



7 July 2010

Ms Sylvia Kidziak AM  
Chairperson  
Radiation Health & Safety Advisory Council

Dear Sylvia,

Thank you for providing Council's report *Scoping Review of Issues Related to the Management of Intermediate Level Waste in Australia*, which I received on 28 April 2010 and have now had time to consider.

Council makes a number of general comments based on its findings; and the Report goes on to make three specific recommendations in accordance with the Terms of Reference of the study, which were to consider and discuss:

- Identification of types and volumes of intermediate level waste generated in Australia;
- International guidance on recent developments in the management and disposal of intermediate level waste;
- The current status of government policy on management and disposal of Australia's radioactive waste States, Territories and the Commonwealth; and
- The type of regulatory or other guidance required to be developed.

Council also makes additional recommendations on further issues outside the scope of the report, but of importance to the further development of the system for radioactive waste management system in Australia.

I have attached detailed responses to each of the matters and recommendations raised by Council, and would be happy to discuss these responses with Council at its meeting on 5-6 August 2010.

Thank you again for Council's advice, which will be very helpful in consideration of radioactive waste issues in Australia. Please note that after discussion with Council, I propose to make the report and my responses public by placing them on the ARPANSA web site.

Yours sincerely

Carl-Magnus Larsson  
CEO of ARPANSA

# Responses to Council Recommendations to the CEO of ARPANSA on Management of Intermediate Level Radioactive Waste

## 1. Background

In July 2000 the then CEO of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), Dr John Loy, sought advice from the Radiation Health and Safety Advisory Council (the Council) on radioactive waste disposal and storage in Australia. Council made eleven recommendations in December 2002 to which Dr Loy responded<sup>1</sup>.

In September 2008 Council provided preliminary recommendations on the issue of the management and disposal of long-lived intermediate level radioactive waste (LLILW). The then Acting CEO, Mr Peter Burns, invited the Department of Energy, Resources and Tourism (DRET) to comment on the preliminary report, and subsequently requested Council to continue its deliberations along supplementary guidelines.

Council has now completed its *Scoping Review of Issues related to the Management of Intermediate Level Radioactive Waste in Australia* (the Report) and makes a number of recommendations. I received the Report 28 April 2010.

Council makes a number of general comments based on its findings; the Report goes on to make three specific recommendations in accordance with the Terms of Reference of the study, which were to consider and discuss:

- the identification of types and volumes of intermediate level waste generated in Australia;
- international guidance on recent developments in the management and disposal of intermediate level waste;
- the current status of government policy on management and disposal of Australia's radioactive waste States, Territories and the Commonwealth; and
- the type of regulatory or other guidance required to be developed.

Council also makes additional recommendations on further issues outside the scope of the report, but of importance to the further development of the system for radioactive waste management system in Australia.

My responses to Council's comments and recommendations are provided below.

## 2. General comments

Council has provided a comprehensive review of the issues related to the management of ILW in Australia. In a number of instances, assessments have been made against best international practice, which makes the report particularly useful since I, as CEO of ARPANSA, am obliged to consider best international practice in my decision making<sup>2</sup>.

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<sup>1</sup> All Council reports, as well as the responses of the CEO, can be downloaded from the ARPANSA website, [http://www.arpansa.gov.au/Publications/RHSAC/rhsac\\_stat.cfm](http://www.arpansa.gov.au/Publications/RHSAC/rhsac_stat.cfm)

<sup>2</sup> Australian Radiation Protection and Nuclear Safety Act 1998 (the ARPANS Act), Sections 32(3) and 33(3).

I particularly note the Council advice on current best international practice as it relates to the need to address disposal as the ultimate outcome of sound radioactive waste management strategy:

*the overall picture of international best practice is that countries should have a policy and strategy for management of radioactive waste, in which storage has a legitimate temporary role provided there is a further strategy for ultimate disposal of the waste. This also leads to the conclusion that Australia's current policy of indefinite storage for intermediate level waste does not appear to be consistent with international best practice<sup>3</sup>.*

Council also highlights the IAEA requirement for the securing of financial resources in respect of the planning of disposal facilities. In the light of this international safety requirement, ARPANSA will take into consideration Council's advice that:

*Australia will need to consider how a radioactive waste management strategy would be implemented and funded to ensure that outcomes are achievable<sup>4</sup>.*

Council's interest in intermediate depth disposal techniques such as boreholes is noted, and while decisions on disposal options rest with the operator, ARPANSA will consider developing the appropriate regulatory structure, as further detailed in subsequent sections of this response.

### 3. Recommendation 1: Types of ILW and inventory

*Council Recommendation 1:*

*That the CEO of ARPANSA discuss with relevant Commonwealth Government bodies and State and Territory Regulatory bodies the need for all jurisdictions to undertake an audit of radioactive waste currently in storage, both within government controlled facilities and in other locations.*

Council bases this recommendation, among other factors, on the obligation of Australia, as a signatory to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (the Joint Convention). Under the terms of the Joint Convention, Australia is required to report, *inter alia*

*an inventory of radioactive waste that is subject to this Convention that:*  
*(a) is being held in storage at radioactive waste management and nuclear fuel cycle facilities;*  
*(b) has been disposed of; or*  
*(c) has resulted from past practices.*  
*This inventory shall contain a description of the material and other appropriate information available, such as volume or mass, activity and specific radionuclides.*

The inventory required under the terms of the Joint Convention is a **national** inventory encompassing all jurisdictions and their waste holdings.

I agree with Council's recommendation and consider an accurate inventory a vital element for planning purposes as well as for fulfilling international obligations, such as laid out in the Joint Convention. I

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<sup>3</sup> Report, p 22

<sup>4</sup> Report, p 23

would also like to point out that such analysis and audit should take into account materials flow, and when possible, changes in such materials flow, to ascertain that the radioactive waste management programme operates at sufficient capacity.

In relation to Council's recommendation, a number of actions may be considered:

- Through discussion with all relevant state and territory regulatory bodies, obtain in-principle agreement for a national inventory, seeking advice and accord on the practicalities of compiling such an inventory including audits where necessary in an agreed timeframe.
- Hold similar discussions with the Department of Resources, Energy and Tourism (DRET) and the Australian Nuclear Science and Technology Organisation (ANSTO), as well as with other relevant Commonwealth bodies.
- Emphasise with jurisdictions the need for the national inventory to include waste that is currently held under the responsibility of licensees.
- Develop a standard format for recording Australia's national inventory.
- Reach an agreement with relevant state and territory regulatory bodies on a mechanism to continually update and maintain the national inventory of radioactive waste.
- Encourage the uniform use of tools to aid with implementation including the current RHC audit forms and the IAEA Net Enabled Waste Management Database (NEWMDB) – the latter is useful in both facilitating input of Australia's waste inventory to future Joint Convention national reports, and preservation of waste inventory records.
- Note that NEWMDB meets the Joint Convention's reporting requirements for the inventory of radioactive waste and spent fuel. Utilising the database for compiling, recording and reporting will provide consistent and coherent data across Commonwealth, state and territory jurisdictions.

The preparation of the next report to the Joint Convention will commence shortly. I will consider how to best implement Council's recommendation, in collaboration with the Radiation Health Committee and other parties, and taking the above possible actions into account.

#### **4. Recommendations 2 and 3: Types of regulatory guidance**

*Recommendation 2:*

*That the CEO of ARPANSA commence a review, and if necessary revision, of the NHMRC Code of Practice for the Near Surface Disposal of Radioactive Waste in Australia (RHS 35) 1992, to ensure that it is consistent with current international best practice in radioactive waste management.*

*Recommendation 3:*

*That the CEO of ARPANSA develop regulatory guidance relevant to the use of borehole disposal for suitable types of intermediate level waste, using the IAEA Safety Guide SSG-1 as an indicator of international best practice.*

I agree with the above recommendations, but I also note that there is a need to update and supplement the available guidance on waste management in different areas, some of which have been

identified and analysed by Council, some of them not. Currently, ARPANSA is finalising a paper covering the entire waste management area. This will, *inter alia*, outline the relevant steps in radioactive waste management, consider best international practice, identify gaps in the codes, standards and regulatory guidance, and propose what new documentation is needed and how to develop such documentation.

It has already been decided that the Regulatory Guidance<sup>5</sup>, published 2006, will be updated with the end of 2010 as target date. Furthermore, ARPANSA will consider the following actions:

- Establish a working group to conduct a review of the 1992 near-surface code and advise the CEO and RHC on a proposed timetable for revision if necessary.

If revision is deemed required and the appropriate way to proceed, the working group will:

- Advise on a format for the revised code. Consideration to be given to the desirability of separating requirements from guidance in a new code, and whether separate code and guidance documents are preferable or if they could usefully be combined in the one document.
- Draft a revised near-surface code in the agreed format, taking into consideration current best international practice.

With regard to borehole disposal:

- The working group should also consider and advise on whether a separate code and accompanying guidance for borehole disposal should be produced, or combined with the near-surface code and guidance document(s).
- The same working group to draft and finalise requirements and guidance for borehole disposal in Australia based on IAEA advice and expertise in the area.

## **5. Comments in relation to other matters flagged by Council for consideration**

Council has identified seven other radioactive waste management areas that it considers are important for ARPANSA to progress, which fall outside the original request for advice and while noting that these are not necessarily matters that are directly under ARPANSA's control. The areas are identified in italics below, together with some comments on the areas.

*Collaboration with relevant Government agencies to develop a national strategy for radioactive waste management, including a system to maintain an ongoing inventory of waste and a strategy for its ultimate disposal.*

- Actions that ARPANSA will take to develop and maintain a national inventory have been presented above.
- Development of national strategy for radioactive waste management and disposal rests with DRET. Direct involvement by ARPANSA in development of national strategies may sit uneasily with our role as regulator.

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<sup>5</sup>Regulatory Guidance for Waste Management Facilities: Near Surface Disposal Facilities; and Storage Facilities, <http://www.arpansa.gov.au/Regulation/guides.cfm#9>

- ARPANSA can provide guidance on predisposal management and strategies for ultimate disposal through the use of regulatory tools (codes, guides and specific safety assessment requirements).
- The requirement on the CEO of ARPANSA under the ARPANS Act to “take into account international best practice in relation to radiation protection and nuclear safety” places a responsibility on the CEO to inform DRET of such international best practice issues relevant to national strategy and in particular, those that will apply in deciding whether to issue any facility licence.

*Strategies that could be used to improve the understanding by political decision-makers of scientific issues related to radioactive waste management.*

- The regulator has a role in this area.
- There are many politicians and policy makers who would benefit greatly from some informative presentations by the CEO and other experts within ARPANSA, while acknowledging the need to be careful that the regulator is not promoting uses of radiation or nuclear activities.

*Strategies to ensure effective and timely communication and involvement of stakeholders in consideration of proposals and/or licence applications on radioactive waste management.*

- ARPANSA has experience on this from, for example, public hearings held around major licence applications and those conducted at the sites of major stakeholders such as ANSTO.
- Internationally, stakeholder interaction, or more specifically its planning mechanisms and outcome, has been explored by the Forum of Stakeholders Confidence (FSC), under the Radioactive Waste Management Committee of the OECD-Nuclear Energy Agency. ARPANSA needs to consider the outputs from FSC in the Australian context.

*Development of generic waste acceptance criteria and national guidance on conditioning of waste to assist waste generators in preparing for future disposal options. Site-specific waste acceptance criteria would also need to be developed for any proposal to establish a waste management facility.*

- The development of specific waste acceptance criteria for a storage or disposal facility is a task for the operator.
- ARPANSA through the provision of advice and guidance on safety assessment, predisposal management and disposal of radioactive waste will develop and promulgate guidance on conditioning and generic acceptance criteria that are based on best international practice.

*Institutional control – clarification of responsibility for pre-closure and post-closure monitoring.*

- This should be part of the development of a revised near-surface code and a potential new code on borehole disposal.

*Preservation of records of waste disposal after the period of institutional control has ceased.*

- While ARPANSA as regulator won't necessarily have the answer, ARPANSA need to explore what requirements under best international practice would apply for Australian circumstances for preservation of records for suitably long periods following institutional control.
- Relevant requirements are found in the Joint Convention, for instance in Article 17 "Institutional Measures after Closure".

*Principles around financial arrangements to ensure that radioactive waste management strategies can be achieved.*

- While this recommendation relates to the matter of ensuring ongoing funding for the ultimate safe disposal of Australia's radioactive waste, which is primarily the responsibility of other areas of government, ARPANSA as regulator nevertheless has a strong interest. In response, I propose to discuss with other relevant agencies possibilities such as a nationally-agreed scheme for funding, and of how ARPANSA might contribute to the issue in light of IAEA safety requirements.

## **6. Concluding remarks**

Storage and disposal of radioactive waste in Australia has been debated recently, e.g. in relation to the *Radioactive Waste Management Bill 2010*. It is not known, at the time of writing this response, whether the Bill will be passed or not. Council's recommendations are valuable contributions to both debate and focus, that will help in guiding ARPANSA's future actions. This response identifies a number of paths the actions can take in relation to Council's recommendations. These will be considered in the Agency's further planning of activities in the waste domain.

Council is to be thanked for its valuable advice.

Carl-Magnus Larsson  
CEO of ARPANSA  
7 July 2010