



Radiation Health and Safety Advisory Council – Meeting Minutes

- Date:** 3 and 4 March 2022
- Location:** 43 Franklin Street, Adelaide, South Australia; and Microsoft Teams.
- Chair:** Dr Roger Allison.
- Members:** Dr Hugh Heggie (day 1 only), Mr Keith Baldry, Mr John Piispanen, Dr Peter Karamoskos, Dr Carl-Magnus Larsson, Prof Adele Green, Dr Jane Canestra (virtually), Prof Mel Taylor, Prof Pam Sykes, Dr Trevor Wheatley, Mr Jim Hondros (day 1 only), Ms Melissa Holzberger.
- Apologies:** Dr Hugh Heggie and Mr Jim Hondros (Day 2 only).
- Secretariat:** Ms Helen Alexander, Mr James Wheaton.
- Observers:** (Including in-person and virtual) Dr Gillian Hirth, Ivan Williams, Jim Scott, Rick Tinker, Ryan Hemsley, Ben Paritsky, Tone Doyle, Marcus Grzechnik (day 2 only), Samir Sarkar, Dr Nicholas Johnson, Dr Katie Volter.

1 - Meeting open and housekeeping

The Council toured the South Australian Health and Medical Research Institute (SAHMRI) and received presentations from SAHMRI and Molecular Imaging and Therapy Research Institute representatives, including on progress of the Australian Bragg Centre for Proton Therapy and Research.

The Chair opened the formal meeting with an acknowledgement of country. No conflicts of interest were reported and the minutes from the 16-17 December 2021 meeting were noted. Updates on actions from the previous meeting were reviewed. No correspondence was noted.

2 - CEO update on the activities of ARPANSA, the Radiation Health Committee, and the Nuclear Safety Committee

The CEO gave an overview of ARPANSA's activities, including the agency's participation in the nuclear-powered submarine program. The Council discussed cooperation between Australian, United States and United Kingdom counterparts, and the skills and capabilities required to develop an industry like this were noted as a challenge but also an opportunity to build a national capability with cooperation and support between various regulators.

The Council discussed efforts towards workforce modelling for radiation workers, noting the overheads required for technical specialist roles. It was noted that the medical field is an acute area for retaining staff, particularly for medical physicists, given international competition for expertise.

The Council discussed ARPANSA's recent regulatory decision for the approval of waste facilities at the Australian Nuclear Science and Technology Organisation (ANSTO), and the need for an Australian radioactive waste facility in line with international best practice. It was noted that ARPANSA has highlighted the need for a disposal pathway, along with the current focus on waste storage.

ARPANSA provided an update on current efforts to raise awareness of existing Australian regulations around laser pointers and develop translated regulatory guidance directed at sellers that use online marketplaces. It also noted the readvertising of the PhD scholarship in partnership with Monash University's Victorian Injury Surveillance Unit (VISU) to research cosmetic laser injuries in Australia.

The Council noted topic summaries of recent media and general-public enquiries to ARPANSA.

2(a) – Overview of new radiation courses from the University of Adelaide

Associate Professor Tony Hooker from the University of Adelaide's Centre for Radiation Research Education and Innovation (CRREI) attended the meeting briefly and gave an update on current work to launch new courses including the Graduate Certificate in Radiation Management. CRREI is working with the International Atomic Energy Agency (IAEA) to build capability in Incident Management and Emergency Preparedness and Response as well as four PhD scholarships now on offer in the Chemical, Biological, Radiological and Nuclear (CBRN) fields leading to a career pathway in the Defence Science and Technology Group (DSTG) and the Nuclear Engineering Management Program launching in November 2022. These will be open to overseas students who will be able to access funding to attend.

The Council also discussed the issue of first responder capabilities for radiological incidents, particularly in relation to recommendations from the IAEA Integrated Regulatory Review Services (IRRS) Mission to Australia in 2018 and noting ARPANSA's role in setting standards and issuing guidance can support the importance of these types of activities, by setting expectations for different types of first-responder roles.

3 - Presentation from the Bragg Centre for Proton Therapy

Associate Professor Michael Penniment introduced the Bragg Centre for Proton Therapy, which SA Health operates as the first national facility to provide clinical not-for-profit care with federal funding. Other centres are keen to work with their new machine in a purpose-built environment. Given the benefits and risks of radiation cancer treatment, proton therapy enables more precise targeting of tumours in treatment, which is of particular importance in paediatric treatment, but there are also long-term possibilities for proton therapy to be beneficial for breast cancer treatment.

The first patients are expected in 2025. The Council discussed the number of patients expected to be treated annually, the local expertise available and preparations to upskill local clinicians, and the radiation doses involved which are expected to be lower or have fewer side effects due to the increased accuracy of proton therapy, which spares critical body structures of paediatric patients.

4 - Proton therapy auditing by the Australian Clinical Dosimetry Service (ACDS)

The Council discussed the ARPANSA ACDS role in auditing future proton therapies. ARPANSA gave an update on how the ACDS proposes to audit and monitor proton therapy, having prepared for this new treatment tool since 2015 including initial research in the United States. The ACDS is developing a new primary standard method to measure and calibrate proton therapy machines and collaborate with Germany and Canada to create a transportable proton radiation monitoring device.

Council members' questions focused on the importance of national uniformity and equity of access in clinical practice, particularly as patients are expected to be referred from interstate. Additionally, meeting expectations from regulatory authorities in different jurisdictions that dose precision will be assured for interstate patients and meets accepted standards. Representatives from ARPANSA's Regulatory Services Branch are in discussions with the project management board at every stage of the process from siting, through construction to operation. The Council commended ARPANSA staff on their work and foresight preparing for this first national centre.

5 - Member representing the interests of the general public

The member representing the interests of the general public noted that several questions had been raised in their discussions with representative groups on various issues, including on the National Radioactive Waste Management Facility (NRWMF) and the recent Australian Government announcement on AUKUS and nuclear-powered submarines.

The Council discussed ARPANSA's engagement with community stakeholders on the NRWMF and reinforced its support for ARPANSA's early engagement to build trust as an independent regulator.

The Council considered issues in relation to the proposal for nuclear-powered submarines such as the importance of transparency and accountability in any regulatory system put in place, to ensure public confidence in radiation safety and security.

The Council also discussed the relevance of social health and wellbeing in regulatory decision making, in addition to physical radiation safety and health considerations.

6 - Experiences of the South Australian 2015 Nuclear Fuel Cycle Royal Commission

Rear Admiral the Hon Kevin Scarce shared his experiences as the independent Commissioner for the South Australian 2015 Nuclear Fuel Cycle Royal Commission and relayed key lessons that may be broadly applicable to nuclear industries. Regulatory independence was noted as a critical principle, with enormous respect for Australia in the IAEA, noting ARPANSA's approach to peer reviews.

Standout qualities of other overseas regulators that the Royal Commission visited were that they were transparent, open, questioning, welcoming and with peer review systems in place. Finland was given as the best example, having gone through many iterations for its deep geological nuclear waste disposal facility, with extremely high openness through a systematic process of community discussions. The Finnish nuclear regulator was one of the best-known and respected government organisations in Finland, with a culture of welcoming questions, including within the organisation.

The Royal Commission's experience was, contrary to some expectations, that the public were well equipped to discuss nuclear issues and it was worth spending the time to engage in long public

conversations, particularly with impacted communities. Critical issues included training workers to operate systems safely, community engagement, and establishing a trusted independent regulator.

7 - Nuclear-powered submarines further discussion

The Council working group on this topic led a separate discussion into how any future regulator should prepare for overseeing safety and associated national regulatory capabilities. The Council discussed how working in a coordinated manner with a large range of stakeholders, such as universities, is key to ensure a sustainable approach to resourcing and would avoid unhelpful competition between government agencies and organisations for resources that will be needed to support a surge and eventually a plateau in various nuclear and radiation projects across Australia.

The issue of early resourcing to enable a regulator to engage the public early with information about a nuclear-powered submarine program was discussed in the context of knowledge being a precursor to building trust in a regulator. It was noted that although such a program would be new to Australia there is existing credibility that ARPANSA has established through its regulation of other facilities and projects in Australia. The Council discussed the importance of a regulator understanding a project operator's perspective, to distinguish it from regulatory priorities at the outset of a project.

It was noted that the final report of the South Australian Nuclear Fuel Cycle Royal Commission's Citizens Jury had already identified parts of the nuclear fuel cycle of public interest. The Council felt that a good example of early public engagement was the way that the Citizens' Jury advertised to call on the public to 'join the conversation'. The Council also discussed the timing of early public engagement, and the benefit for a regulator of waiting until after initial feasibility work is complete, to avoid unnecessary perceptions of regulatory participation in the project 'proposal' stage.

Emergency preparedness was raised as a key area, particularly given potential implications for planning unique to Australia. The popularity of outdoor activities such as going to the beach, and tendency to rely on domestic farming and fisheries for food supply and economic benefit (jobs and exports), may be key factors for assessing impact, required responses and public advice for any radiological incident in Australia. The Council noted the 2018 IAEA IRRS mission to Australia, which included recommendations on emergency preparedness and response.

The Council discussed the interface between the top-down management of national interest projects and the need for transparency on international relationships to gain public trust, noting Australia has demonstrated this openness in other areas. It also noted the challenge of ensuring safety via regulatory oversight for high-level radioactive waste disposal, given the Australian experience establishing an intermediate-level waste disposal pathway over a similar timeframe.

Task: Nuclear-powered submarines regulator SWOT analysis

- **Working group to meet virtually in coming weeks to conduct a Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis for a future nuclear-powered submarine regulator.**

8 – Australian Radioactive Waste Agency (ARWA)

ARWA presented to Council on their work towards a National Radioactive Waste Management Facility (NRWMF). This included the process of establishing ARWA as a new government agency including the appointment of its CEO, development of a quality management system, and early work

with government stakeholders on options to consolidate radioactive waste from around Australia in line with international best practice.

ARWA noted upcoming work on environmental impacts and cultural heritage assessments. Recent flooding nearby had not directly impacted the proposed NRWMF site. The Council discussed documentation development, noting its importance given the long-term project timeframe.

The Council discussed the necessity and importance of ARPANSA maintaining an ongoing relationship with local communities as an independent regulator, noting that ARPANSA can expect a licence application to prepare a site from ARWA towards the end of 2023. ARWA noted it is working with Australian jurisdictions and current producers of radioactive waste on forecast disposal needs over the coming decades to inform their planning.

9 - National Radioactive Waste Management Facility (NRWMF)

The Council discussed (separately to ARWA's attendance) ARPANSA's own regulatory engagement and relationships already established with NRWMF stakeholders including in the local community, but also interruptions to this engagement since 2020 due to Covid-19 preventing interstate travel and in-person meetings. ARPANSA noted its intention to recommence in-person engagement.

The Council discussed the disposal of the low-level waste compared to the storage of intermediate level nuclear waste, with each having separate safety cases and being separate licensing decisions.

The Council noted the ongoing relevance of its February 2017 advice to the CEO of ARPANSA on [ARPANSA's roles as a regulator and radiation health and safety advisor for a National Radioactive Waste Management Facility - NRWMF](#). This advice was reviewed during Council's December 2021 meeting, and it was agreed that no amendments or updates are presently needed.

10 - Australian Space Discovery Centre Tour and Andy Thomas Foundation

Council members toured the Australian Space Discovery Centre in Adelaide and met with the Andy Thomas Foundation to gain an overview of the scale and short-term ambitions of the space industry in South Australia, including the relevance of radiation and nuclear applications in space technology and efforts to improve industry capability through education.

11 - Space nuclear applications

The Council heard presentations directly from industry and research representatives about historical and potential future nuclear fission power applications in space, as well as energy requirements and power sources under development for current and near-term space technology projects in Australia.

12 – Other Business

The Council was shown samples of various laser products which are cause for concern due to their output-power being a potential health hazard. This included both laser-pointers where ARPANSA is working to promote compliance with existing Australian regulations, and other laser products (such as light boxes, engravers, and cutters) for which there is currently no mandatory consumer standard. Council was made aware of early efforts to develop a consumer standard.

The Council thanked outgoing ARPANSA CEO Dr Carl-Magnus Larsson for his contribution over 12 years of tenure and Dr Larsson thanked Council's members, highlighting that the Council is a very useful resource for the agency as a mechanism for advice and horizon scanning. The next meeting is scheduled for 16 June 2022.