

Joint Convention Questions Posted To Australia in 2006

Seq. No 1	Country Argentina	Article General	Ref. in National Report
-----------	----------------------	--------------------	-------------------------

Question/Comment The Report is, in general, clearly and concisely written and describes the concerned items and actions taken and to be taken. According to several statements on the Report, nine separate jurisdictions for the purpose of regulating the safety of radioactive waste and spent fuel management are working together to develop and implement a uniform national set of policies and practices in radiation protection and nuclear safety. Given the national jurisdictional scenario, great efforts to homogenize numerous regulations of the different jurisdictions are noticed. Additional information or clarification of the Australian National Report concerning the questions below will be welcome.

Answer Comment noted.

Seq. No 2	Country Argentina	Article General	Ref. in National Report Section K, Page 87
-----------	----------------------	--------------------	---

Question/Comment Taking into account that Long Lived Intermediate Level Wastes arising from Australian Spent Fuel reprocessed at Dounreay (UK), are foreseen to arrive in 2011 (Page60), could you describe the status of the projected Commonwealth Radioactive Waste Management Facility and the safety criteria considered in its design?

Answer The current status of the Commonwealth Radioactive Waste Management Facility (“Commonwealth Waste Facility”) is:

- potential sites identified and mechanism for volunteer sites in place;
- a consultant is undertaking site characterisation studies;
- a decision on the site is expected early 2007.

The Commonwealth Waste Facility will consist of co-located facilities for low and intermediate level waste: a store for long-lived intermediate level waste and either a store or a near-surface repository for disposal of low level and short-lived intermediate level waste depending on the characteristics of the site selected for the facility. The layout of the facilities on the site will depend on site characteristics.

Preliminary plans are being developed for generic facilities which are indicative of those that will be required to meet safety, security and operational requirements for the Commonwealth Waste Facility.

Safety criteria considered in developing design are:

- IAEA Safety Standards Series WS-R-1 – Near Surface Disposal of Radioactive Waste
- National Health and Medical Research Council Code of Practice for the near-surface disposal of radioactive waste in Australia
- ARPANSA Regulatory Assessment Criteria for the Design of New Controlled Facilities.

The federal nuclear safety regulator, ARPANSA, has published a draft Regulatory Guidance for Radioactive Waste Management Facilities: Near Surface Disposal Facilities; and Storage Facilities for public comment. It is expected to be finalised during the second quarter of 2006.

The generic plans will be modified, as needed, to meet specific features of the chosen site and form part of the Environmental Impact Statement and site licensing processes.

Seq. No	Country	Article	Ref. in National Report
3	Euratom	General	
<i>Question/ Comment</i>	<p>1) In Section B(i) Western Australia – what is understood under “nuclear waste” (its disposal, storage and transportation is prohibited) – compare with other places in the Report, e.g. B(iii), where Mount Walton near surface repository is introduced and prohibited waste handling is unavoidable;</p> <p>2) In Section B(ii) further back-up option (INVAP offer) for SF from OPAL reactor is mentioned – please, clarify, whether transport to Argentina or establishing of reprocessing facility using Argentinean technology is considered;</p> <p>3) Section B (iii) Australian Government – please, clarify, how the storage of LILW at over hundred locations by many individual waste producers is licensed and regulated;</p> <p>4) Section B(iii), p. 11 Western Australia please clarify expression “does not have an implied policy...to store waste” – how is managed the waste from e.g. medical, scientific, industrial applications;</p> <p>5) Section B(iv) and some other parts of the report: “There is no national standard on clearance criteria in Australia. If solid waste falls below exemption criteria, it can be cleared”. Since discharge is one of recognised waste management procedures in Australia (p. 66, 3rd paragr.), it would be useful to provide information (and inter comparison table for various jurisdictions) on discharge limits, exemption levels, etc.</p> <p>6) Section B(v), H (Article 11) and other places – “There are no uniform definitions of waste categories across Australian jurisdictions” – it would be valuable to provide more detailed information (inter comparison), e.g. in table form – it is important for better understanding of Table E.1 in App, E (p. 100);</p> <p>7) It would be very reasonable to provide additional explanation of a specific situation in Western Australia, the information in Section E Art 20 (p. 42), Section F Art 22 (p.48) is vague and in Art 24 (p. 49-51) is missing at all.</p>		
<i>Answer</i>	<p>1) Western Australia The Nuclear Waste Storage (Prohibition) Act 1999 defines “nuclear waste” to mean material —</p> <p>(a) that is or contains a radioactive substance; and</p> <p>(b) that —</p> <p>(i) is waste of a nuclear plant; or</p> <p>(ii) results from the testing, use or decommissioning of nuclear weapons,</p> <p>whether or not that material has been conditioned or reprocessed;</p> <p>“nuclear plant” means a nuclear reactor, a radioisotope enrichment plant involved in the enrichment of uranium or plutonium, a nuclear reprocessing plant or a nuclear weapons facility, whether or not it is in a place to which this Act applies;</p> <p>Radioactive waste that is disposed to the Mt Walton facility is radioactive waste other than ‘nuclear waste’ as defined in the Nuclear Waste Storage (Prohibition) Act 1999.</p> <p>2) In the unlikely event that this option was exercised, OPAL spent fuel would be sent to Argentina for processing.</p> <p>3) The storages of LILW at various locations throughout Australia are regulated within relevant jurisdiction. Wastes produced and stored by Australian Government</p>		

(Commonwealth) entities are licensed and regulated by the Australian Radiation Protection and Nuclear Safety Agency under the Australian Radiation Protection and Nuclear Safety Act 1998.

4) The Western Australian legislation does not distinguish between the requirements that apply to a radioactive substance whether it is waste or not until disposal. The owners are required to manage the radioactive waste and may choose to store the waste until sufficient decay has occurred (typically medical and some scientific wastes) or dispose of the waste through approved means. Most radioactive waste originating from industrial sources (eg. sealed sources) is not identified as waste until the owner does not have any further use for it at which time approval for disposal is sought from the regulatory authority.

5) Exemption levels

The exemption levels adopted by jurisdictions in regulation vary, reflecting the different approaches to exemption taken at the times each jurisdictions regulations were developed. However, through the adoption of the National Directory by each jurisdiction, exemption limits across jurisdictions will become uniform.

Following is a comparison of exemption limits (in terms of activity) used by Australian jurisdictions with those of the BSS and the National Directory for some of the most commonly used radionuclides.

Refer to Table 1 of Answer Support Document.

The National Directory for Radiation Protection includes exemption levels for over 300 radionuclides along with two 'catch-all' clauses for unlisted radionuclides. The exemption levels in the National Directory are derived from the IAEA International Basic Safety Standards. The National Directory includes provision for exemptions to be granted in specific cases where an optimisation process shows that exemption is the best option, so in cases where the application of the international exemption levels has an unintended impact there is still provision for an exemption to be applied by the regulatory authority and the Radiation Health Committee to be notified so that the exemption can be considered nationally.

Discharge Limits

The discharge limits adopted by jurisdictions in regulations vary, reflecting the different approaches taken at the times each jurisdictions regulations were developed. The regulations of several States and Territories include schedules of activity concentration limits for discharge, while others follow the Radiation Health Series publication 13 (RHS13) Code of Practice for Disposal of Radioactive Waste by the User (1985).

RHS13 is concerned with radioactive wastes containing relatively low levels of radioactivity, or radionuclides of short-life. Users generating wastes containing more radioactivity than can be disposed of by the methods described in the Code must consult the appropriate statutory authority. RHS13 specifies that 'Unless the statutory authority deems otherwise a user may discharge as liquid effluent into an approved sewerage system an activity of each radionuclide not exceeding 20 times the current Annual Limit on Intake by Ingestion for radiation workers recommended by the ICRP, during any period of seven days.'

Following is a description of the approach taken by jurisdiction.

- Western Australia and Victoria use a schedule of activity concentrations that date back to ICRP 2(1959). These concentrations are based on a dose criterion of 5mSv/y and use 1950s ingestion models to determine the dose per unit intake (DPUI).
- In Queensland, the disposal requirements are in place to ensure that no-one may receive a dose greater than a committed effective dose of 500 microSv in a year as a result of the disposal into air or water, or 1000 microSv in a year as a result of the disposal into the sewerage system. These were calculated by applying figures derived from ICRP30, 66 and 68 as worst case criteria to reference man.
- Tasmania use the activity limit in 7 days from RHS 13 but also have an activity concentration criterion derived using a dose of 1mSv/y and DPUIs from ICRP 68.
- The Australian Government, South Australia, Australian Capital Territory and Northern Territory use RHS 13 which limits the discharge in 7 days to an activity equal 20 times the current ALI from ICRP, which are based on a dose of 20mSv/y and using DPUIs from ICRP 68.
- New South Wales use an activity concentration of 100Bq/g as the definition of radioactive material from the Act and exemption activities for individual radionuclides. In addition, NSW has a dose limit criteria for discharges of 1 mSv/yr.

Australian regulators have agreed to a review of RHS13 with the aim of producing consistent levels for discharges for adoption by all jurisdictions through inclusion in the National Directory for Radiation Protection.

Northern Territory

The Northern Territory will adopt exemption levels in full in the new Radiation Protection Act 2004 as contained in the National Directory.

Commonwealth

Commonwealth entities follow the requirements of the International Atomic Energy Agency, Application of the Concepts of Exclusion, Exemption and Clearance, IAEA Safety Standard Series RS-G-1.7 and the exemption levels set out in the Australian Radiation Protection and Nuclear Safety Regulation 1999 which are based on the IAEA Basic Safety Standard BS 115.

The limits for the discharge of radioactive materials to the environment are set out in the relevant discharge authorisation by the regulatory authority. For example, the airborne discharge authorisation for the Australian Nuclear Science and Technology Organisation (ANSTO) is based on the maximum effective dose to the members of the public of 20 μ Sv/year. Liquid discharges are based on the World Health Organisation drinking water standards. Disposal of solid wastes are based on the Radiation Health Series No 13 Code of practice for the disposal of radioactive wastes by the user <http://www.arpana.gov.au/pubs/rhs/rhs13.pdf>. This code is presently under revision.

6) The categorisation of waste for the purposes of its uniform management across jurisdictions is being developed through the inclusion of agreed Codes of Practice (The Code of Practice for the disposal of radioactive waste by the user and The Code of Practice for the near surface disposal of radioactive waste) relevant to the management of waste in the National Directory for Radiation Protection. Australian regulators are currently developing a Code of Practice for the predisposal management of radioactive waste. Some of the states have provided the following information:

New South Wales

Section B(iv) and (v): In NSW, any solid material with a specific activity of less than 100 Bq/gm may be disposed of to an appropriate (landfill) waste facility. Any material with

an activity of 100 Bq/gm and above can only be disposed of with the permission of the regulator. This includes disposal of liquids, solids and gases. Under the Waste Guidelines made under the Protection of the Environment Operations Act 1997, any liquid wastes with a Total Activity Ratio and a Specific Activity Ratio greater than 1 cannot be disposed of.

Victoria

Victoria will prepare regulations under the Radiation Act 2005 that will address exemption levels. It is proposed that the regulations will be consistent with the NDRP and BSS 115. “Radioactive waste” is not defined in legislation.

Queensland

Queensland has not defined the term ‘waste’. Substances are only able to be considered waste at the time of their disposal. We have had several instances when sources in our radioactive waste store have been put back into use.

Commonwealth

Apart from the Code of Practice for the Near-Surface Disposal of Radioactive Waste in Australia Commonwealth organisations follow IAEA safety Series 111-G-1.1, Classification of Radioactive Waste. <http://www.arpansa.gov.au/pubs/rhs/rhs35.pdf>

7) The regulatory authority in Western Australia is the Radiological Council, appointed under Section 13 of the Radiation Safety Act 1975. The Radiological Council is an independent body. Administrative and scientific support for the Radiological Council is provided by staff of the Radiation Health Branch of the Department of Health. The Radiological Council’s functions are supported from within the budget assigned by the Department of Health to the Radiation Health Branch. The Council does not have a budget in its own right.

Seq. No	Country	Article	Ref. in National Report
4	Japan	General	p.87, line 3
<i>Question/Comment</i>	Section K, “Planned Activities to Improve Safety” says the long-lived intermediate-level waste to be returned from France and UK will be stored in the Commonwealth Radioactive Waste Management Facility.		
<i>Answer</i>	Is the waste expected to be disposed of within the site of the facility? No – when the waste produced from reprocessing of spent fuel is returned to Australia it will be stored, not disposed of, at the Commonwealth Radioactive Waste Management Facility.		
Seq. No	Country	Article	Ref. in National Report
5	Argentina	Article 3	Section C, Page 19
<i>Question/Comment</i>	It is stated that mining, waste management and radiation protection are matters regulated by the States. As the Australian government have competences in these areas, please, describe the legal competences of each jurisdiction on these issues.		
<i>Answer</i>	Australia has a number of contaminated sites resulting from past and present uranium mining activities. These sites are located in Queensland, South Australia, Western Australia and the Northern Territory. Each of these jurisdictions has enacted laws regulating radiation protection and radioactive waste management that apply to uranium mining and milling: these laws are listed below. Under the Australian Constitution, the Commonwealth has enacted laws regulating environmental aspects of uranium mining and milling: the principal federal law is called the Environment Protection and Biodiversity Conservation Act 1999		

Radiation (Safety Control) Act 1978 (Northern Territory)
 Radiation Safety Act 1999 (Queensland)
 Radiation Protection and Control Act 1982 (South Australia)
 Radiation Safety Act 1975 (Western Australia)

Seq. No	Country	Article	Ref. in National Report
6	Argentina	Article 3	Section C, Page 19

Question/Comment a) Is the new “Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining an Mineral Processing” applicable only to new installations or also to existing ones?b) Describe associated programs or plans.

Answer The new Code of Practice and Safety Guide “Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005)” when included in the National Directory for Radiation Protection applies to new operations. It will also be possible for jurisdictions to apply it to operations established prior to its implementation, but that will be a decision for each jurisdiction.

The provisions of this Code apply to the mining and processing of ores for the production of uranium or thorium concentrates, and the separation of heavy minerals from mineral sands ore. The relevant regulatory authority may direct that this Code be applied, in whole or part, to other mining and mineral processing operations including the mining and processing of other minerals that adventitiously contain uranium or thorium or their decay products; and processes which lead to the production of waste not usually regarded as radioactive, but which contains naturally occurring radionuclides.

Victoria

(a) Mining operations that require application of the Code are relatively recent in Victoria. The commencement of several mineral sand mining projects in the north-western region of Victoria sees the introduction of radiation controls for these projects. The Code is legally enforceable as a condition of the radiation authorisations associated with mineral sands mining projects. (b) The Victorian DHS mining regulatory program comprises periodic reporting by companies to the Radiation Safety Program and the program intends to conduct periodic audits of both mining and concentration plants.

Seq. No	Country	Article	Ref. in National Report
7	Argentina	Article 3	Section C, Page 19

Question/Comment Which kind of information is kept after closure?Are there at present, any closed sites under monitoring? Are there some type of control in the rehabilitated sites (i.e. restricted access)?

Answer New South Wales
 In NSW all radioactive sources, used or unused, or stored awaiting return to manufacturers, are required to be registered and / or the premises on which they are kept or used. The records of sealed radioactive sources must be kept for a period of 6 years after the sources have been disposed of or sold or given away. For unsealed radioactive sources, this period is 2 years.

The one waste facility (non-operating) in NSW that is listed under the Convention is administered by the regulator and the records associated with it are subject to government record keeping requirements and are kept essentially indefinitely.

Victoria

There is no present or historical uranium mining or milling in Victoria. The Victorian Nuclear Activities (Prohibition) Act 1983 prevents prospecting, mining, and milling of uranium, and fuel element fabrication involving nuclear materials.

Queensland

In Queensland, there are no sites where radiation monitoring is conducted. The Mary Kathleen uranium deposit was properly decommissioned as indicated in the National Report. Queensland holds some historical records regarding the site.

Western Australia

Clause 3.2.7 of the Code of Practice for the near surface disposal of radioactive waste (RHS 35) specifies the following requirements:

Records and inventory keeping

Detailed records shall be kept by the operator and by the appropriate authority of all waste consigned to, and received at, the facility. For each shipment the waste generator, the type of the waste, its volume and weight, and the nature and concentration of radionuclides in the waste shall be recorded. Any conditioning of the waste shall also be recorded.

Details of any accidents and incidents at the facility shall be kept together with information on the impact on personnel, the public and the environment.

The occupational exposure records of all employees exposed to radiation in the course of their work shall be retained in a form specified by the appropriate authority. All data from environmental and area monitoring at and around the facility shall also be retained.

Furthermore, site records shall be kept at least until the end of the institutional control period in two widely separated locations, one of which shall be the appropriate State or Federal government archives, and shall include:

- a. the location of any disposal structures;
- b. the location of the waste packages or containers within the structures and the date of their emplacement;
- c. details of the contents of waste packages or containers; and
- d. details of the backfilling and cover materials.

There are currently no disposal sites in Western Australia that have closure. Periodic audits of the Mt Walton East Intractable Waste Disposal Facility are undertaken to determine compliance with the Code of practice for the near-surface disposal of radioactive waste in Australia 1992 and the requirements of the Western Australian regulatory authority.

South Australia

As outlined in the report, South Australia has two sites where mining and mineral processing took place in the past (Radium Hill uranium mine and Port Pirie uranium treatment plant), both of which have been closed for many years. An overview of the kinds of information kept are on the sites is given in the report. With regard to the current mining operations, information on the locations of waste disposal facilities and their construction, the volumes of waste and radionuclide concentrations are kept. The Port Pirie and Radium Hill have been subject to various radiation surveys and are currently being assessed to determine requirements for remediation or rehabilitation. Sites are generally subject to restricted access and display of warning signs.

Tasmania

There are environmental controls and planning restrictions on refuse disposal sites.

Australian Capital Territory

Solid radioactive waste which are allowed to be disposed of in the ACT are disposed of on a municipal tip operating at the time, at sites, location of which is logged on the tip plans. Such information is kept after the closure of the tip but no after closure monitoring is conducted. The latter is not necessary due to the low-level nature and the depth the radioactive waste disposed of.

The low-level radioactive waste disposal sites are treated in the same manner as dangerous materials disposal sites which are also disposed of on such tips. Such sites are small in size (practically “point sites” from the perspective of the size of the tip) and are scattered throughout the tip site. The latter is due to the fact that the radioactive waste is disposed of once per quarter in a spot specifically made for that purpose at the day of disposal. Municipal waste disposal dumps do not require post rehabilitation control measures.

Northern Territory

All uranium mines are rehabilitated.

Commonwealth

The atomic weapons test site at Maralinga, South Australia has been remediated but remains licensed under administrative control. The information maintained includes plans and arrangements for managing the facility and the results of environmental monitoring, including bore hole monitoring (water table). All information about the site in relation to the contamination of the site, associated studies and its remediation is permanently retained within the Australian government official archiving system. It is a condition of the Maralinga Licence that the Licence Holder must maintain the arrangements to control access to the controlled Facility. Only authorised persons have access to this facility.

Seq. No	Country	Article	Ref. in National Report
8	Hungary	Article 3	Section C p. 26

Question/ Statement of the Report:
Comment 'Conclusions

In common with many other parts of the world, uranium mining, and in particular the management of wastes, was not well controlled in the middle of last century. In many cases management of tailings and other wastes was minimal or non-existent, or wastes were sited in inappropriate areas, and generally no rehabilitation was carried out on closure. In some cases, notably Rum Jungle, there were serious detrimental effects on the environment, both from radiological and non-radiological contaminants.

As the consequences and potential consequences of this attitude were recognised, attempts were made to manage the wastes and rehabilitate the abandoned sites. These have generally been successful, but in a number of cases continuing remedial actions will be required for the foreseeable future.'

Questions: Please summarize briefly, what were the effects of the radiological contaminants on the environment. What ecological populations had been affected?

Answer Rum Jungle was a large open pit mine. The main problem post-closure was/is acid rock drainage leading to heavy metal contamination. Large uncovered waste rock piles were left when the mine was closed. The high rainfall and high sulphide content of the rock has led to significant acid rock drainage and formation of magnesium sulphate. Runoff into two nearby rivers has also led to contamination of these rivers.

The mines in the South Alligator River valley were small mines, and the quantities of waste left behind when the sites were abandoned are small (tens to hundreds of tons in most cases). The effect of these wastes and current uranium mining operations in the area

on the local environment has been studied by the Environmental Research Institute of the Supervising Scientist (ERISS), which is a research institute set up within the Supervising Scientist Division of the Commonwealth Government Department of Environment and Heritage, and ANSTO. These studies have looked at a wide range of environmental issues, including ground and surface water contamination and effects on local flora and fauna. Heavy metal contamination has occurred at one of these sites (Rockhole) as a result of acid rock drainage.

Studies of the effects of heavy metal contamination on river-bank vegetation, crocodiles and other aquatic fauna have been conducted by ERISS and ANSTO.

Refer to Section 1 of the Answer Support Document for details of where reports by the ERISS can be found.

Seq. No	Country	Article	Ref. in National Report
9	Argentina	Article 4	Section G
<i>Question/Comment</i>	A conceptual description of the safety related features of the Spent Fuel storage facilities would be appreciated.		
<i>Answer</i>	The HIFAR Spent Fuel Dry Storage Facility is an engineered dry storage facility containing 50 holes, 16 m in depth drilled into sandstone rock and lined with stainless steel tubes. These tubes are filled with dry nitrogen to inhibit corrosion of the fuel cladding. Periodic monitoring of the gas, when the nitrogen is being replaced, has found no traces of krypton 85. Access to this facility is controlled, and the facility is monitored by IAEA inspectors for unauthorised fuel movements.		
Seq. No 10	Argentina	Article 4	Section G, Page 58
<i>Question/Comment</i>	Regarding "Burden on future generations", it is explained in terms of the conditions imposed to applicant for licenses and their compliance with such conditions, rather than the implementation of a policy on associated wastes. Explanation on this matter will be welcome at the Review Meeting.		
<i>Answer</i>	Regulatory Assessment of the information provided by the Applicant, including the burden on future generations, results in the recommendations to the CEO whether to issue a licence. Such assessment considers the details of the waste management policy and procedures. The areas where some improvements are required are subject to licence conditions.		
Seq. No 11	Germany	Article 4	p. 56 and 64
<i>Question/Comment</i>	Are periodical safety re-assessments required to assure long-term safety of radioactive waste management facilities which are intended for long-term storage of waste? If so, what are the main features of these assessments?		
<i>Answer</i>	New South Wales The one waste facility (non-operating) in NSW that is listed under the Convention is administered by the regulator and the records associated with it are subject to government record keeping requirements and are kept essentially indefinitely.		

Victoria

There are no radioactive waste management facilities, within the meaning of the convention, in Victoria.

Queensland

Section G refers to safety of spent fuel management. Queensland has no spent fuel

management facilities.

Western Australia

All storage of radioactive materials whether currently in use or not must be maintained to the requirements of the Radiation Safety Act. Western Australia has no spent fuel management facilities.

South Australia

Article 4 relates to facilities for spent fuel. There are no plans to establish such facilities in South Australia.

Tasmania

All storage accommodation for radioactive materials must be maintained to appropriate standards.

Australian Capital Territory

The low-level nature of the waste in disposed of in the ACT does not warrant such assessment to be in place.

Northern Territory

The Northern Territory only has interim storage facilities, which are regularly inspected.

Commonwealth

Yes. The main features include annual review of plans and arrangements for managing safety (effective control, safety management, radiation protection, waste management, emergency arrangements, security and environmental monitoring) must be review annually under regulation 50 of the ARPANS Regulation 1999. The Safety Analysis Report of the facility is periodically (about 10 years) reviewed along with the operational limits and conditions of the facility. Although this is not based in regulations, a licence condition requires the Licence Holder to have approved plans for ongoing review and upgrading.

Seq. No	Country	Article	Ref. in National Report
12	Argentina	Article 5	Section G, Page 59

Question/ Indicate the criteria applied for the criticality certification systems.
Comment

Answer Criticality assessments are undertaken by ANSTO when more than 25g of fissile material is to be used in an operation outside the reactor core.

- A criticality assessment is undertaken by a trained criticality safety officer.
- Assessments are independently reviewed by another trained criticality safety officer. The level of review varies dependent on the operation to be performed.
- The assessments are reviewed by an officer responsible for the operation. This “responsible officer” accepts management responsibility for the operation and compliance with the limits placed on the operation.
- Criticality certificates setting out the approved activities and the limits placed on the operation (e.g. fissile mass control are prepared by the criticality safety officers.
- The criticality assessments and draft certificates are reviewed by ANSTO’s Safety Assessment Committee.
- The assessments, certificates and Safety Assessment Committee reports are sent to ARPANSA for approval.
- Once ARPANSA approval is obtained the certificates are formally issued and the certificates and any associated postings are displayed.

- Training of operating personnel is undertaken to ensure understanding of criticality safety concepts and compliance with limits for individual operations.

A independent review of ANSTO’s criticality safety arrangements and practices was undertaken in 2004 by a world expert in Nuclear Criticality Safety, Dr Tom MacLaughlin from LANL, and he found that ANSTO’s practices were compliant “to a high degree” with the requirements of the US consensus standards, particularly ANSI/ANS-8.19.

Seq. No	Country	Article	Ref. in National Report
13	Canada	Article 8	

Question/Comment Does Australia have specific environmental assessment legislation that applies to potential nuclear facilities? Are there any prescribed procedures to follow when conducting an environmental assessment?

Answer Yes. The Australian Environment Protection and Biodiversity Conservation Act 1999 specifically requires environmental assessment of matters of National Environment Significance, which can include nuclear actions such as establishing or modifying a nuclear installation. Prescribed procedures under the legislation include; whether the matter referred is a controlled action (includes public consultation), the assessment approach, preparation of draft assessment documents by the project proponent (includes public consultation), preparation of final assessment documents by the project proponent (taking into regard public comments), environment assessment of final assessment documents by DEH, approval of proposal with conditions if appropriate by the Minister for the Environment and Heritage or delegate.

The Environment Protection and Biodiversity Act 1999 (the EPBC Act) protects matters of national environmental significance and Commonwealth land. It also covers actions taken by the Commonwealth.

Matters of national environmental significance (NES) include “nuclear actions”. With regard to spent fuel management and radioactive waste management nuclear actions include:

- establishing or significantly modifying a nuclear installation;
- transporting spent nuclear fuel or radioactive waste products arising from reprocessing;
- establishing or significantly modifying a facility for storing radioactive waste products arising from reprocessing; or
- establishing or significantly modifying a large-scale disposal facility for radioactive waste. A decision about whether a disposal facility is large scale will depend on factors including:
 - a) the activity of the radioisotopes to be disposed of,
 - b) the half-life of the material,
 - c) the form of the radioisotopes, and
 - d) the quantity of isotopes handled.

Under the EPBC Act a person must not take an action that has, will have or is likely to have a significant impact any of the matters of NES without approval from the Commonwealth Environment Minister. To obtain approval, the action must undergo a rigorous environmental assessment and approval process.

Submitting a “referral” is the first step in the Commonwealth assessment and approval process. If the proponent is proposing to undertake an action that will have or is likely to have a significant impact on a matter of NES (after checking the Administrative Guidelines on Significance), they must submit a referral to the Commonwealth

Department of the Environment and Heritage. If, following a referral, it is determined that an action is likely to have a significant impact, and approval is therefore required, the action is called a “controlled action”. The proposal will then undergo a formal assessment and approval process, and cannot proceed unless approval is granted.

Different assessment approaches will be appropriate in different circumstances. The Commonwealth Environment Minister will select one of the five options provided by Part 8 of the EPBC Act, namely assessment by:

- preliminary documentation;
- public environment report (PER);
- environmental impact statement (EIS);
- public inquiry; or
- an accredited assessment process.

The EPBC Act sets out process and timing requirements for each assessment approach.

The proponent, or the person proposing to take the action, will be asked to supply preliminary information on the impacts of the proposed action in order to help the Minister select an appropriate assessment approach. A guide for the format, content and submission of preliminary information under Chapter 4 of the EPBC Act is available to assist people to prepare and submit Preliminary information for the environmental assessment and approval process.

Assessment by Environmental Impact Statement (EIS) is likely to be appropriate when:

- an assessment of the relevant impacts is expected to raise complex issues, or a large number of issues; and
- an adequate assessment of these issues will require the collection of new information and/or further analysis of existing information.

Assessment by EIS starts with the Commonwealth Environment Minister preparing written guidelines for the draft EIS to be prepared by the proponent. The Minister may undertake a period of public consultation on the draft guidelines. On receiving the final guidelines, the proponent must meet public consultation requirements by:

1. preparing a draft EIS;
2. obtaining the Minister's agreement to publish the draft EIS;
3. publishing a notice inviting public comment;
4. finalising the EIS taking into account public comments and providing the final report to the Minister.

The Department of the Environment and Heritage will prepare an assessment report on the EIS for the Commonwealth Environment Minister. The Department's assessment report is a public document and is provided to the Minister as one component of the package of matters to be considered in making an approval decision.

Refer to Section 2 of the Answer Support Document for details of where further information can be found.

Seq. No	Country	Article	Ref. in National Report
14	Japan	Article 10	p.61,line 12
<i>Question/ Comment</i>	The report indicated that “It is a contractual requirement with BNFL and COGEMA that waste arising from reprocessing of spent fuel elements at their plants will be returned to Australia as long-lived intermediatelevel waste“, that the Australian Nuclear Science and Technology Organisation has a long-term contract with COGEMA, France for the		

reprocessing of fuel from research reactors, including the research reactor under construction, and that waste from spent fuel sent to France for reprocessing will be returned to Australia as category S waste, equivalent to the IAEA classification of long-lived intermediate-level waste.

Is the contract with Dounreay, UK the same as with COGEMA, France?

Answer Both contracts are similar and include the return of intermediate level waste to Australia. However, the waste form returned to Australia differs in each case. Cemented waste will be returned from the UK, whereas vitrified waste will be returned from France.

Seq. No	Country	Article	Ref. in National Report
15	Germany	Article 11	p. 66

Question/Comment In the report it is stated that “Radioactive waste of sufficiently low level is currently discharged into the air or sewer, incinerated, or disposed of as landfill”. Is there any legislative act of clearance that has to be done by the authorities before incineration and disposing of as landfill and what are the required public dose limits for the individual?

Answer New South Wales
Any material with an activity of 100 Bq/gm and above can only be disposed of with the permission of the regulator. This includes disposal of liquids, solids and gases. However, liquid wastes with a Specific Activity Ratio and a Total Activity Ratio greater than 1 cannot be disposed of. See the answer to question 3 above. It is not permitted to incinerate any radioactive material.

Victoria

Victoria has activity concentration and activity limits in the Health (Radiation Safety) Regulations for disposal of radioactive material to air and water. For disposal via different methods or amounts above scheduled activity and/or activity concentrations, specific approval must be sought. Such approvals will only be given where the potential exposure to a member of the public results in doses under 1 milliSv. Current ICRP dosimetry methods are used with the appropriate dose per unit intake conversion factors.

Queensland

Queensland has activity concentration limits in place for the disposal of radioactive material into the air, water, sewerage system and other then by air, water and sewerage system. The limits are prescribed in the Radiation Safety Regulation 1999. For all other disposals (i.e. where disposal means release from regulatory control), specific approval for the disposal must be sought and obtained by the regulatory authority prior to disposal.

The disposal requirements are in place to ensure that no-one may receive a dose greater than a committed effective dose of 500 microSv in a year as a result of the disposal into air or water, or 1000 microSv in a year as a result of the disposal into the sewerage system. These were calculated by applying figures derived from ICRP30, 66 and 68 as worst case criteria to reference man.

For disposals where specific regulatory authority approval must be granted, the applicant must demonstrate that no person may receive greater than 300 microSv in a year as a consequence of the disposal.

Persons are required to include how they will achieve the legislated requirements for disposal in their radiation management plans.

Western Australia

Landfill in Western Australian is done in accordance with requirements of the Radiation Safety Act through the Department of Environmental Protection. Disposal of

radioactive waste via the methods mentioned requires prior approval of the regulator subject to levels of activity specified in the regulations. No incineration in Western Australia.

South Australia

Under the South Australian radiation protection legislation, any disposal of radioactive waste via the methods mentioned requires prior approval of the regulator. The clearance criteria applied to approvals are those specified in the NHMRC Code of Practice for the Disposal of Radioactive Waste by the User (1985). The dose limit for members of the public is 1 mSv per year, but 300 microsieverts per year is used as a design criterion for a single facility or practice. The disposal of radioactive waste under the Code would not result in exposures of the public to these magnitudes.

Tasmania

There is no incinerator in Tasmania. The “User disposal code” is applied for disposal to sewer for radioactive materials above the exemption levels.

Australian Capital Territory

Gaseous and liquid radioactive waste can be disposed in to the air and water if the disposal complies with the ACT legislation, Radiation Act 1983 that in Schedule 1 specifies “Maximum permissible concentration for radioactive material in air and water”. Disposal into land is allowed if the gamma radiation from the waste material does not exceed twice the natural gamma background of the disposal site (which is a specially dug out site at the day/time of disposal at the municipal tip site; the disposal itself taking place once in a quarter)

In all the above cases the waste disposal could only take place after a Disposal permit is issued by the ACT Radiation Council.

Northern Territory

An application for a licence to dispose of radioactive material must be granted. Conditions, relating to ARPANSA’s (or (NHMRC etc) codes of practice, are placed on all of these licenses.

Commonwealth

The levels of exemption are set out in the legislation (ARPANSA Regulation 1999) and are detailed in the answer to Euratom’s question.

Seq. No	Country	Article	Ref. in National Report
16	Ukraine	Article 11	H, Article 11, page
<i>Question/ Comment</i>	It is not clear whether there are limits for the maximal specific activity of long-lived radionuclides contained in radwaste which can be disposed in near-surface facilities as required by the IAEA classification (the radwaste classification must be specified prior to disposal)?		
<i>Answer</i>	RHS Publication 35 “Code of Practice for the near-surface disposal of radioactive waste in Australia (1992)” sets out clear upper limits for the activity concentrations (specific activities) of a suite of radionuclides for different categories of waste that may be disposed in near-surface facilities (Tables 1, 2 and 3).		

Refer to section 3 of the Answer Support Document for details on where the code of practice can be viewed.

Seq. No	Country	Article	Ref. in National Report
17	United Kingdom	Article 11	Section H page 63
<i>Question/Comment</i>	It is noted that the report says that “There are no uniform definitions of waste categories across Australian jurisdictions” and this statement is reflected elsewhere in the report. In the development and planning of the management of waste, how are the steps in the activity treated as part of a whole entity? What actions are necessary to ensure that optimising one of the different steps of the overall process does not foreclose viable options or impose constraints on other steps in the process?		
<i>Answer</i>	The categorisation of waste for the purposes of its uniform management across jurisdictions is being developed through the inclusion of agreed Codes of Practice relevant to the management of waste in the National Directory for Radiation Protection. Australian regulators are currently developing a Code of Practice for the predisposal management of radioactive waste. Waste in Australia is also managed in some jurisdictions in accordance with the Code of Practice for the near-surface disposal of radioactive waste (RHS35) (1992) which categorises waste into 3 groups for this method of disposal. Some jurisdictions also utilise the guidance in the Code of Practice for the disposal of radioactive waste by the user (RHS13) (1985) for lower level wastes.		
Seq. No	Country	Article	Ref. in National Report
18	Argentina	Article 12	Section H, Page 70
<i>Question/Comment</i>	Describe the specific criteria applied by the Regulatory Body for inspecting the existing facilities.		
<i>Answer</i>	The planned inspections are conducted against licence conditions and the Licence Holders plans and arrangements for managing safety of the facility. Some specific criteria includes effective control, radiation protection, radioactive waste management, operational limits and conditions, safety culture, emergency plan, security plan etc.		
Seq. No	Country	Article	Ref. in National Report
19	Canada	Article 12	
<i>Question/Comment</i>	Are there specific compliance verification programs in place for each jurisdiction? What actions are taken for non-compliance and how do they re-enforce the responsibility of the licence holder?		
<i>Answer</i>	<p>New South Wales The non-operating facility listed for NSW under the Joint Convention is administered by the regulator and is required to meet all the requirements under the legislation.</p> <p>Victoria There are no radioactive waste management facilities, within the meaning of the convention, in Victoria</p> <p>Queensland Queensland has a system in place which audits all aspects of a licensee’s practices, including audits of waste streams. If a person is found not to comply, a range of legislative enforcement actions can be taken, including the requirement for the person to clean-up a contaminated site.</p> <p>Western Australia In Western Australia, periodic audits of the Mt Walton East Intractable Waste Disposal Facility are undertaken to determine compliance with the Code of practice for the near-surface disposal of radioactive waste in Australia 1992 and the requirements of the</p>		

Western Australian regulatory authority.

The actions taken for non-compliance vary with the nature of the non-compliance. The legislation provides for fines to be imposed on the offender.

South Australia

In South Australia compliance verification programs are in place that require periodic (3monthly) and annual reports of waste management and monitoring programs for uranium mining operations. The 3 monthly reports are provided at joint government and operator radiation review meetings. In addition there is a combined State and Commonwealth Consultative Committee overview mechanism. Non-compliance may result in fines or loss of licence to the mine or mill.

Tasmania

Regular audits of all licence holders are conducted – frequency depends on risk posed by the practice. Licence holders are educated or prosecuted for non-compliance.

Australian Capital Territory

In the ACT compliance verification programs do not in practice exist in case of disposal of liquid and gaseous wastes (due to logistical difficulties) but does exist in case of shallow disposal of low-level waste (the latter are always disposed of in the presence of the government radiation inspector).

All types of waste disposal can only legally take place if the party disposing of waste holds respective Disposal Permit issued by the ACT radiation Council.

Northern Territory

There is a schedule of inspections and audits. This will be updated and modified following the start of the new Act.

Commonwealth

For Australian Government (ie Commonwealth) entities, the licence conditions flow from the requirements in the legislation. Compliance monitoring is performed through regular compliance reporting (quarterly and annually) by the Licence Holder and through planned and reactive inspections by ARPANSA Inspectors. Enforcement action is initiated depending on the severity of non-compliance. The enforcement can include: issuing a Direction of the CEO of ARPANSA; amending, suspending or revoking a licence, fine imposed through the Federal Court.

Seq. No	Country	Article	Ref. in National Report
20	France	Article 12	Section H Page 70
<i>Question/ Comment</i>	Could Australia provide more detailed information on the Little Forest Burial Ground status and the decommissioning project (technical options such as waste retrieval and packaging, licensing, planned schedule)?		
<i>Answer</i>	The regulator is currently assessing information provided by ANSTO, including the safety analysis report, before finalising decommissioning requirements.		
Seq. No	Country	Article	Ref. in National Report
21	Korea, Republic of	Article 12	p.70 (H)
<i>Question/ Comment</i>	The report states that a near-surface disposal site for radioactive waste (Little Forest Burial Ground) near the boundary of the ANSTO site has been closed since 1968 and its eventual decommissioning is being considered as part of the overall decommissioning strategy for the ANSTO facilities and operations.		

What is the exact meaning of the decommissioning plan of the disposal site? And what kind of activities will be expected for the eventual decommissioning?

Answer The regulator is currently assessing information provided by ANSTO, including the safety analysis report, before finalising decommissioning requirements.

Seq. No	Country	Article	Ref. in National Report
22	United States of America	Article 12	95

Question/ Comment In Annex B of the 2nd National Report it is indicated that there are several sites in South Australia that are either existing operational facilities or that meet Australia’s definition of past practices, but the information provided in regard to the description of the types of waste management practices associated with each site is sparse. It is also unclear how these facilities and past practice sites comply with Article 12. Further information regarding which existing or “Australia’s definition of past practice sites” facilities comply with Article 12, as well as how they comply, is also desirable. For those facilities that do not currently comply with Article 12, a more detailed discussion of actions that are underway or planned to ensure compliance of those facilities is requested.

Answer South Australia
 There are two licensed commercial uranium mines operating in South Australia. One is a conventional underground mine, the other is an acid in-situ leach operation and the wastes produced are predominantly solid tailings and liquid wastes respectively. Licence conditions for each operation require compliance with the Commonwealth’s Code of Practice on Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005) including the development of a Radioactive Waste Management Plan. Radioactive waste management at each site is subject to review and ongoing scrutiny by State regulators and relevant Commonwealth agencies, to ensure the continued safety of the facilities, and compliance with the conditions of Commonwealth and State environmental impact assessment process prior to operation commencement. The “past practice sites” in South Australia are sites (Radium Hill uranium mine and Port Pirie uranium treatment plant) where uranium mining and mineral processing residues remain in tailings dams that were constructed before 1970. The registration of the Radium Hill and Port Pirie sites as premises under section 29 of the Act that occurred on 28 February 2003 imposed requirements on the owner to review the results of past practices in order to determine whether any intervention is needed for reasons of radiation protection and to permit the development of appropriate long-term management plans. The conditions of registration for the 1st 12 months of registration required a preliminary investigation and characterisation of both sites to be conducted and a report of this ‘Phase I’ study to be presented to the EPA within that period. The conditions on registration for the next 2 years of registration, (Phase II), required a more detailed site characterisation of the sites incorporating modelling and radiation surveys to supplement those that had been carried out in the past, in order to enable decisions to be made on remediation methods and options. In Phase III, beginning in the 4th year of registration, the owner of the sites is required to develop proposals for remediation and or long-term management of the sites.

Commonwealth

In the report Maralinga (South Australia) was described as a ‘past practices’ and this site is licensed as a Commonwealth controlled facility. Compliance is monitored through the licence conditions and regular Licence Holder reporting (quarterly and annually) taking into account the licence conditions. A significant component is reporting the results of environmental (including water table) monitoring.

Seq. No	Country	Article	Ref. in National Report
23	United States of America	Article 12	89
<i>Question/ Comment</i>	In the discussion of “planned activities to improve safety,” the Radium Hill and Port Pirie sites are said to contain radioactive wastes from past practices. Although these two sites are said to have been “registered” in order to effect compliance with Article 12, there is no explanation of how the process of registration effects compliance with Article 12. If safety reviews of these sites have been conducted, please describe the nature and results of the site reviews, including recommendations for remedial action, if any. If some other process for compliance with Article 12 was followed, please describe it.		
<i>Answer</i>	South Australia The means by which registration of the sites effects compliance with Article 12 is outlined in the answer to the United States of America question on article 22.		

Seq. No	Country	Article	Ref. in National Report
24	Canada	Article 13	
<i>Question/ Comment</i>	Can Australia provide more details on the public consultation process required for the siting of a nuclear facility?		
<i>Answer</i>	For Commonwealth entities, Regulation 40 requires the CEO of ARPANSA to consult the public about any licence application for a nuclear installation. This requires the CEO to advertise receipt of the application and seek submissions from the public. In making a decision about the licence application, Regulation 41 requires the CEO to take into account matters raised in the public submissions. For nuclear installations public consultation is also done through organising a public forum about licence applications at which the proponents and public submitters make presentations and respond to questioning from a panel. Other means include making information on the web-site, asking for public comment on nuclear installations through the media and responding to formal and informal inquiries.		

The proposal to site a nuclear facility will also undergo environmental assessment under the Environment Protection and Biodiversity Conservation Act 1999. The Minister for the Environment and Heritage will determine the nature of this assessment; however the Department of Education, Science and Training envisages that it will involve the preparation of an Environmental Impact Statement (EIS). A requirement of an EIS is that it has a public consultation and comment period.

Seq. No	Country	Article	Ref. in National Report
25	United Kingdom	Article 14	Article 14 Section H
<i>Question/ Comment</i>	The report, in discussing the examination of the design and construction of radioactive waste facilities, does not give any detail about the measures taken to limit the radiological impacts of uncontrolled releases. What requirements are there for the safety case to include the safety of the plant under fault conditions by the prevention of faults that could lead to an uncontrolled release of radioactivity or in the event of an accidental release, to limit its impact?		
<i>Answer</i>	The requirements are set out in the Regulatory Safety Assessment Principles, Regulatory Guidelines and Design Guidelines. http://www.arpansa.gov.au/pubs/gdes2.pdf In addition, in making a decision about a licence application, Section 32 of the ARPANS Act 1998 requires the CEO to take international best practice in radiation protection and nuclear safety into account. This includes close consideration of IAEA safety standards.		

Seq. No	Country	Article	Ref. in National Report
26	Ukraine	Article 15	H, Article 15, page
<i>Question/ Comment</i>	Do the requirements on long-term safety assessment for disposal facilities comply with the IAEA recommendations established in the «Safety Assessment for Near Surface		

Disposal», IAEA Safety Standards Series No. WS-G-1.1 (more detailed information is desirable to provide on the requirements regarding safety assessment of disposal facilities)?

Answer Yes. This and other relevant IAEA safety standards have been drawn upon in preparing the draft Regulatory Guidance for Radioactive Waste Management Facilities.

Seq. No	Country	Article	Ref. in National Report
27	Argentina	Article 16	Section H, Page 78

Question/Comment Provide basic information on typical topics, procedures, statistics and main lessons learned from the application of risk based routine programs of radiation safety monitoring in Queensland. Further details on the subject in jurisdictions other than Queensland are welcome.

Answer Queensland
Queensland's radiation safety monitoring policy seeks to:

- achieve full compliance with the basic radiation safety standards and principles so that unacceptable behaviour is not seen at all
- identify and promote best practice behaviours and a satisfactory level of radiation safety in all radiation practices
- encourage the development of a culture which has the goal of continual improvement in levels of radiation safety
- maintain familiarity with industries and their radiation practices so that Queensland Health may have an informed and practical basis on which to formulate policy, standards and guidelines at both the State and national levels
- ensure that outcomes achieved through the regulatory processes are appropriate for industry and the public.

Strategies used in implementing the policy varies from year to year, but are based on:

- maintaining a routine monitoring program which is a mix of assessing
 - a) samples of radiation practices intended to give a picture of a whole industry sector, where the sample size in terms of the percentage of practices sampled is greater for those high risk practices
 - b) certain practice types identified as focus areas
 - monitoring practices in urban, rural and remote locations throughout the State
 - focusing on areas where compliance is poor or where public health or environmental risks due to non-compliance are significant
 - evaluating or monitoring the effects of changes of legislation or standards
 - maintaining cost efficient and informed monitoring activities
 - developing a supportive environment to help foster a statewide radiation safety culture
 - maintaining and enhancing Queensland Health's understanding of the contemporary business requirements and activities of licensees.

In Queensland, radiation practices have been classified as very low, low, medium or high depending on their public, occupational and environmental risk. The risk is based on the extent of radiation exposure that could occur during the normal operation of a practice, the potential for adverse effects, in the event of an incident, and on the likelihood of incidents occurring. In addition, there are national security issues relating to certain radiation sources.

It was found that it is difficult to quantify risk; it is not merely a function of source size or output. Other contributors to risk include:

- security risks
- perceived political risks

- degree of engagement with radiation safety objectives by professions.

Queensland's method of considering where the risks lie is being changed accordingly.

Seq. No	Country	Article	Ref. in National Report
28	Argentina	Article 17	Section H, Page 79
<i>Question/Comment</i>	Which criteria are used to assess the safety of the closed facility on the basis of the results of monitoring? Are there foreseen periodic safety reviews after closure of Radioactive Waste repositories, during the institutional control period?		
<i>Answer</i>	For Maralinga (closed facility) the absence of plutonium in the results of water table is considered as a significant safety criterion. For further information see the answers to Argentina's question on article 3 and the United States of America question on article 12. The facility is subject to periodic inspection and regular reporting (quarterly and annually).		

Seq. No	Country	Article	Ref. in National Report
29	Argentina	Article 17	Section H
<i>Question/Comment</i>	As it is stated in the second bullet on page 65, shielded sealed sources are allowed to be disposed near surface. Which criteria are foreseen for the safety assessment of the corresponding disposal facility/ies after institutional control?		
<i>Answer</i>	The Code of Practice for the near-surface disposal of radioactive waste in Australia (1992) RHS 35 applies to sources with a half-life of >30 years unless the source contains a very low concentration of radionuclides with half-life of < 30 years. The Code has the following requirements:		

Disposal facility closure

Operations shall cease at the disposal facility when the authorised disposal space is filled or the limit on total site radioactivity is reached. Unrestricted public access to the site or alternative use of the site shall not be permitted for the duration of the established period of institutional control. At the end of the established institutional control period the status of the site shall be reviewed to determine whether any further management or control should be instituted.

Prior to the commencement of operations the operator shall prepare draft or conceptual plans for decommissioning the facility and rehabilitating the site, and submit them to the appropriate authority for approval. These plans shall be reviewed every five years and resubmitted for approval. The operator shall apply to the appropriate authority to cease operations at the facility at least three years prior to the proposed date of closure. At this time detailed plans for the decommissioning of the facility and for site rehabilitation shall be submitted to the appropriate authority for approval.

Site rehabilitation plans should include the proper provision of site markers and exclusion barriers to remain for the duration of the institutional control period, and the removal of all superfluous surface structures which may encourage occupation of the site and buildings.

The operator shall remain responsible for the site and all necessary site rehabilitation work until the work is formally accepted to be satisfactory by the appropriate authority. After this time responsibility for measures in the case of an accident should be assumed by this authority.

The appropriate authority shall ensure that a program of surveillance involving site inspections and environmental monitoring is carried out during the institutional control

period, and that historical records of waste disposed at the site are preserved. The perimeter fence and site markers shall be maintained during this period. The location and purpose of the disposal site shall be marked on land titles as caveats or mentions for the institutional control period.

Post-institutional control land use

At the end of the institutional control period the site shall be cleared of any remaining fences, site markers, etc.

Ideally the institutional control period should have been selected to permit unrestricted future use of the site. Following expiry of the institutional control period, any proposed new use for the former site should require an assessment of the new proponent's proposal. Appropriate caveats or mentions indicating the former use of the site for the disposal of radioactive waste should be retained on relevant land titles.

Financial indemnities

The appropriate authority may consider the imposition of a levy, a surcharge on the operator's charges or some other means to ensure that the decommissioning can be completed if the operator experiences financial difficulties during the operation of the facility or at its closure.

Table - Activity concentration limits for Category B waste
(Recommended values for 100 year and 200 year institutional control periods)

Refer to Table 2 in Answer Support Document

New South Wales

There is no near-surface disposal facility in NSW.

Victoria

No such disposal can occur in Victoria, as there is no near-surface disposal facility.

Queensland

Queensland has not disposed of any shielded sealed sources to date, other than those which meet the disposal requirements prescribed in the radiation safety legislation. The disposal of such sources means that they are no longer subject to any regulatory control.

Western Australia

In Western Australia, periodic audits of the Mt Walton East Intractable Waste Disposal Facility are undertaken to determine compliance with the Code of practice for the near-surface disposal of radioactive waste in Australia 1992 and the requirements of the Western Australian regulatory authority.

South Australia

The text referred to the types of waste that could be disposed under the code for near surface disposal. It is intended that the waste disposed in such a facility, and the facility's siting, design and construction will be such that after the period of institutional control (ie 100 or 200 years) the site may be closed without requiring ongoing management. The criteria for safety assessment at that point may include evaluation of radionuclides and radiation levels in the environment around the facility and a review of its structure and contents to confirm whether ongoing controls or surveillance are required.

Australian Capital Territory
No such disposal is allowed to take place in the ACT.

Commonwealth
No Commonwealth repository is in operation.

Seq. No	Country	Article	Ref. in National Report
30	France	Article 17	Section H Page 78

Question/Comment Are there provisions in the Code of Practice for the Near-Surface Disposal of Radioactive Waste in Australia for keeping records of the location and the properties of waste packages?

Answer Clause 3.2.7 of the Code of Practice specifies the following requirements:

Records and inventory keeping

Detailed records shall be kept by the operator and by the appropriate authority of all waste consigned to, and received at, the facility. For each shipment the waste generator, the type of the waste, its volume and weight, and the nature and concentration of radionuclides in the waste shall be recorded. Any conditioning of the waste shall also be recorded.

Details of any accidents and incidents at the facility shall be kept together with information on the impact on personnel, the public and the environment.

The occupational exposure records of all employees exposed to radiation in the course of their work shall be retained in a form specified by the appropriate authority. All data from environmental and area monitoring at and around the facility shall also be retained.

Furthermore, site records shall be kept at least until the end of the institutional control period in two widely separated locations, one of which shall be the appropriate State or Federal government archives, and shall include:

- a. the location of any disposal structures;
- b. the location of the waste packages or containers within the structures and the date of their emplacement;
- c. details of the contents of waste packages or containers; and
- d. details of the backfilling and cover materials.

Seq. No	Country	Article	Ref. in National Report
31	Ukraine	Article 17	H, Article 17, page

Question/Comment Is it planned to transfer the operator's responsibility for institutional control after closure of the facility to another operator or local authorities if that operator is liquidated (if its license is revoked)?

Answer New South Wales
The only facility (non-operating) in NSW is controlled by the regulatory authority.

Victoria

There are no disposal facilities in Victoria and there are no plans for any disposal facility in Victoria at this time.

Queensland

There are no plans in Queensland for a disposal facility at this time.

Western Australia

Yes, to ensure institutional control lasts for the required time. This responsibility

currently resides with state government departments.

South Australia

As noted in answer to the question asked by Argentina on Article 17, it is intended that the radioactive waste disposed in a near surface facility and its siting, design, and construction would be such that, after the period of institutional control, the facility could be closed without requiring ongoing management by another operator.

Tasmania

Yes, to ensure institutional control lasts for the required time.

Australian Capital Territory

This issue is not relevant for the ACT (due to the nature of the waste disposed of).

Northern Territory

A bond may be requested from the operator.

Commonwealth

With respect to the Commonwealth Radioactive Waste Facility and Australian Government entities, operational responsibility will remain with the Australian Government.

Seq. No	Country	Article	Ref. in National Report
32	Canada	Article 18	

Question/Comment When does Australia anticipate the completion of its efforts to establish a uniform set of requirements for the protection of people and the environment as described on page 31?

Answer The process for achieving uniformity is through the development of the National Directory for Radiation Protection, which details agreed principles, policies and practices for radiation protection and the safety of radioactive sources. The National Directory is a dynamic document that will change over time as jurisdictions reach new agreements. All jurisdictions have agreed to use the National Directory to make changes to existing legislative frameworks to achieve increased national uniformity. Edition 2 is currently under development and is envisaged to be adopted in late 2006. Edition 2 will include the new Code of Practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing. The Code of Practice for the Security of Radioactive Sources is also expected to be completed for inclusion in Edition 2 of the National Directory.

Seq. No	Country	Article	Ref. in National Report
33	Latvia	Article 18	Page 32

Question/Comment “During 2004 Edition 1 of the National Directory for Radiation Protection was published.

The aim of the National Directory is to provide nationally uniform requirements for the protection of people and the environment against exposure or potential exposure to ionizing and non-ionizing radiation and for the safety of radiation sources, including provision for the national adoption of codes and standards.”

Comment – These efforts should be noted as good practice for federal state.

Answer Comment noted.

Seq. No	Country	Article	Ref. in National Report
34	United States of America	Article 18	32

Question/Comment The Australian Radiation Protection and Nuclear Protection Agency (ARPANSA) is responsible for promoting uniformity in radiation protection and nuclear safety policy and practice across the jurisdictions. It is not clear if ARPANSA also has enforcement authority across the jurisdictions – please elaborate.

Answer ARPANSA does not have enforcement authority across Australia’s 9 separate legal jurisdictions. Each jurisdiction has its own laws including a regulatory body and enforcement powers for that body. Promotion of national uniformity occurs at 2 levels: (1) Ministers for Health in each jurisdiction have agreed to implement a National Directory for Radiation Protection which includes common laws and codes of practice; and (2) jurisdictions prepare codes of practice together and by consensus.

Seq. No	Country	Article	Ref. in National Report
35	Germany	Article 19	p.32 to 41

Question/Comment Referring to Article 19 the report describes the legislative and regulatory framework in Australia. Are there any intentions to standardise the regulations across the different States and Territories?

Answer Australia is a federation of 6 States and 2 self-governing Territories. The Constitution of Australia unites the States and Territories in a federal Commonwealth. The Australian Government forms the 9th jurisdiction. Responsibility for regulation of radiation protection rests with each State and Territory Government, and the Australian Government for Australian Government entities, and there is differing enabling legislation in each jurisdiction. However, the radiation protection outcomes are being standardised through the development of each edition of the National Directory for Radiation Protection and its implementation by each jurisdiction through their individual legislative frameworks. The National Directory includes agreed principles, policies and practices for radiation protection and the safety of radioactive sources. The Directory also provides for the adoption of national Codes of Practice and Standards for radiation protection.

Seq. No	Country	Article	Ref. in National Report
36	Hungary	Article 19	Section E p. 32-41

Question/Comment How is it assured that the states of Australia harmonize with each other the regulation and inspection of radiation protection?

Answer Harmonisation of regulation is achieved through the work of the Radiation Health Committee. The Radiation Health Committee is established under the Australian Government legislation, the Australian Radiation Protection and Nuclear Safety Act 1998 (Cth). The Act requires that the Committee includes a representative of each State and Territory, each of whom is a radiation control officer. A radiation control officer is defined as a person who holds a senior position in a regulatory body of a State or Territory and is responsible for matters relating to radiation protection or nuclear safety. Members of the Committee are appointed by the CEO of the Australian Government regulator, ARPANSA. The main role of the Committee is to develop draft national policies, codes and standards on radiation protection for endorsement by governments. It is also responsible for the development of draft provisions for inclusion in the National Directory for Radiation Protection. The adoption of the regulatory elements of each edition of the National Directory into the existing regulatory frameworks of each State, Territory and the Australian Government occurs following the agreement of Ministers for Health from each jurisdiction.

Harmonisation of inspection outcomes occurs in accordance with the agreed national policies, codes and standards included in the National Directory for Radiation Protection.

Seq. No 37	Country Latvia	Article Article 19	Ref. in National Report Pages 32 - 34
<i>Question/ Comment</i>	The included references to international standards should be recognised as good practice.		
<i>Answer</i>	Comment noted.		
Seq. No 38	Country Ukraine	Article Article 19	Ref. in National Report E, Article 19, page
<i>Question/ Comment</i>	<p>Are there documents among current regulations which include requirements and procedures for the safety assessment of radwaste disposal facilities (the analogue of IAEA document «Safety Assessment for Near Surface Disposal», Safety Standards Series No. WS-G-1.1)?</p> <p>Is it necessary to have an approval of the Regulatory Authority with regard to the facility design (or a license for design)?</p>		
<i>Answer</i>	Yes. This and other relevant IAEA safety standards have been drawn upon in preparing the draft Regulatory Guidance for Radioactive Waste Management Facilities.		
Seq. No 39	Country United Kingdom	Article Article 19	Ref. in National Report Section E
<i>Question/ Comment</i>	<p>It is noted that there are several facilities, of various types, undergoing or due to undergo decommissioning. Although there is reference (page 79 to Post-closure requirements, there appears to be no reference in the report to the regulatory mechanism for releasing a decommissioning site for unrestricted use. Although such a possibility is implied (for example with respect to the Beverley Mine – page 25) it is also implied that for other mines release is not foreseen at present. Is it anticipated that some sites will need to remain under regulatory control indefinitely?</p> <p>What legal process will be used to release a site from regulatory control after the completion of decommissioning?</p> <p>What safety and environmental criteria will be used to determine whether decommissioning has ended and the site operator can be relieved of its responsibility for the safety of the facility?</p>		
<i>Answer</i>	<p>Question: is it anticipated that some sites will need to remain under regulatory control indefinitely?</p> <p>Answer: it is anticipated that most sites mentioned in the National Report will eventually be able to be released from regulatory control, however, the proposed Commonwealth Radioactive Waste Management Facility (which is intended to store long-lived intermediate level radioactive waste) would need to remain under regulator control for a significantly longer period of time.</p> <p>Question: what legal process will be used to release a site from regulatory control after the completion of decommissioning?</p> <p>Answer: each jurisdiction has its own legal process that it is likely to follow in releasing a site from regulatory control. The Commonwealth, by way of example, under federal radiation safety legislation, would most likely licence the controlled person to abandon or dispose of a controlled facility subject to safety and environmental licence conditions. Pending the regulator being satisfied that those conditions have eventually being met, the regulator could then terminate the licence. It is worthwhile noting that the Commonwealth regulator has not released any controlled facility from regulatory control at this time.</p> <p>Question: what safety and environmental criteria will be used to determine whether decommissioning has ended and the site operator can be relieved of its responsibility for the safety of the facility?</p>		

Answer: as indicated, the Commonwealth regulator has not released any controlled facility from regulatory control. Consequently, it is unlikely that the associated safety and environmental criteria will be developed in the near future.

Seq. No	Country	Article	Ref. in National Report
40	United Kingdom	Article 19	Section E

Question/Comment An important aspect of planning the decommissioning of a facility is that appropriate records are available when they are needed and that the timescale for keeping the records is considerable. It is noted that inventories of waste have been, and are being, compiled, but it is not made clear what mechanisms are in place for generating, keeping and storing records to ensure that all information, for example on design, modification and operation of facilities, waste inventories and possible physical and chemical conditions of waste, is kept for the long periods of time needed. What powers does the regulatory body have to ensure that the operating organisations of all facilities using radioactive materials, including those concerned with waste and spent fuel management and storage, have mechanisms for establishing what records are appropriate, and for the, collecting and storing of such records, so that they may be retrieved when needed?

Answer New South Wales
The NSW facility is administered by the regulator and is subject to the requirements of government record keeping, which is essentially indefinitely.

Victoria

There are no radioactive waste management facilities, within the meaning of the convention, in Victoria. In general, people who possess radioactive substances in Victoria must be licensed. Details of the licensee and practice are stored in accordance with Victorian Government archiving requirements.

Queensland

In Queensland, State Archives are being instructed to permanently keep all records related to the possession of radioactive substances. There is an Act of Parliament which provides for such mechanisms.

Western Australia

Government records are maintained through the requirements of the State Records Act.

South Australia

Under South Australian radiation protection legislation, the owners of radioactive material are required to keep a register that contains details of radioactive material in their possession. The information that must be recorded on each source is specified in the legislation.

Tasmania

Government records are regulated via the Archives Act.

Australian Capital Territory

This issue is not relevant for the ACT (due to the nature of the waste disposed of).

Northern Territory

All the powers are described in the Radiation Protection Act 2004 that is due to commence this year.

Commonwealth

The form of records and length of time for which they must be kept are reviewed and

approved in assessing licence applications. A standard licence condition requires the Licence Holder to maintain adequate records and reports, including for changes to design and modification and operation of facilities, waste inventories and possible physical and chemical conditions of waste. Inventories of radioactive materials are required to be updated quarterly and advised to the regulatory authority. This information is also used while authorising the decommissioning of a facility. Any changes, to a licensed facility, with significant safety implication need to be approved by the Regulatory Authority. The requirements are set out in the Regulatory Guidelines, Regulatory Safety Assessment Principles and Decommissioning Guidelines. If the Regulatory authority is not satisfied with the decommissioning plans and arrangements, it may decline the approval of the decommissioning.

Seq. No	Country	Article	Ref. in National Report
41	Argentina	Article 20	Section E, Page 41

Question/Comment As stated on page 41 there are nine radiation protection regulatory bodies. How do they co-ordinate their activities?

Answer A function of the CEO of ARPANSA, under section 15 of the Australian Government legislation, the Australian Radiation Protection and Nuclear Safety Act 1998 (Cth) (the ARPANS Act 1998) is to “promote uniformity of radiation protection and nuclear safety policy and practice across jurisdictions of the Commonwealth and states and territories”. The ARPANS Act 1998 establishes the Radiation Health and Safety Advisory Council, the Radiation Health Committee and Nuclear Safety Committee
<http://www.arpansa.gov.au/legframe.htm>
 Co-ordination of activities is achieved largely through the Radiation Health Committee. The ARPANS Act 1998 requires that the Committee includes a representative of each State and Territory, each of whom is a radiation control officer. The Committee is responsible for the development of draft provisions for the National Directory for Radiation Protection. The regulatory elements of each edition of the National Directory are adopted into the existing regulatory frameworks of each State, Territory and the Australian Government.

Seq. No	Country	Article	Ref. in National Report
42	France	Article 20	Section E Pages41-42

Question/Comment Could Australia provide information on funding sources of the regulatory bodies?

Answer States and Territories
 The regulatory body in each state and territory is funded by public money through the Governments of each jurisdiction.

Commonwealth

ARPANSA’s regulatory activities are funded by public money from the Australian Government and licence or fees and an annual licence charge for each licence holder.

Seq. No	Country	Article	Ref. in National Report
43	France	Article 20	Section E Pages41-42

Question/Comment Do regulatory bodies rely on technical support organizations for performing safety assessments?

Answer New South Wales
 The NSW Department of Environment and Conservation does maintain some technical expertise but may also use external technical service providers from time to time.

Victoria

No for matters concerning disposal and authorisations for radioactive waste

management. Other aspects of regulatory assistance by way of third-party service providers for irradiating apparatus compliance determination are being considered.

Queensland

No, Queensland's regulatory authority has its own expertise. However, it has the option to seek external assistance, if required.

Western Australia

In Western Australia the regulatory body is the Radiological Council. The Council's functions are supported from within the budget assigned by the Department of Health to the Radiation Health Branch whose staff provides the administrative, technical and scientific support for the Council.

South Australia

In South Australia the Radiation Protection Division of the Environment Protection Authority does not rely on technical support organisations to perform safety assessments.

Tasmania

No.

Australian Capital Territory

Yes. Either government or Non Government Organisations or both, (Australian or overseas) whatever the case might be.

Northern Territory

There will be a reliance on third party service providers, who will issue a certificate of compliance for all radiation sources and places. This is in addition to our audits and inspections.

Commonwealth

Usually regulatory authority (for Commonwealth entities), ARPANSA, utilise in-house expertise for safety assessment. However, for expertise not held in house, ARPANSA contract experts from within Australia or around the world to provide advice.

Seq. No	Country	Article	Ref. in National Report
44	United States of America	Article 20	47

Question/ Comment How does each of the regulatory bodies provide oversight to ensure adequate staff and competencies of the licensee personnel?

Answer New South Wales

The non –operating NSW facility is administered by the regulator and staff are provided with training on a regular basis to ensure that they maintain their level of skills.

Victoria

Licenses are required to appoint a Radiation Safety Officer. The onus for ensuring radiation safety of any given regulated practice rests with the licensee. Competencies of Radiation Safety Officers are considered by regulatory staff at the time of licence application.

Queensland

In Queensland, the radiation regulatory authority is a Department of the Queensland Government. The Radiation Safety Act 1999 establishes an advisory council which reports directly to the Minister. One of the functions of this Council is to examine and make recommendations to the Minister about the operation and application of the Act.

The staffing and resourcing of the regulatory staff has also been the subject of some discussion during Parliament.

Western Australia

In Western Australia the registrants of premises where radioactive materials are stored or used must appoint a radiation safety officer (RSO). The Radiological Council reviews the qualifications and experience of the RSO. Licensed personnel are required to supervise the use of sources and competency criteria have been established that must be met in order to obtain a licence.

South Australia

In South Australia the owners of radioactive material or facilities where radioactive material is handled or kept must appoint a radiation safety officer (RSO). The EPA reviews the qualifications and experience of RSOs to determine whether the qualifications and experience are appropriate for the role. Licensed personnel must pass an examination on the principles and practices of radiation protection and legislative requirements in order to obtain a licence. Operators of uranium mines must also ensure there are sufficient resources available to implement approved radioactive waste management plans.

Tasmania

Staff are assessed at the time of application for a licence. Adequate staffing will be a requirement in a radiation management plan.

Australian Capital Territory

Licenses are only granted to those people/institutions (as the case might be) which fulfil specific eligibility criteria governed by the radiation legislation at the time (currently Radiation Act 1983). Those criteria are listed on the ACT Legislation Register.

Northern Territory

This will be part of the planned audit (of documents) for each practice.

Commonwealth

The Australian Radiation Protection And Nuclear Safety Regulations 1998 require a licence holder to establish, maintain and implement a plan for effective control of the facility, satisfactory to the CEO of ARPANSA. This plan must include a staffing plan setting out: the organisational structure for safety; the roles and responsibilities of positions in the structure; the competencies (qualifications, skills and knowledge), training (and retraining); and accreditation required of the individuals in the organisational positions. Any change to this plan is deemed to have 'significant implications for safety' and to require the prior approval of the CEO. Maintenance and implementation of the plan is monitored through regulatory inspection.

Seq. No	Country	Article	Ref. in National Report
45	Canada	Article 21	
<i>Question/Comment</i>	Are there specific compliance verification programs in place for each jurisdiction? What actions are taken for non-compliance and how do they re-enforce the responsibility of the licence holder?		
<i>Answer</i>	New South Wales There is only one non-operating facility in NSW. This facility is administered by the government regulator, is registered and complies with all of the requirements of		

registration. Non-compliance attracts penalties including fines, jail terms and removal of the licences.

Victoria

There are no radioactive waste management facilities, within the meaning of the convention, in Victoria.

Queensland

Queensland has an audit program in place. Licensees are required to comply with the Radiation Safety Act 1999. If a person is found not to be complying with the requirements of the Act, the regulatory authority may take actions varying from the issuing of Improvement Notices and Prohibition Notices, to legal action and seizure of equipment. It is the licence holder who is the responsible person under the legislation.

Western Australia

Western Australia has several compliance programs in place.

For sources in use registrants are required to comply with the Radiation Safety Act and their conditions of registration. Evidence of non-compliance with the requirements under legislation may result in prosecution under the Act.

For waste management, periodic audits of the Mt Walton East Intractable Waste Disposal Facility are undertaken to determine compliance with the Code of practice for the near-surface disposal of radioactive waste in Australia 1992 and the requirements of the Western Australian regulatory authority. Evidence of non-compliance with the requirements under legislation may result in prosecution under the Act.

South Australia

In South Australia there are compliance verification programs in place that require periodic (3monthly) and annual reports of waste management and monitoring programs for uranium mining operations, and annual reports on progress with the review of the Port Pirie and Radium Hill sites where radioactive material from past practices is being managed and assessed for remediation. The management of the sites and reporting are requirements under the conditions on licences and registrations. Non-compliance with such conditions constitutes a breach of the legislation for which penalties (fines and imprisonment) apply.

Tasmania

Information is provided in the response to the question asked by Canada on Article 12

Australian Capital Territory

Yes. Regulatory inspections. There are penalties specified under the Radiation Act 1983 in case of non-compliance.

Northern Territory

Information is provided in the response to the question asked by the United States of America on Article 20.

Commonwealth

For Australian Government (ie Commonwealth) entities, the licence conditions flow from the requirements in the legislation. Compliance monitoring is performed through regular compliance reporting (quarterly and annually) by the Licence Holder and through planned and reactive inspections by ARPANSA Inspectors. Enforcement action is initiated depending on the severity of non-compliance. The enforcement can include:

issuing a Direction of the CEO of ARPANSA; amending, suspending or revoking a licence, fine imposed through the Federal Court.

Seq. No	Country	Article	Ref. in National Report
46	Ukraine	Article 21	F, Article 21, pages

Question/Comment Could you provide explanation for the absence of the data on radiation protection of personnel and the public from the impact of uranium mining and milling plants?

Answer - There is no national registry of radiation doses kept in Australia, partly due to workers' privacy provisions. Data are currently being compiled from personal monitoring records and dose estimates based on empirical measurements and modelling, for provision to UNSCEAR in the category of occupational doses from the mining and milling of uranium ores.

- Records of individual doses to workers in the uranium mining and milling industries are maintained by operators and relevant state and territory regulatory authorities who have the legal instruments to acquire such data.

- The Code of Practice and Safety Guide "Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005)" has a requirement for a Radiation Protection Plan which must include the measures that are intended to be taken to control the exposure of employees and members of the public to radiation at or from the practice including a plan for monitoring radiation exposure and for assessing the doses received by exposed employees; and record keeping and reporting.

- Also the Code requires that the operator and employer must keep records of results of all measurements, monitoring and assessments required by the Code or by approvals or authorisations, and provide employees with copies of their dose records on request, and at termination of their employment.

South Australia

Radiation protection of personnel and the public from the impact of uranium mining and milling plants is a requirement of the legislation and conditions on licences issued to operators of uranium mines and mills. It applies to all parts of the mining and milling operations, of which radioactive waste management is one of several components. There was no intention to give detailed data on radiation protection of personnel and the public from the impact of uranium mining and milling plants in the report.

Seq. No	Country	Article	Ref. in National Report
47	Argentina	Article 22	Section F.2

Question/Comment Describe the financial resources foreseen for Spent Fuel Management and Radioactive Waste Management programs and tasks.

Answer The Australian Government is responsible for financing spent fuel management and radioactive waste management practices of its agencies. Financial resources are assured through on-going funding from government budget processes.

Construction of the Commonwealth Radioactive Waste Management Facility is estimated to cost \$A30-40 million, with annual operating costs of \$A3 million (including licence fees).

Costs associated with ANSTO's (ANSTO is an Australian Government owned corporation) spent fuel and radioactive waste management program are:

- The annual operating budget for radioactive waste management at ANSTO is around

\$A3.4M (inclusive of indirect costs). This includes cost for the management of radioactive wastes arising from spent fuel operations prior to storage and/or reprocessing.

- The annual operating budget for Spent Fuel Management for 05/6 financial year is \$A1.7M (inclusive of indirect costs). This includes the cost for storage and monitoring of the spent fuel at ANSTO.
- The cost of spent fuel shipments, reprocessing and/or long term storage are covered by special funding provided to ANSTO by the Australian Government. The costs of the shipments can vary but, as an example, the 2004 shipment and the planned 2006 shipment together, are expected to amount to around \$A22 M.

Seq. No	Country	Article	Ref. in National Report
48	Bulgaria	Article 22	

Question/Comment What mechanisms are applied in Australia to ensure the financing of radioactive waste management?

Answer All current and planned purpose-built waste management facilities are government owned. Financial resources are provided through on-going funding from government budget processes.

Seq. No	Country	Article	Ref. in National Report
49	Ukraine	Article 22	F, Article 22, page

Question/Comment Are there regulatory requirements for the necessary level of qualification of personnel dealing with spent fuel and radwaste management and are there appropriate procedures for monitoring of personnel training by the regulatory authority?

Answer Yes. Operator training and qualifications and the number of personnel are taken into account while assessing the facility for issuing a licence. Licence Holder(s) has accreditation program in place for such facilities. The operator training and retraining records are kept in an appropriate quality format, which are examined during an inspection. Further information is also provided in the answer to the United States of America question on article 20.

Seq. No	Country	Article	Ref. in National Report
50	United States of America	Article 22	41

Question/Comment How does the Australian government determine staffing resources for the regulatory bodies?

Answer Staffing of ARPANSA is determined based on current and expected future regulatory activities. ARPANSA's regulatory activities are funded through licence application fees and annual licence charges.

The staffing for the regulatory bodies in the states and territories is determined through budgetary processes.

Seq. No	Country	Article	Ref. in National Report
51	Latvia	Article 23	

Question/Comment ARPANSA ensures that the spent fuel operations and radioactive waste management facilities of ANSTO are covered by the certification to ISO 9001.

Comment – Should be recognised as a good practice

Answer Comment Noted.

Seq. No	Country	Article	Ref. in National Report
52	France	Article 24	Section F P. 49 to

Question/ Could Australia provide information on the implementation of the radioprotection

Comment regulations such as: main features, observed doses, licensee organization and ALARA principle implementation in the different States?

Answer Australia is implementing uniform regulation for radiation protection through the National Directory for Radiation Protection, which details agreed principles, policies and practices for radiation protection and the safety of radioactive sources. The National Directory is a dynamic document that will change over time as jurisdictions reach new agreements. All jurisdictions have agreed to use the National Directory to make changes to existing legislative frameworks to achieve increased national uniformity.

Part A of the Directory sets out the agreed overall framework for radiation protection in Australia including; objective of legislation, radiation protection principles (including ALARA), powers and functions conferred by legislation, establishment of advisory body to the regulator, periodic legislative review, application of the legislation, categories of authorisation, refusal to grant, suspension, variation or cancellation of an authorisation, scope of annual reports.

Part B of the Directory contains uniform regulatory elements, which are to be adopted by each jurisdiction, within its particular regulatory framework and includes scope of regulation (exclusions and exemptions), authorisations (possession, practices, competencies, security, rural and remote locations, third party providers), and the national adoption of Codes of Practice and Standards.

Part C of the Directory contains guidance that will assist regulators in adopting consistent approaches but is not regulatory in nature.

Schedule 1 of the Directory specifies occupational and public dose limits that are in accordance with ICRP 60.

Edition 2 is currently under development and is envisaged to be adopted in late 2006. Edition 2 will include the new Code of Practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing. The Code of Practice for the Security of Radioactive Sources is also expected to be completed for inclusion in Edition 2 of the National Directory.

Seq. No	Country	Article	Ref. in National Report
53	Canada	Article 25	

Question/Comment Are the emergency response plans referenced on pages 51-52 (included in other more general plans) reviewed and/or approved by any nuclear regulatory authority? Is there any regulation requiring this in any State or Territory?

Answer New South Wales
The non-operating facility in NSW is managed by the regulatory agency. Emergency plans have been developed and are reviewed on a regular basis. There is no nuclear regulatory agency in NSW.

Victoria

The Health (Radiation Safety) Regulations require licensees to have emergency plans. Such plans do not need to be approved by the regulator. Some of the practices with higher radiation risks have their emergency plans reviewed by the regulator.

Queensland

Under Queensland's Radiation Safety Act 1999, any person who possesses a prescribed radiation source must hold an appropriate licence issued under the Act. The responsible person is required, by the Act, to prepare a radiation safety and protection plan as part of

the criteria for obtaining a licence. This plan must include details of the remediation procedures in the event of a credible radiation incident, and must be approved by the Chief Executive of Queensland Health.

The regulatory authority operates Queensland’s radiation waste management facility on behalf of the State and, as such, holds an appropriate licence. The regulatory authority adheres to an approved radiation safety and protection plan for the operation of this facility.

Western Australia

Western Australia refers to national codes and standards that recommend emergency procedures for industrial facilities. Western Australia reviews and approves these procedures

South Australia

The South Australian regulations do not specifically require emergency response plans. Contingency plans are required under conditions of licensing and registration.

Tasmania

Tasmania reviews and approves emergency plans.

Australian Capital Territory

Yes, they are reviewed by the by the ACT Chemical Biological Radiological & Nuclear (CBRN) Working Group of the ACT Emergency Management Committee and approved by the respective ACT Government Minister. The respective applicable legislation is the Emergencies Act 2004.

Northern Territory

This is part of the approval of an application for a licence to possess. The emergency response is part of the required radiation management plan.

Commonwealth

For Commonwealth organisations the emergency plan must be submitted with any licence application (ARPANS Regulations 1998 Schedule 3 Part 1). The emergency plan is reviewed and approved by the regulatory authority as part of the assessment of a licence application. The regulatory authority also takes part (as an observer) in emergency exercises.

Seq. No	Country	Article	Ref. in National Report
54	Argentina	Article 26	Section F.6

Question/ What steps of the licensing process for the decommissioning of MOATA Research
Comment Reactor have already been performed?

Answer An ARPANSA Nuclear Installation Licence has been issued to cover the removal of fuel from the Moata reactor and to place it under care and maintenance.

The licence authorises the Licence Holder to possess and control the MOATA reactor as a shut down facility in the first phase of decommissioning. The fuel of the MOATA Research Reactor has been removed for repatriation to the United States. Some items of plant have been removed. The facility is yet to be fully decommissioned.

Seq. No 55	Country Argentina	Article Article 26	Ref. in National Report Section F.6
<i>Question/ Comment</i>	Describe briefly the strategy and decommissioning plan for HIFAR reactor.		
<i>Answer</i>	<p>This preferred strategy is to:</p> <p>A. Undertake prompt removal of the fuel and heavy water coolant, and demolish the cooling towers to facilitate the OPAL research reactor development.</p> <p>B. Place HIFAR under care and maintenance while detailed planning for the licensing and ultimate demolition is carried out.</p> <p>C. Dismantle and demolish HIFAR after the Commonwealth Radioactive Waste Facility is available and a minimum decay period of ten years has elapsed after de-fuelling.</p>		
Seq. No 56	Country Argentina	Article Article 26	Ref. in National Report Section F, Page 23
<i>Question/ Comment</i>	What were the reasons for adopting a Long Term Storage strategy for decommissioning of the MOATA reactor?		
<i>Answer</i>	Australia is currently developing a Commonwealth Radioactive Waste Management Facility to provide centralised handling of radioactive waste. Originally, it was decided that a long term storage, estimated at 30 years, strategy should be adopted for the decommissioning of Moata. However, this period of long-term storage may be revised when the Commonwealth Radioactive Waste Management Facility (CRWF) is available.		
Seq. No 57	Country Canada	Article Article 26	Ref. in National Report
<i>Question/ Comment</i>	Are there any requirements for records retention in relation to the long-term management and eventual decommissioning of nuclear sites, including uranium mines?		
<i>Answer</i>	<p>The National standard for limiting occupational exposure to ionizing radiation (RPS1) (2002) includes general requirements for record keeping and the Code of Practice for the near-surface disposal of radioactive waste (RHS35) (1992) has specific record keeping requirements, see response for question 30.</p> <p>New South Wales Not applicable in NSW.</p> <p>Victoria There are no radioactive waste management facilities, within the meaning of the convention, in Victoria.</p> <p>Queensland In Queensland, State Archives are being instructed to permanently keep all records related to the possession of radioactive substances. There is an Act of Parliament which provides for such mechanisms.</p> <p>Western Australia Not currently applicable in Western Australia.</p> <p>South Australia Retention requirements for records specifically relating to long term management of radioactive wastes from uranium mines are not been currently set in legislation in South Australia. Such requirements would be part of an approved decommissioning and rehabilitation plan for such a mining operation. In South Australia, this requirement would also overlap with requirements under the Mining Act 1971.</p>		

Tasmania

Not applicable in Tasmania at present – Archives Act must be complied with for Government records.

Australian Capital Territory

Issue not relevant to the ACT.

Northern Territory

This is part of the National Standard and National Directory.

Commonwealth

Source and facility licence conditions require retention of records in relation to the long-term management and eventual decommissioning. Long term retention of records is maintained through national archiving system.

Seq. No	Country	Article	Ref. in National Report
58	Canada	Article 26	

Question/Comment How would the value of a bond for decommissioning a uranium mine be established? Can you provide details on the value and form of the bond for the Beverley uranium project? What process is followed in the revision of the bond and how is the new value established?

Answer South Australia
A rehabilitation bond is required under Section 62 of the Mining Act 1971 for such an amount as to cover the full cost of rehabilitation of the site to approved completion criteria. In case of the Beverley mine, this amount is reviewed annually in consultation with relevant Commonwealth agencies.

Seq. No	Country	Article	Ref. in National Report
59	France	Article 26	Section F Pages54-55

Question/Comment Is there any plan in Australia to homogenize the regulations linked to decommissioning in the different States and make the existence of regulations effective in a near future?

Answer Not at this stage. However, the outcomes are harmonised through the use of Code of Practice and Guidelines identified in the National Directory.

Seq. No	Country	Article	Ref. in National Report
60	Germany	Article 26	p.55

Question/Comment Keeping in mind that “in the decommissioning of uranium mining facilities, it is expected that a mining or milling company will provide appropriate technical expertise and resources for this purpose”, how is the availability of qualified staff and adequate financial resources especially for the decommissioning of U mining and milling sites ensured?

Answer Northern Territory
A financial bond is placed on all mines.

South Australia

In South Australia, decommissioning and rehabilitation of uranium mines occurs under licence conditions: the primary condition being compliance with the Code of Practice on Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005).

Under this licence condition, the operator must ensure that sufficient resources are available to allow the requirements of the radioactive waste management plan to be fully

implemented as approved by the regulator.

Seq. No 61	Country Japan	Article Article 26	Ref. in National Report p.54,line23
<i>Question/ Comment</i>	The report says “The 1999 MOATA Decommissioning Study identified options and a decision was taken to adopt a Long Term Storage option.” And the stage II is estimated as 30 years. What is the reason for 30 years? Inventory reduction? Are there any problems about the retention of knowledge about the reactor for the future dismantlement?		
<i>Answer</i>	The IAEA recommends that if the reactor tank is placed within the walls of biological shield, as is the case with Moata, that it may be desirable to leave the tank in place until there is a reduction in the radionuclide inventory through decay. There are no plans to further investigate the radionuclide inventory of the Moata reactor until there is a disposition route for the wastes produced by decommissioning. Originally, it was decided that a long term storage, estimated at 30 years, strategy should be adopted for the decommissioning of Moata. However, this period of long-term storage may be revised when the Commonwealth Radioactive Waste Management Facility (CRWF) is available. There has been a concerted effort to record as much information as possible about the Moata reactor, and ANSTO staff have witnessed and documented the decommissioning of similar reactors in the US to diminish the effects of the loss of first-hand knowledge of the operation of the Moata reactor.		
Seq. No 62	Country Korea, Republic of	Article Article 26	Ref. in National Report p.54-55
<i>Question/ Comment</i>	What are the licensing procedures and requirements for decommissioning of the MOATA reactor?		
<i>Answer</i>	The ARPANS Act 1998 requires that a licence authorising decommissioning must be obtained before decommissioning can commence. To gain a decommissioning licence, Schedule 3 Part 1 of the ARPANS Regulations 1999 requires plans and arrangements for managing safety (covering effective control, safety management, radiation protection, waste management, security, emergency arrangements and environmental protection) together with a decommissioning plan and schedule to be submitted to and approved by the Regulatory Authority. Further information is also provided in the answer to Argentina’s question on article 26.		
Seq. No 63	Country Korea, Republic of	Article Article 26	Ref. in National Report p.54-55
<i>Question/ Comment</i>	What activities have been carried out to ensure the radiological safety during the “care and maintenance” period (stage II) of the MOATA decommissioning?		
<i>Answer</i>	MOATA fuel has been removed from the reactor and placed into secure storage. The area has been fitted with alarms which are connected to the site control centre. In addition, physical barriers and swipe access control are in place to prevent any access except to authorised personnel. Every six months, there is a contamination and dose survey of all areas accessible to staff. Since 1995, monitoring has been in place, and there have been no levels measured as significant against background.		
Seq. No 64	Country Korea, Republic of	Article Article 26	Ref. in National Report p.54-55
<i>Question/ Comment</i>	What is the current status of the decommissioning for uranium mining facilities ? And What is the plan to deal with the tailing wastes?		
<i>Answer</i>	Refer to information on historical and milling operations pages 20 – 26 of Australia’s national report.		

South Australia

In South Australia there are two operating uranium mines although there are no plans to cease operations and begin the decommissioning and rehabilitation process. The Olympic Dam mine has however commenced long term studies into decommissioning and rehabilitation options for three tailings impoundments (still currently in use). Among the options are consideration of appropriate land forming, suitable rock armour and erosion resistant cover materials, and drainage systems to achieve a maximum practicable lifetime of the structure. Any decommissioning and rehabilitation plan is subject to a formal approval process to ensure inter-alia, potential dose delivery pathways are assessed and best practicable technology is used.

Northern Territory

Following abandonment of a number of small mine sites in the South Alligator River area of the Northern Territory, a hazard reduction program was undertaken in 1990/91. This included the establishment of a series of small containments at least one of which includes some tailings material. A formal agreement was later reached with the traditional owners for rehabilitation of the area as a part of the lease arrangements negotiated with the Commonwealth.

Seq. No	Country	Article	Ref. in National Report
65	Latvia	Article 26	Page 53
<i>Question/Comment</i>	“The main reactor (MOATA) structure is now in Stage II (Care and Maintenance) for a period presently estimated at 30 years.”		
<i>Answer</i>	<p>What was cause for choosing of delayed strategy (e.g. financial, minimisation of exposures, lack of disposal capacity or ...)?</p> <p>The IAEA recommends that if the reactor tank is placed within the walls of biological shield, as is the case with MOATA, that it may be desirable to leave the tank in place until there is a reduction in the radionuclide inventory through decay. There are no plans to further investigate the radionuclide inventory of the MOATA reactor until there is a disposition route for the wastes produced by decommissioning. Consequently, the storage period for this reactor will be re-examined when the Commonwealth Radioactive Waste Management Facility is available. There has been a concerted effort to record as much information as possible about the MOATA reactor, and ANSTO staff have witnessed and documented the decommissioning of similar reactors in the USA to diminish the effects of the loss of first-hand knowledge of the operation of the MOATA reactor.</p>		
66	Latvia	Article 26	Page 100
<i>Question/Comment</i>	“Prior to 1968, the then Australian Atomic Energy Commission used the Little Forest Burial Ground (an area near ANSTO’s facilities) for disposal of low levels of radioactive waste and beryllium oxide.”		
<i>Answer</i>	<p>What were the requirements for conditioning of mixed waste, in particular beryllium?</p> <p>The waste was not conditioned before disposal in the Little Forest Burial Ground. From the records collected at the time of disposal, it appears that the beryllium and beryllium oxide (powder and metal) were packaged and buried in separate locations in the facility to those used for radioactive waste.</p>		
67	United States of America	Article 26	54
<i>Question/</i>	The report does not address generic decommissioning record keeping for information		

Comment important to decommissioning. The record keeping for the MOATA research reactor appears to be more operation-oriented than decommissioning-related. Please explain.

Answer Detailed reports that contain detailed estimates of the radionuclide inventory contained in specific reactor components for 1998 and projected to 2025 have been prepared. These inventories have been used to estimate the volume of exempt waste, LLW and ILW that will be generated during the decommissioning of MOATA. In addition to this work, detailed records, photographs and documents that record the decommissioning of similar reactors in the USA have been prepared. ANSTO staff observed the dismantling of the UTR-10 reactor at Iowa State University in 2000, and the processes, techniques etc. used in dismantling this reactor have also been documented in text and photographs in ANSTO reports.

Seq. No	Country	Article	Ref. in National Report
68	Ukraine	Article 27	I, Article 27, page

Question/Comment How the safety is ensured in spent fuel transport by sea outside Australia?

Answer ARPANSA assess the transport (using approved casks) plans and arrangements including the procedures for shipment, criticality safety analysis, radiation protection program, security arrangements and other requirements set out in the Australian Code of Practice for Safe Transport of Radioactive Material (based on the IAEA Regulation 1996 (revised)). ARPANSA approval applies to transport by roads and rail (from the site to the port). In addition, sea transport is subject to the approval from Australian Maritime Authority and to multilateral approval depending on the sea transport route. It is the responsibility of the consignor to obtain multilateral approval.

Seq. No	Country	Article	Ref. in National Report
69	Argentina	Article 28	Section J

Question/Comment In the case of storage of disused sealed sources, are there security measures provided?

Answer Yes, Australia is in the process of finalising a Code of Practice for the security of radioactive sources. The Code will be incorporated into the National Directory for Radiation Protection.

Seq. No	Country	Article	Ref. in National Report
70	Bulgaria	Article 28	

Question/Comment How are the acceptance and the management of orphan sources financially provided for?

Answer Each jurisdiction would fund the acceptance and management of orphan sources as required.

Seq. No	Country	Article	Ref. in National Report
71	Bulgaria	Article 28	

Question/Comment How are the disused sources, which can not be returned to their producers, managed?

Answer New South Wales
They must be securely stored at the registered owner's premises. These premises are subject to the conditions applied to registration and are also subject to regular inspections and audits, see the response to the question by Argentina on Article 28.

Victoria

Disused sources, which cannot be returned to their producers, are stored securely on site by the license holder.

Queensland

In Queensland, disused sources may be stored in a secure radioactive substances store, under the control of the Government, or sent to other manufacturers or source recyclers following regulatory approval.

Western Australia

Alternative disposal options when waste cannot be returned to the manufacturer include:

- Transfer to another user who is appropriately licensed (ie a fixed gauge may only be transferred to a fixed gauge licence holder). There are also recommended working life (RWL) considerations that may have to be taken into account.
- Transfer of the source to a radiation consultant or storage on site until an alternative disposal solution is available.
- Permanent disposal of the source through Department of Housing and Works at the Mount Walton East Intractable Waste Disposal Facility. An application will need to be made to the Radiological Council for a disposal permit and this will only be considered if the above mentioned methods have been exhausted.

South Australia

In South Australia, at present, disused sources that cannot be returned to their producers must be stored safely by their owners, pending the establishment of a State disposal facility and store for radioactive wastes.

Tasmania

Stored on site by licence holder.

Australian Capital Territory

Currently have to be kept by the owner indefinitely. In a rare case of the owner going out of business, the government would take such sources into its custody in order to prevent creation of “orphan sources”.

Northern Territory

The responsible person stores until a disposal company can remove the source.

Commonwealth

Disused sources may be stored under secure storage arrangements covered by a licence or sent to source recyclers after regulatory approval. Commonwealth entities who manufacturer a radioactive source always accept disused sources under a memorandum of understanding with the purchaser of the source.

Seq. No	Country	Article	Ref. in National Report
72	France	Article 28	Section J P. 84-86
<i>Question/</i>	Are there provisions in each State to maintain an accurate record of all radioactive sources in the jurisdiction of the State and control their movements?		
<i>Comment</i>			
<i>Answer</i>	The Commonwealth and all States and Territories require licence holders to maintain or provide source inventories. Jurisdictions also either require notice of the transfer of a source or only allow transfer of sources between licence holders. These arrangements are supplemented by a national register of Category 1 and Category 2 radioactive sources and a protocol, which is under development, to establish a uniform national set of procedures for the transfer of radioactive sources.		

Seq. No	Country	Article	Ref. in National Report
73	Ukraine	Article 28	J, Article 28, page
<i>Question/</i>	What is the financial assurance for safety and physical protection in management of		
<i>Comment</i>	spent radiation sources, including their final disposal?		
<i>Answer</i>	Spent radiation sources are treated as radioactive waste under licences issued by the CEO of ARPANSA. In making a decision whether to issue a licence, Regulation 41 of the ARPANS Regulations 1999 requires the CEO to whether the licence applicant has shown the capacity (including financial capacity) to comply with the Regulations and licence conditions that would be imposed. Relevant safety and physical protection of radioactive sources must be applied to the spent radiation sources as required by licence conditions. It should also be noted that entities licenced under the ARPANS Act 1998 are Australian Government (Commonwealth) entities.		
Seq. No	Country	Article	Ref. in National Report
74	Ukraine	Article 28	J, Article 28, page
<i>Question/</i>	J, Article 28, page 85		
<i>Comment</i>	“...and that the sealed source is ultimately to be returned to the manufacturer for recycling or disposal. Each jurisdiction requires that such manufacturers be licensed and have”		
<i>Answer</i>	<p>Is it correct to consider, based on this statement, that the manufacturers of radiation sources have the right to dispose them in the facilities the operation of which is appropriately licensed?</p> <p>Sealed sources are returned to manufacturers and most manufacturers are located outside of Australia. If manufacturers are located within a jurisdiction; then they would need to be licenced. ANSTO is the only manufacturer of sources within Australia and is licensed by ARPANSA.</p> <p>New South Wales There are no manufacturers of these devices in the jurisdiction of NSW.</p> <p>Victoria There are no manufacturers of sealed sources in Victoria.</p> <p>Queensland No – this would only be the case if the licence held by the manufacturer provides for disposal.</p> <p>Western Australia There are no manufacturing facilities licensed to dispose of radioactive waste in Western Australia.</p> <p>South Australia With the exception of disposal of mining waste on licensed mine sites, there are no facilities licensed to dispose of radioactive waste in South Australia.</p> <p>Australian Capital Territory Issue not applicable to the ACT as there are no source manufacturers in the ACT.</p> <p>Northern Territory There are no manufacturers of these devices in the jurisdiction of NT</p> <p>Commonwealth</p>		

The Commonwealth manufacturer of radioactive sources takes back decayed radioactive sources and handles and stores these in licenced waste facilities. Australian Government policy is that such wastes will be sent to a Commonwealth owned intermediate level waste storage facility or low level waste repository (Commonwealth Radioactive Waste Management Facility). The site for such a facility is presently being considered.

Seq. No	Country	Article	Ref. in National Report
75	United States of America	Article 28	89

Question/Comment Section K states that Australia has given commitment to IAEA that it will comply with the IAEA's Code of Conduct for the Safety and Security of Radioactive Sources and states that New South Wales plans a registry of sealed radioactive sources above guideline levels. Will the guideline levels adopted for use in the registry comport with IAEA TECDOC-1344 categorization of sources of concern (e.g., Category 1 and 2)? If not, please explain the basis.

Answer Yes, the register will include Category 3 sources also.

Seq. No	Country	Article	Ref. in National Report
76	Argentina	Article 32	Section B, Page 9

Question/Comment For the continued storage of the radioactive Waste in New South Wales in case of bankruptcy of the possessors, additional information on the integration of the State Fund and on the experience acquired will be appreciated.

Answer New South Wales
In the case of bankruptcy of a registered owner of any radioactive sources any useful sources would have their registered ownership transferred. Any unused sources would then be returned to manufacturers and in rare cases where return to the manufacturers is not possible, the Government could use an environmental trust fund to maintain storage as one potential option. There have been no recent cases of this type.

Seq. No	Country	Article	Ref. in National Report
77	Argentina	Article 32	Section B, Page 11Se

Question/Comment Current situation in relation to the disposal of sealed sources in Tasmania: Are there foreseen adequate facilities for their disposal?

Answer Tasmania
Return to supplier/manufacturer is deemed adequate.

Seq. No	Country	Article	Ref. in National Report
78	Argentina	Article 32	Section L, Annex E,

Question/Comment According to statement on the Report, 1675m³ of mixed waste with an activity estimated about 150 GBq are disposed in Little Forest Burial Ground Facility. It would be worthwhile to have more details about these mixed waste and the characteristics of them.

Answer Records from the disposal of waste at the Little Forest Burial Ground Facility (LFBG) show that wastes included 59.27 kg of depleted/natural uranium and 48.05 kg of thorium. There are also 6.88g of plutonium, 5.21g of U-233 and 91.96g of U-235 recorded in the inventory of the LFBG.
A footnote to the waste compilation table states that the recorded activity and beryllium content of the waste is based on estimates provided by the waste originators and Waste Management Section and a secondary estimation of activity by measuring the surface dose of packages compared to a standard.

Seq. No	Country	Article	Ref. in National Report
79	Bulgaria	Article 32	

Question/Comment Where is the radioactive waste originating from territories that do not have operational radioactive waste storage facilities accepted for storage? Is it accepted practice to store

that waste temporarily at the producer's premises or the waste is shipped for storage in other territories?

Answer

New South Wales

There are no operating radioactive waste facilities in NSW. The non-operating waste facility administered by the regulatory authority in NSW does not accept any waste except in the case of a radiation emergency. The registered owner must store any waste or unused radioactive material. The regulatory authority would only give permission for the disposal of any sources that are to be returned to manufacturers for disposal or for reconditioning.

Victoria

Radioactive waste generated in Victoria is stored at the site of generation unless able to be disposed of via return to the supplier.

Queensland

Queensland only accepts waste into its store which has spent a substantial amount of its life in Queensland.

On a temporary basis, licensees may keep radiation sources that are no longer required in a secure store until such time as the sources may be disposed of in accordance with the Radiation Safety Act 1999, or are relocated elsewhere with the approval of the radiation regulatory authority. The radiation regulatory authority maintains a register of the sources owned by the possession licensee, including those sources that are no longer used. All sources are managed under the possession licensee's approved radiation safety and protection plan.

Western Australia

Western Australia only accepts the management of waste from radioisotopes that have been used within the state.

Disposal options include:

- Transfer to another user who is appropriately licensed (ie a fixed gauge may only be transferred to a fixed gauge licence holder). There are also recommended working life (RWL) considerations that may have to be taken into account.
- Return of the source to the manufacturer/supplier.
- Transfer of the source to a radiation consultant or storage on site until an alternative disposal solution is available.

Permanent disposal of the source through Department of Housing and Works at the Mount Walton East Intractable Waste Disposal Facility. An application will need to be made to the Radiological Council for a disposal permit and this will only be considered if the above mentioned methods have been exhausted.

South Australia

In South Australia radioactive waste that cannot be disposed under the Code of Practice for Disposal of Radioactive Waste by the User (1985) may be stored at the producer's premises. South Australia and some other jurisdictions have legislation that prohibits the import of radioactive waste from other jurisdictions.

Tasmania

Store at producer's premises.

Australian Capital Territory

Waste generated in the ACT must be kept in the ACT. Low-level waste suitable for shallow ground disposal is disposed of in designated places on the municipal tip.

Gaseous and liquid waste can be disposed of into the air and water if the concentration of

the disposed medium conforms with the provisions of the ACT legislation (currently Radiation Act 1983).

All disposal can only happen if a disposal permit is granted by the radiation regulatory authority (ACT Radiation Council).

Otherwise the disposal cannot take place.

Northern Territory

Not applicable.

Seq. No	Country	Article	Ref. in National Report
80	France	Article 32	Section D Page 29

Question/Comment Are there plans for improving the accuracy of the waste inventory, in particular for long-lived intermediate level radioactive waste?

Answer Australian regulators are developing nationally consistent operating principles and guidelines for radioactive waste in Australia. The strategy includes undertaking an audit of waste by each jurisdiction. Refer to section 4 of the Answer Support Document for details of the draft form and instruction sheet proposed to be used to conduct the audit.

The audit format was developed through the Radiation Health Committee. The audit groups Australia's waste into six categories. These categories are as follows:

- Devices containing low levels of long-lived alpha emitters (dials and luminous devices containing radium and smoke alarms containing americium)
- Devices containing higher levels of long-lived alpha emitters (radium needles and tubes, neutron sources)
- Disused sealed sources of low radioactivity (<100MBq) and gaseous tritium light sources
- Disused sealed sources of higher radioactivity (>100 MBq)
- Laboratory waste
- Residues from industrial processing and waste from remediation of contaminated sites

The categories do not include waste products arising from decommissioning, from reprocessed spent fuel and extraction of fission products from U targets. A separate strategy will be developed for these types of waste. Mining wastes have also not been included as the Code of Practice and Safety Guide for Radiation protection and Radioactive Waste Management in Mining and Mineral Processing (2005) provides specific guidance for the management of such waste.

Guidance on the management of the six waste categories has also been used in the Safety Guide for the predisposal management of radioactive waste currently being developed by the Radiation Health Committee. The safety guide advises on pre-treatment, treatment, conditioning and disposal options for each category. The Safety Guide will be published with a Code of Practice for the predisposal management of radioactive waste in the second half of 2006.

Seq. No	Country	Article	Ref. in National Report
81	France	Article 32	Section B Pages 7-11

Question/Comment Could the waste management program be better explained in order to clearly establish the long-term policy for waste classification, characterization, storage and disposal? What is the expected share of responsibilities between Australian federal Commonwealth and States institutions? What are the regulations for waste clearance? What are the current practices in this field?

Answer The responsibility for the management of radioactive waste in each State and Territory

rests with the respective State/Territory government, unless the activity generating the waste is carried out by an Australian Government agency or a contractor to an Australian Government agency: in those cases the activity is regulated by the Australian Government.

Australian Government policy is for near-surface disposal of low and short-lived intermediate level waste, at a suitable site on Commonwealth land; long-lived intermediate level waste will be stored pending further study of disposal options.

Commonwealth waste is presently stored at the site of generation, with the exception of contaminated soil from minerals processing research formerly carried out by CSIRO, which is presently stored on Commonwealth land at Woomera (South Australia).

Each jurisdiction manages its own waste however, national guidance being developed for incorporation in the National Directory will ensure national consistency.

Seq. No	Country	Article	Ref. in National Report
82	Germany	Article 32	p. 9

Question/Comment How will public opinion be regarded in the process of decision-making concerning the planned Commonwealth Radioactive Waste Management Facility (CRWMF)?

Answer The Australian Environment Protection and Biodiversity Conservation Act 1999 requires that public opinion be taken into regard during the environment assessment and approval process. Public comment can occur through written submission on assessment documents that are released for comment or through comment at public meetings or information sessions run by government regulators. The project proponent is required to tabulate and address in detail all public comments in their final impact report. Comments are taken into account during the environment assessment and approval process by DEH and approval of the proposal with conditions if appropriate by the Minister for the Environment and Heritage or delegate.

Additionally, the facility must be licensed under the Australian Radiation Protection and Nuclear Safety Act 1998 (ARPANS Act 1998). Regulation 40 of the ARPANS Regulations 1999 requires the CEO to invite submissions from the public about the licence application and Regulation 41 requires the content of these submissions to be taken into account in the decision whether to issue a licence.

Seq. No	Country	Article	Ref. in National Report
83	Germany	Article 32	p. 14

Question/Comment The report describes the radioactive waste management practices in the different states. As for the state Victoria, the report says that the DHS (Department of Human Services) gives advice on the legislative requirements in this field. Does DHS also give practical advice to licensed operators?

Answer DHS provides advice on the legislative requirements and confirms what is possible for effective and legal management of waste management proposals to ensure legislative objectives are met. DHS is not a service provider, and puts licensed operators in touch with third party service providers for specific advice regarding storage, conditioning or disposal.

Seq. No	Country	Article	Ref. in National Report
84	Germany	Article 32	p. 15

Question/Comment The report mentions that the classification system for radioactive waste as specified in IAEA Safety Guide 111-G-1.1 was appropriate for Australia with some modifications. In which way has the IAEA Safety Guide been modified?

Answer The IAEA system was modified to include additional descriptive information regarding each class of waste and the addition of a sub-classification for very low level waste was also incorporated. This sub-classification is in accordance with the Code of Practice for the Disposal of Radioactive Waste by the User (1985).

The system was also modified to accommodate bulk waste. Bulk quantities of (solid) materials containing low concentrations of either natural or artificial radionuclides were included in the exempt classification.

Bulk materials would include unmodified concentrations of radionuclides in most raw materials. The effective dose criterion for individuals was extended to 1 mSv per year for those events that have a low probability of occurring and which would result in the potential exposure of only a small number of people.

Seq. No	Country	Article	Ref. in National Report
85	Germany	Article 32	p. 29
<i>Question/Comment</i>	Are there no materials from past practices (outside the nuclear fuel cycle and U mining and milling), or have no such practices taken place in Australia?		
<i>Answer</i>	Yes. As stated under Article 12 (page 67) Australia has taken the term ‘past practices’ to refer to waste management facilities that did not exist or were not under general regulatory control at the time that the Joint Convention entered into. The remediated Maralinga lands, the site of the British nuclear weapons tests, are owned by the Australian Government and are licensed under the Australian government jurisdiction.		
86	Germany	Article 32	p. 30
<i>Question/Comment</i>	“The 100 kW MOATA research reactor was shut down in 1995, and fuel and cooling water were removed in 1996. It is presently awaiting decommissioning. Three stages of decommissioning are envisaged: post-operational care with fuel removed (current status), partial dismantling with continuing care, and complete dismantling.” a) Is any decommissioning strategy (safe enclosure; immediate dismantling) legally preferred, especially as part of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)? b) If so: What are the reasons for the preference? c) It is understood that the removal of fuel is part of the operating licence. What technical measures – in separation from the operating licence – are covered by a decommissioning licence?		
<i>Answer</i>	No particular strategy is preferred by ARPANSA. ARPANSA has assessed the adequacy of the strategy of decommissioning of the 1st stage. The decommissioning plan and schedule needs to be approved by ARPANSA before final decommissioning of MOATA. It expected that this may not happen until the proposed low level repository and intermediate level waste store are licensed.		
87	Hungary	Article 32	B(ii), p. 5-6
<i>Question/Comment</i>	What are the long-term plans for managing the ILW/HLW returned to Australia after reprocessing the spent fuel of the HIFAR and OPAL reactors?		
<i>Answer</i>	When the waste produced from reprocessing of spent fuel is returned to Australia it will be stored at the Commonwealth Radioactive Waste Management Facility pending consideration of disposal options.		

Seq. No 88	Country Hungary	Article Article 32	Ref. in National Report B (iii), p. 8
<i>Question/ Comment</i>	What kind of arrangements are planned for the disposal of LLW? Is a certain matrix (rock) envisaged for a repository?		
<i>Answer</i>	Siting of a repository would need to consider safety requirements outlined in the answer to general question from Argentina. No particular matrix is envisaged for the facility site. Safety requests will be met through a combination of natural and engineered barriers to migration of radionuclides.		
Seq. No 89	Country Hungary	Article Article 32	Ref. in National Report Ann.B p. 93-97
<i>Question/ Comment</i>	Do you have upper activity limits of your storage places?		
<i>Answer</i>	In general, no.		
Seq. No 90	Country Hungary	Article Article 32	Ref. in National Report Ann. E p.100-110
<i>Question/ Comment</i>	What is the uncertainty of the total activities in the waste inventories?		
<i>Answer</i>	ANSTO estimates that the uncertainty of its total low-level waste inventory is $\pm 20\%$. For intermediate level waste, the uncertainty in the inventory is estimated to be one order of magnitude.		
	Each jurisdiction has inventory of wastes for facilities directly under their control. Audits are being initiated for wastes on licensee premises.		
	Victoria There are no radioactive waste management facilities, within the meaning of the convention, in Victoria.		
	Western Australia Reasonably low – WA keeps accurate records of activities of radioactive materials in its waste inventory.		
	South Australia South Australia did not give activities of radionuclides; estimates of volume of waste were quoted.		
	Tasmania Low – have accurate records of activities of radioactive materials in Tasmania.		
	Australian Capital Territory Probably up to several tens of percent, however due to the low-level nature and small quantities of the waste this is not being seen as an issue in the ACT.		
	Commonwealth Each waste facility requires maintaining an updated waste inventory contained in that store. However, in relation to historical wastes the activity of the waste is based on estimation and therefore there are no specified uncertainties in these historical wastes.		
Seq. No 91	Country Japan	Article Article 32	Ref. in National Report p19, Line 1
<i>Question/ Comment</i>	We much appreciate Australian effort to elaborate the policy and practice on management of uranium mine waste and rehabilitation of waste site.		

Your report referred to radiological and non-radiological contamination. Do you think chemical hazards have more serious impact on environment than radiological hazards? In other words, do preventive and/or remedial measures taken against chemical hazards cover measures against radiological hazards?

Answer The relative importance of chemical and radiological hazards at any mine or mineral processing site will depend on the composition of the ore and waste rock, the materials used for processing, and the local environment. These factors can be different for each site; hence it is difficult to predict the relative significance of chemical or radiological hazards at any particular site. Previous experience at similar sites and with similar mining and processing technologies is a useful guide.

In general, radiological hazards are covered by radiation protection legislation, regulations and codes of practice, whereas non-radiological hazards are covered by separate legislation and regulations.

Measures recommended in Codes of Practice for disposing of radioactive wastes in Australia include waste minimisation, isolation, immobilisation, conversion of wastes to chemically inert forms, and the use of engineered barriers where appropriate. All these measure will also be effective against many chemically hazardous wastes. In terms of environmental impact, the most important of these measures are immobilisation and isolation from the surrounding environment. While these are effective for solid wastes, they are not effective for liquid or gaseous wastes.

Seq. No 92	Country Japan	Article Article 32	Ref. in National Report p 5, L18-22
---------------	------------------	-----------------------	--

Question/Comment It is indicated that the HIFAR fuel elements are transferred to a dry storage facility. Is it the same facility as the dry storage facility at MOATA?

Answer No, the HIFAR and MOATA spent fuel storage facilities are located in different areas of the ANSTO site.

Seq. No 93	Country Japan	Article Article 32	Ref. in National Report p25, btm line
---------------	------------------	-----------------------	--

Question/Comment It seems that in-situ mining with no conventional tailings is more preferable to conventional open pit mining. Which has larger impact on ground water contamination, in-situ or conventional mining?

Answer In situ-mining is usually carried out at sites where it has been established that leakage of the introduced leachate into the rock surrounding the ore is minimal.

Impacts on groundwater are monitored and assessed under regulations for existing mines. The potential impact on groundwater for any proposed new operation is assessed in an environmental impact statement which must accompany the licence application for the proposed operation.

Seq. No 94	Country Korea, Republic of	Article Article 32	Ref. in National Report P. 9(B. iii)
---------------	-------------------------------	-----------------------	---

Question/Comment How long is it expected for each step of the licensing process for the Commonwealth Radioactive Waste Management Facility?

Answer About a year for the regulatory assessment of each stage.

Seq. No 95	Country Ukraine	Article Article 32	Ref. in National Report Section B, Article 3
---------------	--------------------	-----------------------	---

Question/Comment According to the legislation of Australia all spent fuel of the research reactors is subject to processing or long-term storage outside of the country. Was the question considered

on creation on the territory of Australia of a centralised storage facility for spent fuel and waste generated after nuclear fuel processing?

Answer At page 4 of Australia’s report, Australia’s spent fuel management policy is described as follows:

‘The Australian Government’s spent fuel management policy requires that all spent fuel is to be transported overseas for indefinite storage (in the case of US-obligated fuel), or to another country for reprocessing, in the latter case with an agreement that all resulting long-lived intermediate-level radioactive waste will be returned to Australia at a mutually agreeable time for storage.’

Australian Government policy is for all radioactive waste arising from operations of Commonwealth agencies (including ANSTO) to be managed at a central facility (see pages 7-9 of the Report). The wastes arising from the reprocessing of ANSTO spent fuel referred to above will be stored at that facility. Spent fuel from Australia’s research reactors is aluminium-clad and therefore unsuitable for direct disposal.

Seq. No	Country	Article	Ref. in National Report
96	Ukraine	Article 32	B, Article 32 (ii),

Question/ Comment How is spent fuel characterised (specification of fuel cladding state – fuel element leaktightness, absence of water in fuel elements) prior to the spent fuel placement in containers for dry storage and prior to the transport for processing outside of the country?

Answer The following answer applies to HIFAR spent fuel: After initial cooling, the fuel is moved to the cropping pond and cropped about 2.5 cm either side of the fuel meat. The fuel is examined for defects, and any loose pieces produced by the cropping are removed. The fuel is then canned and stored in a pond facility until 21 months have elapsed from the time of discharge from the reactor. The fuel is then sent to the dry, long-term storage facility. In the facility, an air-proof plug is placed on top of the storage hole and a vacuum is drawn to dry the fuel. The hole is then back-filled with dry nitrogen. Prior to shipment, the fuel is returned to the pond and examined with a high resolution camera. If there is any reason to suspect a problem with the element, it is removed to a hot-cell and SIP tested to determine if there is any release of fission products. When the fuel is ready for transport, video and photographs are taken of each element, with one set of these images being supplied to the recipient of the fuel.

Seq. No	Country	Article	Ref. in National Report
97	Ukraine	Article 32	B, Article 32 (iv),

Question/ Comment Are there time limits with regard to the storage of short-lived radwaste (as mentioned, this radwaste could be stored at waste producer sites for decrease in the activity to the levels which allow disposal of the waste together with non-radioactive waste), since for radionuclides with the half-life to 30 years the storage time for reaching the necessary levels can take more than 300 years?

Answer New South Wales
In NSW all the radioisotopes that are subject to storage for decay prior to discharge have half lives of a matter of hours or days. There are no isotopes in this category that have a half life of years. Any such sources would be returned to their manufacturers.

Victoria

No. Such wastes are stored by the licensees indefinitely.

Queensland

In Queensland, each licensee is dealt with on a case-by-case basis, and arrangements for disposal are either specifically approved or, for routine disposals, dealt with via their radiation management plans.

Western Australia

In Western Australia no specific time limits are specified for storage of radioactive waste. The disposal method described applies to unsealed radioactive substances with half lives considerably shorter than 30 years used in research and hospitals.

South Australia

In South Australia no time limits are specified for storage of radioactive waste. Most of the short-lived radionuclides to which this method of management (decay and dispose) applies are unsealed radioactive substances with half lives considerably shorter than 30 years used in research and hospitals.

Tasmania

Licence conditions require that licence holders dispose of sealed sources as soon as possible after they are no longer required for use.

Australian Capital Territory

No. If the waste cannot be disposed of in the ground (under the shallow ground disposal criteria) or disposed of with air and water (under the provisions of the Radiation Act 1983) or the spent source not returned to the supplier, than such waste must at present be stored indefinitely by the owner.

Northern Territory

Not at this stage.

Commonwealth

No.

Seq. No	Country	Article	Ref. in National Report
98	Ukraine	Article 32	D, Article 32 (i), p
<i>Question/ Comment</i>	What measures are stipulated for Lucas Heights (ANSTO) research reactor spent fuel management after 2007–2008? What are the results of the research in hot chamber of dry type spent fuel storage?		
<i>Answer</i>	It is planned to remove all HIFAR spent fuel from ANSTO by about 2009, i.e. after HIFAR has been shut down permanently. There will be no further dry storage of spent fuel at ANSTO, as fuel arising from the operation of the OPAL reactor will be stored in the service pool of this reactor until it is shipped overseas (see page 6 of the National Report). The dry storage facility operates at a temperature of about 18 degrees celcius, and therefore cannot be described as a "hot chamber". There has been no research conducted on this facility; however, when removed the spent fuel elements have been found to be in excellent condition.		
Seq. No	Country	Article	Ref. in National Report
99	United Kingdom	Article 32	Section B
<i>Question/ Comment</i>	It is noted from the report that the first edition of the National Directory for Radiation Protection was published in 2004 and a second edition is currently in preparation. The Radiation Health Committee is in the process of developing an Australian Code of Practice to will enable Australia to comply with the IAEA's Code of Conduct for the Safety and Security of Radioactive Sources by rationalising the States' and Territories' approaches. What specific elements will need to be addressed in order to ensure a national consistent approach to radioactive waste management?		
<i>Answer</i>	The Code of Practice for the Security of Radioactive Sources will require that: - written approval of the regulatory is required prior to disposal of a radioactive source,		

- adequate security measures are in place and that the continued security of the radioactive source is ensured through compliance with the Code
- a radioactive source is not abandoned under any circumstances
- certain categories of sources must be registered
- rules must be complied with prior to transferring certain categories of sources from one jurisdiction to another

Seq. No	Country	Article	Ref. in National Report
100	United States of America	Article 32	6
<i>Question/ Comment</i>	The National Report of Australia states spent fuel discharged from its new OPAL research reactor before 2016 will be returned to the U.S. However, after 2016 it will be sent to COGEMA (France) for reprocessing. Australia's report states, as a further backup, such fuel is guaranteed to be sent to Argentina for reprocessing. Argentina in its National Report says it has no plans for reprocessing but will make that decision by 2030. Please explain this contradiction.		
<i>Answer</i>	An intergovernmental Agreement between Argentina and Australia notes the possibility that Australia may, at some future time, ask Argentina to arrange for processing, conditioning or reprocessing of spent nuclear fuel from OPAL. Following treatment, all resulting radioactive wastes and conditioned fuel elements would be returned to Australia for long term storage. These provisions are a contingency arrangement, giving ANSTO a third option backing up the arrangements with the United States of America and ANSTO's existing contract to reprocess spent fuel with the French company COGEMA.		

INVAP has given a written guarantee to ANSTO to provide an alternative solution for the management of spent fuel from the OPAL reactor, consistent with Australia's requirements and using proven technologies. In licensing the construction of the OPAL reactor in 2002, the CEO of ARPANSA said:

"As far as I am aware, Argentina does not process research reactor fuel in the manner proposed at this time. It does, however, certainly have facilities that would enable it to do so (I visited such a facility in December 2000), bearing in mind that processing of relatively small fuel quantities can be undertaken in hot cells, without the scale required for a reprocessing program for a full-scale power program. I understand that the technological process is available in Argentina and the activity would be regulated by the Argentine Nuclear Regulatory Authority (ARN), which is a competent and capable body."

That situation remains the case.