



Australian Mobile
Telecommunications
Association

AMTA – ARPANSA Liaison Forum

Summary of the Meeting

Held on 28 July 2015



Australian Government
Australian Radiation Protection
and Nuclear Safety Agency

The Chief Executive Officers (CEOs) of the Australian Mobile Telecommunications Association (AMTA) and the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) met at ARPANSA's Melbourne office on Tuesday 28 July 2015.

The objectives of the AMTA-ARPANSA Liaison Forum are to provide an open, frank and transparent exchange of information and views on radiation safety and radiation protection issues especially in the area of Electromagnetic Energy (EME), with due regard to the different roles the organisations play.

ARPANSA UPDATE

ARPANSA has updated its website to improve navigation to information and advice most relevant to the community by introducing a new "For the Public" section (<http://www.arpansa.gov.au/Public>). This includes the revamp of fact sheets and introducing a "Frequently Asked Questions" section and a "Talk to a Scientist" program where members of the public can call ARPANSA within specific times and speak to a scientist.

The ARPANSA CEO met the CEO of the National Health and Medical Research Council in June 2015. Part of the discussion with the NHMRC CEO and staff focused on health research and its funding in relation to EME. AMTA would support a review of EME funding, which is provided by industry via a licence levy and administered by the NHMRC. Industry remains supportive of continued funding.

Other updates include:

- ARPANSA is relying more on international best practice and trusted international standards – working closely with bodies like the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the World Health Organization (WHO) to influence the development of Standards and Guidelines.
- ARPANSA is continuing to undertake measurement of EME exposures in the environment.
- New membership of ARPANSA's Radiation Health and Safety Advisory Council has been appointed this year – its involvement in EME issues so far has been on the precautionary approach.

AMTA UPDATE

The soaring demand and the rapid development of mobile phone technology have led to a need for more telecommunications infrastructure. Significant investment has been made i.e. in the 4G technologies and intensive network deployment program that includes 6000 sites (new and upgraded sites). The industry continues to work on improving accessibility of safety information for workers and the general public around mobile phone base stations; this is reflected by the launch of www.mobilesitesafety.com website last year.

Industry considers EME concerns as an important issue and supports independent research in this area. Industry is supportive of ARPANSA's presence as a non-industry authoritative body to continue providing evidence-based advice to members of the public.

Industry commented on a move in the United States by Berkeley to require retailers to distribute flyers to customers at point of sale of mobile handsets to warn of "potential risks" to health from electromagnetic energy (EME) emissions. AMTA said such information was inaccurate and misleading because all mobile phones sold in Australia were independently tested to prove they operated below Australian safety standards using internationally agreed compliance procedures.



**Australian Mobile
Telecommunications
Association**

AMTA – ARPANSA Liaison Forum

Summary of the Meeting

Held on 16 August 2016



Australian Government
**Australian Radiation Protection
and Nuclear Safety Agency**

The Chief Executive Officers (CEOs) of the Australian Mobile Telecommunications Association (AMTA) and the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) met at ARPANSA's Melbourne office on Tuesday 16 August 2016.

The objectives of the AMTA-ARPANSA Liaison Forum are to provide an open, frank and transparent exchange of information and views on radiation safety and radiation protection issues especially in the area of Electromagnetic Energy (EME), with due regard to the different roles the organisations play.

ARPANSA update

ARPANSA continued to advise the Government, and provide information to the public, on issues related to radiation protection and health impacts. ARPANSA expressed the importance of a risk-informed evidence-based approach being applied to setting standards and providing advice.

Industry update

The 5th generation mobile networks (5G) is the next major phase of mobile telecommunications standards and will provide advancement in terms of speed, coverage and capacity. The implementation of 5G will involve greater macro deployment including denser networks and more infrastructures. Industry is closely observing the Department of Communication's Spectrum review noting that the operation of 5G will require more spectrum.

EME issues

With the deployment of 5G it is expected that environmental EME levels will change. Making information available to the public on 5G will play an important role in community understanding. It was agreed that there is an opportunity to improve the format and readability of the environmental EME reports as the 5G transition occurs.

NHMRC EME research funding

Australia has two NHMRC funded EME research centres. There has been no successful NHMRC project grant awarded in recent years. Industry expressed concern that the centres now face the risk of losing capability and capacity if funding is not resolved. In a new initiative, ARPANSA is working with the NHMRC assisting in the assessment of grant applications.

Revision of ICNIRP Guidelines

The revised ICNIRP Guidelines were presented at a workshop in Cape Town in May 2015 and ICNIRP has made further changes to the limits since then. Industry welcomed the open and transparent consultative process that has been adopted by ICNIRP and identified opportunities for improvement and the need for clarification of the revised ICNIRP limits. It is expected that a draft of the revised ICNIRP limits will be released for public comment late in 2016 or in 2017.

Review of RPS3

ARPANSA will review RPS3 following the revision of the ICNIRP Guidelines and the WHO EHC publication. ARPANSA will begin investigating the process of the review to shorten the process.

ARPANSA Wi-Fi in schools measurement study

ARPANSA is currently conducting a Wi-Fi in schools measurements study. The measurements are scheduled to be completed by the end of August 2016. Information on the study results will be provided to stakeholders.



Australian Mobile
Telecommunications
Association

AMTA – ARPANSA Liaison Forum

Summary of the Meeting

Held on 16 June 2017



Australian Government
Australian Radiation Protection
and Nuclear Safety Agency

The Chief Executive Officers (CEOs) of the Australian Mobile Telecommunications Association (AMTA) and the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) met via videoconference at ARPANSA's facilities on Friday 16 June 2017.

The objective of the AMTA-ARPANSA Liaison Forum is to provide an open, frank and transparent exchange of information and views on radiation safety and radiation protection issues especially in the area of Electromagnetic Energy (EME), with due regard to the different roles the organisations play.

Industry update

The 5th generation mobile network (5G) is the immediate focus of the industry at the moment, with its rollout estimated in 2020. TPG has now entered the market as the fourth mobile phone carrier in Australia. Industry is closely observing the Department of Communication and the Arts' reviews on the Spectrum, and Powers & Immunities. The industry has expressed concern that government policy may not be able to keep up with the fast-paced proliferation of the mobile phone technology.

EME issues

The 5G network will require base stations and devices to operate under higher frequencies (above 6 gigahertz, GHz). There is a gap in international standards on compliance assessment of base stations and devices operating beyond 6 GHz. It is currently being addressed by the International Electrotechnical Commission, which in turn will feed into the Australian Standard.

The change in exposure moving to 5G

Industry informed that cumulative EME exposure levels may increase slightly with the addition of the 5G service into the market, however total EME will still be very low. As 5G is being introduced older services such as 2G and 3G will be phased out and since the 5G network also operates more efficiently, the average EME exposure to a person may potentially be reduced.

NHMRC EME research funding

Industry continued to express concern about the potential loss of capability and capacity of Australia's centre of research excellence on EME. ARPANSA will continue to have ongoing discussions with all other relevant government agencies to find a short-term and long-term solution to the funding of research on EME.

Revision of ICNIRP Guidelines

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) was expected to publish its guidelines after the publication of the World Health Organization's Environmental Health Criteria (EHC) review on the health effects of EME. It is now anticipated that the publication of the EHC will be further delayed hence it is not clear whether ICNIRP will publish its guidelines irrespective of the EHC.

Review of RPS3

ARPANSA is planning to start the process of reviewing its Radiation Protection Standard no.3 (RPS3) this year. ARPANSA will adopt the values of exposure limits from the revised ICNIRP Guidelines once they become available – in the meantime ARPANSA will review the content of the RPS3 document except the exposure limit values.

Review of ARPANSA Environmental EME Report

The EME report has been reviewed this year by a stakeholder working group and will be considered by ARPANSA. The revised EME report is currently being reviewed by the ARPANSA's Communications team and is also planned to be reviewed by an internal ARPANSA Focus Group before its release.



Australian Mobile
Telecommunications
Association

AMTA–ARPANSA Liaison Forum

Summary of the Meeting

29 March 2018



Australian Government

Australian Radiation Protection
and Nuclear Safety Agency

The Chief Executive Officers (CEOs) of the Australian Mobile Telecommunications Association (AMTA) and the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) met at 619 Lower Plenty Rd, Yallambie.

The objective of the AMTA-ARPANSA Liaison Forum is to provide an open, frank and transparent exchange of information and views on radiation safety and radiation protection issues especially in the area of Electromagnetic Energy (EME), with due regard to the different roles the organisations play.

Industry update

AMTA provided an update on significant technology changes occurring in relation to 5G, and the needs for research to fill current gaps in knowledge were discussed as emerging challenges. It was noted that recent global industry forums have discussed technical challenges facing the rollout of 5G technology in various countries.

5G and EME trials

Industry representatives and AMTA gave ARPANSA an overview of how they expect 5G technology to be deployed and utilised in Australia, including some information on EME implications. A summary was provided of current trials of 5G technology currently underway, including deployment, testing and measurement of EME outputs.

World Health Organisation (WHO) Environmental Health Criteria (EHC)

The WHO is undertaking a health risk assessment of radiofrequency fields (RF), to be published as a monograph in the EHC Series. Project delays have required the project to be delivered as two separate documents – a review of the scientific literature and an assessment of the potential adverse health outcomes.

Revision of ICNIRP Guidelines

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) was expected to publish its guidelines for high frequency after the publication of the WHO EHC on the health effects of RF. It is now anticipated that ICNIRP will publish its draft guidelines, irrespective of the WHO EHC, in July 2018.

Review of Radiation Protection Series No.3 (RPS 3)

ARPANSA provided an update on the review of RPS 3 – the *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz (2002)*. The review of RPS 3 will consider updated guidance from ICNIRP.

NHMRC EME research funding

ARPANSA noted it continues to have ongoing discussions with relevant government agencies to find a solution to the funding of Australia's EME Program, including ARPANSA's own activities as well as research funding administered through the National Health and Medical Research Council (NHMRC). The immediate and ongoing viability of Australia's EME Program was discussed and the need to build a sustainable and independent national funding model to achieve health and safety policy objectives which support industry and the Australian community.

Other business

Anticipated changes to the *Radiocommunications Act 1992* were discussed.



Electromagnetic Energy Reference Group (EMERG)

Meeting Minutes

Date: 19 October 2017

Location: RMIT Building 80 (Swanston Street); Room no. 80-7-7

Chair: Dr Rick Tinker - ARPANSA

Members: ARPANSA, Department of Health (DoH), Department of Communications and the Arts (DoCA), Australian Communications and Media Authority (ACMA), Stop Smart Meters Australia, Castle Hill High School P&C, No Towers Near Schools, Australian Mobile Telecommunications Association (AMTA)/Mobile Carriers Forum, Australian Centre for Electromagnetic Bioeffects Research, University of Wollongong, Australasian Faculty of Occupational and Environmental Medicine, Australian Communications Consumer Action Network, National Health and Medical Research Council (NHMRC), SafeWork Australia

Secretariat: Lydiawati Tjong

Apologies: Nil

Invitees: ARPANSA (Dr Rick Tinker, Dr Gillian Hirth, Dr Ken Karipidis, Ms Lydiawati Tjong, Ms Shailla van Raad, Mr Nathan Wahl, Mr James Wheaton) Department of Health (Dr Gary Lum), Australian Communications and Media Authority (Mr Colin Payne, Mr Steve Petersen), Department of Communications and the Art (Ms Chaudie Wong, Mr Peter Good), Stop Smart Meters Australia (Mr Steven Weller), Castle Hill High School P&C (), No Towers Near Schools (Mr Ian Gray), Australian Centre for Electromagnetic Bioeffects Research/University of Wollongong (Prof Rodney Croft), Australian Mobile Telecommunications Association/Mobile Carriers Forum (Mr Ray McKenzie), University of Wollongong (A/Prof David Mercer), Australasian Faculty of Occupational and Environmental Medicine (Dr Graeme Edwards), Australian Communications Consumer Action Network (Ms Narelle Clark), National Health and Medical Research Council (Ms Alice Williams), SafeWork Australia (Dr Howard Morris)

1. Morning Session: Business Arising

Item 1.1 EME Funding Update

ARPANSA

A closed meeting involving all relevant government departments and agencies (DoH, DoCA, NHMRC, ACMA, and ARPANSA) was held prior to the EMERG meeting to discuss the future of electromagnetic energy (EME) funding in Australia. With the significant developments in technologies over the last twenty years, and gaps identified in research and public information, ARPANSA has arrived at the view that the current funding levels in the EME program are not sustainable. The relevant parties are now considering different options to address future funding challenges. The opportunity for any transition of ownership and potential funding increase is likely to occur as part of changes to the funding mechanism (*Radiocommunications Bill 2017*). This is expected to be in 2019.

The funding for the Centre of Research Excellence based in the University of Wollongong has been granted recently for the amount of \$2.5 million. The amount of EME funding left is now \$540K. Mr McKenzie requested for an update on EME funding with a focus on the amount of money available.

Action 1: ARPANSA/NHMRC to provide an update on the EME Funding amount at the next meeting

Item 1.2 Engage with Department of Health on EHS

ARPANSA

ARPANSA informed EMERG that there was no progress on engaging DoH for a way forward in the management of EHS by medical professionals since the last meeting. It was acknowledged that this matter was captured in the EMERG Action Plan 2017-2018 so ARPANSA still intends to pursue this matter further. There was a suggestion to explore the suitability of the information surrounding chronic multi-symptom illness provided by Dr Edwards, which may be applicable to electromagnetic hyper-sensitivity (EHS), and this will be considered by ARPANSA. Professor Croft offered a possible collaboration for the development of EHS guidance material. A draft document on the way forward in engaging with medical professionals on EHS will be produced by the next EMERG meeting and there will be an opportunity for feedback.

Action 2: ARPANSA to draft a document on a way forward to engage with medical professionals to raise awareness on EHS by the next meeting

Item 1.3 EME Report Revision

The EME Report has progressed to its final revised version. The revised version has now incorporated changes by the ARPANSA Communications team and a graphical map produced by the industry. The implementation of the new EME Report format will occur within the next 6 months. There was a question on the overall use of the environmental EME reports by members of the public. Mr McKenzie will obtain the statistics on the Radio Frequency National Site Archive web visits, specifically on EME reports.

Action 3: AMTA to report on usage statistics of EME reports at the next meeting

Item 1.4 Reply to Letter on ARPANSA Wi-Fi in Schools Measurement Study

ARPANSA has responded formally to the criticisms of the ARPANSA Wi-Fi in Schools Measurement Study, as published in Radiation Protection Dosimetry. The published letter was circulated to EMERG in July 2017.

Item 1.5 Wi-Fi Measurement at Castle Hill High School

In August 2017, ARPANSA conducted measurements of RF fields from Wi-Fi and other sources at the Castle Hill High School (CHHS). All of the measurement results were well below the general public exposure limit of the Australian RF Standard. In general, the measurement results were within the range of values obtained from the measurement of 23 schools involved in the ARPANSA Wi-Fi in Schools study.

Switching mechanisms of the Wi-Fi access points have been implemented in CHHS where the Wi-Fi access points can be turned off and on as required via a wall switch. ARPANSA requested information on these switching mechanisms. Mr Weller requested for a revision on the "Wi-Fi and health" fact sheet to include the precautionary approach. ARPANSA offered to have a conversation with Mr Weller offline and will report at the next EMERG.

Action 4: ARPANSA to have an offline conversation with Mr Weller and report at the next meeting

2. Afternoon Session: General Business

Item 2.1 International Updates: WHO Fundamentals & EHC; ICNIRP Guidelines, Revision of RPS3

The World Health Organization (WHO) Radiofrequency Fields (RF) Environmental Health Criteria (EHC) is delayed with no definite completion date due to the change in the WHO's internal processes that all health risk assessment should now go through independent systematic review. The WHO does not currently have funding allocated to carry out these reviews. In absence of the WHO EHC, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) may still proceed with its draft guidelines with a public consultation draft likely to be out by June 2018. ICNIRP hopes that WHO releases its draft EHC out for public consultation around the same timeframe. If WHO is unable to release the public consultation draft by June 2018, ICNIRP may conduct its own review. The RPS3 has undergone its first phase of revision (mainly on the protection strategy) and a draft (minus the limits section) will be considered by the Radiation Health Committee.

Item 2.2 ARPANSA Public Enquiries Dashboard

The volume of enquiries received by ARPANSA have declined over the years which may be due to better availability and accessibility of information on the ARPANSA's website. The top three issues in the third quarter of 2017 (July – September) were power lines, the UV index webpage, and base stations. ARPANSA will continue to promote the Talk to a Scientist program which is a service provided for members of the public to talk directly with a scientist on radiation protection topics. The public enquiries dashboard has been committed to be an ongoing agenda item for future meetings.

Item 2.3 Public Concerns

Mr Weller raised topics of concern surrounding ARPANSA's role as a radiation protection body, including the inaccuracy of ARPANSA assessments on the science, questions around ethics and lack of transparency. ARPANSA suggested that at future meetings, Mr Weller should have a narrow focused question where each EMERG member can contribute for a more meaningful discussion, which was agreed.

Item 2.4 ARPANSA Communications Strategy

Ms van Raad gave an overview of the new ARPANSA website especially on the main changes and improvements from the previous website. The renewed website was designed to follow the government's accessibility guidelines. Following the release of the new website, a content review is currently being undertaken. Old information is still available via the National Web Archive. As one of the deliverables captured in the EMERG Action Plan 2017-2018, EMERG was invited to provide feedback on the new ARPANSA website.

Action 5: EMERG to provide feedback on the new ARPANSA website

Item 2.5 Other Business

It was decided that the special topic for the next EMERG meeting is on 5G. Emerging issues surrounding the 5G technology will be presented by an industry representative at the next meeting.

Action 6: AMTA to present on the 5G emerging issues at the next meeting

DoCA was seeking community feedback on possible changes to telecommunications carrier powers and immunities. The proposals would amend the Telecommunications (Low-impact Facilities) Determination 1997 (LIFD), the Telecommunications Code of Practice 1997 (Code) and potentially, Schedule 3 to the *Telecommunications Act 1997* (the Act). DoCA is continuing its engagement with the relevant stakeholders and will provide an update to EMERG at the next meeting.

Action 7: DoCA to update EMERG on the powers and immunities consultation at the next meeting

The current EMERG Action Plan will end in June 2018. It was agreed that a draft of the next EMERG Action Plan will be tabled at the next meeting.

Action 8: ARPANSA to draft the EMERG Action Plan for Jul 2018 to Jun 2019 for tabling at next meeting

Lydia Tjong's role as the EMERG secretary ended at the 19th October meeting. James Wheaton is the new secretary of EMERG effective 20th October 2017.

Released under the FOI Act June 2019



Electromagnetic Energy Reference Group (EMERG)

Meeting Minutes

Date: 8 May 2018

Location: Yarra Room, 619 Lower Plenty Rd, Yallambie

Chair: Dr Rick Tinker - ARPANSA

Members: ARPANSA, Department of Health, Department of Communications and the Art, Australian Communications and Media Authority, Stop Smart Meters Australia, Castle Hill High School P&C, No Towers Near Schools, Australian Mobile Telecommunications Association/Mobile Carriers Forum, Australian Centre for Electromagnetic Bioeffects Research/University of Wollongong, A/Prof David Mercer (University of Wollongong), Australasian Faculty of Occupational and Environmental Medicine, Australian Communications Consumer Action Network, National Health and Medical Research Council, SafeWork Australia.

Secretariat: James Wheaton

Apologies: Nil

Invitees: ARPANSA (Dr Rick Tinker, Dr Gillian Hirth, Dr Ken Karipidis, Ms Lydiawati Tjong, Ms Shailla van Raad, Mr Nathan Wahl, Mr James Wheaton) Department of Health (Dr Gary Lum), Australian Communications and Media Authority (Mr Colin Payne, Mr Steve Petersen), Department of Communications and the Art (Ms Chaudie Wong, Mr Peter Good), Stop Smart Meters Australia (Mr Steven Weller), Castle Hill High School P&C [REDACTED] No Towers Near Schools (Mr Ian Gray), Australian Centre for Electromagnetic Bioeffects Research/University of Wollongong (Prof Rodney Croft), Australian Mobile Telecommunications Association/Mobile Carriers Forum (Mr Ray McKenzie), University of Wollongong (A/Prof David Mercer), Australasian Faculty of Occupational and Environmental Medicine (Dr Graeme Edwards), Australian Communications Consumer Action Network (Ms Narelle Clark), National Health and Medical Research Council (Ms Alice Williams), SafeWork Australia (Dr Howard Morris)

1. Morning Session: Focus topic – 5G Technology

Item 1.1 5G Technology

Mike Wood

Mike Wood presented on the developments towards 'fifth generation' (5G) wireless technology for telecommunications uses. In particular, it was noted that Telstra's 5G innovation centre was now under licence, including testing and measurement of 5G technology. A summary of potential future applications and use-cases of 5G, such as mobile medical diagnostics, was provided along with an overview of how the technology works including standards and specifications for operation.

Item 1.2 5G Bio-effects

Dariusz Leszczynski

Dariusz Leszczynski presented on the health and environment impacts of millimetre waves within the 5G spectrum, with the key point that the current approach assumes safety, despite lagging and limited

biomedical research in this area. He noted that the World Health Organisation defines health as being inclusive of both physical and mental, as well as social wellbeing.

Item 1.3 5G Bio-effects

Andrew Wood

Andrew Wood discussed current publications and studies into the bio-effects of 5G, noting the skin effects and tissue absorption of millimetre waves. Current applications such as the focussed-millimetre wave technology considered for non-lethal weapons use were noted, along with outlines of current projects, including the building of a model for the hands/skin, and looking at radiofrequency workers' responses.

Item 1.4 5G standards

Rodney Croft

Rodney Croft noted that his presentation represented his own personal perspective, and not that of the International Commission on Non-Ionising Radiation Protection (ICNIRP). An update on current work within ICNIRP was provided, including the update to guidelines from the previous version with a summary of 5G related changes, noting the 1998 guidelines already dealt with this frequency.

Item 1.5 5G Technology – Discussion

Following the above presentations, the discussion on 5G technology covered a range of issues. EMERG discussed ICNIRP's rationale for setting limits, and considerations of bio-effects that are not felt. The thermal effects of 5G and other considerations with regard to 5G technology were also discussed.

2. Afternoon Session: General Business

Item 2.1 ARPANSA's approach to risk management (including non-ionising radiation)

ARPANSA

ARPANSA gave an overview of the concept for ARPANSA's approach to risk management (the framework). An EMERG member asked how many risks were identified, and it was noted the tool is modality dependent. An introduction to risk principals was given, noting a recent (U.S.) National Toxicology Program (NTP) study.

Action 1: ARPANSA to publish approach to risk management framework in due course.

Item 2.2 ARPANSA Public Enquiries Dashboard

An overview of the Public Enquiries Dashboard was presented to EMERG.

Item 2.3 Public Concerns

Items of public concern were presented to EMERG for consideration.

The first topic of concern raised surrounded the recent U.S. NTP study (also noted above). ARPANSA provided an update and it was further discussed and noted that, as part of ICNIRP, there was a very clear view that nothing has been shown from the NTP study results so far that needs immediate action. Until the comparisons and other parts of the studies are published, it is hard to give weight to the results published so far. EMERG also discussed the peer review of the NTP study's methodology.

Action 2: EMERG agreed to consider the NTP study results at its next meeting.



An EMERG member then gave a presentation on their view of non-ionising radiation research needs.

A third community concern regarding the health impacts of wireless infrastructure was presented, noting in particular a proposed connection to brain cancer rates, including subtypes such as glioblastoma multiforme. ARPANSA noted the impending results of its brain tumour study. Also raised were concerns around legal pressure on landlords to sign leases for the installation of telecommunications infrastructure, and ability of telecommunications industry to install towers regardless of landlord or community agreement. Also presented was an analysis of 242 peer-reviewed studies and effects relating to oxidative stress. ARPANSA was asked to provide a response on the scientific evidence on oxidative stress as a key possible mechanism of biological damage by RF exposure.

Action 3: ARPANSA to provide a response on the scientific evidence on oxidative stress as a key possible mechanism of biological damage by RF exposure.

A final issue of public concern tabled for EMERG consideration related to manufacturer RF labels and information on RF-emitting devices. The issue noted was the determination of what type of consumer information should be provided on consumer RF products. It was noted that in Berkeley, California (U.S.) a local Council now required device labelling (subject to U.S. Supreme Court appeal).

Action 4: ARPANSA will monitor developments on this case with a potential update to be given at the next EMERG meeting.

Item 2.4 EMERG Action Plan for 2018-2019

ARPANSA noted that its agency-wide planning process is currently underway, with the Federal budget due tonight. It was undertaken to circulate a draft action plan out-of-session following the completion of ARPANSA's corporate and branch planning process.

Action 5: ARPANSA to circulate draft EMERG Action Plan in due course.

Item 2.5 Other Business

An update on the issue of Electromagnetic Hypersensitivity (EHS) awareness for medical professionals was requested, and ARPANSA noted that limited agency resources and the re-deployment of key staff was limiting the agency's ability to progress this issue. The Department of Communications and the Arts provided an update on telecommunications carriers' powers and immunities. ARPANSA also committed to circulating the World Health Organisation (WHO) basic safety standards for non-ionising radiation.

Action 6: ARPANSA to circulate the WHO basic safety standards for non-ionising radiation

ARPANSA provided an update on the application of Commonwealth funding to support Australia's electromagnetic energy (EME) program. NHMRC noted that research funding currently supported two centres of research excellence (CRE's), with 2 applications for standalone research projects received this year. NHMRC is working with ARPANSA on determining the suitability of these applications.



Electromagnetic Energy Reference Group (EMERG) Meeting Summary

Date: 23 October 2018

Time: 1.00pm – 5.00pm

Location: Board Room, 99 Commercial Rd, South Yarra

Chair: Dr Rick Tinker (ARPANSA)

Members: **ARPANSA** – Dr Gillian Hirth, Dr Ken Karipidis, Rohan Mate
Australian Centre for Electromagnetic Bioeffects Research/University of Wollongong
 (ACEBR/UOW) – Prof Rodney Croft, Dr Sarah Loughran
Australian Communications and Media Authority (ACMA) – Mr Cuong Nguyen
Australian Mobile Telecommunications Association (AMTA) / Mobile Carriers Forum (MCF)
 – Mr Ray McKenzie
Australasian Faculty of Occupational and Environmental Medicine – Dr Graeme Edwards
Castle Hill High School P&C – [REDACTED]
Department of Communications and the Arts (DOCA) – Ms Chaudie Wong, Ms Danielle Day
National Health and Medical Research Council (NHMRC) – Ms Helen Tait
No Towers Near Schools – Mr Ian Gray
Safe Work Australia – Ms Jackii Shepherd
Stop Smart Meters Australia – Mr Steven Weller
University of Wollongong – A/Prof David Mercer

Apologies: Dr Carl-Magnus Larsson (ARPANSA), Mr Nathan Wahl (ARPANSA), Mr Colin Payne (ACMA), Dr Gary Lum (Department of Health),

Secretariat: Mr James Wheaton (ARPANSA)

Invitees: Dr Geza Benke (Monash University)

Observers: Ms Sharon Harrison (Monash University)

1. First Session:

1.1 Meeting open and confirmation of previous minutes Chair

The meeting opened at 2.07pm and the Chair welcomed everyone, thanking the host Monash University for providing facilities and arrangements. Apologies were noted. A short introduction to the radiofrequency (RF) electromagnetic energy (EME) research work of Monash University was provided. Minor amendments to the draft Minutes of 8 May 2018 were noted for changing and further final circulation.

Action 1: Amend draft 8 May 2018 meeting minutes as requested and re-circulate to group.

1.2 Update on action items Chair

The Chair reviewed the status of outstanding action items. There were no comments. Papers in response to two action items were presented to the group for consideration. These were: a request for ARPANSA to provide a response on the scientific evidence on oxidative stress as a key possible mechanism of biological damage by RF exposure; and, a request for ARPANSA to monitor developments on the RF label Supreme Court case in Berkley, California. Two members noted that they had hoped the response presented on the issue of oxidative stress would have included medical expertise. It was noted that resources required for medical expertise to review this issue would be prohibitive – the ‘biomarkers’ noted in some studies are problematic as health indicators as they do not necessarily translate into clinical endpoints.

1.3 Overview of International Commission on Non-Ionising Radiation Protection (ICNIRP) revised radiofrequency guidelines Prof R. Croft

A broad update on the state of the revised ICNIRP radiofrequency guidelines was presented. A question was posed on why certain limits in China and Russia are far more conservative – it was noted that this may be due to the standard point of measurement being far further from the EME source in those countries. A further question was posed about ICNIRP’s decision to go ahead and review the guidelines without waiting for further possible World Health Organisation (WHO) Environmental Health Criteria (EHC) input – it was noted that ICNIRP did look at some of the scientific issues and determined it was worth proceeding without input from the EHC review which remains unfunded indefinitely. It was asked whether 5G technology was a driving reason for the review, however it was noted that this was not a significant factor due to the extremely low exposure expected from this technology. The timeframe for public release of the guidelines, following consideration of public consultation comments, will be *approximately* May 2019.

1.4 Revision of Radiation Protection Series (RPS) No. 3 – Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields 3kHz to 300 GHz Dr K. Karapidis

An update on the revised RPS No. 3 was provided to the group. It was noted following member questions that ARPANSA relies upon for international guidelines, with the substantial source as ICNIRP, and that the precautionary approach would not be included in the document at this stage. There will be targeted public consultation with final release due after the release of the ICNIRP guidelines.

Action 2: ARPANSA to give update on World Health Organisation Environmental Health Criteria.

2. Second Session: General Business

2.1 “For the record”

Mr S. Weller

A presentation was given highlighting a member’s history of matters brought before or discussed at the group since 2014, particularly around electromagnetic hypersensitivity (EHS). Among other issues, it quoted a past statement from ARPANSA that the agency does not have extensive medical (clinical) expertise, made claims that ARPANSA has misrepresented the science in its Technical Report 164, and highlighted a community database of studies purporting to show bio-effects from RF EME. It also claimed deficiencies in handling of public complaints, due to concerns allegedly remaining unaddressed, and a range of other matters allegedly being ignored, then critiqued a possible ‘nocebo effect’ explanation proposed previously.

NHMRC was criticised for its research funding allocation process, as was the alleged bias of ‘industry committed scientists’ who may have conflicts of interests in ICNIRP and studies. The presentation accused ARPANSA of underestimating the risk of ‘potential’ negative health effects of RF EME. A request was made to ‘involve’ the Radiation Health Committee and Radiation Health and Safety Advisory Council, two ARPANSA statutory bodies. A roadmap for the future from ARPANSA was also requested.

A group member provided a firm counter-view that being industry-resourced for research does not necessarily mean there is an ethical challenge. It was separately noted that ICNIRP has strong guidelines for avoiding conflicts of interest and no potential instances of conflict could be identified presently.

2.2 Unanswered Community and Scientific Concerns

A paper was presented noting outstanding requests, including a request for the release of Australian population data, would be completed as far as possible shortly. The second request was that the group note Mobile Carriers Forum (MCF) position on the use of legal force by it or its members to acquire sites for wireless infrastructure – it was noted that MCF itself cannot use legal force, and that the deployment code is followed. It was noted that MCF expects that its members follow the provisions of any relevant law. The third issue of a request for ARPANSA to utilise the medical (clinical) expertise in the group to review studies on oxidative stress was discussed. Medical expertise members noted the size of the task meant this was unlikely – it was also noted ARPANSA does not have resources to undertake a full review of such studies.

2.3 ARPANSA Public & Media Enquiries Dashboards

Chair

A summary of recent public and media enquiries that ARPANSA has received was presented to the group.

2.4 Public Concerns

S. Weller

A member raised a number of concerns regarding alleged issues with ARPANSA’s approach to risk management including the precautionary approach, the proposed next steps on EHS, and ARPANSA’s identified research needs. It was noted that ARPANSA’s Corporate Plan contains a high level risk register. It was further noted that ARPANSA had recently engaged the Department of Health to discuss avenues available for further addressing the needs of members of the public that identify with EHS syndrome. It was further noted that ARPANSA has no plans to do a ‘whole of literature’ survey due to limited resources.

Action 3: Seek an update from the Department of Health on considerations of ways to address EHS.

2.5 EMERG Action Plan for 2018-2019

Chair

ARPANSA noted that relevant planning for a future EME program was currently underway, and being guided by the strategic priorities in ARPANSA's Corporate Plan (available on website publicly). It was noted that resources were limited to commit to many activities.

Action 4: ARPANSA to create an Action Plan for 2018-2019 including RPS public consultation and EME program review, including the role of EMERG, to be circulated with the draft minutes/meeting summary.

2.6 Other Business

Chair

The upcoming ACEBR Science and Wireless forum was noted. The harmonisation of ARPANSA's approaches to ionising and non-ionising radiation were discussed.

Action 5: ARPANSA to provide an update on harmonising its approach to ionising and non-ionising radiation at the next meeting.



Radiation Health & Safety Advisory Council (RHSAC)

Meeting Minutes

Date: 16-17 November 2017

Time: 12.00pm-5.00pm (day 1) and 9.00am-4.00pm (day 2)

Location: 38-40 Urunga Parade, Miranda NSW 2228

Chair: Dr Roger Allison

Members: Mr Keith Baldry, Dr Jane Canestra, Ms Melissa Holzberger, Dr Carl Magnus Larsson, Mr Niall Byrne, Prof Pamela Sykes, Dr Melanie Taylor, Mr Simon Critchley, Ms Geraldine Robertson, Mr Frank Harris, Dr Hugh Heggie

Apologies: Melissa Holzberger (day 1), Prof Adele Green (both days)

Secretariat: Mr James Wheaton, Mr Ben Paritsky

Invitees: Dr Gillian Hirth, Dr Rick Tinker, Dr Ivan Williams, Mr Jim Scott, Mr Ryan Hemsley, Dr Marcus Grzechnik, Ms Kathryn Green, Ms Tone Doyle

Observers: None

1. Standing items

Item 1.1 Meeting opening and confirmation of minutes

The chair welcomed all attendees and noted the apologies listed above. The minutes of the June 2017 meeting were noted as having been agreed out-of-session. The outcomes of the June 2017 meeting action items were reviewed.

Item 1.2 Update from RHC and NSC

The CEO of ARPANSA provided an update on the Radiation Health Committee (RHC) meeting on 15 November 2017, noting key discussions on the Integrated Regulatory Review Service (IRRS) mission, national uniformity, and a number of draft codes and guides progressing towards public consultation.

The CEO also provided an update on the Nuclear Safety Committee (NSC) meeting on 20 October 2017, noting it approved ARPANSA's Regulatory Performance Framework (RPF) self-assessment report for 2016-17, and discussed the application from the Australian Nuclear Science and Technology Organisation (ANSTO) for a licence to operate the ANSTO Nuclear Medicine (ANM) Facility.

Action: Circulate the RPF self-assessment report when published.

Item 1.3 CEO update on the activities of ARPANSA

The CEO noted proposed re-alignments within ARPANSA's Regulatory Services Branch (RSB), with national uniformity efforts and promotion of holistic safety (the organisation-technology-people interface) as major drivers for the changes.

Item 1.3.1 National Radioactive Waste Management Facility (NRWMF) update

It was noted that ARPANSA would soon visit Kimba and Hawker, SA to explain ARPANSA's regulatory role and other functions of the agency. The Department of Industry Innovation and Science (DIIS) is considering sites near these towns for the proposed NRWMF.

Item 1.4 International engagement update

ARPANSA's role in the Australian delegation at the International Atomic Energy Agency (IAEA) General Conference (Sept 2017) was highlighted. ARPANSA held a range of bilateral meetings with safety agencies (mainly those with whom ARPANSA has memoranda of understanding) and with IAEA counterparts. Discussions included preparations for the Integrated Regulatory Review Service Mission to Australia in November 2018, emergency preparedness and response media communications, and waste management. ARPANSA had key input to the Safety Resolution, including on safety of transportable nuclear power plants.

Council noted a number of other activities of international engagement, including regional outreach missions to Malaysia, the Philippines and China, ARPANSA's signing of a bilateral agreement with Singapore's National Environment Agency, and a recent visit to ARPANSA from the Secretary General of Thailand's Office of Atoms for Peace. It was also noted that ARPANSA has had input to two United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) white papers, with one now published.

Action: Circulate the published UNSCEAR Fukushima 2017 White Paper into which ARPANSA had input.

Item 1.4.1 Upcoming international meetings or events

Council noted an upcoming visit to ARPANSA from the Norwegian Radiation Protection Authority to discuss issues related to radioactive waste and visiting nuclear-powered warships, and from the Indonesian Nuclear Energy Regulatory Agency with the intention to reconfirm the existing Memorandum of Understanding.

Item 1.5 Report from the member representing the interest of the general public

An update was provided on the issue of diagnostic imaging referrals and inappropriate requesting, a topic of discussion at recent meetings. A review of the Medicare Benefits Schedule by the Diagnostic Medicine Clinical Committee concluded, in its second Report (approved by the Review's Taskforce but awaiting release for public comment), that clinical decision support tools should be used for diagnostic imaging referrals. It was recommended that ARPANSA should comment on the report and discuss this issue further with the Department of Health, adding its support for this recommendation. It was suggested an ARPANSA working group could liaise with the Department.

Due to the mounting tensions between North Korea and the United States and the risk of nuclear force, the provision of advice to the public was raised and discussion deferred to agenda Item 9.1 at this meeting.

Action: Circulate Diagnostic Imaging Clinical Committee report.

Item 1.5.1 ARPANSA public enquiries dashboard

Statistics on recent enquiries to ARPANSA were discussed, noting that the issues of '5G communications' and nuclear weapons have been added as categories, given a recent increase in enquiries received on these topics, particularly from media and government sources.

Action: Include media enquiry statistics for this item at future meetings.

2. Quick reviews

Item 2.1 Precautionary approach to IR, UVR and EMR (working group 3)

A paper was presented on the current state of progress towards guidance around the low dose effects of ultraviolet and electromagnetic radiation (UVR/EMR). It was noted that ARPANSA can bring further developments on UVR/EMR advice to Council for consideration at the relevant time in the future.

Action: Working group 3 is closed with further issues to be brought to Council in the future as separate items.

Item 2.2 Emergency Exposure Situations

Council was provided with an update on the progress of emergency preparedness and response activities within ARPANSA. It was noted that the IAEA's draft publication *DS475 - Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency* was circulated to Council for input. Council were also updated on a nearly-completed draft emergency radiation exposure guide, Radiation Protection Series (G-3), that will be in three parts relevant to the different phases of an emergency and target user groups. Issues related to first-responders in a radiological emergency and the treatment of different hazards were flagged as potential matters to be brought to Council in the future.

Action: The previous action item for Council to develop a communications strategy is removed, with further issues to be brought to the next meeting.

Item 2.3 Data use and digital strategy (working group)

An update on ARPANSA's approach to data use and its digital strategy was provided, following the establishment of a 'data use and digital strategy' working group at the June 2017 meeting. ARPANSA presented a proposal for Council to have input on an element of its digital strategy implementation.

Action: Consider the draft objectives of the ARPANSA digital strategy Focus Areas and provide comments in response to the paper at the next Council meeting.

Item 2.4 Medical radiation update

Council was updated on the review of ARPANSA's Radiation Protection of the Patient (RPOP) and Radiation Protection of the Medical Practitioner (RPOMP) advisory material. It was noted that the Australian Health Practitioner Regulation Agency (AHPRA) has started using RPOP and ARPANSA has engaged AHPRA on the future development of the RPOMP publication.

Action: The re-designed RPOP product is to be circulated for Council members' input when available.

3. Action item outcomes for endorsement

Item 3.1 National uniformity – letter of support

A draft letter to the CEO of ARPANSA tabled for consideration was discussed and minor amendments made.

Action: Council agreed that the Chair would sign the letter to the CEO of ARPANSA strongly endorsing pursuit of the RHC proposal for, and prioritising work on, the issue of national uniformity.

Item 3.2 NORM radiation protection (working group) – terms of reference

Council discussed the proposed terms of reference for the Naturally Occurring Radioactive Material (NORM) working group established at the previous meeting. It was noted that it would be interesting to hear how other jurisdictions are dealing with NORM issues. It was also noted that ARPANSA has increasingly been asked to provide expert opinion on NORM issues, and has worked with the Department of Environment (*Commonwealth*) and the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) on these issues. Following in-session amendments, the Council agreed to the proposed NORM working group terms of reference.

Action: A paper is to be presented at next Council meeting in accordance with agreed terms of reference.

4. Deep dive

Item 4.1 UV Radiation

Council heard a presentation on ARPANSA's current activities and areas of opportunity in relation to ultraviolet (UV) radiation exposure. Council discussed ARPANSA's role as a regulator versus service provider in influencing behavioural change, and the benefits of 'co-branding' for effective public health messaging. ARPANSA's role in early prevention, and the challenges of influencing all levels of government to provide funding for UV initiatives was discussed. Council members strongly supported the initiative of introducing 'pop-up' UV monitoring stations with real-time UV readings at major public events.

Action: Draft a letter for Council's consideration recommending 2-4 target priority areas for ARPANSA.

5. Deep dive (continued)

Item 5.1 Radiation risk management

Council was provided with a proposed approach to the management and communication of health and environmental risk, including a visual tool to improve public messaging about the risks of different types of radiation. The proposal was endorsed as a significant improvement over existing messaging, and Council strongly endorsed the proposal for further exploration and development.

6. New items to consider

Item 6.1 Members' suggestions

It was proposed that ARPANSA considers developing guidance on the closure, handover and monitoring or surveillance for existing exposure sites. The Ranger Mine in the NT was discussed as an example of such sites, although any guidance would apply to other sites including those subject to ARPANSA regulatory decisions and surveillance.

Members suggested that Council could have input to ARPANSA's revised incident management plan for organisational emergency arrangements, and have a role advising the CEO of ARPANSA with regard to national uniformity efforts (such as that to be provided by the IRRS mission).

Item 6.2 Items flagged for next meeting

The Chair provided a summary of agenda items flagged for the next Council meeting.

Item 6.3 Future topics ARPANSA may bring to Council

The CEO of ARPANSA provided a summary of topics that ARPANSA may bring to Council to consider.

Action: Circulate excerpt from the 2017 UNSCEAR General Assembly Report ('Chapter III – Scientific report: B. Radiation exposures from electricity generation') for Council members' consideration.

7. Quick reviews

Item 7.1 Draft disposal code

Council was given an overview of ARPANSA's draft *Code for Disposal of Radioactive Waste (Radiation Protection Series C-3)*, which was approved by RHC for public consultation. A number of comments were provided in-session, particularly a recommendation to include an executive summary for context.

Action: Include an accompanying executive summary and circulate the draft disposal code to members and stakeholders for comments.

Item 7.2 ARPANSA scientific and technical knowledge and skills framework

Council was given an overview of a concept to create a framework of scientific and technical knowledge and skills for ARPANSA. It was proposed that Council members could contribute their expertise to reviewing the framework and suggesting appropriate learning materials.

Action: Circulate the draft framework to Council members when a final draft is available.

Item 7.3 ARPANSA media strategy

An overview of ARPANSA's media strategy was given to members for their input. Council members commented that ARPANSA has an important role to play both as a source of information and in educating the public, which is different to achieving brand recognition. As such, they emphasised the importance of

fostering trusting relationships with people who have access to the public in ways that ARPANSA does not, so that they can carry the message on ARPANSA's behalf when appropriate.

Action: Circulate the draft media strategy for further comments out-of-session.

Item 7.4 Radiation Health Committee (RHC) nominees

Council was consulted in accordance with section 24(3) of the *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act) on the CEO's proposal for membership of the Radiation Health Committee for the 2018-2020 triennium. Council endorsed the CEO's proposal.

Note added to the minutes: Council had been consulted out-of-session during October 2017, in accordance with section 27(3) of the Act, on the CEO's proposal for membership of the Nuclear Safety Committee for the 2018-2020 triennium. Council had endorsed the CEO's proposal.

8. Action item outcome for endorsement

Item 8.1 Public enquires – operational roadmap

Members considered a draft operational flowchart of the situations where public enquiries to Council will be referred to ARPANSA for reply. It was noted that the role of the member representing the public is to bring issues of public concern to Council, rather than respond to enquiries from the public on ARPANSA's behalf.

Action: Re-draft the flowchart with small amendments, including 'email and social media', for consideration out-of-session and endorsement at the next meeting in early 2018.

9. Deep dive

Item 9.1 Emergency Preparedness and Response

Council discussed ARPANSA's role in providing advice on radiological emergencies. Members commented that ARPANSA should have an ongoing role to educate and build trust with the public prior to any event. It was noted that information developed for this purpose can be general in nature and separate to messaging during an emergency event, where other jurisdictional agencies may lead a coordinated response. Information may also not be accessible to affected persons during an emergency, highlighting the importance of appropriate prior education.

Action: Draft a letter for Council to endorse advising the CEO on emergency preparedness considerations including for nuclear events.

10. New items to consider

Item 10.1 Review action items from this meeting

The action items from this meeting were reviewed.

Item 10.2 Review schedule items for next meeting

Items for the next meeting were taken as read at agenda item 6.2.

Item 10.3 Upcoming meetings – locations and dates

The date for the next meeting was set at 7-8 March 2018. The dates for remaining meetings in 2018 were tentatively set for 19-20 July 2018 and 18-19 October 2018 as previously circulated via email out-of-session.

Released under the FOI Act June 2019



Radiation Health & Safety Advisory Council (RHSAC)

Meeting Minutes

- Date:** 6-7 March 2018
- Time:** 12.00am-5.00pm (day 1) and 9.00am-3.00pm (day 2)
- Location:** 619 Lower Plenty Rd, Yallambie VIC 3085
- Chair:** Dr Roger Allison
- Members:** Mr Keith Baldry, Dr Jane Canestra, Prof Adele Green, Ms Melissa Holzberger, Dr Carl Magnus Larsson, Mr Niall Byrne, Prof Pamela Sykes, Dr Melanie Taylor, Dr Stephen Newbery, Ms Geraldine Robertson, Mr Frank Harris, Dr Hugh Heggie.
- Apologies:** Ms Tone Doyle
- Secretariat:** Mr James Wheaton, Yvonne Pavey
- Invitees:** Mr Bruce Lehrmann, Dr Craig Sinclair, Dr Hester Viola, Dr Helen Zorbas, Dr Gillian Hirth, Dr Rick Tinker, Dr Ivan Williams, Mr Jim Scott, Mr Ryan Hemsley, Dr Marcus Grzechnik, Dr Fiona Charalambous, Mr Paul Marks, Ms Shailla van Raad, Ms Kathryn Green.
- Observers:** Mr Ben Paritsky (Day 2), various ARPANSA staff at the UVR session (Day 2).

1. Standing items

Item 1.1 Meeting opening and review of action list

The chair welcomed all attendees. The minutes of the November 2017 meeting were noted as having been agreed out-of-session. The outcomes of the November 2017 meeting action items were reviewed.

Action: draft letter of thanks from Council to Simon Critchley.

Item 1.2 Update from RHC and NSC

The CEO of ARPANSA noted that the Radiation Health Committee (RHC) and Nuclear Safety Committee (NSC) were scheduled to meet after the first Council meeting for 2018. It was noted that the RHC agenda would focus on a second edition of the National Directory of Radiation Protection (NDRP) as well as developing the roadmap for national uniformity in radiation protection. The NSC agenda would consider the application from the Australian Nuclear Science and Technology Organisation (ANSTO) for a licence to operate the new ANSTO Nuclear Medicine (ANM) Facility. The NSC is also considering the outcomes of an accident at ANSTO Health in August 2017, involving the radiation contamination of a laboratory worker's hand, including the actions that the Regulatory Services Branch has requested ANSTO Health to complete.

Item 1.3 CEO update on the activities of ARPANSA

The CEO noted that he had tabled a report in federal Parliament on the accident at ANSTO Health, covering details of the accident, ARPANSA's continued monitoring of the worker's health, and the regulatory response. Other activities noted included preparations for the International Atomic Energy Agency (IAEA) Integrated Regulatory Review Service (IRRS) mission to Australia scheduled for November 2018, as well as upcoming community consultation visits to South Australia for the Commonwealth Government's proposed National Radioactive Waste Management Facility (NRWMF).

Action: Council Chair and members to be available to attend during IRRS mission. Third meeting for 2018 or separate special RHSAC meeting to be scheduled during IRRS visit to Yallambie.

Item 1.4 International engagement update

Council noted the update provided on ARPANSA's current activities from the last quarter of 2017 for international engagement. They included, but were not limited to, ARPANSA's participation in an International Atomic Energy Agency (IAEA) Response and Assistance Network (RANET) Joint Assistance Team (JAT) Exercise in Japan; participation in an IAEA Integrated Regulatory Review Service (IRRS) Follow-Up Mission to the nuclear regulator Autorité de Sûreté Nucléaire (ASN) of France; and representation at the 42nd meeting of the IAEA Commission on Safety Standards (CSS) as well as various other Safety Standard Committees' meetings in Austria.

ARPANSA's activities also included attendance at meetings of the International Commission on Radiological Protection (ICRP) in France; a visit to the US Department of Energy (DOE) National Nuclear Security Administration (NNSA) and Sandia National Laboratories in New Mexico, USA; and participation in a Comprehensive Nuclear Test Ban Treaty Organisation (CTBTO) Technical Training Program for Radionuclide Station Operators in Tennessee, USA.

Item 1.4.1 Upcoming international meetings or events

Council noted upcoming international meetings including, but not limited to, attendance at an International Regulatory Review Service (IRRS) preparatory meeting at the International Atomic Energy Agency (IAEA) in Vienna (April 2018) to discuss preparations for the IRRS mission to Australia in November 2018; the Commission on Safety Standards (CSS) meeting in Vienna (April 2018); the International Commission on Radiation Protection (ICRP) Main Commission meeting in Canada (April 2018); the 6th Joint Convention Review Meeting in Vienna (May- June 2018); and the Radiation Safety Standards Committee (RASSC) and Transport Safety Standards Committee (TRANSSC) meetings in Vienna (June 2018).

Item 1.5 Report from the member representing the interest of the general public

The member's tabled report noted that no enquiries were received directly from members of the public since the previous meeting. An update was provided on the status of two reports from the Medicare Benefits Scheme (MBS) Review's Diagnostic Medicine Clinical Committee (DMCC). These have been approved by the MBS Review Taskforce but merged into one report which is awaiting release by the Minister. A copy will be forwarded to the Secretariat when available.

The member also re-iterated the view that APRANSA should have an ongoing role to educate and build trust with the public prior to any radiological emergency, with further discussion to be had at item 4.1.

Action: Circulate the MBS Review report to Council members when available.

Item 1.5.1 ARPANSA public enquiries and media dashboards

Statistics on recent enquiries to ARPANSA were discussed, with Council noting that the number of public enquires has declined over the last twelve months. The main topics of interest from the public in 2017 were noted as being in relation to power lines, mobile phone base stations, and solar public exposure. Council was also provided with statistics on the media enquiries received between August 2017 and February 2018.

2. Quick reviews

Item 2.1 Radiation Risk management – ARPANSA’s new approach (update on progress)

ARPANSA presented an update on the development of a harmonised approach to identify, characterise and communicate health and environmental radiation risks. Council members endorsed this approach at the previous meeting. It was noted that in December ARPANSA held an internal workshop to review its current approaches across different types of exposure and protection, as well as synergies and gaps, and risk treatment options. A work program was created to develop the tools and processes for the new approach.

Item 2.2 Electromagnetic energy (EME) funding

Council discussed the need for ARPANSA to have a role in EME research and advice to the public, particularly with regard to the rollout of 5G technology. Council was provided with background on the status of government funding allocated to ARPANSA for an EME program, which has remained static. A key concern to ARPANSA is the diminishing capability for investment into EME Centres of Research Excellence, which draw together researchers and universities in this specialised research field, to feed into an international research agenda that informs the international standards upon which ARPANSA depends, as a basis for advice given to the Australian public.

It was noted that ARPANSA has initiated discussions with relevant government stakeholders including Department of Communications and the Arts (DoCA), the Australian Communications and Media Authority (ACMA), the National Health and Medical Research Council (NHMRC), and Department of Health, to address the long-term sustainability of the EME Program.

Action: Council to send a letter to the CEO of ARPANSA in support of continued funding from Department of Communications and the Arts for the EME Program.

Item 2.3 Draft code for Radiation Protection in Medical Exposure (RPS C-5)

Council noted the draft Code for Radiation Protection in Medical Exposure (RPS C-5), on which some members had already commented, and discussed in detail some of the limitations outlined in the scope relating to how it does not apply to exposures of patients in dental imaging, nor to exposures of clients in chiropractic imaging.

Action: Circulate draft medical code again after public consultation phase ends on 25 May 2018.

3. Deep Dive

Item 3.1 Emergency Preparedness and Response (EPR) – EPR Strategy and framework, EPR Guide, and stakeholder engagement and implementation strategy

Council was presented with the revised draft strategy for ARPANSA's EPR function. It was noted that the recent adoption of the IAEA's General Safety Requirements (GSR) Part 7 through a revised Emergency Exposure Guide (being released for public comment in March 2018) provides an opportunity to consider ARPANSA's national and international EPR priorities over the next four years.

It was noted that ARPANSA's resources within its EPR function have been reduced since 2014 resulting in a reduction of depth of EPR knowledge across ARPANSA. State jurisdiction capabilities and gaps are also varied, and recommendations from external peer reviews are available to guide improvement actions.

Council agreed that a tiered approach to emergency management based on the US model should be used when reviewing the draft EPR Strategy. Council noted there is an opportunity for enhancements through identifying scenarios and associated risks, including implications for sustained EPR responses.

Action: Council to provide further comments on the draft EPR strategy and consider opportunities for over-the-phone or remote-expertise roles for ARPANSA (e.g. in the provision of dispersion modelling).

4. Action item outcomes for endorsement or noting

Item 4.1 Emergency Preparedness and Response (EPR) – ARPANSA's role in informing the public

Council members tabled and discussed a draft letter from Council to the CEO of ARPANSA, regarding "Nuclear and radiological emergency preparedness – informing the Australian public", focusing on ARPANSA's role in education and information publication for the public prior to any emergency event. It was agreed that the draft be amended and circulated to members for out-of-session approval.

Action: Revised draft of the letter from Council to CEO to be circulated for review and comment.

Item 4.2 Public enquires – operational roadmap

Council was given an overview of the 'Public enquiries – operation roadmap' flowchart and found it to be a useful tool for dealing with public enquiries, enabling targeted responses. Changes were discussed.

Action: Secretariat to amend wording to some parts of flowcharts and circulate to Council.

5. Quick Reviews

Item 5.1 Draft International Commission on Radiation Protection (ICRP) document

The draft ICRP document on NORM radiation protection was presented for comment and support.

Action: Establish a working group to explore how Council can move forward on Naturally Occurring Radioactive Material (NORM) issues, and explore a range of options or practical actions that ARPANSA could take.

Item 5.2 IAEA Draft Safety Guide DS459 – NORM radiation protection

A status update was provided to Council on IAEA Draft Safety Guide DS459 for the Management of Radioactive Residues from Uranium Production and Other NORM Activities. Once published, this Safety Guide will supersede the Safety Guide on Management of Radioactive Waste from the Mining and Milling of Ores, IAEA Safety Standards Series No. WS-G-1.2, issued in 2002. The update was given for noting only.

6. Deep dive

Item 6.1 NORM radiation protection working group

A paper on the status and future direction of the treatment and regulation of Naturally Occurring Radioactive Material (NORM) was presented to Council in accordance with the terms of reference agreed at the previous Council meeting. Council was advised that there is a view that there is no need to develop additional industry-based information on the *identification* of NORM issues, as this is already addressed by Australian and International documents and guidance. However guidance on what to do *following* the identification of NORM issues, such as the application of a graded approach to regulatory treatments, would be of assistance to a wide range of industries, regulators and governments, and would further the objective of nationally uniform approaches to regulation.

7. New items to consider

Item 7.1 Members' suggestions

Members did not suggest any new items to consider.

Item 7.2 Items in Collaboration with the Nuclear Safety Committee (NSC) and Radiation Health Committee (RHC)

Both the RHC and NSC have been advised of the current and upcoming priorities of Council and the Secretariats for each Committee are considering what opportunities there are for collaboration on long-term priorities and specific projects. Council was asked to consider specific areas where further integration with the NSC and RHC are possible and inform the secretariats of such areas.

Item 7.3 Items flagged for next meeting

The Chair noted the summary of agenda items flagged for the next Council meeting.

Item 7.4 Future topics ARPANSA may bring to Council

The CEO of ARPANSA provided a summary of topics that ARPANSA may bring to Council to consider.

Action: Council noted that, within the next six months, it plans to consider ARPANSA's EME Program in further detail and review the advance reference material that ARPANSA is preparing for the IRRS mission.

8. Quick review

Item 8.1 Data use and digital strategy working group – draft digital strategy roadmap

Council was given an overview of the focus areas of user experience, service delivery, productivity and capability, that form part the ARPANSA Digital strategy which the Strategic Management Committee on 20 February 2018. The focus areas leaders within ARPANSA are currently in the process of developing objectives and digital transformation initiatives to achieve the objectives. Council's input on the value of the objectives and initiatives was requested.

Action: Council agreed to review the objectives of each digital strategy focus area and provide feedback.

9. Other business

Item 9.1 Review action items from this meeting

The action items from this meeting were reviewed.

Item 9.2 Review schedule items for next meeting

Items for the next meeting were taken as read at agenda item 7.4.

Item 9.3 Upcoming meetings – locations and dates

The date for the next meeting was noted as 19-20 July 2018 at the Miranda Office in Sydney. The meeting scheduled for 11-12 October 2018 also in Sydney may be moved, or an additional special meeting may be scheduled, at ARPANSA's Yallambie offices during the IRRS mission in November (dates to be confirmed).

10. Deep dive – ultraviolet radiation (UVR)

Item 10.1 to 10.8 Introduction and overview of international and domestic context for UVR activities.

The CEO of ARPANSA welcomed the invitees to a special 'deep dive' session on UVR protection and exposure prevention strategies. A number of external speakers gave informative presentations on the international context for UVR protection, including from Cancer Council regarding the World Health Organisation (WHO) INTERSUN program, and from QIMR Berghofer Medical Research Institute on the Philosophy of UV Radiation Protection.

It was noted that Australia is a key leader in supporting World Health Organisation (WHO) activities in UVR health issues, where there is global recognition that UV radiation causes skin cancer and eye disease. There is also wide recognition internationally that 'prevention is better than cure'. Evidence shows that multi-component and sustained protection programs operating in a united way from government down to the individual are the best approaches to increase sun protection behaviour and reduce overall population UVR exposure. The evidence for the cost-effectiveness of investing in prevention is strong.

For the domestic context of UVR protection, Council heard a summary of the Skin Cancer Inquiry outcomes recently presented to federal parliament, and it again heard from Cancer Council on the key challenges faced in Australia, from QIMR Berghofer on the evidence-based use of sunscreen, from ARPANSA on occupational exposure to UVR, and from the Australian Bureau of Meteorology (BOM) on changes to UV forecasting models.

Key issues raised as part of the domestic context included:

- Around 2,330 Australians died from the disease in 2016
- 2 in 3 Australians will be diagnosed with skin cancer by the age of 70
- Treatments for advanced melanoma now cost the government around \$150,000 per patient
- Treating skin cancer cost the health system more than \$700 million in 2015
- The cost of treating *non*-melanoma skin cancer is approx. 8.1% of health system spending on cancer
- Total number of excisions for BCC/SCC in 2016 were 626,759 (12,053 per week / 301 per business hour)
- Over a third of all hospitalisations for sunburn are children under the age of 10
- When skin cancer is diagnosed early, treatment is significantly cheaper and more effective.

Cancer Council noted that a modest investment in skin cancer prevention does directly reduce skin cancer incidence and provides government an extremely good return on investment of \$3.20 for every \$1 invested. It also noted the last Commonwealth investment in skin cancer prevention was made in 2009/10.

Item 10.9 UVR Discussion

Key questions considered in the discussion following the UVR deep dive session were 'how does Australia sustain and entrench itself as a world leader in sun protection' and 'what role could ARPANSA play'?

There was broad agreement within Council that ARPANSA's role in reducing the burden of UVR health effects should be one of coordination, seeking agreement between jurisdictions, raising the issue within Commonwealth Government, and forming the reliable advice and messaging that will be drawn upon for any public awareness campaigns. It was proposed that ARPANSA should lead a joint position statement from key stakeholder organisations in Australia, to create a unified message, not just on the use of sunscreen, but on all UVR protection measures.

Other suggestions from the discussion included that co-investment may be more effective for progressing the issue, noting that the messaging needs to very clever and well-refined for any public campaigns to succeed. It was also suggested that the CEO of ARPANSA contact the Chair of the Australian Health Protection Principal Committee (AHPPC) to re-raise an agenda item on UVR protection proposed recently, and that ARPANSA should partner with the Australian Medical Association, Cancer Council, BOM, Cancer Australia and the Department of Health to make behavioural change campaigns a priority.

Action: Council to form a working group to draft a position paper on uniform UVR protection messaging.

Action: ARPANSA to do an initial assessment of current UVR messaging and guidelines state-by-state.

Action: ARPANSA to request BOM to raise the issue at the national skin cancer committee.



Radiation Health and Safety Advisory Council ('Council')

Meeting Minutes

Date: 11 October 2018

Time: 9.00 am – 16.30 pm

Location: 38-40 Urunga Parade, Miranda NSW (Sydney)

Chair: Mr Keith Baldry (for this meeting only)

Members: Dr Carl-Magnus Larsson, Mr Frank Harris, Dr Hugh Heggie, Dr Stephen Newbery, and Ms Melissa Holzberger (via teleconference from Brisbane, departed part-way through item 3.1).

Apologies: Nil.

Secretariat: Mr James Wheaton, Mr Ben Paritsky

Invitees: Dr Roger Allison (Queensland Department of Health); Mr Matt Whitting (Department of Environment); Mr Stuart Parr (Nuclear Safety Committee, via teleconference from Perth); Mr Jim Scott, Dr Samir Sarkar, and via videoconference from Melbourne: Dr Gillian Hirth, Dr Ivan Williams, Mr Ryan Hemsley, Ms Tone Doyle, Ms Shailla van Raad, Dr Rick Tinker (ARPANSA).

Observers: Ms Gemma Larkins, Ms Julie Murray, and via videoconference from Melbourne: Mr Nathan Wahl, Ms Julia Carpenter, and Dr Fiona Charalambous (ARPANSA).

1. Standing items

Item 1.1 Meeting open, appoint temporary Chair, and review action list

Mr Keith Baldry was unanimously appointed as the temporary Chair of Council for this meeting. It was noted that one Council member (Ms Melissa Holzberger) was participating via teleconference. The Chair opened the meeting and the Secretariat provided a review of the outstanding actions.

Action: A letter of thanks from Council to former member Mr Simon Critchley was approved for signing.

Action: Secretariat to update the action list with additional details to include the depth of issues (that is, a further level of description on each item and an indication of the extent of discussion at Council).

Item 1.2 Updates from the Radiation Health Committee (RHC) and Nuclear Safety Committee (NSC)

The CEO of ARPANSA noted recent work at the RHC on initiatives to improve the national uniformity of radiation regulation. He also thanked Council members for reviewing the *Code for Disposal Facilities for Solid Radioactive Waste*, Radiation Protection Series C-3 (2018) which will soon be published on ARPANSA's website.

Separately, ARPANSA now has in-principle agreement from all jurisdictions to make the Australian National Radiation Dose Register (ANRDR) the central record keeping agency as described in the *Code for radiation protection in planned exposure situations* (RPS C-1), meaning the ANRDR is now well on its way to become a true national dose register. Western Australia have requested legal counsel to confirm how they can adopt the ANRDR as their official dose record repository. Members agreed that the confidence of the public is a key factor, and having all jurisdictions participate in the ANRDR helps to meet community expectations around preservation of records of occupational radiation exposures.

The CEO noted that the RHC has taken steps to re-establish a national register to track radioactive sources across jurisdictions and overseas, as part of compliance with relevant international instruments, noting that all jurisdictions maintain such registers already.

The CEO noted that the NSC will meet in on 2 November 2018 to discuss ARPANSA's annual Regulator Performance Framework (RPF) report on the efficiency of regulatory operations and measures to cut red tape, with the NSC being the external evaluator for the RPF report. It was noted that given the focus of the RPF, it is possible to perform very well against the RPF key performance indicators; however, other measures of regulatory efficacy are needed to provide a full picture. E.g. the independent expert review report into safety practices at ANSTO contains lessons for ANSTO as well as the regulator ARPANSA in this regard. It was noted that this report will be made available to the Council shortly.

Action: Independent expert report into safety practices at ANSTO to be circulated to Council.

Item 1.3 CEO update on the activities of ARPANSA

The CEO of ARPANSA updated Council on preparations for the forthcoming Integrated Regulatory Review Services (IRRS) mission to Australia at the start of November 2018. It was noted that this would be the International Atomic Energy Agency's (IAEA) largest multi-jurisdictional IRRS mission ever undertaken, which will, among other things, examine the relationships between jurisdictions within a federal system of government. ARPANSA's Minister is expected to attend the opening of the IRRS Mission. ARPANSA sent an advance IRRS Summary Report to the IAEA in preparation for the IRRS Mission, building on a 'self-assessment' against IAEA general safety requirements.

Action: Circulate the advance IRRS Summary Report to Council.

The CEO also noted outcomes from the special session on ultraviolet (UV) radiation protection at the previous Council meeting, such as CEO-to-CEO meetings with other Commonwealth agencies including Cancer Australia and Safe Work Australia to explore social media campaigns and unified messaging. It was noted that the UV session had also resulted in direct discussions between the Bureau of Meteorology and Professor Adele Green, to initiate a campaign on year-round UV health effects. Members re-iterated that UV radiation exposure results in significant health effects and more will definitely need to be done, especially for the next generation and in order to keep up with the pace of technological change in sun protection.

Item 1.4 International engagement update

The tabled international travel report summaries were discussed, noting ARPANSA's attendance (including Deputy CEO) at the IAEA General Conference in September 2018. It was noted that a number of bilateral agreements were signed or re-signed at the event: an agreement with the United States Nuclear Regulatory Commission for mutual cooperation; an agreement with the Dutch regulator, Authority for Nuclear Safety

and Radiation Protection (ANSV), centred on cooperation on the regulation of research reactors; and an agreement with Thailand's Office of Atoms for Peace.

Also noted was the CEO of ARPANSA's unopposed nomination to Vice-President of the Convention on Nuclear Safety that was expected to be confirmed in the next few days, and separately, an IAEA workshop being held concurrently in South Australia on safety in uranium production with various South American, African and Asian countries in attendance. Such high-profile appointments and events were noted as being positive for Australia and its nuclear safety and radiation protection regulators.

Item 1.4.1 Upcoming international meetings or events

A summary of upcoming international meetings and events was tabled without further discussion.

Item 1.5 ARPANSA public enquiries and media dashboards

An update on public and media enquiries to ARPANSA was tabled and discussed. It was noted that there has been a noticeable increase in enquiries in relation to 5G technology, due to the installation of 'small cells' as part of some telecommunications companies' infrastructure rollout ahead of any deployment of 5G technology. It also was noted that a steady increase in enquiries about power-lines appears to be connected to insurance clauses related to new property purchases. ARPANSA is investigating this issue.

2. Deep Dives

Item 2.1 NORM radiation protection working group

Council considered a number of scenarios that demonstrated various regulatory considerations in relation to naturally occurring radioactive material (NORM). It was noted that a number of NORM issues appear to arise as part of 'end-of-lifecycle' activities for various types of mining, treatment and processing projects.

Council discussed whether there were ways that ARPANSA could assist with regulatory direction or guidance for NORM-related issues. It was suggested that industries need to build a code of conduct at the same time as the regulator, and that the primary role of the regulator may be to build awareness and consider advice on the use of a 'graded approach' to regulating NORM-related activities. A particular challenge noted was trying to raise awareness within industries not normally associated with radiation, such as coal-washing or water treatment plants. The use of fact sheets was discussed as being of limited use, because the target audience for raising awareness may not be the general public.

It was noted that the IAEA is arranging a conference in 2020 which will include a topic on how to take into account radiological considerations in a multi-hazard environment. It was also noted that the IAEA's General Safety Requirement (GSR) Part 3 (the Basic Safety Standards) contains an expectation that government maintains knowledge of industry activities. It was agreed that the RHC would be a useful starting point for further discussion of this issue, to gain initial 'visibility' of the issue across RHC's jurisdictional regulatory members. It was also suggested that the radiation regulators network (RRN) could consider this issue.

Action: Request input from RHC, to consider which industries and sectors and points of regulatory contact may be relevant for NORM activities.

Action: NORM working group to continue to consider the scenarios presented and other possible ways forward, such as the possible components of a strategy to improve NORM awareness.

Action: NORM working group to specifically discuss what else needs to be considered with regard to a 'graded approach' to regulation of NORM activities.

Action: Request assistance of RHC, along with any further considerations identified by the working group, to develop guidance or a statement on a graded approach to regulating NORM activities.

Item 2.2 EPBC Act approval processes

The interactions between the regulatory approval processes, of ARPANSA and the Commonwealth Department of Environment and Energy (DOEE), were discussed particularly in relation to 'nuclear actions' as defined under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The overlap of such regulatory processes is anticipated to be highlighted in particular by any licence applications to ARPANSA or DOEE for the Department of Industry Innovation and Science's (DIIS) proposed NRWMF.

Council was given a detailed presentation of the DOEE processes that may apply to the proposed DIIS facility, particularly in relation to environmental impact statements. ARPANSA's past role of providing advice to DOEE on *nuclear actions* was noted along with a potential conflict of interest, should such advice form part of any future licence application to ARPANSA, as could possibly be the case for a proposed NRWMF. It was noted that transport of material to such a Commonwealth facility would be subject to ARPANSA regulation.

It was further noted that DOEE would seek advice from other sources where ARPANSA cannot provide advice due to a conflict of interest. The relevant Minister responsible for any final DOEE approval may be advised to consult ARPANSA, wherever issues overlap with ARPANSA's own regulatory approval process.

Action: ARPANSA to continue to consult with the Department of Environment and Energy on interactions between their separate regulatory review and assessment processes for the DIIS' proposed NRWMF.

A short discussion occurred on how a 'graded approach' to regulation would apply in DOEE considerations of EPBC Act *nuclear actions* in relation to NORM. It was suggested that the current EPBC Act review provided a timely opportunity for input to DOEE on this issue. It was noted that in the past, the EPBC Act has been able to recognise the process of another regulator, or other approval decisions, to satisfy requirements for environmental impact statements. This may form part of a Net Environmental Balance analysis.

Action: ARPANSA to consider a submission to the EPBC Act review in relation to NORM.

3. Briefs for Council

Item 3.1 Update on ANSTO events

Council was given an update on the status of regulatory oversight for recent safety-related events at ANSTO Health's facility in Lucas Heights, New South Wales. A copy of the CEO of ARPANSA's direction to ANSTO issued under the *Australian Radiation Protection and Nuclear Safety Act 1998* (the ARPANS Act) was tabled.

It was noted that an outcome of one of the requirements of that direction, the report from an independent expert review into the safety practices of ANSTO, would soon be published by ANSTO and subsequently ARPANSA. There was a brief discussion around the report's recommendations directly in relation to the regulator. It was noted that ARPANSA is embarking on a longer-term self-assessment of its role as the regulator, to identify learning opportunities.

Council also discussed the challenges of regulatory oversight of the overall organisational governance of regulated entities, given that management and/or quality systems as well as organisational arrangements can impact multiple regulatory obligations for a single entity. Council noted it is very thankful that the report is being released quickly and that ARPANSA has been transparent in this process.

4. New items to consider

Item 4.1 Members' suggestions

One suggestion was made for Council or the NSC to consider compliance and enforcement approaches broadly, in light of the independent expert review of ANSTO's activities.

Item 4.2 Items in collaboration with the NSC and RHC

A member of the NSC with relevant expertise will be invited to participate in the NORM working group's deliberations.

Action: Invite NSC member to participate in NORM working group.

Item 4.3 Items flagged for next meeting

Council requested that it be provided with a further update on the ANSTO incident, in relation to the direction and independent expert review report. Council also requested that it be provided with a summary of the outcomes in the report from the IAEA IRRS Mission to Australia.

Action: ARPANSA to update Council on the ANSTO independent expert review report.

Action: ARPANSA to update Council on the findings from the IAEA IRRS Mission to Australia.

Item 4.4 Future topics ARPANSA may bring to Council

The CEO of ARPANSA provided a summary of topics that ARPANSA may bring to Council to consider.

5. Other business

Item 5.1 Review action items from this meeting

The action items from this meeting were reviewed.

Item 5.2 Review schedule items for next meeting

Items for the next meeting were taken as read at agenda item 4.3.

Item 5.3 Upcoming meetings – locations and dates

The dates of meetings for 2019 are to be determined out-of-session.

Action: Secretariat to circulate proposed dates to members.