
Australian Government

Australian Radiation Protection and Nuclear Safety Agency

# Quarterly Report

# of the

# Chief Executive Officer of ARPANSA

# April to June 2014

**Further information about this publication**

If you would like to know more about the content of this publication please contact ARPANSA on 1800 022 333 or e-mail at ***info@arpansa.gov.au***. Further information about ARPANSA can be found on the Agency's website at ***www.arpansa.gov.au***.

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is the Australian Government's primary authority on radiation protection and nuclear safety. ARPANSA regulates Commonwealth entities using radiation with the objective of protecting people and the environment from the harmful effect of radiation. ARPANSA undertakes research, provides services, and promotes national uniformity and the implementation of international best practice across all jurisdictions.

**Printed by:**

CanPrint Communications Pty Ltd
16 Nyrang Street
Fyshwick ACT 2609

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# Letter of Transmittal

1 August 2014

Senator the Hon Fiona Nash
Assistant Minister for Health
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
- 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 paragraph 20(f) or 26(1)(d) of the Act, and
- 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 2014 to 30 June 2014.

Please note that Section 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

# Report on the Operations of the CEO and ARPANSA

The report on the operations of the CEO and ARPANSA is based on the key strategic directions:

- apply best practice regulation through the promotion of national uniformity and regulation
- promote the most effective use of radiation in therapeutic treatments and in diagnostic medicine
- improve radiation protection of workers, the public and the environment from natural sources including uranium mining and radioactive waste disposal
- promote the security of radioactive sources in Australia and strengthen Australia's capability to respond to radiation emergencies, and
- monitor and advise on population exposures to ultraviolet radiation, extremely low frequency electric and magnetic fields and electromagnetic radiation.

## *Regulate the Use of Radiation*

### National Uniformity and Regulation

The main vehicle for the promotion of national uniformity of radiation protection in Australia is the *National Directory for Radiation Protection* (the National Directory) which is maintained and expanded by ARPANSA in cooperation with the state and territory regulatory bodies through the Radiation Health Committee (the Committee).

During this quarter, ARPANSA invited public submissions on an amendment to the National Directory concerning the disposal of radioactive material covering the following areas:

- criteria for exemption from authorisation for disposal of very low-level radioactive material to landfill, to the air, to the sewer and associated changes
- the inclusion of Schedule 14, specifying authorisation exemption values for nominated radioisotopes for disposal to landfill, to the air and to the sewer
- the inclusion of Annex 4, explaining the methodology and rationale behind development of the exemption and the values listed in Schedule 14.

Comments have also been invited on the accompanying Best Practice Regulation Preliminary Assessment with the closing date for submissions being 1 August 2014.

### Standards and Guides

During this quarter, the Radiation Health Committee considered the progress of the Committee's Work Program concerning the development of Radiation Protection Series documents and amendments to the National Directory.

ARPANSA presented the *Draft Code of Practice for the Safe Transport of Radioactive Material* to the Committee for endorsement, where it was approved for submission to the Radiation Health and Safety Advisory Council for their endorsement. This code, which is based on the International Atomic Energy Agency (IAEA) *Regulations for Safe Transport of Radioactive Material, SSR-6 (2012)*,

establishes requirements for adoption by Commonwealth, state and territory jurisdictions that will maintain a system for the safe transport of radioactive material by road, rail and waterways.

The Committee noted the progress on the draft code - *Radiation Protection in Planned Exposure Situations* which provides a system to manage radiation risks in accordance with the *Fundamentals for Protection against Ionising Radiation (2014) (RPS F-1).* The draft *Code* describes the radiation protection requirements for occupationally exposed persons, the public and the environment in planned exposure situations. A planned exposure situation is one where radiation protection can be planned in advance, before exposures occur and where the magnitude and extent of exposures can be reasonably predicted. Planned exposure situations may result in exposures that are anticipated to occur (normal exposures) and in potential exposures that are not anticipated to occur, but may do so. Doses received through planned exposure situations can be minimised by intelligent engineering design of installations, facilities and operating procedures. In the case of workers and the public, dose limits are set and must be complied with in order to ensure there is an adequate level of radiation protection.

During this quarter, ARPANSA invited public submissions on its *Draft Regulatory Guide: Siting of Controlled Facilities* which closed on 11 July 2014. This Regulatory Guide has been prepared to advise potential Commonwealth applicants, the public and other stakeholders of matters that need to be addressed in an application for a licence under the ARPANS Act to prepare a site for a controlled facility. The publication draws upon international best practice in relation to radiation protection and nuclear safety and is an update of the 1999 ARPANSA Regulatory Guidance.

### Significant Licensing Activities

On 28 April 2014, ARPANSA issued an amended facility licence F0280 to the Australian Nuclear Science and Technology Organisation (ANSTO) to undertake routine operations of the 1 MV compact accelerator at the Centre for Accelerator Science.

On 9 May 2014, ARPANSA approved a change under Regulation 51 of the ARPANS Regulations to allow ANSTO to undertake an additional molybdenum-99 (Mo-99) production run per week at Building 54 for up to eight times per year.

On 13 May 2014, ARPANSA issued a licence to ANSTO to prepare a site for, and construct a controlled facility (the ANSTO SyMo Facility) at the ANSTO Lucas Heights Science and Technology Centre.

On 29 May 2014, ARPANSA issued a facility licence F0287 to ANSTO to construct the 6 MV accelerator known as SIRIUS at the Centre for Accelerator Science.

On 27 June 2014, the CEO of ARPANSA issued a facility licence F0285 to ANSTO to construct the ANSTO Nuclear Medicine Molybdenum-99 (ANM Mo99) Facility at the Lucas Heights Science and Technology Centre.

### Inspections

ARPANSA continued its licensee inspection program and undertook 16 inspections and site visits during the quarter. The inspection and site visits were undertaken to monitor compliance with licence conditions, investigate operational incidents, and to gather information to progress current licence applications. Inspection reports are posted on ARPANSA's website at ***www.arpansa.gov.au/regulation/inspections/index.cfm.***

## *Promote the Effective Use of Radiation in Medicine*

### Radiotherapy calibration

ARPANSA provides a calibration service for instruments used to measure radiation in various commercial, medical and public sector applications. The service is a quality assurance tool which ensures the radiation dose and dose placement are accurately controlled to treat diseased tissue and to minimise damage to surrounding and adjacent healthy tissue. This quarter ARPANSA calibrated six therapy dosemeters and two radiation survey meters. ARPANSA is now able to offer a calibration service for megavoltage photons and electrons.

### Australian Clinical Dosimetry Service

ARPANSA and the Department of Health have agreed to a variation of the Memorandum of Understanding that funds the Australian Clinical Dosimetry Service (ACDS). The variation has enabled the ACDS to maintain the national audit program which, since January, has performed seven Level I, three Level Ib, five Level II and seven Level III audits.

### Diagnostic Imaging

A Memorandum of Understanding (MOU) has been signed with the Department of Health in partnership with the Australian Commission on Safety and Quality in Health Care to produce a Radiation Protection of Patients module for medical imaging referrers. Preliminary work has started with stakeholders on the design of the module.

The Australian National Diagnostic Reference Level (DRL) Service continues to gathers data that will be used to establish and update National DRLs for common diagnostic imaging procedures for patients. DRLs are a quality assurance tool designed to provide individual medical facilities with a means to benchmark their practice with National DRLs of patient doses received. This has now taken place for multi-detector computed tomography (MDCT) scans. Iterative reconstruction software for MDCT has continued to have a beneficial impact in lowering doses to patients and will be further investigated later in the year. ARPANSA is currently investigating other medical radiation imaging modalities such as interventional/fluoroscopic and general examinations, mammography and nuclear medicine that could benefit from the DRL service.

During the reporting period, the Nuclear Medicine DRL draft survey was submitted to the Clinical Liaison Panel (composed of clinical practice experts in nuclear medicine), for comment, with the expectation that the survey will be sent to stakeholders in the third quarter of this year.

## *Protect People from Natural Sources of Radiation*

### Exposures in Uranium Mining and Naturally Occurring Radioactive Materials Industries

ARPANSA maintains the Australian National Radiation Dose Register which collects, stores and enables auditing of radiological dose histories for uranium industry workers in Australia. The Dose Register receives data from the four uranium mines licensed to operate in Australia: Olympic Dam, Beverley and Honeymoon in South Australia, and Ranger in the Northern Territory. The Dose Register currently holds dose history records for more than 31,700 workers in the uranium mining and milling industry.

Consistent with international best practice, ARPANSA is investigating the expansion of the Dose Register to cover occupationally exposed workers in other industries, such as mineral sands mining and processing operations, and applicable Commonwealth practices. During this quarter, ARPANSA surveyed relevant Commonwealth licence holders to assess the current status of dose record management practices and to identify possible issues relating to the disclosure of workers' dose records to ARPANSA.

### Monitor and Mitigate Population Exposures to Electric and Magnetic Fields (EMF) and Electromagnetic Radiation (EMR) and Solar Ultra Violet Radiation (UVR)

Under Part 6 of the *Legislative Instruments Act 2003*, most legislative instruments 'sunset' (that is, they are automatically repealed) on the first day of April or October that first occurs 10 years after they are registered on the Federal Register of Legislative Instruments. This is an automatic process applying to most legislative instruments regardless of their content.

As a result of the *Legislative Instruments Act*, the Australian Communications and Media Authority (ACMA) is facilitating the remaking of the following related instruments which are due to sunset on 1 October 2015:

- *Radiocommunications (Electromagnetic Radiation – Human Exposure) Standard 2003 (Human Exposure Standard)*
- *Radiocommunications (Compliance Labelling– Electromagnetic Radiation) Notice 2003 (EME Labelling Notice)*.

ARPANSA provided written technical advice in response to a consultation paper on the remaking of the instruments particularly referencing of the relevant measurement standard, the ARPANSA *Radiation Protection Standard 'Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz* (2002).

### Electromagnetic Energy Reference Group

On 14 May 2014, ARPANSA's Electromagnetic Energy Reference Group (EMERG) met in Sydney and considered the recent work of ARPANSA's Radiofrequency (RF) Expert Panel as well as discussing future plans for updating the Radiofrequency Standard. EMERG was established to provide the CEO of ARPANSA with advice and input to address public health issues related to the use of the radiofrequency spectrum (3kHz to 300 GHz) for communications. The group includes representatives

from consumer organisations, the telecommunications industry, the health sector, academic organisations, other government organisations and community groups and considers a range of issues such as:

- current international and Australian research into EME and health
- public perceptions around EME causing concerns and measures to address them
- emerging EME issues related to new technologies
- development of ARPANSA public information on EME
- whole of government approaches to addressing the EME health issue.

### ARPANSA-Australian Mobile Telecommunications Association Liaison Forum

On 27 June 2014, ARPANSA and the Australian Mobile Telecommunications Association (AMTA) held their first Liaison Forum which included signing Terms of Reference. The purpose of the Liaison Forum is to provide open, frank and transparent exchange of information on radiation protection and safety issues related to RF electromagnetic radiation (EMR). The group discussed the report of ARPANSA's RF Expert Panel which confirmed that the Radiation Protection Standard *'Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz* (2002) still provides a high degree of protection for the community against known health effects and a Canadian review of safety limits for exposure to radio waves which concluded that there was no reason to change the basis of existing standards. ARPANSA's continued research of exposure guidelines and international best practices in order to provide the most up to date advice to the public was acknowledged.

### Ultraviolet Radiation

The House of Representatives Standing Committee on Health is currently holding an Inquiry investigating the awareness, prevention, early diagnosis and management of both melanoma and non-melanoma skin cancers. The Committee held public hearings around Australia which included evidence from local medical professionals involved in diagnosing and treating skin cancer at all stages, as well as experts in primary care and remote area medical education. ARPANSA made a public submission to the Committee in early 2014 outlining the nature of research and services undertaken by ARPANSA regarding public exposure to ultraviolet radiation (UVR) including skin cancer prevention and ARPANSA's collaboration with other bodies (such as Cancer Councils and SunSmart) to increase community awareness on the need for sun protection and reducing UVR exposure.

As a follow-up to that submission, ARPANSA presented evidence at the Committee's hearings in Melbourne that the cause of between 95% to 99% of skin cancers resulted from exposure to the sun; the marked difference in solar ultraviolet radiation levels between Australia and other countries leading to higher skin cancer rates and the consistency between population exposures and levels of ambient solar UVR. ARPANSA submitted that most skin cancers are preventable and could be mitigated by improved public awareness campaigns involving both government bodies like ARPANSA and Cancer Councils. The Committee will report to the Australian Parliament in late 2014.

### Regulation of Intense Pulsed light sources and lasers used for cosmetic purposes

The use of high powered lasers and intense pulsed light (IPL) sources for cosmetic purposes such as hair removal and skin rejuvenation have sometimes resulted in injuries to consumers because of incorrect use by inappropriately trained operators. Regulating the safety of IPLs and lasers used for cosmetic purposes is the responsibility of the states and territories whereas the therapeutic use of these devices is regulated by the Therapeutic Goods Administration (TGA) under the *Therapeutic Goods Act 1989*. During this quarter, ARPANSA was invited by the Australian Society of Aesthetic Plastic Surgery and the Cosmetic Physicians Society of Australasia to deliver a presentation at the *2014 Non-Surgical Symposium* held in Sydney from 8 to 11 May 2014. The symposium brought together medical specialists that use lasers and IPLs for cosmetic purposes. The presentation focused on statistical data of injuries from improper use of IPLs and lasers for cosmetic purposes and the nature and extent of regulation covering this kind of use.

### Measuring environmental radioactivity

During this quarter, ARPANSA participated in the 2014 IAEA Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA) Proficiency Test, which required reporting, within three days, of the anthropogenic radionuclides in the water, seaweed and sediment samples provided by the IAEA. Anthropogenic radionuclides are radioactive isotopes caused by human activity (usually in nuclear reactors).

Under a Memorandum of Understanding with Food Standards Australia and New Zealand, ARPANSA received the summer samples for the Australian Total Diet Study which it analysed for anthropogenic radionuclides.

## *Oversee Security of Radioactive Sources, and Ensure Emergency Preparedness*

### Security of radioactive sources

ARPANSA continues to work with the Attorney General's Department Protective Security Training College to deliver a pool of nationally accredited radiation security advisors. A number of trainees have successfully completed their initial assessment tasks with finalisation of their training requirements expected by the end of 2014.

During this quarter, ARPANSA conducted security inspections of various licence holders that deal with security enhanced radioactive sources and, following the visits, provided written recommendations and suggestions for improvement. Follow-up inspections have been scheduled to review implementation of those recommendations.

### Emergency Preparedness and Response Capability

ARPANSA maintained specialised radiation emergency capabilities in line with Australian emergency planning arrangements. ARPANSA's Emergency Preparedness and Response Group continued its training cycle by providing emergency response training to ARPANSA staff, including certification in the use of breathing apparatus.

ARPANSA participated as radiological subject matter experts in the Australian and New Zealand Counter-Terrorism Committee training course for Crime Scene Investigators (CSI) and Incident Commanders. The training provided CSI operators and Incident Commanders with advanced knowledge of radiation incidents and how best to respond and manage a scene contaminated with radiation. Participants in the training included law enforcement, fire brigade and emergency services' representatives from all jurisdictions around Australia.

ARPANSA has received ANSTO's Periodic Emergency Preparedness and Response review and has started assessing the review against international best practice and lessons learned from Fukushima. ARPANSA expects to complete its assessment within the next quarter. ARPANSA is also currently embarking upon a review of the New South Wales Government off-site response planning arrangements in cooperation with state authorities.

ARPANSA emergency response personnel completed their annual recertification training on Level A - Personal Protective Equipment (PPE) and Self-Contained Breathing Apparatus (SCBA) with the Melbourne Metropolitan Fire Brigade. A number of radiation emergency exercise scenarios requiring Level A - PPE and SCBA equipment were conducted upon completion of the re-certification in order to validate the training.

### International Monitoring Network

As part of Australia's commitment to the Comprehensive Nuclear-Test-Ban Treaty (CTBT), ARPANSA continued to operate and maintain radionuclide air particulate monitoring stations at Melbourne, Perth, Townsville, Darwin, the Cocos Islands, Macquarie Island, and Mawson Base (Antarctica), plus two noble gas monitoring facilities, co-located with the air particulate monitoring stations in Melbourne and Darwin. As part of this commitment, ARPANSA continued to act as a certified laboratory for analysis of air particulate samples, as part of the CTBT laboratory network. During this quarter, ARPANSA analysed five such samples.

## *Publications and Technical Reports*

During this quarter, ARPANSA published the following two studies on residential power frequency magnetic fields:

- Karipidis, K. Survey of residential power-frequency magnetic fields in Melbourne, Australia, *Radiation Protection Dosimetry* (2014), pp. 1-11.
- Karipidis, K. Assessment of bias in a survey of residential magnetic fields in Melbourne, Australia, *Radiation Protection Dosimetry* (2014), pp. 1-10.

These studies provide ARPANSA with a better understanding of typical levels of exposure to extremely low-frequency magnetic fields. In the first study, ARPANSA conducted a comprehensive survey of power-frequency magnetic field levels in private residences in Metropolitan Melbourne. The second study examined the likelihood of bias in the study conducted using the methodology of randomly selected homes from the Melbourne telephone directory. It was confirmed that the sample taken in the first study provided sound estimates of the distribution of residential magnetic fields in the region studied (Melbourne).

During this quarter, ARPANSA published a paper in *Medical Physics*[1] describing studies undertaken to test optically stimulated luminescence dosimeters for introduction into the Level I Audits of the Australian Clinical Dosimetry Service greatly improving on older technology based on thermoluminescence dosimeters.

During this quarter, ARPANSA's study on x-ray dosimetry[2], cited in ARPANSA's *January-March 2014 Quarterly Report*, was published in *Medical Physics*. This study measured the absolute dose rate of the Imaging and Medical Beamline on the Australian Synchrotron against the dose rate from a graphite calorimeter. This study was designed to provide a robust determination of the dose differentiation between these two methods in order to provide confidence in the first implementation of a graphite calorimeter on a synchrotron medical beam line.

During this quarter, ARPANSA published four technical reports across a range of areas.

The first report[3] describes the theoretical basis, construction and operation of the graphite calorimeter used to realise the Australian primary standard of absorbed dose. ARPANSA is authorised to maintain this standard by the National Measurement Institute, Australia, under the *National Measurement Act 1960*. The standard is disseminated by providing vital calibrations of dosimeters used in cancer centres across Australia.

ARPANSA installed a linear accelerator in 2009 and a new cobalt-60 source in 2010. The report describes the operation of the calorimeter with these beams. The calorimetry measurements have been validated through international comparisons with Bureau International des Poids et Mesures, France, National Physical Laboratory (United Kingdom), National Metrology Institute of Japan (Japan) and National Research Council (Canada). Comparisons such as these demonstrate that the radiation dose delivered during radiotherapy treatment is the same in Australia as in other countries.

The second report[4] provides a summary and evaluation of existing radionuclide concentration data in non-human biota common to Australian uranium mining and milling environments that have been collected by a range of organisations over the past 40 years. The justification for this research arose from the need of the Australian uranium mining industry to demonstrate international best practice standards in environmental assessment, as well as from the current lack of consolidated concentration ratio data to support resonant and technically robust application of reference animal and plant approach in the Australian mining context. This report made five recommendations about ways of collating and reconciling data discrepancies, reconsidering terminology to ensure consistency and developing national guidance in a coordinated manner with industry, research bodies and relevant Commonwealth agencies.

[1] Lye J, Dunn L, Kenny J, Lehmann J, Kron T, Oliver C, Butler D, Alves A, Johnston P, Franich R, Williams I., "Remote auditing of radiotherapy facilities using optically stimulated luminescence dosimeters", *Medical Physics*, 2014: Mar; 41(3):032102. doi: 10.1118/1.4865786.
[2] Harty, P. D, J. E. Lye, J.E, Ramanathan, G, Butler, D. J, Hall, C. J., Stevenson, A. W., and Johnston, P. N., "Absolute x-ray dosimetry on a synchrotron medical beam line with a graphite calorimeter", *Medical Physics* 2014: 41, 052101 (2014); doi: 10.1118/1.4870387.
[3] Ramanathan, G, Harty, P, Wright, T, Lye, J, Butler, D, Webb, D and Huntley, R. The Australian Primary Standard for absorbed dose to water (graphite calorimeter) (2014) 2013, *Technical Report Series No.* 166, June 2014.
[4] Hirth, Gillian, A Review of existing Australian radionuclide activity concentration data in non-human biota inhabiting uranium-mining environments, *Technical Report Series No. 167*, May 2014.

ARPANSA also published two technical reports on capabilities of radioanalytical laboratories and gamma spectrometry data collection. The first report[5] was a survey of eight Australian and New Zealand radio-analytical laboratories to establish their capabilities in the event of a significant radiological incident. The report found that radio-analytical capability in Australia remains robust, however, there were some limitations in relation to staffing, funding and specialisation. The report made recommendations for improving capabilities by making some changes to work practices. The second report[6] was conducted to ascertain the capability of gamma-spectrometry in the region and found that, in almost all cases, the participants reported acceptable results.

## *Conferences and International Engagement*

### 6th Review Meeting of the Convention on Nuclear Safety - Vienna, 24 March – 4 April 2014

Between 24 March and 4 April, ARPANSA attended the 6th Review Meeting of the Convention on Nuclear Safety held in Vienna, Austria. The Convention on Nuclear Safety is a treaty level document with 76 Contracting Parties (CP) and which was ratified by Australia in March 1997.

The Review Meeting commenced with presentations from each Contracting Party on how it had implemented the provisions of the Convention.

The Review Meeting concluded with deliberation and analysis to identify the major technical, regulatory and policy issues identified in the course of meeting which were then incorporated into a Summary Report published by the President. The Summary report is available at ***www-ns.iaea.org/conventions/nuclear-safety.asp***.

Australia's presentation was well received with Contracting Parties present identifying four 'commendable activities' mentioned in the Rapporteur's Report with no suggestions being made.

Australia raised two significant issues which were included in the Summary Report of the Review Meeting, namely: the importance of harmonising protective measures and trade measures to be taken during an emergency (this was also within the IAEA Action Plan on Nuclear Safety) and that in paragraph 38, the President of the Review Meeting will discuss issues related to post-accident phase with their successor before the 7th Review Meeting.

### International Atomic Energy Agency Training Course on Harmonisation of National Dose Registries in Member States, Vienna, Austria, 2-4 April 2014

ARPANSA was invited by the International Atomic Energy Agency (IAEA) to lecture at a training course on national dose registries as part of a capacity building exercise and to promote international harmonisation of national dose registries in Member States.

ARPANSA delivered a presentation on Australian National Radiation Dose Register outlining its current status and operations, the benefits to workers and industry of establishing a national

[5] Long, S. & Sdraulig, S., A Survey of the Capabilities of Australasian Radio-analytical Laboratories, *Technical Report Series No. 168,* June 2014.
[6] Long, S., Australasian Gamma-ray Spectrometry Capability Exercise – 2013, *Technical Report Series No 169*, June 2014.

database, and operational issues concerning the development and implementation of a national dose registry. The presentation was well received and promoted discussion amongst Member States in relation to some of the key challenges encountered when establishing a national system and possible solutions for these.

ARPANSA's participation at this conference was a useful information sharing exercise for the Agency and our counterparts who face similar challenges addressing national uniformity, data quality and integrity, and privacy issues in their national registers. The knowledge acquired will assist ARPANSA to ensure that operation of the Australian National Radiation Dose Register and future development activities are based on the latest internationally recognised radiation protection knowledge and practices.

### International Commission on Radiological Protection; Main Commission meeting - Moscow, Russia, 7-11 April 2014

Between 7 to 11 April 2014, the CEO of ARPANSA attended the meeting of the Main Commission of the International Commission on Radiological Protection (ICRP) held in Moscow, Russia.

The Main Commission decides on the general direction of ICRP including publishing reports in the Annals of the ICRP series of publications and usually meets twice yearly. Forthcoming publications included:

- *Publication 124 - Protection of the Environment under Different Exposure Situations* which was co-authored by ARPANSA CEO Carl-Magnus Larsson.
- *Publication 125 - security screening*.
- *Publication 126 - Radiological Protection against Radon Exposure* which was co-authored by ARPANSA's Stephen Solomon.
- Three publications on occupational intake of radionuclides now in advanced stages.
- Report on *Specific Absorbed Fractions for Internal Emitters in the Adult Reference Computational Phantoms* approved for public consultation over 60 days.
- Proceedings of the *2nd International Symposium on the System of Radiological Protection*.
- Draft report: *Stem Cell Biology in Relation to Carcinogenic Radiation Risk* approved for public consultation over standard 90 day period.
- Draft report: *Radiological Protection in Cone Beam Computed Tomography* approved for public consultation over standard 90 day period.
- Once approved, the report Radiation Dose to Patients from Radiopharmaceuticals: A Compendium of Current Information Related to Frequently Used Substances will be released as an electronic-only supplement.

ARPANSA's participation in Task Groups and the ICRP Main Commission is vital in supporting the Agency's desire to closely follow the development of international recommendations on radiological protection, influence international developments and promote best practice regulatory systems across all Australian jurisdictions.

### International Atomic Energy Agency 2nd Consultancy Meeting to develop Implementing Guide on the Security of Radioactive Material in Use and Storage and of Associated Facilities (Revision of NSS 11) - Vienna, Austria – 7-11 April 2014

From 7 to 11 April 2014, ARPANSA attended the 2nd Consultancy Meeting convened by the International Atomic Energy Agency (IAEA) to discuss and further develop a draft Implementing Guide covering *Radioactive Material in Use and Storage and of Associated Facilities* held in Vienna, Austria. This was the second, of three, consultancies undertaken for the revision of the IAEA's Nuclear Security Series No. 11 (NSS 11).

The 2nd Consultancy Meeting focused upon developing work in areas of the document that members were tasked to complete from the first Consultancy Meeting (held in February 2014 and also attended by ARPANSA). Consultants agreed to undertake specific writing tasks, including a review and revision of existing appendices contained in NSS 11. Members reviewed and agreed on the recommended inputs and document structure with the objective of completing a preliminary draft by October-November 2014 with a Technical Meeting scheduled for early January 2015 with Member States. Input received from Member States at the Technical Meeting would then be incorporated into the first draft, and the necessary steps will then be taken to ensure that the revised NSS 11 is considered by the Nuclear Security Guidance Committee at its first meeting in 2015. This travel was partly-funded by the IAEA and provided a valuable opportunity for ARPANSA to work on the development of key IAEA security documentation.

### The National Institute of Water and Atmosphere UV Workshop "UV Radiation: Effects on Human Health and the Environment" - Auckland, New Zealand, 15-17 April 2014

ARPANSA attended the National Institute of Water and Atmosphere (NIWA) Workshop "UV Radiation: Effects on Human Health and the Environment" held in Auckland, New Zealand from 15 to 17 April 2014. NIWA Workshops are held every four years and bring together many of the world's leading researchers studying ultraviolet (UV) radiation and its health effects. Sessions covered skin cancer, developments in UV dosimetry, population UV exposures, sun exposure and vitamin D, UV protection and better ways of educating the public about the dangers of UV exposures and sun protection methods. ARPANSA delivered a presentation titled: "Measured occupational solar UVR exposures of outdoor workers in Victoria in winter".

Attendance at this workshop is particularly important in assuring that ARPANSA's profile within the UV research community, particularly in Australasia, remains high. Demand for ARPANSA measurement products continues together with the potential for collaborative projects with other researchers in this field. ARPANSA's attendance at this conference confirmed that the Agency needs to maintain its UV network both from the perspective of scientific monitoring and to raise public awareness about UV protection in the community. It was apparent from ARPANSA's participation at this workshop that Australia remains near the forefront of UV measurement and research and that the disease burden from solar UV exposure remains a huge impost on the Australian population and economy. ARPANSA staff learned about new developments both mainstream and technical in the field of UV protection and confirmed that ARPANSA's information and current approach remains sound. ARPANSA's meeting with the CEO of NIWA will promote ongoing and better collaboration with that organisation.

### 14th Coordination and Planning Meeting of the World Health Organization/Radiation Emergency Medical Preparedness and Assistance Network Collaborating Centres and Liaison Institutions, Würzburg, Germany, 7-8 May 2014

Between 7 to 9 May 2014, ARPANSA attended the 14th Coordination and Planning Meeting of the World Health Organization/Radiation Emergency Medical Preparedness and Assistance Network (WHO/REMPAN) Collaborating Centres Collaborating Centres and Liaison Institutions held in Wurzburg, Germany. This meeting was organised by the REMPAN Collaborating Centre at the Department of Nuclear Medicine of the University Hospital Würzburg and was attended by 120 participants from 30 countries.

REMPAN was established in 1987 in order to fulfil WHO's mandate under the two international conventions on Early Notification and Assistance (IAEA, 1987). ARPANSA has been a WHO Collaborating Centre for Radiation Protection since 1985 (in its capacity as the Australian Radiation Laboratory). ARPANSA, jointly with the Peter MacCallum Cancer Institute is a long-term member of the WHO/REMPAN and ARPANSA provides technical assistance and expert scientific advice to WHO in the areas pertaining to the assessment of the public health and environmental consequences of radiological hazards.

There were 11 Sessions and 66 presentations over three days of meetings. Day one focused on the Fukushima Dai-ichi nuclear accident, with presentations on the early emergency response and the dose and risk assessments made by Japanese organisations, and presentations by the German Federal Authority for Radiation Protection and ARPANSA on the WHO and United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) dose and health risk assessments.

As a WHO Collaborating Centre, ARPANSA's interaction with REMPAN is an important way of engaging with WHO programs in emergency preparedness and response (EPR) and for building Australian capacity and capability to meet the requirements for the IHR. ARPANSA will participate in the proposed REMPAN Internal Dosimetry Group, which will include, at minimum, experts from Canada, US, Germany, France, China, Korea and Japan.

### Seventh Meeting of Competent Authorities under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, Vienna, Austria, 19-23 May 2014

Between 19 to 23 May 2014, ARPANSA attended the Seventh Meeting of Competent Authorities under the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Emergency which was held in Vienna, Austria. The meeting reviewed conclusions and outcomes from the Sixth Meeting and invited members to deliver their national reports on EPR programs. Forty six national EPR reports were received with 19 presented at the meeting along with six regional reports. Japan's Representative delivered a presentation on the current status of the response to the ongoing Fukushima Dai-Ichi nuclear power plant accident. Four member states and one international organisation delivered exercise and training programs.

The Meeting acknowledged the importance of collaboration on emergency preparedness and response among competent authorities, both within and between regions, and noting that this collaboration may also be facilitated by the National Competent Authority Coordination Group representatives. The Meeting considered the assessment and prognosis process in an emergency and emphasised the importance of continuing collaboration between the IAEA Secretariat and Member States to explore challenges and limitations in its implementation. In closing, the IAEA presented its goals and challenges for the next two years with regard to emergency preparedness and response.

### IAEA International Conference Programme Committee Meeting, Vienna, Austria, 26 May 2014

On 26 May 2014, ARPANSA attended the first meeting of the Programme Committee for the IAEA International Conference on Global Preparedness and Response at the invitation of the Scientific Secretary and Chair of the Programme Committee, which was held in Vienna, Austria.

The objectives of the meeting were to endorse the Committee's Terms of Reference and to discuss conference topics, conference features and the Programme Committee's work plan which included agreeing on dates for abstract submissions, ICPC reviews and next steps. ARPANSA attended this meeting as an extension to an existing commitment to attend the 7$^{th}$ NCA meeting and the 4$^{th}$ Emergency Preparedness and Response Expert Group meeting.

### Emergency Preparedness and Response Expert Group, Vienna, Austria, 27 – 28 May 2014

Between 27 and 28 May 2014, ARPANSA attended the fourth meeting of the IAEA Emergency Preparedness and Response Expert Group, at the invitation of the Deputy Director General of the Department of Nuclear Safety and Security, which was held in Vienna, Austria.

The objectives of the meeting were: to discuss the cross-cutting nature of emergency preparedness and response across the areas of nuclear safety and nuclear security; the involvement of the IAEA Secretariat in the EU activities in harmonisation of emergency preparedness and response; the Competent Authority Meetings and the future of national emergency preparedness and response reports; the extended role of the IAEA Secretariat in the assessment and prognosis process in severe emergencies; and to formulate and agree upon recommendations to the Department of Nuclear Safety and Security.

ARPANSA's engagement directly with the Deputy Director-General of the Nuclear Safety and Security Division of the IAEA is a unique opportunity to influence the nature and terms of the IAEA's engagement with Member States along with the guidance and tools it produces which are almost universally adopted. Ultimately, Australia's adoption of IAEA frameworks and codes of practice into our existing safety and security frameworks will be informed by these processes.

### Japan launch of the United Nations Scientific Committee on the Effects of Atomic Radiation's Fukushima assessment, Tokyo and Fukushima City, 26 – 30 May, 2014

The United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) Fukushima assessment was published on 2 April 2014, and was 'launched' by means of a media event in Vienna

which the CEO of ARPANSA attended via video link from Sydney. The main report has now been translated into Japanese and the appendices are currently being translated. The release of an 'advance copy' of the translated report made it timely to visit Japan to speak to relevant Ministries and Agencies, NGO's, Academia, the local Government in Fukushima, and to the press, with the purpose of 1) explaining the results; 2) engage with stakeholders; 3) receive comments and ideas for future studies; and 4) plan for a broader presentation to local communities in the Fukushima Prefecture, planned for second half this year.

A series of 17 meetings/events was held. These included a meeting with Mr Hiroshige Seko (Deputy Chief Cabinet Secretary) and two press briefings (one in Fukushima City and one in Tokyo). The UNSCEAR Report has generally been very well received by officials, NGOs, the public and media in Japan although some critique has also been voiced. The press briefings were well attended with questions ranging from straightforward questions about scientific data to more critical emotive inquiries such as the following examples: What future work is needed? Do you have enough information on doses to individuals? What is the impact of low chronic exposures? Is 1 mSv really a realistic criterion for moving back? Why was publication delayed? What is the incidence of thyroid cancer? This series of meetings/events provided a very useful opportunity for discussion and feedback, and provided valuable input to UNSCEAR's planned outreach activities later this year. The visit to Japan was partly subsidised by the United Nations via the United Nations Environment Program.

### Annual World Health Organization International Advisory Committee Meeting, Geneva, Switzerland, 4-5 June 2012

ARPANSA is an international World Health Organization (WHO) Collaborating Centre (WHOCC) on Radiation Protection and is a member of the WHO Electromagnetic Fields (EMF) and WHO Intersun (UV) Projects. ARPANSA attended the Annual International Advisory Committee meeting of the World Health Organization (WHO) in Geneva from 4-5 June 2014. The meeting aims to review and identify gaps in the scientific research literature, encourage harmonised standards and to encourage a focused agenda for future research. In the absence of broadly accepted set of standards and policies on EMF, UV radiation and precaution, accurate information about activities and policies in other countries is essential. The WHO work on the development of evidence-based standards for protection against non-ionising radiation will strongly influence the development of similar guidance in Australia.

### IAEA Technical Meeting on the Interaction between Individuals, Technology and Organisation – A Systemic Approach to Safety in Practice, Vienna, Austria – 10-13 June, 2014

Between 10 to 13 June 2014, ARPANSA co-chaired the IAEA Technical Meeting on the Interaction between Individuals, Technology and Organization which was held in Vienna, Austria. This was the first IAEA technical meeting specifically designed to focus on practical approaches to systemic safety. This meeting considered ways that safety performance can be improved through culture, leadership and management for safety and participants discussed and shared experiences demonstrating how a systemic approach to safety can increase the safety margins in everyday work practices. Participants

from the nuclear industry were joined by safety experts from academia and industries including medicine and aviation.

The meeting considered developments which incorporate system safety principles in a wide range of IAEA Safety Standards and Guidance with various speakers emphasising, the degree to which underlying human and organisational factors can contribute to nuclear and radiological accidents, citing examples from major accidents. Speakers also examined ways in which flaws in human and organisational factors can produce unsatisfactory emergency responses.

Australia's presentation outlined the development of ARPANSA regulatory safety standards and guides which continue to be aligned with the current international best practices for nuclear and radiation safety.

### IAEA Meeting on the Application of the Code of Conduct for the Safety of Research Reactors, Vienna, Austria – 16-20 June, 2014

Between 16 and 20 June 2014, ARPANSA attended an IAEA Meeting on the Code of Conduct for Research Reactors held in Vienna, Austria. This meeting was an opportunity for participants to compare safety practices and share experiences. This event is held triennially and was attended by both research reactor operators and regulators to discuss the progress towards implementing the code of practice in their respective countries. ARPANSA's contribution at this forum assists in the international harmonisation of safety Codes for research reactors.

### 28th meeting of the International Atomic Energy Agency, Transport Safety Standards Committee, Vienna, Austria – 16-20 June 2014

Between 16 to 20 June 2014, ARPANSA attended the 28$^{th}$ Meeting of the IAEA Transport Safety Standards Committee (TRANSSC) held in Vienna, Austria which considered issues related to the next review cycle for *IAEA Regulations for Safe Transport of Radioactive Material 2012 Edition*, Specific Safety Requirements (SSR) No. SSR-6. The meeting also informed that the Advisory Material for the *IAEA Regulations for the Transport of Radioactive Material 2012* would be published as Specific Safety Guide (SSG) No. SSG-26 within the next quarter. ARPANSA is in the process of finalising updates to its *Code of Practice for Safe Transport of Radioactive Material 2014* which will incorporate the IAEA's Specific Safety Requirement SSR-6. This is part of a broader process within ARPANSA of harmonising its Codes and Standards in accordance with international best practice.

The meeting also reviewed the status of IAEA Guidance for preparing a safety case for a dual purpose cask containing spent fuel. These discussions were extremely relevant for ARPANSA in view of recent licensing decisions (ANSTO's Interim Waste Store will be storing waste in a dual purpose cask). Exemption values for radionuclides used in the Transport Regulations were also considered. A working group comprising Australia, Belgium, France and Germany presented their work on the newly developed *Technical Guide on Package Design Safety Reports for the Transport of Radioactive Material*, which is in the process of finalisation. Publication of this document will facilitate harmonisation in assessment for package design approval. ARPANSA's presentation about the transport of radioactive material in the Australian context was well received.

# Details of any Breach of Licence Conditions by a Licensee

## *Breaches with Significant Safety Implications*

There were no breaches with significant implications for safety recorded during the quarter.

## *Breaches with No or Minor Safety Implications*

There was one breach, with minor or no safety implications, recorded during the quarter which related to the deviation from standard operating procedures by a licence-holder. This breach was assessed to have minor safety implications, corrective actions were taken by the licence holder and no enforcement action was considered necessary.

# Facilities Licensed Under Part 5 of the ARPANS Act

| Licensee | Number | Type | Comment |
|---|---|---|---|
| Australian Nuclear Science and Technology Organisation (ANSTO) | F0287 | Facility | Licence to construct the Prescribed Radiation Facility known as SIRIUS which is a 6 MV accelerator at Lucas Heights Science and Technology Centre. |
| Australian Nuclear Science and Technology Organisation | F0266 | Facility | Licence to site and construct the Prescribed Radiation Facility known as the SyMo facility which is for the conditioning of intermediate level liquid waste arising from the production of molybdenum-99 applying synroc technology at Lucas Heights Science and Technology Centre. |
| Australian Nuclear Science and Technology Organisation | F0285 | Facility | Licence to construct the nuclear installation known as ANSTO Nuclear Medicine Molybdenum-99 facility at Lucas Heights Science and Technology Centre. |

# Transport of Radioactive Material

ARPANSA validated the Certificates of the Package Designs, CDN/2078/B(U)-96, issued by the Canadian Competent Authority for a Type B(U) Package, and CZ/001/B(U) – 96 (Rev. 4), issued by the Czech Competent Authority for a Type B(U) Package. ARPANSA issued the following certificates of validation to ANSTO:

- AUS/2014-52/B(U)-96
- AUS/2014-51/B(U)-96

ARPANSA also issued the following certificate of approval of Zirconium-89 radionuclide value to Sir Charles Gardiner Hospital:

- AUS/2014-53/Zr-89/RV-96

# Operations of the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee

## *Radiation Health and Safety Advisory Council*

During this quarter, the Radiation Health and Safety Advisory Council (Council) met at ARPANSA's Sydney offices in Miranda, New South Wales, on 3-4 April 2014.

The Member representing the interests of the general public presented the Council with a report outlining his role and what he hoped to achieve and members discussed a range of strategies for increasing the visibility of this important role. Members were briefed by the Secretary on new Council working procedures and were given guidance on using the IT platform. Members provided feedback on some of the issues they had encountered during its first use.

Members were advised that a discussion paper, about the roles and expectations of the advisory bodies which had been circulated to members for comment in November 2013, had now been reviewed by all of the advisory bodies and finalised to address all comments. The CEO requested Council's endorsement of the document advising that it would be incorporated into ARPANSA's Quality Management System. Council endorsed the document unanimously.

The CEO of ARPANSA briefed Council on the findings of the 2013 UNSCEAR Report - Annex A Levels and effects of radiation exposure due to the nuclear accident after the 2011 Great East-Japan Earthquake and Tsunami which had been launched by Dr Larsson as Chair of UNSCEAR on 2 April 2014. An overview of the Report was presented including a detailed discussion of dose estimates to members of the public, effects upon non-human biota and dose estimates and health effects for workers and the public in Japan from the radiation exposures received as a result of the nuclear accident. The CEO reflected on the lessons learned by ARPANSA as a result of the Fukushima nuclear accident and noted that communication is one area of significant importance where there could be clear support from Council. The CEO also noted that ARPANSA had established closer working arrangements with a number of organisations, both nationally and internationally as a result of the accident. Council formally expressed their gratitude to ARPANSA for taking such a leading role in this significant and important body of work. Members congratulated all of the ARPANSA staff involved with this project and on the publication of the report.

Council was briefed on changes to ARPANSA's structure and other recommendations proposed by the Strategic Management Committee to ensure a sustainable future for ARPANSA. Council welcomed the CEO's presentation and expressed their support for the proactive approach being taken to address and manage a range of challenging issues.

Council was updated on progress with the revision of the ARPANS Act and the Memorandum of Understanding for Medical Imaging with the Department of Health.

Council was briefed on the outcomes of the Australian Clinical Dosimetry Service (ACDS) Workshop which was held on 6 March 2014. The workshop was undertaken following recommendations made by KPMG's review of the ACDS during 2013. Stakeholder feedback showed strong support for the continuation of the ACDS and for mandatory audits, however, an improved cost/benefit analysis for each of the audit types would be beneficial, including a review of the history of outcomes from audits. The stakeholders advised that a nationally uniform system for incident reporting would be beneficial. Council noted the outcomes of the workshop and expressed their continued support for the ACDS as it moved forward.

Council received reports on a number of recent international visits and forums attended by ARPANSA staff and were advised of the nominations for the IAEA Safety Standards Committees for 2014 – 2017.

Council was briefed on progress which had been made since November 2013 on mapping the Radiation Protection Series documents (and Radiation Health Committee Statements and Radiation Health and Safety documents) against relevant international publications: including IAEA safety series, ICRP publications and ICNIRP publications; noting the Radiation Health Committee's proposal to consider adoption of IAEA publications as Radiation Protection Series documents subject to legislative approvals and requirements. Council supported the review and reconfirmed their support for the consideration of the adoption of IAEA publications where appropriate. Council stressed the importance of obtaining Australian stakeholder input to these documents as early as possible in the drafting process.

The Chair led a discussion on the linear no-threshold (LNT) hypothesis and model and referred to recent statements for and against the continued use of the LNT model as the basis for Australia's radiation protection framework. These statements included: a recent position statement by the Swiss Radiation Protection Commission for the continued use of the LNT model; and an open letter to regulatory authorities from the Scientists for Accurate Radiation Information requesting the discontinuation of the LNT model for radiation safety purposes and replacing it with a threshold model. Members discussed the opposing statement points of view and agreed that whilst there is uncertainty with the LNT model in the low dose range, it still offers the best approach from a regulatory perspective. Council agreed that a paper should be prepared for the next meeting outlining a statement that could be made by Council on the LNT model.

Dr Allison briefed Council on the Bonn Call-for-Action - Joint Position Statement by the IAEA and WHO which was developed as an outcome of the *Bonn 2012 International Conference on Radiation Protection in Medicine: Setting the Scene for the Next Decade*. Council noted the Bonn Call-for-Action against the background of work already done by ARPANSA encouraging ARPANSA to undertake further dialogue with relevant Australian stakeholders. Council agreed that the Radiation Health Committee be requested to review the Bonn Call-for- Action in relation to their planned work activities.

Members were briefed on the proposed changes to ARPANSA's Strategic Directions for the Financial Years 2014-17 and Council expressed their support for the new look of the Strategic Directions, making some minor editorial recommendations for consideration by ARPANSA.

Members then reviewed Council's Mission, Vision, Values, Strategic Goals and Strategic Directions and agreed to the following:

- Council's Mission, Vision and Values should closely align with ARPANSA's Mission, Vision and Values.
- Proposed editorial changes to Council's Strategic Goals be accepted.
- Strategic Directions should align with the ARPANSA Strategic Directions 2014-2017 document and be reviewed on an annual basis.
- The three priority areas where Council should consider and complete work are:
    - Medical radiation - focusing on: paediatric doses, computed tomography, breast scanning and rationalisation of diagnostic imaging;
    - Ongoing and emerging issues in radiation protection and science - focusing on existing exposure situations (aircrew and legacy sites) and issues associated with non-ionising radiation exposure.
    - Effective communication and engagement on radiation management and nuclear safety.

## *Reports to the CEO from the Radiation Health and Safety Advisory Council (s.20(f) of the Act)*

No reports from the Council were provided to the CEO of ARPANSA during the quarter.

## *Radiation Health Committee*

The Radiation Health Committee (the Committee) met on 25 June 2014 at ARPANSA's office in Miranda, New South Wales. A full summary of the meeting is available at: ***www.arpansa.gov.au/AboutUs/Committees/rhcmt.cfm***

The CEO of ARPANSA informed the Committee that a call for declarations of conflict of interest from Committee members will be a standing agenda item. The Committee considered correspondence from the Chair, Radiation Health and Safety Advisory Council requesting the Committee to undertake a review of the Bonn Call-for-Action - Joint Position Statement by the IAEA and WHO in relation to the Committee's planned work activities. The Committee resolved to support the request with the assistance of ARPANSA's Medical Radiation Services Branch. The Committee noted the summary report of the Radiation Health and Safety Advisory Council meeting held on 3-4 April 2014. With the aim of improving the working relationship between the ARPANSA's advisory bodies, the Committee was advised that the Chairs of the advisory bodies will aim to meet prior to each meeting of the Council.

The Committee considered the progress of the Committee's Work Program concerning the development of Radiation Protection Series documents and amendments to the National Directory. Further detail about this work is described under the heading ***National Uniformity and Regulation*** on page 2 of this report. The Committee considered the following Radiation Health Committee Project Proposals for proposed Radiation Protection Series documents, and where possible appointed project managers and technical support officers for the projects:

- *Fundamentals for Protection Against Non-Ionising Radiation*
- *Code for Government, Legal and Regulatory Framework for Safety*
- *Code for Management of Safety Culture*
- *Code for Radiation Protection in Existing Exposures*
- *Code for Emergency Exposures to Ionising Radiation*
- *Safety Guide for Emergency Preparedness and Response*
- *Guidelines on Limits of Exposure to Electric and Magnetic Fields – 0 to 3 kHz*
- *Revision of RPS 14 Code of practice for radiation protection in the medical applications of ionising radiation*

The Committee considered a discussion paper on national uniformity and the National Directory, which represented the views of the Working Group members. The purpose of the paper is to articulate the issues on the effectiveness of national uniformity and the National Directory and to discuss a way forward.

The Committee considered a draft statement *Regulatory Expectations for Users of Radiation Sources Seeking to Obtain Authorisations in More than One State or Territory*. Once finalised, the statement should provide a mechanism for reducing unnecessary regulatory and additional costs for business within existing agreed national policy of mutual recognition.

In recognition of the 'in principle' endorsement by the Committee in its March 2014 meeting of the process of adopting IAEA publications as Radiation Protection Series documents, the Committee was briefed on a method of adopting IAEA Specific Safety Guide *Near Surface Disposal Facilities for Radioactive Waste (2014)* as a Radiation Protection Series publication to assist users in Australia. An alternative was discussed in which ARPANSA could develop an 'International Best Practice' webpage providing links to international documents.

## *Nuclear Safety Committee*

The Committee met on 20 June 2014. A full summary of the meeting is available at: ***www.arpansa.gov.au/AboutUs/Committees/nscmt.cfm.***

The Committee provided advice on two matters pertaining to controlled facilities: the Periodic Safety Review submitted to ARPANSA by ANSTO in connection with the condition placed upon the OPAL reactor operating licence; and the ANSTO Nuclear Medicine facility construction licence submission.

The Committee reviewed two draft procedures and guidelines: draft '*Regulatory Guide: siting of controlled facilities*' which provides information for applicants who intend to apply for a siting licence; and a set of draft, non-mandatory self-assessment tools ARPANSA has developed to assist licence holders and applicants identify and promote holistic safety practices within their organisation.

The Committee considered the implications of analysing risk from the perspective of raw or inherent risk versus one which examines residual risks (with controls). Members discussed how the different approaches influence safety management and regulation.

The Committee discussed the suite of draft publications necessary to better align the Radiation Protection Series publications with the IAEA Safety Standard Series.

The Nuclear Safety Committee will next convene on 31 October 2014.

## Details of Directions Given by the Minister

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

## 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 relevant Minister may appoint ARPANSA officers to authorise the import of radioactive material into Australia.

During this quarter, authorised officers of ARPANSA issued 267 permits for the importation of medical radioisotopes: representing 4 twelve-month permits and 263 single shipment permits.

ARPANSA authorised officers also issued 166 permits for the importation of non-medical radioisotopes: representing 95 urgent permits; 65 standard permits; and 6 twelve month permits.