture [Regulation 3].

The principle underlying the safeguards system is that all possession, use and transportation of nuclear material covered by the Safeguards Act is prohibited unless it is carried out under a permit granted by the Minister for Foreign Affairs [Sections 13 and 16]. The procedure is described below.

A person may apply for a permit to the Director, who may request more information from the person. The Director then makes a report to the Minister in relation to the application [Section 12]. The Minister may not grant the permit unless the applicant has provided all the information required by the Director, and the Director is satisfied that:

a) appropriate procedures can be applied at the nuclear facility concerned for the implementation of the Australian safeguards system; and

b) adequate physical security can be applied to nuclear material and associated items at the facility [Section 14].

If the Minister grants the permit, it may be made subject to conditions and restrictions [Section 13(2)]. Customarily, the conditions will specify the following matters [Section 13(3)]:

- precisely what material is covered by the permit;
- the period of time for which the permit is valid;
- the procedures which must be followed if the material is to be transported (including notifying the Director General or Minister);
- the measures which must be taken to ensure the physical security of the material;
- who is to be allowed access to the material;
- the steps to be followed, and the records to be kept, in order to account for the material;
- the permitted uses of the material;
- the inspections which must be permitted in relation to the material;
- the conditions under which any transfer of the ownership, possession or control of the material may take place; and
- in the case of a permit to possess information covered by the Safeguards Act, any restrictions on the communication of that information.

Similar procedures apply in relation to a transport permit and an authority allowing the communication of information that comes within the definition of "associated item" [Section 4(1)]. A permit to allow nuclear material to be moved from one specified location to another may be subject to conditions stipulating the means of transport, the route, physical security measures, records to be kept, reports to be made etc. [Section 16]. In the case of communication of information, an authority may be given subject to restrictions as to precisely what information may be passed on, to whom it may be given, and within what time period it may be given [Section 18].

Further control can be exercised over the holders of permits and authorities by means of ministerial orders and directions [Section 73]. Broadly speaking, these may deal with the same matters as those that are dealt with by the conditions which may be attached to a permit or authority (for example, requirements as to physical security measures to be taken, the permitted uses of the nuclear material, etc.).

If the holder of a permit or authority contravenes one of the conditions attaching to it, or a direction under Section 73, or is convicted of an offence against the Safeguards Act, the permit or authority may be revoked by the Minister [Section 19]. In addition any contravention of a condition or a Section 73 order or direction is itself an offence against the Act [Section 25], punishable by a fine or a prison sentence or both. The Safeguards Act also ensures that safeguards can be maintained even if the permit-holder has failed to carry out his or her obligations. In such a situation, the Director General may authorise an inspector to do anything necessary to ensure compliance with the condition, order or direction that has been contravened [Section 68]. Any costs incurred by the Commonwealth Government as a result of the inspector's actions become a debt due to the Commonwealth Government by the permit-holder [Section 68(4)].

The safeguards system established by these provisions is supported by the creation of a number of offences. The basic offence is that of possessing nuclear material or an associated item without a permit granted under Section 13 or 16. The communication of information covered by the Safeguards Act without an authority under Section 18 is also made an offence [Section 26]. The Safeguards Act creates several other related offences, all punishable by a fine, a term of imprisonment or both [Sections 25 and 28–31]. The offence provisions are drafted so as to extend to conduct outside Australia if the conduct, or a result of the conduct, occurs on an Australian ship or aircraft or is in the course of a journey which began at a place in Australia. Activities by Australian citizens and residents overseas are also covered. As is usual in Australian law, the fine incurred by a company may be up to five times higher than the amount of the fine incurred by an individual.

Two final points should be noted regarding the permit and authority system. The first is that where the Minister has made an adverse decision (for example, refusing to grant a permit or revoking a permit), the person affected must be given reasons for the decision and has the right to have the decision reviewed by the Administrative Appeals Tribunal, which has the power to overturn the Minister's decision [Section 22].

The second point concerns the relationship between the system of permits and authorities established under this Act, and any state or territory law that regulates radioactive substances, etc. The Safeguards Act makes it clear that its requirements are additional to any requirements to those of any State or Territory legislation that may exist; the granting of a permit under this Act does not excuse the permit-holder from complying with relevant State law/Territory Law [Section 21].

In establishing this system of permits and authorities, the Safeguards Act gave statutory recognition to the Australian Safeguards and Non-Proliferation Office (ASNO), and the Director General of ASNO. The functions of the Director General include ensuring the effective operation of the permit system, carrying out Australia's safeguards obligations under its agreement with the IAEA and its bilateral agreements, and monitoring compliance by Australia's partners in those bilateral agreements [Section 43].

Australia's agreement with the IAEA requires Australia to ensure that inspections on national territory can be carried out by the IAEA. The Safeguards Act provides both for the appointment of Australian inspectors to ensure compliance with the Act and the Regulations, and also for the recognition by the Minister of Foreign Affairs of inspectors who have been designated by the IAEA Agency for the purpose of undertaking IAEA inspections [Section 57].

IAEA Inspectors have powers to examine, take samples, verify the proper functioning of equipment, take measurements, install or operate a containment device or a surveillance device, take extracts from records and other documents, as well as a general power to do anything

necessary to carry out an Agency inspection [Section 60]. Their powers are more limited than those of the Australian inspectors; appointed under the Safeguards Act. For example they have no powers to enter premises without the consent of the owner. However, the Safeguards Act provides that one of the functions of an Australian Inspector is to facilitate an inspection by an IAEA Inspector [Section 59(1)(e)]. The Safeguards Act envisages situations where an Australian Inspector will obtain a search warrant [Section 59(6)] for the purpose of facilitating an IAEA inspection, and the IAEA Inspector will then accompany the local inspector to the premises or land in question and carry out an IAEA inspection [Section 60(3)].

The Safeguards Act contains a Division creating offences relevant to the *Convention on the Physical Protection of Nuclear Material* as amended in 2005. These offences are punishable by imprisonment for a maximum of twenty years. In addition, a court convicting a person of one of these offences may order the forfeiture of any article used in the offence [Section 39].

One of the regulation-making powers under the Safeguards Act concerns the making of standards for the physical security to be applied with respect to nuclear material and associated items [Section 74(f)]. Also, permits issued under the Safeguards Act may be granted subject to conditions or restrictions in respect of, inter alia, the measures to be taken to ensure the physical security of nuclear material or an associated item.

Finally, it should be noted that the ARPANS Act does not exclude the implementation of the Safeguards Act. For example, a controlled person may be required by ARPANS Act to hold a licence, and by Safeguards Act to hold a permit, in respect of the same thing. The person caught by the provisions must satisfy the requirements of both Acts in so far as they are capable of being satisfied concurrently.

9. Transport

As previously mentioned, the Commonwealth Government controls the import and export of radioactive substances and requires a permit to be obtained before such substances can either leave or enter Australia (Customs (Prohibited Imports) Regulations 1956 and the (Customs (Prohibited Exports) Regulations 1958).

For transport within Australia, the Safeguards Act provides that conditions may be attached to a permit to possess nuclear material and that they may set out the procedures to be followed if the material is to be transported from one location to another [Section 13(3)(c)]. The Act also provides for a special transport permit, which may have detailed conditions attached to it [Section 16].

The *Code of Practice for the Safe Transport of Radioactive Substances,* originally formulated in 1982 and revised in 1990, adopted the *IAEA Regulations for the Safe Transport of Radioactive Material*. The Code has been superseded by a new *Code of Practice for the Safe Transport of Radioactive Material, Radiation Protection Series No. 2* published by ARPANSA with a view of implementing the IAEA 1996 Regulations for the Safe Transport of Radioactive Material as revised (TS-R-1). Different aspects of the Code are reflected in various pieces of legislation dealing with different types of transport.

Transport of dangerous goods by sea is covered by the *Navigation Act 1913*, as amended by the *Navigation Amendment Act 1986* and by regulations made under it.

Transport of dangerous goods by air is covered by the *Crimes (Aviation) Act 1991* and by regulations made under it.

The regulation of land transport is, generally speaking, a matter for State and Territory governments. The Code of Practice, insofar as it applies to land transport, is implemented by the States and Territories through regulations made under their respective transport legislation. As mentioned previously, requirements imposed by the States regarding the possession and transport

of nuclear material operate in addition to those imposed under the Commonwealth's Safeguards Act (provided, of course, that the state requirements are not inconsistent with those of the Commonwealth Government).

10. Nuclear Third Party Liability

There are no specific provisions in Australian legislation governing nuclear third party liability. Moreover, Australia is not a party to any of the conventions on nuclear third party liability although it has signed the 1997 Convention on Supplementary Compensation for Nuclear Damage.

II. Institutional framework

1. Regulatory and Supervisory Authorities

a) Minister for Health and Ageing[9]

ARPANSA is within the portfolio of the Minister for Health and Ageing, which is responsible for providing protection, promoting the health of all Australians and minimising the incidence and severity of preventable mortality, illness, injury and disability. The CEO of ARPANSA is required under the ARPANS Act to report to the Australian Parliament through the Minister, on a quarterly and annual basis on a number of matters including breaches of the ARPANS Act by licence holders and any directions issued by the CEO under the ARPANS Act.

This Minister is one of the two ministers responsible for the issue of permits to import radioactive material and substances. The other minister who may exercise this power is the Minister for Home Affairs refer (Customs (Prohibited Imports) Regulations, Section 4(r)).

b) Minister for Foreign Affairs[10]

Under the *South Pacific Nuclear Free Zone Treaty Act 1986,* the Minister for Foreign Affairs is responsible for nominating a Treaty inspector for the purposes of the Act. The Minister will only make this declaration if the person has been appointed as a special inspector under the Treaty for the purpose of investigating a complaint brought against Australia pursuant to the Treaty.

Under the *Comprehensive Nuclear Test-Ban Treaty Act 1998*, the Minister may establish and operate monitoring facilities for the CTBT's International Monitoring System, and may exercise powers to facilitate on-site inspections under the CTBT, including nominating persons as national inspectors.

The Minister is responsible for the administration of the Safeguards Act. Under the Safeguards Act it is the Minister who grants or refuses to grant a permit for the possession of nuclear material, an associated item or associated technology. Similarly, it is the Minister who imposes conditions and restrictions on any permit or authority granted and who exercises the power to revoke the permit or authority in certain circumstances. The Minister has a further power to control the activities of permit-holders, in the shape of orders and directions under Section 73. Under this Section, the Minister may make orders which are to be complied with by all permit-holders, and may also give directions to a particular permit-holder.

All these decisions of the Minister are subject to review by the Administrative Appeals Tribunal [Section 22]. The Safeguards Act envisages, however, that some ministerial decisions

9. Department of Health and Ageing: www.health.gov.au

10. Department for Foreign Affairs and Trade: www.dfat.gov.au

made under it may not be suitable for review by the Administrative Appeals Tribunal. Section 22(5) provides that the Minister can issue a certificate stating that it is in the public interest that responsibility for a particular decision should reside solely with the Minister, and that the Minister's decision should not be reviewable. The Minister is obliged to include in the certificate a statement of the grounds on which the certificate is issued, and must table the certificate before each House of Parliament.

The Minister has the power to issue directions to the Director of Safeguards and the Director must comply with any such directions in the performance of his or her functions under the Act [Section 44].

The Minister's other responsibilities under the Safeguards Act include the appointment of inspectors for the purposes of the Act, and the declaration of Agency inspectors where these have been designated by the IAEA [Section 57]. The Minister is also required to submit to Parliament the annual report made by the Director of Safeguards [Section 51].

The Minister has the power to delegate any of the functions mentioned above (except the power to certify that a decision is not subject to administrative review) to the Director of Safeguards or to an officer of the Ministry [Section 72]. The Minister has delegated many of these functions to the Director of Safeguards.

c) Minister for the Environment, Heritage and the Arts[11]

Under the EPBC Act, the Minister for the Environment, Heritage and the Arts is responsible for assessing and approving nuclear actions as defined in that Act, if they are likely to have a significant impact on the environment. The Minister may attach conditions to approvals under the Act. The Minister also has certain powers and functions under the *Environment Protection (Alligator Rivers Region) Act 1978*, which include giving directions to the Supervising Scientist and request his advice on a range of environmental issues arising from uranium mining operations in the Alligator Rivers Region of the Northern Territory. The Minister is also obliged to table the Supervising Scientist's Annual Report in each House of Parliament.

d) Minister for Resources, Energy and Tourism[12]

Regulation 9 of the Customs (Prohibited Exports) Regulations 1958 under the *Customs Act 1901* gives the Minister for Resources, Energy and Tourism responsibility for approving permits for the export of nuclear material.

The Minister for Resources, Energy and Tourism has the power to allow or disallow the movement of uranium and other source material, and special fissionable material, out of Australia. The Customs (Prohibited Exports) Regulations, made under the *Customs Act 1901*, forbid the export of uranium and related products except with a permit from the Minister. The Regulations were amended in 2000 to enable the Minister to issue permits subject to compliance with specified conditions.

The Minister is also responsible for those provisions of the *Atomic Energy Act 1953* which remains in force. All discoveries of uranium and thorium in Australia must be reported to the Minister within one month of being found. Provision is also made in this Act for the Minister to represent the Commonwealth Government's continuing interests in the Ranger Uranium Mining Venture in the Northern Territory. The Minister may authorise a person to carry on operations in the Ranger Project Area on behalf of or in association with the Commonwealth Government and the Minister may vary or revoke the authority if satisfied that its conditions are not being met. A person who has been given the authority may not assign his or her interest in the venture to another person without the consent of the Minister. The Minister also has the power to renew the authority for a further period and to impose conditions and restrictions on the new authority.

11. Ministry for the Environment and Water Resources: www.environment.gov.au

12. Ministry for Resources, Energy and Tourism: www.minister.industry.gov.au

ANSTO is accountable to the Minister for Innovation, Industry, Science and Research. The Minister may direct ANSTO to undertake research and development in relation to matters specified by the Minister. The Minister may also give directions to the Board of Directors of ANSTO with respect to the performance of ANSTO's functions, and may convene meetings of the Board.

e) Minister for Finance and Deregulation[13]

The Minister may give directions as to the times at which, and the amounts in which, that money will be paid to the organisation [Section 27(2)]. The Minister for Finance may also lend money to ANSTO on behalf of the Commonwealth [Section 32].

2. Advisory Bodies

a) Radiation Health and Safety Advisory Council[14]

The Radiation Health and Safety Advisory Council were established by the ARPANS Act as a consultative body on radiation and nuclear safety [Section 19]. The Council examines issues of major concern to the community in relation to radiation protection and nuclear safety and advises the CEO of ARPANSA on these issues, as well as on the adoption of recommendations, policies and codes [Section 20].

The Radiation Health Committee and the Nuclear Safety Committee were established as advisory committees to the CEO and the Council [Sections 22 and 25]. Both Committees draft national policies, codes and standards in their respective fields and review their effectiveness periodically [Sections 23 and 26].

The membership of the Council includes the CEO of ARPANSA, two state/territory radiation control officers, a person to represent the interests of the general public, a person nominated by the Chief Minister of the Northern Territory and eight other members with relevant expertise. The Radiation Health Committee includes the CEO of ARPANSA, a radiation control officer from each state and territory, a Nuclear Safety Committee representative, a person to represent the interests of the general public, and two other members. The Nuclear Safety Committee includes the CEO of ARPANSA, a representative of local governments, a person to represent the interests of the general public, a Radiation Health Committee representative and up to eight other members. Each member of the Council, other than the CEO, is appointed by the Minister [Section 21]. Members of the Committees are appointed by the CEO.

b) Advisory Committees

Section 41 of the ANSTO Act as amended allows the Minister to establish committees to give advice to the Board of Directors on a particular matter or classes of matter relating to the functions of ANSTO.

3. Public and Semi-Public Agencies

a) Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)[15]

i) Legal Status

The CEO of ARPANSA is the statutory officer whose functions are laid down in the ARPANS Act.

13. Department of Finance and Deregulation: www.finance.gov.au

14. Radiation Health and Safety Advisory Council: www.arpansa.gov.au/rhsac.htm

15. Australian Radiation Protection and Nuclear Safety Agency: www.arpansa.gov.au

ii) Responsibilities

The functions of the CEO fall into the following categories [Section 15 of the ARPANS Act]:

- to promote uniformity of radiation protection and nuclear safety policy and practices;
- to provide advice and services concerning radiation protection and nuclear safety;
- to undertake research in relation to radiation protection, nuclear safety and related issues;
- to accredit persons with technical expertise for the purpose of this Act;
- to monitor the operations of ARPANSA, the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee and to report on their operations to the relevant minister and to the Parliament; and
- to monitor compliance with the provision which deals with the prohibition of construction or operation of nuclear installations or possession of controlled material or controlled apparatus, without a licence.

The CEO must comply with the directions which are given by the Minister with respect to the performance of the CEO's functions or the exercise of his powers [Section 16]. The CEO may give written directions to controlled persons requiring them to take appropriate steps, in order to protect the health and safety of people or to avoid damage to the environment [Section 41].

iii) Structure

The CEO is appointed by the Governor-General for a period up to five years [Section 45]. The CEO's appointment can be terminated only on certain grounds specified in the Act (for example, misbehaviour or incapacity) [Section 51]. The CEO may engage the staff or consultants to assist in the performance of any of its functions [Section 58].

iv) Financing

The ARPANSA Account was established to make payments for the implementation of the ARPANS Act and otherwise in connection with the performance of the CEO's function. The Reserve consists of money appropriated by Parliament for the purposes of the CEO and amounts equal to amounts received by the Commonwealth in connection with the performance of the CEO's functions under this ARPANS Act and the ARPANS regulations [Section 56].

b) Australian Safeguards and Non-Proliferation Office[16]

i) Legal Status

The Australian Safeguards Office was established by Section 54 of the *Nuclear Non-Proliferation (Safeguards) Act 1987* (the Safeguards Act), and consists of the Director of Safeguards and staff. This Office combined with the Chemical Weapons Convention Office and the Australian Comprehensive Test Ban Office is now called the Australian Safeguards and Non-Proliferation Office (ASNO). The Director of Safeguards is now called Director General, ASNO.

ii) Responsibilities

The statutory functions of the Director are, with the assistance of the staff, to ensure the effective operation of the Australian safeguards system; to carry out Australia's reporting obligations under the IAEA Agreement and bilateral agreements in relation to the Australian safeguards system; to monitor compliance by Australia's bilateral agreement partners; to undertake research and development in relation to nuclear safeguards; and to advise the Minister for Foreign Affairs on

16. Australian Safeguards and Non-Proliferation Office: www.asno.dfat.gov.au

matters relating to the operation of the Australian safeguards system. The Director is required to make an annual report to the Minister, which must include details of all nuclear material and associated items of Australian origin transferred from Australia to any foreign jurisdiction, their quantities and their intended end-use [Section 51].

iii) Financing

The Australian Safeguards and Non-Proliferation Office are funded by money appropriated by the Parliament. Two amending Acts, the *Nuclear Non-Proliferation (Safeguards) Amendment Act 1993* and the *Nuclear Safeguards (Producers of Uranium Ore Concentrates) Charge Act 1993* provide for the imposition of a charge on commercial uranium producers in Australia in order to recover some of the costs of the Office's activities. However, the charge collected goes directly to Consolidated Revenue and has no effect on ASNO's budget.

c) Australian Nuclear Science and Technology Organisation (ANSTO)[17]

i) Legal Status

On 27 April 1987 the Australian Atomic Energy Commission became the Australian Nuclear Science and Technology Organisation (ANSTO) *Australian Nuclear Science and Technology Organisation Act 1987*), Section 4]. ANSTO is a body corporate, with the capacity to sue and be sued [Section 4(2)]. It can enter into contracts, own property and form, or participate in the formation of, companies [Section 6]. Its participation in companies is subject to certain limitations and to the approval of the Minister for Innovation, Industry, Science and Research.

ii) Responsibilities

The functions of ANSTO fall into the following general categories:

- undertaking research and development in relation to nuclear science and technology and in relation to the production and use of radioisotopes, the use of isotopic techniques and nuclear radiation, for medicine, science, industry, commerce and agriculture;
- conditioning, managing and storing specified radioactive materials and radioactive waste;
- encouraging and facilitating the application and utilisation of the results of such research and development;
- providing and selling goods and services in connection with ANSTO's activities;
- liaising between Australia and other countries, and between other Commonwealth and state authorities in relation to its activities;
- providing advice on aspects of nuclear science and nuclear technology;
- making available to other people, on a commercial basis, ANSTO's knowledge, equipment and facilities;
- publishing scientific and technical reports, periodicals and papers; and
- arranging and encouraging training in matters related to its activities [Section 5].

In undertaking its statutory functions, ANSTO is required to have regarded to the government's national science, technology and energy policy objectives and to its commercialisation objectives for public research institutions [Section 5(3)].

17. Australian Nuclear Science and Technology Organisation: www.ansto.gov.au

iii) Structure

The Organisation consists of a board of directors, and an executive director and staff. The board consists of the executive director and at least two other members. The total maximum number of members is seven [Section 9]. The members, other than the executive director, are appointed by the Governor-General for a term of up to five years, and they can be dismissed from office only by the Governor-General, on the ground of misbehaviour or physical or mental incapacity [Sections 9 and 14].

The board's role is to ensure the proper and efficient performance by ANSTO of its functions, and in doing so, the board is to have regard to the policies of the Commonwealth Government insofar as they are relevant to ANSTO's work [Section 10]. ANSTO's Minister may give directions to the board about the performance of ANSTO's functions, if satisfied that it is in the public interest to do so [Section 11].

The Executive Director of ANSTO is appointed by the board of directors [Section 18] to manage the affairs of the Organisation subject to the directions, and in accordance with the policies, of the board [Section 19].

The Executive Director is empowered to appoint such staff as the board considers necessary for the purposes of the Act [Section 24].

iv) Financing

ANSTO is funded by money appropriated by Parliament for the purposes of the Organisation. The Minister for Finance and Deregulation may give directions as to the amounts in which, and the times at which, the money appropriated is to be paid to ANSTO [Section 27]. The Organisation may also borrow Commonwealth money from the Minister for Finance and Deregulation, on conditions determined by the Minister [Section 32], and may deal with securities, with the approval of the Treasurer [Section 34]. ANSTO may also accept gifts and bequests made to it [Section 38]. Lastly ANSTO is empowered to provide and sell goods and services, and a significant proportion of the Organisation's revenue is earned in that way [Section 5(1)(c)].

d) Supervising Scientist

i) Legal Status

The statutory position of Supervising Scientist was established under the Commonwealth *Environment Protection (Alligator Rivers Region) Act 1978* (the EPARR Act).

ii) Responsibilities

The EPARR Act defines the roles and responsibilities of the Supervising Scientist as being to:

- develop, coordinate and manage programmes of research into the effects on the environment of uranium mining within the Alligator Rivers Region;
- develop standards, practices and procedures that will protect the environment from the effects of uranium mining within the Alligator Rivers Region;
- develop measures for the protection and restoration of the environment;
- coordinate and supervise the implementation of requirements made under laws applicable to environmental aspects of uranium mining in the Alligator Rivers Region;
- provide the Minister with scientific and technical advice on mining in the Alligator Rivers Region; and
- on request, provide the Minister with scientific and technical advice on environmental matters elsewhere in Australia.

iii) Structure

The Supervising Scientist heads the **Supervising Scientist Division** (SSD) within the Department of the Environment, Heritage, Water and the Arts. The Division comprises two branches.

The **Office of the Supervising Scientist** (OSS) undertakes supervision, audit and assessment activities and provides policy advice to the Australian Government in relation to the environmental performance of uranium mines in the Alligator Rivers Region. OSS also provides business and administrative support to the Supervising Scientist Division.

The **Environmental Research Institute of the Supervising Scientist** (ERISS) undertakes environmental monitoring and scientific research into the impact of uranium mining on the environment within the Alligator Rivers Region to support the work of the Supervising Scientist. ERISS also conducts research into the sustainable use and environmental protection of tropical rivers and their associated wetlands.

The EPAAR Act also established two Advisory Committees.

The primary role of the **Alligator Rivers Region Advisory Committee** (ARRAC) is to promote communication and consultation between government, industry and community stakeholders on environmental issues associated with uranium mining in the Alligator Rivers Region. ARRAC has an independent Chairperson appointed by the Minister and includes members representing relevant government, industry and non-government stakeholder organisations.

The **Alligator Rivers Region Technical Committee** (ARRTC) plays an important role in ensuring the scientific research conducted by ERISS, mining companies, government agencies and others into the protection of the environment from the impacts of uranium mining in the Alligator Rivers Region is relevant and of an appropriately high standard. ARRTC also reviews the quality of the science used by ***oss*** and regulatory agencies to assess and approve proposals by uranium mining companies in the Alligator Rivers Region. Members of ARRTC are appointed by the Minister and include an independent Chairperson, independent scientific members with specific expertise nominated by the Federation of Australian Scientific and Technological Societies (FASTS) and representatives from relevant stakeholder organisations.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1st February 1958 under the name of the OEEC European Nuclear Energy Agency. It received its present designation on 20th April 1972, when Japan became its first non-European full member. NEA membership today consists of 28 OECD member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Portugal, Republic of Korea, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities also takes part in the work of the Agency.

The mission of the NEA is:

- to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues, as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information.

The NEA Data Bank provides nuclear data and computer program services for participating countries. In these and related tasks, the NEA works in close collaboration with the International Atomic Energy Agency in Vienna, with which it has a Co-operation Agreement, as well as with other international organisations in the nuclear field.

Corrigenda to OECD publications may be found on line at: *www.oecd.org/publishing/corrigenda*.