



Australian Government

**Australian Radiation Protection
and Nuclear Safety Agency**

Quarterly Report

of the

Chief Executive Officer of ARPANSA

April to June 2017

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The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is the Australian Government's primary authority on radiation protection and nuclear safety. Our purpose is to protect the Australian people and the environment from the harmful effects of radiation, through understanding risks, best practice regulation, research, policy, services, partnerships and engaging with the community.

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Letter of transmittal

21 August 2017

The Hon Dr David Gillespie MP
Assistant Minister for Health
House of Representatives
Parliament House
Canberra ACT 2600

Dear Minister

The *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act) requires the Chief Executive Officer (CEO) of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to submit to the Minister, at the end of each quarter, a report on:

- the operations during the quarter of the CEO, ARPANSA, the Radiation Health and Safety Advisory Council (the Council), the Nuclear Safety Committee (the NSC) and the Radiation Health Committee (the RHC)
- details of any direction given by the Minister to the CEO under section 16 of the Act
- details of any direction given by the CEO under section 41 of the Act
- details of improvement notices given by inspectors under section 80A of the Act
- any breach of licence conditions by a licensee, of which the CEO is aware
- all reports received by the CEO from the Council and the NSC under Part 4, paragraphs 20(f) or 26(1)(d) of the Act, and
- the facilities licensed under Part 5 of the Act.

I am pleased to provide you with a report, meeting the requirements of the Act, covering the period 1 April to 30 June 2017.

Please note that subsection 60(6) of the Act requires you to cause a copy of the report to be laid before each House of the Parliament within 15 sitting days of the day on which this report was given to you.

Yours sincerely



Carl-Magnus Larsson
CEO of ARPANSA

The operations of the CEO and ARPANSA

ARPANSA sits within the Department of Health portfolio.

ARPANSA has a single outcome, as set out in the 2016-17 Portfolio Budget Statements (2016-17 PBS):

Protection of people and the environment through radiation protection and nuclear safety research, policy, advice, codes, standards, services and regulation.

The Radiation Protection and Nuclear Safety Program, contained within the 2016-17 PBS, describes four program objectives which ARPANSA pursues to deliver its outcome. These program objectives are:

- protect the public, workers and the environment from radiation exposure
- ensure radiological and nuclear security, and emergency preparedness
- promote the effective use of ionising radiation in medicine, and
- ensure effective and proportionate regulation and enforcement activities.

The report on the operations of the CEO and ARPANSA is based on these program objectives.

Protect the public, workers and the environment from radiation exposure

Australian National Radiation Dose Register

ARPANSA maintains the Australian National Radiation Dose Register (ANRDR) which stores, maintains and reviews radiological dose histories for occupationally exposed workers in Australia.

The ANRDR currently holds dose history records for more than 38 000 workers. This includes full coverage of workers from all licensed uranium mining and milling operations, and partial coverage of workers from Commonwealth licence holders, state and territory regulatory bodies and the mineral sands mining and processing industry.

ARPANSA continues to expand the ANRDR, with a goal to include all occupationally exposed workers. Progress continues to be made in the medical sector. During the quarter, the ANRDR team progressed its engagement with the medical sector by presenting at an industry conference and advancing the pilot phase of the expansion into the sector with the support of a partner organisation.

The ANRDR team also attended ARPANSA's Licence Holder Forum where the Planned Exposure Code (Radiation Protection Series (RPS) C-1) was the feature topic. One of the changes communicated to licence holders was the mandatory requirement for all relevant licence holders to submit dose records to the ANRDR. The ANRDR team will work with identified stakeholders to incorporate their dose records into the ANRDR.

Monitor and Mitigate Population Exposures to Electric and Magnetic Fields and Electromagnetic Radiation

In May a textbook which an ARPANSA staff member co-edited called “Non-ionizing Radiation Protection: summary of research and policy options” was published (<http://au.wiley.com/WileyCDA/WileyTitle/productCd-0471446815.html>). The textbook also contains a number of chapters that current and former ARPANSA scientists authored or co-authored, among other Australian and international experts in non-ionising radiation.

The ARPANSA-established Electromagnetic Energy Reference Group (EMERG) met on 25 May 2017 (www.arpansa.gov.au/about-us/what-we-do/national-collaboration/emerg). EMERG enables input from the community and other stakeholders on issues relating to Electromagnetic Energy (EME) and health. Discussion topics included the EME research agenda, funding of EME research in Australia, the Wi-Fi in Schools report and development of advice for medical practitioners to improve support for sufferers of electromagnetic hypersensitivity.

In June, ARPANSA published a technical report ‘Radiofrequency Electromagnetic Energy and Health: Research Needs’ (www.arpansa.gov.au/sites/g/files/net3086/f/tr178.pdf). The report outlines research needs in the area of radiofrequency and health that Australian researchers can use as a reference.

ARPANSA presented a guest session at an Engineers Australia event on 28 June 2017 in Melbourne, on the state of the science on low frequency and radiofrequency fields and health.

Solar Ultraviolet Radiation and Sun Protection

ARPANSA measures solar ultraviolet radiation (UVR) at eleven sites around Australia. During this quarter, ARPANSA commenced the replacement of infrastructure around Australia. This will continue in the next quarter. ARPANSA also successfully launched a revision of the website displaying real-time images of the UVR measurement data. Future refinement of the UVR displays will consider public feedback. The UVR index data generated by the network is used to raise awareness in Australia of the levels of UVR exposure and the risks associated with excessive sun exposure.

Standards Development

The Australian and New Zealand Standard on Sun Protective Clothing (AS/NZS 4399) has been revised and will soon be published and released. The revised standard adopts minimum body coverage requirements for sun protective clothing, with garments requiring three-quarter length sleeves for both clothing tops and three-quarter length leg coverage towards the knee for shorts. The maximum allowed Ultraviolet Protection Factor (UPF) remains at UPF 50+.

Ensure radiological and nuclear security, and emergency preparedness

Nuclear Security of Nuclear Facilities, Radioactive Material and Associated Facilities

ARPANSA attended an annual counter-proliferation exercise hosted by Queensland authorities. The exercise explored how the Commonwealth and Queensland could integrate their activities in the course of a deliberate act involving radiological and nuclear materials. The exercise placed significant emphasis on exploring the activation of assistance between different agencies and identifying any capability gaps. This work supports ARPANSA's commitment to strengthen radiological and nuclear safety and security within Australia.

International Monitoring System

As part of Australia's ongoing commitment to the Comprehensive Nuclear-Test-Ban Treaty (CTBT), ARPANSA operates and maintains radionuclide air particulate monitoring stations that are part of the CTBT International Monitoring System. Stations are located in Melbourne, Perth, Townsville, Darwin, the Cocos Islands, Macquarie Island, and Mawson Base (Antarctica). Two noble gas monitoring facilities are co-located with air particulate monitoring stations in Melbourne and Darwin.

The Australian CTBT Radionuclide Laboratory was back in service from 1 April 2017 to 30 June 2017 following the re-certification of new detector systems. Eight samples were analysed during this period. Between 29 May and 1 June, two representatives from the CTBT Organisation (CTBTO) conducted a surveillance visit of the laboratory. The purpose of the visit was to determine whether the quality system and functions of the Australian CTBT Radionuclide Laboratory continue to be effective and implemented in accordance with the policies and procedures required by the CTBTO. The visit concluded successfully with the Australian CTBT Radionuclide Laboratory maintaining its certification to operate.

Visiting Ships Panel (Nuclear)

The Australian Government has in place an interdepartmental standing committee called the Visiting Ships Panel (Nuclear), or VSP(N), to oversee arrangements for nuclear-powered warship and other nuclear-powered vessel visits to Australia. ARPANSA is a member of the VSP(N) and chairs the Technical Working Group (TWG), which provides advice and support to the VSP(N). There were no meetings of the VSP(N) or TWG during the quarter.

Emergency Preparedness

ARPANSA tested its Incident Management Plan (IMP) through participation in an International Atomic Energy Agency (IAEA) level three Convention Exercise (ConvEx-3). A ConvEx-3 is a full-scale exercise, involving many countries over multiple days, designed to evaluate international emergency response arrangements and capabilities for a severe nuclear or radiological emergency regardless of its cause. This particular ConvEx-3 exercise occurred over 36 hours from 21 to 23 June 2017 and simulated a nuclear power plant emergency in Hungary. ARPANSA's role included monitoring reactor status, atmospheric dispersion modelling, assessment of monitoring data and communications with the IAEA, World Health Organisation (WHO) and other parts of the Australian Government.

Promote the effective use of ionising radiation in medicine

Radiotherapy

As a part of the ARPANSA Radiotherapy section's regular calibration services for radiotherapy providers and industry users of radiation, ARPANSA calibrated four therapy dosimeters and two neutron monitors, as well as several protection instruments. On-site source output measurements were made for two providers of irradiation services. The National Association of Testing Authorities (NATA) assessed ARPANSA's calibration services against the 'General requirements for the competence of testing and calibration laboratories' (ISO 17025) and ARPANSA's accreditation was continued.

Australian Clinical Dosimetry Service

The Australian Clinical Dosimetry Service (ACDS) provides radiation specialists with a source of independent checks for equipment and patient doses. This enables an integrated national approach to promoting safety and quality in radiotherapy, which is expected to lead to further improvements in radiotherapy treatment outcomes. The ACDS transitioned to a full cost recovery user-pays service on 1 January 2017 and is in the process of negotiating service level agreements with radiotherapy facilities. Forty-six percent of Australian facilities have subscribed to the user-pays model of the ACDS and another 26% are finalising their service agreements. During this quarter, the ACDS completed 17 audits of radiotherapy equipment. In May the ACDS went live with the new Intensity-Modulated Radiation Therapy (IMRT) and Volumetric Modulated Arc Therapy (VMAT) technologies in our Level III audit.

Medical Imaging

ARPANSA's National Diagnostic Reference Level Service collects data from surveys and uses it to calculate Australian diagnostic reference levels (DRLs) for common Multi Detector Computed Tomography (MDCT) protocols. The size of the data sample collected via the surveys improves the confidence in the DRLs that ARPANSA sets. The National Diagnostic Reference Level Service has logged 483 completed surveys for computed tomography procedures for the calendar year to date, a 10% increase over the previous year and the highest for this period in any year since the service commenced in 2011. An extra 123 sites have registered for the service so far in 2017, again more than in any previous year. There are now over 500 sites and 650 CT scanners registered with the service, approximately 50% of all sites and scanners across Australia.

Drafting work continues for a revised Medical Exposure Code, which provides a framework to protect patients from ionising radiation in medical applications. State and territory regulators provided further comments in April. The Radiation Health Committee agreed on the proposals for addressing key issues in June and ARPANSA plans to circulate a new draft to regulators by October.

Ensure effective and proportionate regulation and enforcement activities

Regulatory Guides

The Regulatory Guide: *Applying for a Licence for a Radioactive Storage or Disposal Facility* (May 2017) (www.arpansa.gov.au/sites/g/files/net3086/f/reg-la-sup-240a.pdf) was finalised incorporating stakeholder comments and published on the ARPANSA website. This document provides guidance on the information to submit with a licence application for a radioactive waste storage or disposal facility.

A companion document to the Regulatory Guide: *Information for Stakeholders: Radioactive Waste Storage and Disposal Facilities* (May 2017) was published simultaneously. It outlines the legal framework in Australia and international best practice principles for protection, safety and security (www.arpansa.gov.au/sites/g/files/net3086/f/rad-waste-info-for-stakeholders.pdf).

Significant Licensing Activities

ARPANSA received a licence application in April 2017 from Australian Nuclear Science and Technology Organisation (ANSTO) subsidiary ANSTO Nuclear Medicine Pty Ltd to operate the new ANSTO Nuclear Medicine (ANM) Facility. ARPANSA published the intention of the CEO to make a decision on the ANM licence application in national media and the Commonwealth Gazette. ARPANSA also invited public submissions on the ANM application, which closed on 5 June 2017. One submission was received. ARPANSA held a public information session on 22 June 2017 at the Engadine Community Centre in Sydney. The ANM application is currently under assessment.

ANSTO Health requested approval to increase the volume of radioactive waste in the Building 54 liquid waste tanks. The application is in the final stage of assessment.

Inspections

During the quarter, ARPANSA completed 24 inspections of sources and facilities and undertook 17 site visits. There were 39 areas for improvement identified. The inspection reports can be found on ARPANSA's website at www.arpansa.gov.au/regulation/inspections/reports.cfm.

A site visit involving the seizure of legacy material was conducted with the cooperation of the licence holder in order to have the material forensically analysed and to eliminate any safety hazard with respect to the storage of the material. An improvement notice was issued by ARPANSA regarding storage and inventory management.

ARPANSA supported the Australian Safeguards and Non-Proliferation Office (ASNO) in an inspection involving low-level legacy nuclear materials. This inspection required a significant field measurement component.

ARPANSA embarked on the integration of medical and non-medical import permit arrangements to more accurately reflect the International Atomic Energy Agency (IAEA) Code of Conduct on the Safety and Security of Radioactive Sources. The integration will focus on whether or not the controlled

material has security implications as opposed to the current arrangements, which focus on the nature of the industry receiving the material. This improvement will streamline the process of issuing import permits and is expected to result in reduced handling times.

Stakeholder Engagement

For consultation regarding the ANM Facility licence application, and on the Regulatory Guide for waste facilities, see above.

From 13 to 15 June, ARPANSA visited Adelaide, Port Augusta, Quorn and Hawker in South Australia in relation to the proposed National Radioactive Waste Management Facility (NRWMF). The focus was on meeting key stakeholders in the area, conducting a drop-in meeting in Hawker, and informing the community on ARPANSA's role once a licence application for the proposed NRWMF is lodged.

On 28 June, ARPANSA held the annual Licence Holder Forum in Canberra where the about 100 participants were able to share and discuss new initiatives and good practices being used throughout the Commonwealth to improve radiation protection and nuclear safety. The featured topic was the Code for *Radiation Protection in Planned Exposure Situations* (2016), which stimulated discussions between the stakeholders and ARPANSA on changes and how they will affect safety practices among licence holders.

Stakeholder comments were considered in finalising the *Radiation Protection Series (RPS) G-2 Guide for Radiation Protection in Existing Exposure Situations* (2017). This Guide sets out the Australian approach to protection of occupationally exposed persons, the public and the environment in 'existing exposure situations', that is, situations of radiation exposure that already exist when a decision on the need for control is taken. Existing exposure situations include situations of elevated exposure to radiation of natural origin. They also include situations of exposure due to residual radioactive material that derives from past practices that were not subject to regulatory control or that remain after an emergency exposure situation.

Radioactive Material Import Permits

The importation of radioactive material into Australia requires permission under Regulation 4R of the Customs (Prohibited Imports) Regulations 1956. These regulations are made under the *Customs Act 1901*. Under the Customs (Prohibited Imports) Regulations 1956, the Minister for Health may authorise ARPANSA officers to issue import permits.

ARPANSA authorised officers approved 131 permits for non-medical radioisotopes in the form of 64 urgent permits, 60 standard permits and seven one-year permits.

ARPANSA authorised officers approved 166 permits for medical radioisotopes in the form of four one-year permits and 162 single shipment permits.

Fifteen export permits were approved.

Transport of Radioactive Material

ARPANSA issued two validation certificates endorsing the original revised certificate of approval by the French Competent Authority for a Type B(U)F package and the original certificate issued by the Russian Competent Authority for a Type B(U) package. The French package will be used to transport spent fuel from the OPAL reactor overseas, and the Russian package will be used to transport disused radioactive sealed sources overseas.

ARPANSA endorsed four security plans for transport of radioactive material.

International engagement

ARPANSA's international engagement provides the agency with the means of influencing the international radiation protection and nuclear safety and security framework. ARPANSA's regulatory framework and radiation protection standards are based on international risk assessments and best practice. It strengthens our engagement with domestic stakeholders in order to grow awareness and collaboration on national interests and policy objectives. The following is a summary of key international engagement activities undertaken in this quarter.

The 7th Review Meeting of the Contracting Parties to the Convention on Nuclear Safety (CNS) from 27 March to 7 April 2017, Vienna, Austria

ARPANSA led the Australian delegation that also included representatives of the Australian Nuclear Science and Technology Organisation (ANSTO) and the Australian Mission in Vienna. The peer review for Australia identified 4 areas of good performance including; the implementation (by ARPANSA) of a quality management system to ISO 17020:2012; international collaborations (by ANSTO) with operators of the SAFARI-1 Reactor (in South Africa) and High Flux Reactor (in Netherlands) that aim to increase safety and reliability through cooperation; the introduction of the Regulatory Delivery Model (by ARPANSA) and implementation of the Regulator Performance Framework Annual Self-Assessment (by ARPANSA).

The challenge identified for Australia during the 6th Review meeting to acquire and maintain adequate resourcing and competence within the Regulatory Body remains open. Contracting Parties encouraged the IAEA to continue developing guidance to help countries strengthen regulatory body oversight and practice safety culture. In addition Parties highlighted the importance of sustaining and enhancing a nuclear safety culture, maintaining effective legal frameworks, and enforcing safety precautions within the supply chain for nuclear installations. One of six recommendations endorsed was to introduce IAEA regional workshops for non-nuclear power countries. ARPANSA funded travel for its own staff.

41st session of the International Atomic Energy Agency (IAEA) Commission on Safety Standards (CSS) and Safety Standards Committee Chairs' meeting 19-20 April 2017, Vienna Austria

ARPANSA participated in this meeting, which resolved to discuss the implications of the UNSCEAR report on Attributing Health Effects to Ionizing Radiation Exposure and Inferring Risks on IAEA safety

standards. The meeting also reviewed the latest publication of the International Nuclear Safety Advisory Group (INSAG), INSAG-27, which addresses the concept of ‘institutional defence in depth’, and how this is reflected in the current IAEA standards. This travel was funded by ARPANSA.

*Nuclear Energy Agency Workshop on the Management of Non-Nuclear Radioactive Waste
2-4 May 2017, Legnaro, Italy*

ARPANSA participated in this workshop, which focussed on classification of radioactive waste, application of the principles of radioactive waste management and application of International Atomic Energy Agency (IAEA) waste standards and guides. Attendees presented and discussed national regulatory approaches, and ARPANSA presented Australia’s approach for disposal of low-level non-nuclear radioactive waste. The information obtained from this workshop will be useful in assessing the licence application ARPANSA expects to receive for the proposed National Radioactive Waste Management Facility. This travel was funded by ARPANSA.

*European Society for Radiotherapy and Oncology (ESTRO) annual conference 5-9 May 2017,
Vienna, Austria; and National Physical Laboratory (NPL) audit comparison 10-12 May 2017,
London, United Kingdom*

ARPANSA attended the ESTRO annual conference and associated meetings, which considered dosimetry audits and mutual recognition of dosimetric audits, technical advances in small field dosimetry and dosimetry in magnetic fields, and dosimetry and quality assurance of proton therapy. ARPANSA also participated in a 4-way audit comparison between ARPANSA’s Australian Clinical Dosimetry Service, the NPL, the Trans-Tasman Radiation Oncology Group, and the Radiotherapy Trials Quality Assurance Team (UK). The audit found that the ACDS approach is sound and that our audit test case results were in alignment to the UK test cases. This presented a possible opportunity for mutual recognition of dosimetric audits between Australia and the UK. This travel was funded by ARPANSA.

*Main Commission of the International Commission on Radiological Protection (ICRP)
8-12 May 2017, Lima, Peru*

ARPANSA’s CEO participated in this biannual meeting, which is a main source of risk assessments for ionising radiation and drives development of the international framework for radiation protection. Participation in the ICRP’s work promotes the Australian Government’s policy to adopt international standards and risk assessments where they are relevant and appropriate in the Australian context. Reports on dosimetry and diagnostic reference levels for medical imaging were approved for publication. Work is nearing completion on new dose estimates for radon progeny and ARPANSA is in communication with stakeholders on the implications. This travel was funded by ARPANSA.

*Occupational Radiation Protection Appraisal Service Mission 14-23 May 2017, Putrajaya and
Bangi, Malaysia*

ARPANSA led this International Atomic Energy Agency (IAEA) mission, requested by the government of Malaysia, to appraise the regulatory and practical implementation of the occupational radiation

protection arrangements in Malaysia. The review compared Malaysia's arrangements against the IAEA Safety standards as the international benchmark for protection and safety. The mission was also used to exchange information and experience between team members and Malaysian counterparts. The IAEA will deliver a report to Malaysia by 30 June 2017. This travel was funded by the IAEA.

International Atomic Energy Agency (IAEA) International Meeting on Application of the Code of Conduct on the Safety of Research Reactors 15-19 May 2017, Vienna, Austria

ARPANSA attended this triennial meeting, which provides guidance for Member States on the development of policies and regulations for the safety of research reactors, such as the Australian Nuclear Science and Technology Organisation's reactor facility at Lucas Heights. The meeting allowed ARPANSA to learn good practices from other international regulatory bodies in order to improve regulatory oversight in Australia. This travel was funded by ARPANSA.

Integrated Regulatory Review Service (IRRS) follow-up mission 15-23 May 2017, Prague, Czech Republic

ARPANSA attended this IRRS follow-up mission as an observer. The IRRS is a peer review service offered by the International Atomic Energy Agency to member states. It helps to ensure continuous improvement of regulatory effectiveness and to share knowledge and experience among regulators. The ARPANSA officer who attended the mission to the Czech Republic will be the liaison officer and project manager for the Australian IRRS mission scheduled for November 2018. As an observer, the officer learnt how the IRRS conducts missions, including preparation by the host, logistical issues, and the process the IRRS team follows to determine its findings. This knowledge will help to prepare for Australia's IRRS mission. This travel was funded by ARPANSA.

64th Annual Session of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 29 May 2017 - 2 June 2017, Vienna, Austria

The Deputy CEO of ARPANSA is the Australian Representative to UNSCEAR and the Committee's Rapporteur. UNSCEAR undertakes scientific assessments of radioactive sources and the effects of ionising radiation, including health risks to people and the environment. UNSCEAR reports its findings directly to the UN General Assembly. UNSCEAR approved two draft scientific annexes (related to epidemiological studies of radiation exposure from environmental sources) and two White Papers (on the effects of radiation exposure following the Fukushima and Chernobyl nuclear accidents) for publication. UNSCEAR will continue work on the survey on medical exposures and occupational exposures. ARPANSA representatives have been primary contributors to the expert groups undertaking both of these surveys, and will continue to provide data and support to these projects. This travel was funded by ARPANSA.

4th Meeting of the International Atomic Energy Agency (IAEA) Emergency Preparedness and Response Standards Committee (EPReSC) 6-8 June 2017, Vienna, Austria

ARPANSA attended this meeting, which considered a number of IAEA safety standards under development. Two documents were approved for release for Member State comment (DS484: Site

evaluation for Nuclear Installations, and DS475: Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency) and will be circulated in Australia in the next quarter. Key documents of interest related to the development of a protection strategy for a nuclear or radiological emergency, communication during such an emergency, and remediation of contaminated sites. This travel was funded by ARPANSA.

42nd meeting of the International Atomic Energy Agency (IAEA) Radiation Safety Standards Committee (RASSC) 12-14 June 2017, Vienna, Austria

ARPANSA participated in this meeting of RASSC, which approved a proposed new safety guide (*Source Monitoring, Environmental Monitoring and Individual Monitoring for Protection of the Public and Environment*) for submission to the Commission on Safety Standards (CSS). RASSC also cleared for publication a guide on '*Preventative Measures for Nuclear and Other Radioactive Material Out of Control*'. A session was held on trends and challenges in occupational radiation protection, including presentations from UNSCEAR and the IAEA. This travel was funded by ARPANSA.

National Consultancy Meeting on the Safety Requirements for Research Reactors in the Philippines 12-16 June 2017, Vienna, Austria

ARPANSA participated in this national consultancy meeting on the safety requirements for research reactors in the Philippines. The scope of the meeting was to develop safety requirements for research reactors in context of three drafted Philippine regulations on protection against radiation, and site evaluation and licensing for nuclear installations. The key outcome of the meeting was a draft of a new regulation with safety requirements for research reactors and subcritical assemblies. This travel was funded by IAEA.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management; and Third Extraordinary Meeting of the Contracting Parties, and Organisational Meeting for the Sixth Review Meeting 16-19 June 2017, Vienna, Austria

An ARPANSA officer attended as head of delegation for Australia and vice president nominee, and as a rapporteur for a Country Group. The Joint Convention represents a commitment by participating countries to achieve and maintain high levels of safety in the management of spent fuel and radioactive waste to protect people and the environment. It provides for regular peer-review of Australia's radioactive waste management policies, practices and regulation, and for Australia to contribute to international best practice in radioactive waste safety. This travel was funded by ARPANSA.

Details of directions given by the Minister

No directions were given by the Minister under section 16 of the Act.

Details of directions given by the CEO

No directions were given by the CEO under section 41 of the Act.

Details of improvement notices given by inspectors

One improvement notice regarding inventory management and storage of controlled material was issued by ARPANSA to the Commonwealth Scientific and Industrial Research Organisation (CSIRO) under section 80A of the Act.

Details of any breach of licence conditions by a licensee

Three breaches were identified with low safety significance: one licence holder marginally exceeded an activity limit; one licence holder failed to have its security plan endorsed; and one licence holder did not have the appropriate warning lights and interlocks on a low hazard x-ray device.

Facilities licensed under Part 5 of the ARPANS Act

No facility licences were issued in the period.

The operations of the Council and Committees

Radiation Health and Safety Advisory Council

The Radiation Health and Safety Advisory Council (RHSAC) met in Melbourne on 5-6 June 2017.

RHSAC discussed how ARPANSA uses and communicates data, including the agency's digital strategies. Other topics discussed included national uniformity issues currently under the consideration of the Radiation Health Committee, the regulation of naturally occurring radioactive material (NORM), medical imaging information publications, and the role of ARPANSA in a national context of emergency exposure situations. RHSAC also considered ARPANSA's options to influence behavioural change in ultraviolet (UV) protection, and news media perceptions of radiation issues.

RHSAC provided advice to the CEO of ARPANSA, at the CEO's earlier request, on the appropriate level at which to set the national 'reference level' for radiation exposure in emergency situations.

RHSAC also issued a position statement to the CEO of ARPANSA supporting the continued use of the linear no-threshold model as a regulatory tool for ionising radiation protection, in situations where radiation is below levels for which there is established evidence of harm.

The minutes of the June meeting will be made available on ARPANSA's website once approved. The next RHSAC meeting will be held in Sydney on 16-17 November 2017.

Reports to the CEO from the Radiation Health and Safety Advisory Council under paragraph 20(f) of the Act

The RHSAC did not provide any out-of-session reports to the CEO during this quarter.

Radiation Health Committee

The Radiation Health Committee (RHC) met on 7 June 2017 in Melbourne.

The RHC approved the scope for a proposed Amendment 8 to the National Directory for Radiation Protection (NDRP), to include recently published ARPANSA codes and guides based on international standards (ensuring the uniform implementation of changes across all jurisdictions) and update document references. RHC also agreed to develop a simplified process to develop Radiation Protection Series (RPS) documents.

RHC noted that five jurisdictions raised concerns in relation to the draft Medical Exposure Code and the draft preliminary assessment by the Office of Best Practice Regulation (OBPR) and agreed to revise the drafts. RHC will seek out of session endorsement to submit the preliminary assessment to the OBPR. A decision on whether to release the drafts for public comment will be made at the next meeting.

RHC approved the publication of the Existing Exposure Guide (EEG), which sets out the Australian approach to protecting people and the environment in situations where radiation already exists naturally or from past practices.

RHC agreed to work towards incorporating the four requirements from the IAEA General Safety Requirements, GSR Part 3 (2014) relevant to emergency management into the NDRP. In addition, the Emergency Exposure Guide content will be split based on different phases of an emergency and target groups. The draft is expected to go to public consultation later in 2017.

RHC noted progress on the guidance documents related to intense pulsed light and laser devices. Although RHC approval is not needed for these documents, the committee will continue to monitor progress. Drafting will continue on a code for industrial radiography licence conditions and an OBPR preliminary assessment will determine if a regulatory impact statement (RIS) is required to publish the document as a code.

RHC noted that the International Commission on Non-Ionizing Radiation Protection (ICNIRP) is currently updating its guidance on non-ionising radiation. RHC agreed that a draft concept of a revised Radiation Protection Series (RPS) No. 3, Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz (2002) could be developed that may influence occupational aspects of radiation protection in ICNIRP's guidance that lack clarity.

RHC noted the circulation and provision of members' comments on the draft Disposal Code intended to supersede Radiation Health Series 35, Code of Practice for the Near-surface Disposal of Radioactive Waste in Australia (1992), and preliminary assessment of the OBPR. RHC approved the request to seek advice from the OBPR on whether a RIS will be required to publish the Code.

RHC noted the progress of the amendment to the threat level scale in RPS 11 Code of Practice for the Security of Radioactive Sources (2007) and approved the proposed text. Members accepted a proposal to undertake an extensive gap analysis of RPS against International Atomic Energy Agency (IAEA) Nuclear Security Series No. 11 that will inform further revision of RPS 11.

RHC noted that the Council of Australian Government Health Council had approved NDRP Amendment 7, which covers the disposal of low-level radioactive waste by the user. This amendment was intended to replace the RHS 13. RHC voted unanimously to revoke RHS 13, *Code of practice for the disposal of radioactive wastes by the user (1985)*, following the publication of NDRP Amendment 7.

The next RHC meeting will be held in Sydney on 15 November 2017.

Nuclear Safety Committee

The Nuclear Safety Committee (NSC) met on 30 June 2017 in Sydney.

NSC was briefed on ARPANSA's latest activities regarding the planned National Radioactive Waste Management Facility (NRWMF) including the publication of a regulatory guide (see 'Regulatory Guides'). ARPANSA also published information for stakeholders and a communications protocol on its website (www.arpansa.gov.au/regulation-and-licensing/safety-security-transport/radioactive-waste-disposal-and-storage) which clearly and effectively state ARPANSA's NRWMF objectives. NSC emphasised the importance of highlighting ARPANSA's independence in the regulatory process.

NSC provided initial feedback on the new ANSTO Nuclear Medicine (ANM) facility risk assessment provided with their application (see 'Significant Licensing Activities'). NSC noted observations in the risk assessment around hazard identification, safety controls, and the use of specific terminology. NSC recommended testing some aspects of the risk assessment through a quantitative credibility analysis process.

ARPANSA received a request from ANSTO under Regulation 51, which requires the licence holder to seek authorisation before implementing changes with significant safety implications, in relation to their new SyMo facility. Once constructed and operational, the facility will be used to treat radioactive waste arising from the ANM facility. Changes include plant and process layout, a reduction in radioactive inventory and a move to continuous processing from batch processing. NSC will be kept informed on ARPANSA's regulatory review of the changes.

NSC discussed ANSTO learnings from an event involving the handling of nuclear material during an inspection of the Open Pool Australian Lightwater (OPAL) reactor at Lucas Heights. The event, which had no direct safety implications, was a deviation from standard protocol. ANSTO identified a large number of improvement opportunities, which NSC acknowledged. NSC did not raise any significant regulatory issues or concerns.

The minutes of NSC meetings are available on the ARPANSA website. The next NSC meeting will be held in Sydney on 20 October 2017.