Australian Government
Australian Radiation Protection and Nuclear Safety Agency

arpansa

Radiation Health and Safety Advisory Council

Meeting Minutes

Date: 4-5 August 2021

Time: 09:30 AM - 12:30 PM (both days)

Location: Virtual

Present:

Council Members

Dr Roger Allison (Chair), Dr Peter Karamoskos, Dr Carl-Magnus Larsson, Dr Jane Canestra, Prof Adele Green, Assoc Prof Mel Taylor, Prof Pam Sykes, Dr Trevor Wheatley, Mr Jim Hondros, Ms Melissa Holzberger, Dr Hugh Heggie, Mr Keith Baldry, Adj Assoc Prof John Piispanen.

ARPANSA

Ms Helen Alexander, Mr James Wheaton, Ms Jenni Stiffe, Dr Chris Brzozek, Assoc Prof Ivan Williams, Mr Jim Scott, Dr Gillian Hirth, Mr Ben Paritsky, Assoc Prof Sarah Loughran, Dr Rick Tinker, Dr Peter Thomas, Assoc Prof Ken Karipidis, Dr John Javorniczky, Mr Ryan Hemsley, Mr Nathan Wahl.

Other Invitees

Mr Trent Furminger (Commonwealth Department of Health)

1. Meeting open and housekeeping

The Chair opened the meeting at 9.30am with thanks to the secretariat and requested that attendees provide feedback on the processes used for a virtual meeting.

Declarations of interests were noted with no conflicts determined, and digital meeting protocols established. Introductions were made for the benefit of new members. The previous meeting's minutes (19-20 April 2021) were noted as final and available publicly on ARPANSA's website.

Out of session items and correspondence were noted, including letters referred to the Radiation Health Committee (RHC) and ARPANSA. These included correspondence from the Australian Society of Dermal Clinicians, the Dental Hygienists Association of Australia Ltd and Australian Dental and Oral Health Therapists Association Ltd, and from the University of Melbourne (Oral Health Program).

2. UV

ARPANSA's CEO gave an update on the agency's ultraviolet radiation (UVR) activities in relation to previous Council advice (December 2019). It was noted that ARPANSA's response has been delayed by the Covid-19 pandemic, in particular in areas involving the Commonwealth Department of Health or other Commonwealth, state or territory health agencies. ARPANSA has nevertheless continued with work on UVR protection initiatives as outlined in the Council's recommendations, in addition to its current broad range of activities. Possible methods for promoting safe sun behaviour such as the use of social media were discussed and the importance of focusing on vulnerable groups including the young, tradesmen and remote workers. This has included recent re-engagement with the Commonwealth Department of Health on Council Recommendations and a memorandum of understanding with Cancer Council New South Wales (CCNSW) to collaborate on sun protection research, including a joint CCNSW-ARPANSA collaboration to study shade cloth performance used in NSW playgrounds.

The Council noted the ARPANSA and Cancer Council Victoria (CCV) commissioning of Queensland University of Technology (QUT) to study the efficacy of aerosol sunscreens for UV protection; the joint ARPANSA and Therapeutic Goods Administration (TGA) roundtable discussion on sunscreen compliance and standards; and ARPANSA's role as a joint partner supporting a special journal edition of Public Health Research & Practice (PHRP) focused on skin cancer prevention and early detection.

The Council commended ARPANSA on its ongoing UVR work around the Council's five recommended objectives, which include influencing and supporting health policies and standards, the provision of testing of clothing, fabrics, sunglasses and shade-cloths and their involvement in the globalization of the Sun Smart App in conjunction with the World Health Organization (WHO). The app is expected to be available globally in the next quarter and will be in local languages accessing local data.

ARPANSA also detailed its work on in-vitro testing for sunscreen in collaboration with Royal Melbourne Institute of Technology (RMIT), with a literature review now completed outlining the research gaps, and work to develop an in-vitro testing method will begin soon. ARPANSA is working to obtain additional funding for this research. There was discussion around Cancer Council Victoria's recent research into the use of sunscreen which shows that usage has reduced. The Council supports ARPANSA in their work to improve the rate of sunscreen usage nationally and the development of non-human testing for sunscreen internationally. The issue of documenting the current magnitude of keratinocyte cancer (aka non-melanoma skin cancer) incidence in Australia was again raised, noting there has been no proper national incidence estimate for this form of cancer for 20 years (the only contemporary population-based registry data are from Tasmania, which show an increasing average annual incidence since 1985).

The Council agreed that the pandemic has impacted ARPANSA's collaboration with other Commonwealth agencies and organisations, however noted that ARPANSA now aims to renew its focus on fostering these relationships. Council members suggested Cancer Australia, the Centre for Cancer Biology (University of South Australia) and Queensland University of Technology as possible collaborators.

3. NORM

The CEO of ARPANSA also gave an update on the Agency's activities in relation to naturally occurring radioactive material (NORM), following the Council's November 2020 advice, again noting that the pandemic had impacted ARPANSA's ability to make progress.

ARPANSA informed the Council that they are engaged with the International Atomic Energy Agency (IAEA) in the development of NORM related guidance and are also working with the International Commission on Radiological Protection (ICRP). ARPANSA is engaging with state and territory regulators as well as industry through conferences and forums, it is continuing to work towards national uniformity and ensuring that the guides and codes of practice currently in force are implemented by all the states and territories and are in line with international best practice.

ARPANSA contributed to the *Environmental Protection and Biodiversity Conservation Act (1999)* (EPBC Act) review, Council members were familiar with this review and raised the complications arising from its broad definition of the terms 'Nuclear Actions' and 'Nuclear Installation' and the inconsistency with terminology internationally. It was noted that ARPANSA's aim is for a graded and risk-informed rather than activity-based approach to regulation of NORM.

It was highlighted that the *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing* (RPS 9) and *Safety Guide for the Management of Naturally Occurring Radioactive Material (NORM)* (RPS 15) are both under revision, offering an opportunity to provide improved regulatory clarity around NORM management. The end-state goal for updating these documents has now been defined which will be presented to the RHC in the coming months.

The Council requested an update on ARPANSA's work on NORM in 12 months' time, and thanked ARPANSA for its work which some members noted will be of huge benefit to industries with NORM issues, such as the mining industry, which are looking for clarity on these matters.

Action: The Council made a request for ARPANSA to provide an update on this work in 12 months.

4. CEO update on RHC and NSC, and ARPANSA

ARPANSA's CEO gave an update on ARPANSA's activities, noting firstly that his term will finish in March 2022, with the CEO position currently advertised and applications due on 8 August 2021.

The Radiation Health Committee (RHC) is expected to meet virtually in October after its most recent meeting in March 2021. In addition to ongoing discussions on the IAEA's Integrated Regulatory Review Service (IRRS) recommendations which focus on national uniformity, the RHC will consider a new format for the Radiation Protection Series – the documents which lay out the fundamental principles, regulatory codes and general guidance on radiation safety and security in Australia. The ARPANSA CEO will soon meet the Chair of the Environmental Health Standing Committee (enHealth), an advisory body to the Australian Health Protection Principal Committee (AHPPC), to discuss the distribution of responsibilities between the RHC and enHealth in working towards outcomes to the

IRRS recommendation. The Council noted the wealth of experience and knowledge within the RHC and ARPANSA and the importance of working with enHealth to achieve national uniformity.

The Nuclear Safety Committee (NSC) met in June 2021. Referring to that meeting, the CEO gave an update to current Australian Nuclear Science and Technology Organisation (ANSTO) licensing and regulatory matters including their program of maintenance work, with the research reactor noted as an ongoing topic at the NSC.

ARPANSA presented information on public and media enquiries received since the last Council meeting. It noted that its 'Talk To A Scientist' service has been able to continue its phone service throughout the recent pandemic-related lockdowns due to the installation of a new phone system as a significant business continuity improvement. Calls from the public relating to 5G technology and electromagnetic energy (EME) were noted to have dropped compared to the previous two years.

5. Member representing the interests of the general public

The Council received, via the member representing the interest of the general public, questions from the Barngarla Determination Aboriginal Corporation (BDAC) of South Australia and the Australian Conservation Foundation (ACF), all of which were responded to by ARPANSA. The question topics included the regulation of the Department of Industry Innovation and Science's plans for a National Radioactive Waste Management Facility (NRWMF) potentially located in Kimba, SA; ANSTO's plans for the return of reprocessed nuclear fuel to Australia in 2022; and ARPANSA's role in IAEA conferences and trade agreements.

The Australian Radioactive Waste Agency (ARWA) would need to submit separate licence applications for its proposed Intermediate Level Waste (ILW) storage facility and Low-Level Waste (LLW) disposal facility at the NRWMF, noting that some information may be repeated in the two applications. Any licence granted by ARPANSA will specify the purpose of the proposed conducts and the specific conditions under which they are authorised, or ARPANSA may refuse to grant a licence for some or all proposed conducts. The Council noted the BDAC's opposition to the Department of Industry, Science and Energy Resources' (DISER's) proposed location of the NRWMF at Kimba and that the *National Radioactive Waste Management Amendment (Site Selection, Community Fund and Other Measures) Act 2021* does not list a specific site for the facility.

ANSTO will be required to submit a separate submission for the proposed extension of its ILW waste store at Lucas Heights, NSW. ARPANSA will invite submissions from individuals and bodies on ANSTO's proposal, although the appropriate type of consultation is yet to be determined. It was noted that there are no specifics available for the timing of the arrival of the ILW from the reprocessing of spent fuel from Sellafield, UK, which is expected to be stored in the already existing Interim Waste Store (IWS) facility at Lucas Heights, subject to regulatory approval.

In response to the question concerning ARPANSA's attendance at the *IAEA International Conference on Radioactive Waste Management: Solutions for a Sustainable Future*, it was noted that ARPANSA staff are very unlikely to attend this conference in-person in November 2021 due to the ongoing pandemic and the associated travel restrictions. However, ARPANSA will attend this conference virtually due to the relevance and importance of the subject matters to ARPANSA's ongoing and

future work. During the pandemic, ARPANSA staff have attended a greater number and range of international conferences due to the time and cost-saving advantages of attending virtually.

ARPANSA noted it is not involved in trade decisions and Ministerial discussions regarding Small Modular Reactors in the UK trade agreement, *The Australia-UK partnership to drive low emissions solutions* as detailed in the press release on the 29 July 2021 and has not reviewed any related material.

6. Medical Imaging

It was noted that Council's Medical Imaging working group has been in existence for a number of years and that recent data and analysis on computed-tomography (CT) scans of the lumbar-sacral spine for various age groups, which ARPANSA's Medical Imaging Team has produced, has enabled the Council working group to produce a one-page letter summarising their conclusions. The working group proposed that the Council approve this letter to be sent to the CEO of ARPANSA, and that the working group should then be closed until new data is available to reassess the situation.

The Council thanked the Medical Imaging team at ARPANSA for their analysis which was instrumental to this progress. The Council agreed to the working group's proposal that the letter be sent to the CEO of ARPANSA, and the working group be closed.

Action: The agreed draft letter is to be sent to the CEO of ARPANSA.

7. Regulator Risks

ARPANSA noted that there has been a significant increase in applications for authorisations such as licences and changes with significance for safety over the past 12 months, mainly from ANSTO. This increase has been attributed to greater focus on project work. The increase in regulatory work has posed an extra burden on ARPANSA's resources with a number of applications currently awaiting assessment. It was noted that ARPANSA met with the ANSTO CEO recently to discuss the current applications including ANSTO's proposed expansion of their ILW store.

ARPANSA also noted that it is putting measures in place to avoid the increase in applications from ANSTO affecting the regulation of smaller licensees, with a number of solutions being considered including recruiting new staff. The Council discussed the statutory risks, the difficulty of recruiting internationally during the pandemic, the limitations on recruiting independent local contractors or consultants and the importance of documenting these limitations appropriately. It was also noted that all regulatory work is cost-recovered from its licensees (who are Commonwealth entities).

The Council discussed the principle that regulation must be risk-informed and not unduly impede the business of the applicant, and the risks associated with delays in the provision of this regulatory service. The Council requested a further update at its next meeting.

Action: The Council requested an update at its next meeting.

8. International Commission on Radiological Protection (ICRP) – the future of radiological protection

The CEO provided an overview of the role of the ICRP within the international system of radiation science, philosophy, policy and regulation setting in conjunction with the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and the IAEA. It was noted that the ICRP has started a review of their system for radiological protection and the article 'Keeping the ICRP recommendations fit for purpose' was presented to the Council for its consideration and potential input to this review. Effecting these changes is likely to be a lengthy process and is currently in the inception stages.

It was noted that the ICRP is planning digital workshops and, due to the proposed inclusive approach, the Council will be able to contribute to and influence the new system. The Council agreed to further examine the article out-of-session.

Action: The Council agreed to further examine the ICRP proposal out-of-session and provide ideas for areas to discuss where the Council might contribute.

9. Electromagnetic Energy (EME) Program

ARPANSA gave an update on its activities for the Australian Government's enhanced EME program including ARPANSA's capacity building for monitoring research into the health effects of EME. Due to the program funding ARPANSA has received it has been able to invest in equipment to enable monitoring, calibration and research, including a new anechoic chamber due to come online in mid-2022.

The presentation to the Council detailed the public and international engagement that ARPANSA is undertaking as part of the enhanced EME program and planned studies including measurements of EME from 5G infrastructure across Melbourne. The measurement study will be used as a baseline so that EME levels can be reassessed in coming years once 5G networks have been widely rolled out. ARPANSA is also looking at the possibility of supplying personal meters for hire by the public.

The Council acknowledged the significant literature-based research publications that ARPANSA has already published in 2021 and discussed what ARPANSA can contribute in terms of targeted and valuable outcome-based research for the opportunities now identified. ARPANSA noted it is establishing a research framework for supporting further research into EME.

The Council were pleased to note that ARPANSA has been dealing directly with local governments who request presentations for councilors concerned about EME. The success of ARPANSA's 'Talk To A Scientist' service was also noted by the member representing the interests of the general public, with only one public enquiry related to EME being received over a two-year period, given that the public can contact ARPANSA directly for information about any concerns.

The Council requested that the details for the online event on mobile phones and health which ARPANSA's EME Program director is hosting for Science Week be circulated to members and congratulated ARPANSA on its efforts in this field.

10. Updates to the Roles and Expectations of Advisory Bodies document

It was noted that this document was last revised in 2018 and that updates will be circulated out-of-session. The Council was given a brief outline of the proposed changes, which include amendments to the requirements for declarations of interest, changes reflecting ARPANSA's new security policies, and updates to the process for managing enquiries to the Council.

11. National Strategy for Radiation Protection

ARPANSA gave an update on its work together with state and territory regulators towards a national strategy for radiation protection, which originated with the IAEA IRRS review in 2018. The IAEA IRRS observed a lack of national uniformity and recommended that all Australian jurisdictions work together to introduce a national system for radiation protection in line with international safety standards.

The Environmental Health Standing Committee (enHealth) is currently considering a draft national strategy with five key objectives (national uniformity and harmonisation; emergency preparedness and response; science driven policy; future-proofing; and lifecycle (cradle to grave management of radioactive sources) with an accompanying implementation plan.

The Australian Health Protection Principal Committee (AHPPC) has endorsed the draft national strategy and an accompanying implementation plan to go to consultation to gain input from a wider audience of stakeholders, which would include the Council's consideration out-of-session. It is expected that this consultation period will finish at the end of 2021. The Council requested that it be kept informed of progress and noted the relevance of this to the lasers topic which the Council has been focusing on recently.

12. Lasers – intentional exposure during medical and cosmetic uses

The Council heard a summary of the laser working group's recent discussions on the use of lasers for medical and cosmetic purposes, and how previous attempts at progress in this field fell short in terms of evidence of harm from the use of such lasers. A draft letter was provided to the Council for consideration, outlining a recommendation that ARPANSA work with universities to achieve more research in this field.

The Council agreed that the case for action already exists based on existing anecdotal evidence and the real risk of harm from such laser uses. It was suggested that an appropriate course of action could be to begin discussions with various relevant regulators and other stakeholders about possible actions that can be taken, while also building on the evidence base.

The Council noted that individual jurisdictions are starting to take actions on laser safety even at ministerial levels without needing recourse to extensive analytical research. It was also raised that in some jurisdictions, radiation regulators fall under the remit of the Environment Protection Authorities, where the approach to environmental regulation differs from the approach of human protection under authorities such as the various Departments of Health. This potentially impacts the approach to regulatory justification and harmonisation, based on either evidence-based and data-

driven proof of harm to the environment versus anecdotal and 'reactionary' precaution for potential risks to humans.

The Council also raised that there are different types of regulation and many ways in which expectations of compliance can be communicated to operators. The Council discussed how better coordination between bodies such as the RHC and enHealth could help advance this issue, particularly once ARPANSA has new data from further research.

The Council noted ARPANSA's recent success in the establishment of a PhD position in conjunction with the Victorian Injury Surveillance Unit (at Monash University) which will aim to provide some of the evidence the working group feels is lacking. The Council were assured that the proposed PhD will be papers-based which has the advantage that data will be made available throughout the period of study as it arises. There was strong support and thanks for those on Council who helped establish the PhD support to further ARPANSA's research into this issue.

The Council raised that obtaining data from the International Classification of Diseases (ICD) codes, whilst difficult, would be useful to assess its quality and propose changes to the data that the codes collect, in order to obtain more relevant data in future.

The Council agreed to adopt the working group's proposed draft letter and close the working group until further research and data is available for consideration.

Action: The agreed draft letter to be signed and sent to the CEO of ARPANSA.

13. Lasers – accidental exposure during public and occupational uses

The laser working group presented the outcomes of its discussions, noting a key concern in the risk of accidental laser exposure for the public and in occupational laser use is the speed at which laser technology is advancing. The high-powered lasers that present a risk of harm are now within the financial reach of a much greater tranche of society (lasers that were previously prohibitively expensive now cost under a thousand dollars) and price reductions are further enabled by reduced attention to product safety. For example, 20–30-Watt open-beam (unsafe) lasers are now available for desktop applications, and consumers can easily access cheap laser-pointers which can cause serious eye injuries.

The working group looked at ways to take action as potentially dangerous laser products become available, but before consumer market adoption is widespread. It agreed that a two-pronged approach of preventing access to a wide range of dangerous consumer products and educating the public on product risks should be the long-term priorities.

One of the main issues the working group raised is compliance with current various regulatory measures. For example, regulations for laser-pointers that are already in force but have proven hard to enforce and are therefore ineffective for ensuring safety. In the United States, a proactive model operates where registration documents for all laser products must be submitted to the Food and Drug Administration prior to a product being permitted to go on sale. The working group suggested

that a model like this could be operated through a Commonwealth agency in Australia, or through the various state and territory offices of fair trading.

Internationally, regulatory bodies working on international standards are leaning towards forcing the manufacturers to build products to the lowest power specification possible to achieve its design purpose and to limit the types of products that can be sold to consumers. The Council working group raised that there is similar interest from some jurisdictions within Australia.

The Council agreed that laser safety for public and occupational use products is an area of sufficient concern for further regulation to be considered and to justify ARPANSA taking immediate actions, including discussing how progress can be made with other government partners. They accepted that the low level of reported injuries in Australia so far may be due to the positive impact of the limited existing regulations and that we are just at the start of the increase in accessibility to laser related products. However, it was felt that more data would be of great benefit to inform future Council discussions and decision-making by ARPANSA or other national policy makers such as enHealth.

ARPANSA also undertook to coordinate with other national counterparts that could assist with this issue, noting that it had recently contacted the Australian Competition and Consumer Commission (ACCC) on how to directly engage online marketplaces to stop the import and sale of potentially dangerous lasers. Finally, the Council recommended that ARPANSA contact the Royal Australian and New Zealand College of Ophthalmologists (RANZCO) to discuss the issue and reporting.

The Council working group agreed that another key action would be to produce an issues paper, potentially published in a peer-reviewed journal and recommended ARPANSA support the development of this paper. The Council agreed that the various recommendations they have developed be passed to the CEO of ARPANSA and the working group be closed.

Action: The agreed list of recommendations to be sent to the CEO of ARPANSA.

14. Water contamination and monitoring

The Council discussed the recent revision of the Australian Drinking Water Guidelines (ADWG) by the National Health and Medical Research Council (NHMRC). The NHMRC's review of the ADWG in conjunction with ARPANSA is in line with international best practice and harmonised international guidance from the IAEA and the WHO and will shortly be ready for publication. There was discussion around aquifers which see changes in water levels over time and may now be decreasing, which affects the concentration of the radionuclides in the water, as well as the effect of climate change and local indigenous knowledge of contaminated water in regional areas. It was noted that there are also seasonal changes which contribute to the more serious instances of microbial contamination. The Council was also informed that there are now methods of removing contaminants at the point of tap.

ARPANSA scientists explained that the updated Australian Drinking Water Guidelines have changed the operational dose value to 0.3 mSv/year. This is a minor change from the existing guidelines where the operational dose is 0.5 mSv/year. This change better aligns the operational dose value with gross alpha and gross beta screening values. This will hopefully lead to

improvements in decision making for routine monitoring. It was noted that the public reporting of radiological water quality for some major water authorities has recently undergone improvements. The council discussed the lack of clarity regarding whether new controls are relevant to existing mine sites.

It was noted that recent media focus around remote community drinking water quality is heavily focused on uranium content, however the main concern is chemical toxicity rather than radiological contamination, which presents a public messaging challenge. The next review of NHMRC guidelines will be around recreational water. The Council felt that this may be an area of interest in the future.

15. Meeting close and housekeeping

It was generally agreed that the meeting had gone well in the virtual format. The existing working groups are all now closed pending further data and the ICRP paper provides the opportunity for the Council members to reflect on where they can provide useful input and support or communicate their thoughts on priorities for the proposed reworking of the framework.

It was agreed that it is better to have one two-day meeting three times a year rather than more shorter ones spread out over the year as the Council can discuss issues in more depth. The Council members agreed that while we would like to get back to face to face meetings and hope that the meeting scheduled for 24 and 25 November can go ahead in Adelaide as planned, the format used for this meeting is successful. The Council thanked the Secretariat for their efforts in enabling the meeting to go ahead.

The Council were advised that past Action items that have been completed will be kept open on Teams until Friday 6 August when they will be marked as completed and closed. The items will still be accessible to members should they wish to refer to them in future.

Meeting closed at 12.36pm.