Australian Government

Australian Radiation Protection and Nuclear Safety Agency

Quarterly Report

of the

Chief Executive Officer of ARPANSA

January to March 2014

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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.

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Letter of Transmittal

1 May 2014

Senator the Hon Fiona Nash
Assistant Minister for Health
Parliament House
Canberra ACT 2600

Dear Minister

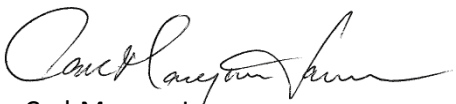
The *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act) requires the Chief Executive Officer (CEO) of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to submit to the Minister, at the end of each quarter, a report on:

- 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 January 2014 to 31 March 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
- assure 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 throughout the jurisdictions is the *National Directory for Radiation Protection* (the National Directory) which is jointly developed by ARPANSA with the state and territory jurisdictions through the Radiation Health Committee (RHC).

During this quarter, ARPANSA published a key document on its website: *Fundamentals for Protection against Ionising Radiation (2014)* at: ***www.arpansa.gov.au/pubs/rps/rpsF-1.pdf***. This important document, which was submitted for public comment between 27 June and 16 August 2013, describes the effects of ionising radiation and associated risks for the health of humans and of the environment and in particular explains how radiation protection, safety and security can work individually and collectively to manage radiation risks. The *Fundamentals* presents ten principles and their application in management of radiation risks and is considered to be the top tier document in the Australian national framework to manage risks from ionising radiation as laid out in the Radiation Protection Series (RPS). The Fundamentals describes the underpinning science and protection principles and the way that these principles translate into mandatory requirements is set out in the *National Directory for Radiation Protection* (the NDRP) and in relevant Codes of Practice.

During this quarter, ARPANSA presented the *Draft Safety Guide for Radiation Protection of the Environment* to the Radiation Health Committee for endorsement and it was favourably received. This draft document is currently undergoing assessment by the Office of Best Practice Regulation for potential regulatory impacts on industry.

During this quarter, ARPANSA sought public comment on the *Draft Code of Practice for the Safe Transport of Radioactive Material* which supplements *Radiation Protection Series* (RPS) 2. Public consultation closed on 28 March 2014 and the Draft Code can be viewed at link: ***www.arpansa.gov.au/publications/drafts/index.cfm.***

ARPANSA's preliminary assessment of the potential regulatory burden of this document concluded that the differences between RPS2 and the proposed 2014 Transport Code are largely machinery, grammatical or for clarification and will have a negligible effect on Australian stakeholders. It is not expected that there would be any significant costs to businesses involved in the transport of radioactive material as they would already be complying with RPS2. None of the changes would limit the ability of businesses to compete in an open market nor would they alter stakeholders' incentives to compete in the market place. As a consequence of this analysis, no further regulatory consideration is required.

The publication during this quarter of the Report by the ARPANSA Radiofrequency Expert Panel on Review of Radiofrequency Health Effects Research – Scientific Literature 2000–2012 was a significant milestone in considering health effects of radiofrequency (RF) electromagnetic fields (EME). A copy of the report can be found at link: ***www.arpansa.gov.au/pubs/technicalreports/tr164.pdf.***

The Radiofrequency Health Effects Review identified that the limits of the current Standard continue to provide a high degree of protection against the known health effects of RF EME. Consensus by key stakeholders on the findings of this report will play a key role in developing national uniformity around regulations for RF EME fields. This thinking will be influenced by the anticipated publication in late 2014 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the World Health Organization (WHO) with updated guidance on RF fields. ARPANSA will continue to review and update the RF Exposure Standard in line with any revised international evidence about potential health effects from RF EME which will generate confidence among the different state and territory jurisdictions that Australia is conforming with international best practice in health protection for RF exposure.

During this quarter's Radiation Health Committee meeting, the CEO of ARPANSA introduced a discussion paper on interactions between ARPANSA and the advisory bodies as part of his efforts to revitalise the operations of the Committees and Council. This paper stressed that a primary function of the Radiation Health Committee is to promote national uniformity with a focus on the need for increased and broader public interaction. The Radiation Health Committee considered the proposed National Directory Amendment 4.2 relating to the disposal of radioactive material focusing upon requirements for regulators.

At its March meeting, the Radiation Health Committee (RHC) noted progress on the mapping of the Radiation Protection Series (RPS) documents against relevant international publications, particularly in the area of planned exposure situations. Lack of Australian guidance was noted in the areas of regulatory infrastructure, management systems, existing exposure situations and emergency exposure situations. The RHC agreed that the mapping exercise, and the identified gaps, should form the basis of the future work program of the RHC.

It was proposed that International Atomic Energy Agency (IAEA) documents be adopted wherever possible and given an Australian context as necessary. The RHC agreed that the RPS documents should, over time, grow to reflect the 13 areas corresponding to the IAEA safety standards framework and hierarchy. At the level of guides, minimal changes would be required to some IAEA documents for adoption as RPS documents, and existing state and territory guidance may also be appropriate to adopt. For the higher level Codes of Practice, the adoption of the related IAEA Requirements documents would require the usual regulatory impact processes and likely clarification or modification to align with Australian regulatory systems.

The RHC agreed that better engagement with the IAEA is needed to understand and influence the development of documents. The CEO of ARPANSA suggested that with the contribution of all jurisdictions through the work of the RHC, Australia could more effectively engage with the international community. The RHC endorsed the process of the 'in principle' adoption of IAEA publications as RPS documents, subject to Office of Best Practice Regulation and legislative requirements.

Significant Licensing Activities

ARPANSA continued its assessment of the ANSTO licence applications for a range of controlled facilities as follows:

- Nuclear installation licence application (A0285) to construct ANSTO's Nuclear Medicine Molybdenum-99 facility at the Lucas Heights Science and Technology Centre
- Prescribed radiation facility licence application (A0287) to construct a 6 MV Tandem Accelerator for the Centre for Accelerator Science at Lucas Heights Science and Technology Centre.
- Assessment of Siting and Construction licence application for the ANSTO SyMo facility (A0266) is being finalised. It is expected the facility Licence (F0266) will be issued to ANSTO in the second quarter of this year.
- Amended nuclear installation facility licence (F0044-5A, 5B, 5C) and issued the revised facility licence (F0262) to ANSTO Health on 13 January 2014
- The following amended prescribed radiation facility licences were issued to the Department of Defence:
  - F0213 on 5 February 2014
  - F0166, and F0252 on 11 February 2014
  - F0113 and F0116 on 7 March 2014

Two breaches without safety implications were recorded during the quarter, aspects of which are described later in this report.

On 13 January 2014, ARPANSA granted approval to ANSTO under Regulation 51 to changes in inventory limits at ANSTO Health facilities and to amend the Facility Licence F0044-5A, 5B, 5C, and hot commissioning and operations of Lutetium-177 (Lu-177) hot cells.

Inspections

ARPANSA continued its licensee inspection program and undertook 12 inspections and site visits during this 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

ARPANSA provides calibration services for instruments used to measure radiation in various commercial, medical and public sector applications and this service is a quality assurance tool to ensure that radiation dose and dose placement are accurately controlled to treat diseased tissue and to minimise damage to surrounding and adjacent healthy tissue. As a part of ARPANSA's regular calibration services for radiotherapy providers and industry users of radiation, eight therapy dosemeters and eight radiation survey meters were calibrated. Testing of new calibrations services for megavoltage photons and electrons continued with five being calibrations performed.

Australian Clinical Dosimetry Service

The Memorandum of Understanding with the Department of Health has been extended to continue operation of the Australian Clinical Dosimetry Service (ACDS) through to June 2014.

During this quarter, the ACDS conducted Level I audits on 11 linacs, Level II audits on eight linacs, Level III audits on five linacs and a Level Ib audit on one linac. The ACDS is on track to meet its performance indicators for the January-June 2014 period.

Diagnostic Imaging

Discussions were initiated with Diagnostic Imaging Pathways (WA) concerning the collaborative development of a web-based radiation protection of the patient training/education module for referrers.

The Australian National Diagnostic Reference Level (DRL) Survey 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 and ARPANSA's work on the Australian National DRL Service is designed to provide individual medical facilities with a means to comparing their doses with National DRLs of patient doses received, in the first instance, from multi-detector computed tomography (MDCT) scans. The DRL service is expected to later encompass other medical radiation imaging modalities such as interventional/fluoroscopic and general examinations, mammography and nuclear medicine. During this quarter, the MDCT DRL survey finalised data collection for 2013 surveys and there were no significant changes in collective patient doses noted.

The introduction of iterative reconstruction software for MDCT has had a beneficial impact in lowering doses to patients. During this reporting period, the draft survey for Image Guided Interventional Procedures had three additional procedures included and is now in the final stages of development for roll out. BreastScreen Victoria also provided an additional 40,000 de-identified mammography patient datasets for analysis in developing a mammography DRL survey. The first draft Nuclear Medicine DRL survey was given to specific facilities for testing to assist future implementation.

Publications

During this quarter, the Medical Radiation Services branch published two scientific articles. The first article[1], ***Key comparison BIPM.RI(I)-K6 of the standards for absorbed dose to water of the ARPANSA, Australia and the BIPM in accelerator photon beams*** is the culmination of three years of work establishing the Australian primary standard of absorbed dose on a medical linear accelerator. This article reports the results of a comparison between ARPANSA and the international primary standards laboratory (the Bureau International des Poids et Mesures) in France. International consistency of dose measurements is critically important in radiotherapy treatments where dose prescriptions are frequently based on clinical trials and dose measurements made overseas.

The second article[2] resulted from work performed by members of the Medical Radiation Services Branch at the Australian Synchrotron in 2013 where they used a graphite calorimeter to assist the synchrotron's Imaging and Medical Beam Line (IMBL) group in measuring the high dose rate from their intense X-ray beam. This work is a significant breakthrough, since no previous dose rate measurements using a graphite calorimeter on similar beams have been reported in the scientific literature. The journal *Medical Physics* has accepted the manuscript for publication, and the novelty of the work was recognised by the journal authorising the entire contents to be made available on PubMed Central.

The Australian Synchrotron is conducting a research project into the potential of microbeams for cancer treatment. Before they move to treating human patients, there are three key criteria to satisfy: the first is determining how much dose is being delivered to the patient; the second concerns patient positioning; and the third is to understand and predict the biological response to doses of hundreds of Gray (Gy) in very small volumes of tissue. ARPANSA's work has provided the central piece of the dose puzzle and brings clinical use of the Australian Synchrotron closer to reality.

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 (ANRDR) which involves the collection, storage and auditing of radiological dose histories for uranium industry workers in Australia. The Dose Register currently holds dose history records for more than 28,900 workers from the uranium mining and milling industry. During this quarter, Honeymoon dose records were included in the Dose Register. The Dose Register has now been successfully implemented across all four operating uranium mines in Australia: Olympic Dam, Beverley and Honeymoon in South Australia, and Ranger in the Northern Territory. However, during this quarter, Honeymoon has been in a care and maintenance phase since November 2013.

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[1] S. Picard, D. T. Burns, P. Roger, P. D. Harty, G. Ramanathan, J. E. Lye, T. Wright, D. J. Butler, A. Cole, C. Oliver, D. V.Webb, ***Key comparison BIPM.RI(I)-K6 of the standards for absorbed dose to water of the ARPANSA, Australia and the BIPM in accelerator photon beams***, *Metrologia* 2014 **51** *Tech. Suppl.* 06006.

[2] P D Harty, J E Lye, G Ramanathan, D J Butler, C J Hall, A W Stevenson, P N Johnston, *Absolute x-ray dosimetry on a synchrotron medical beam line with a graphite calorimeter*, accepted 19 May 2014 for publication in Med. Phys.

To ensure the Dose Register is consistent with international best practice of the more established international dose registers, ARPANSA is investigating its expansion to cover occupationally exposed workers in other industries. During this quarter, ARPANSA completed a review of the radiation dose record management practices in the mineral sands mining and processing industry. In February, a technical report outlining the key findings and recommendations of the review was published on ARPANSA's website at ***www.arpansa.gov.au/pubs/technicalreports/tr165.pdf***. The purpose of this report is to provide information that will assist ARPANSA, regulatory authorities, and operators in establishing the legal and practical requirements for the proposed implementation of the Dose Register to occupationally exposed workers in the mineral sands industry.

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

On 18 February 2014, ARPANSA attended as an observer to the New Zealand Interagency Committee on the Health Effects of Non-Ionising Fields. The Committee considered papers on key research topics, and research reviews published by national and international health bodies. ARPANSA, in its capacity as observer, submitted a report on Australian activities related to electromagnetic fields. The Committee concluded that there was no new research that would lead it to propose any changes to current Government recommendations in New Zealand.

Review of Radiofrequency Health Effects Research – Scientific Literature 2000-2012

On 14 March 2014, ARPANSA published the Report by the *ARPANSA Radiofrequency Expert Panel on Review of Radiofrequency Health Effects Research – Scientific Literature 2000-2012*. The Expert Panel review found that the science behind the ARPANSA radiofrequency (RF) exposure Standard remains sound and the exposure limits in the Standard continue to provide a high degree of protection against the known health effects of RF electromagnetic fields. However, the Expert Panel also concluded that, on the basis of improved knowledge, some of the limits in the Standard are not as conservative under certain circumstances as originally thought; but there is no evidence that this difference has an impact on health. The Expert Panel identified areas where the RF Standard and its annexes could be updated, to incorporate increased scientific knowledge and to better harmonise these with revised international guidance.

Ultraviolet Radiation (UVR)

ARPANSA's submission to Standards Australia to reopen the Shade Cloth Standard was successful, with the first meeting occurring in Sydney in March 2014. The project scope includes revising test methods and including an ultraviolet protection rating and protection categories for shade cloth material. ARPANSA has accepted the role of Drafting Leader for the Standard. The Standard Committee members have completed considerable work onto updating the standard to bring it in line with current requirements for performance of shade material, including labelling, testing methods, statistics and development of an ultraviolet protection rating scheme.

ARPANSA's input to the Sun Protective Clothing Standard, which was reopened late in 2013 to bring it up to date, is continuing.

The Australian Competition and Consumer Commission requested ARPANSA to test a selection of sunglasses for compliance with the current Australian Standard: *AS/NZS 1067:2003 Sunglasses and fashion spectacles*. Under this mandatory standard, sunglasses and fashion spectacles are darkened or polarised glasses worn over the eyes. Sunglasses provide varying levels of protection from the harmful effects of the sun, whereas fashion spectacles may not. This Standard is currently being reopened by Standards Australia in 2014 and ARPANSA scientists are part of the Standards committee.

ARPANSA also provided a submission to the House of Representatives Standing Committee on Health Inquiry into Skin Cancers in Australia which emphasised the benefits of prevention campaigns in saving lives and costs to the health system while at the same time improving skin cancer detection and treatment.

Oversee Security of Radioactive Sources, and Ensure Emergency Preparedness

Emergency Preparedness and Response Capability

During this quarter, ARPANSA maintained specialised radiation emergency capabilities in line with Australian emergency planning arrangements. The ARPANSA Emergency Preparedness and Response Group (EPR) continued its training cycle by providing emergency response training to ARPANSA staff. ARPANSA's attendance at a two week training course at the Argonne National Laboratory in the United States from 10-21 March 2014 focusing on rapid assessment methods for environmental radioactivity and emergency response will support and enhance ARPANSA's emergency response capability.

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 check samples, as part of the CTBT laboratory network. Only two samples were analysed during the quarter due to short-term personnel resource constraints at the CTBT Organisation.

International Engagement

IAEA Fukushima Comprehensive Report Drafting Group Meetings, 9-14 February 2014, Vienna, Austria

Participant from ARPANSA: Geoff Williams

ARPANSA's Dr Geoff Williams attended the IAEA Fukushima Comprehensive Report Drafting Group Meetings held in Vienna, Austria from 9-14 February 2014. Dr Williams' role was as Chair of Working Group 5: Post-accident recovery drafting meeting and the cost of Dr Williams' travel was fully funded by the IAEA.

The series of meetings commenced with the External Co-Chairs meeting which presented the planned overall timeline for completion of the IAEA Report on the Fukushima Daiichi Accident in advance of the Plenary. This meeting also discussed the timeline for each individual working group and direction received from the Director-General.

The Working Group 5 'Post-Accident Recovery' Drafting Meeting spent considerable time in plenary in the first two days which was useful for members to clarify the draft document and develop a consistent narrative. Numerous meetings with other working groups (working on chapters 1 to 4) were useful in coordinating issues likely to overlap and to ensure consistency of the document as a whole. There was considerable discussion on updates to the data by all working groups and good progress was made. It was noted that data updates must be compiled by sub-group leaders by June 2014. Working Group 5 Co-Chairs expressed confidence in completion of their chapter by the agreed deadline subject to further ongoing review. Overall, this Working Group achieved all of its objectives and further internal and external review processes will take place between June and November 2014 with submission of the Summary due by 27 January 2015.

IAEA Consultancy Meeting: Implementing Guide on Security of Radioactive Material in Use and Storage and of Associated Facilities (Revision of NSS 11), Vienna, Austria

Participant from ARPANSA: Julie Murray

On 17-21 February 2014, ARPANSA participated in a consultancy meeting to develop an Implementing Guide on the *Security of Radioactive Material in Use and Storage and of Associated Facilities* convened by the IAEA Division of Nuclear Security. This Implementing Guide will be a revision of NSS 11 on the *Security of Radioactive Sources*. Consultants from Australia, Canada, France, Germany, Hungary, Malaysia, Pakistan, Slovakia, and the United States participated in this consultancy meeting, along with staff of the Secretariat from the Division of Nuclear Security, the Division of Radiation, Transport and Waste Safety and the Division of Nuclear Fuel Cycle and Waste Technology. This is the first of several consultancies to be undertaken for the revision of NSS 11. Technical Officers from the Division of Nuclear Security presented information on a number of cross-cutting guides, namely, "Sustaining the Nuclear Security Regime", "Regulations, Agreements and Associated Administrative Measures for Nuclear Security", and "Capacity Building for Nuclear Security". Consultants were also given an overview of the development of cross-cutting guidance for Computer Security. The Implementing Guide for NSS 13 was presented by the Technical Officer in order to give consultants a better understanding of the guidance structure of being followed for nuclear material and nuclear installations. Because the revision of NSS 11 is intended to be the primary Implementing Guide which provides further guidance on how to implement the recommendations of NSS 14, *Nuclear Security Recommendations on Radioactive Material and Associated Facilities,* consultants agreed that as a starting point for the draft Implementing Guide, the structure of NSS 14 should be used, and that existing guidance in NSS 11 could be allocated to the appropriate sections. From here, consultants worked on identifying sections and topics requiring modification, deletion, or further analysis before guidance can be written. This travel was predominantly funded by the IAEA.

IAEA Consultancy Meeting: Implementing Guide on Security of Radioactive Material in Use and Storage and of Associated Facilities (Revision of NSS 11), Vienna, Austria

Participant from ARPANSA: Andrew McCormick

On 18-21 March 2014, ARPANSA participated in a sub-working group to develop the aforementioned Implementing Guide on the *Security of Radioactive Material in Use and Storage and of Associated Facilities*. This sub-working group was convened following the consultancy meeting held 17-21 February 2014. The group consisted of consultants from Australia, Germany, and the United States, along with staff from the IAEA Secretariat.

The sub-working group had been tasked with addressing the scope of NSS 11 (that is, whether it should be applied to all radioactive material), whether the methodology used for categorising the sources was appropriate, whether the thresholds for activities was appropriate, and whether the list of radionuclides was appropriate. These matters were addressed and the text within NSS 11 was reviewed and amended.

This was another useful opportunity for ARPANSA to participate in a consultancy group working on a key document relating to security of radioactive materials with further work scheduled to occur in early April 2014 in Vienna. This travel was predominantly funded by the IAEA.

Training course: Rapid Assessment Methods for Environmental Radioactivity, Argonne National Laboratory, Chicago, United States, 10-21 March 2014

Participant from ARPANSA: Sandra Sdraulig

ARPANSA was invited to attend the IAEA in collaboration with the Argonne National Laboratory (a non-profit research laboratory operated by the University of Chicago for the US Department of Energy), organised and funded a two week training course on Rapid Assessment Methods for Environmental Radioactivity.

This training was designed to assist scientists working in laboratories associated with the Analytical Laboratories for the Measurement of Environmental Radioactivity (ALMERA). The course structure was a mixture of lectures and practical work, including a laboratory exercise in which an IAEA published rapid method was used to determine americium-241, plutonium-238, plutonium-239 and plutonium-240 in soil reference materials. Lectures and practical exercises also covered other measurement techniques, US Department of Energy emergency response approaches, dose assessment tools and environmental sampling. Attendance at this forum was a valuable opportunity for ARPANSA to develop further expertise on measuring environmental radioactivity.

Details of any Breach of Licence Conditions by a Licensee

Breaches with Safety Implications

There were no breaches with safety implications this quarter.

Breaches with No or Minor Safety Implications

There were two breaches with minor or no safety implications recorded during the quarter as follows:

- Exceeding the holding activity limit for a radionuclide
- Undertook a relevant change without prior approval from the CEO

These breaches were 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

No new facility licence was issued during this quarter.

Transport of Radioactive Material

ARPANSA validated the Certificate of a Package Design, F/313/B(U)F-96 (Jbb), issued by the Competent Authority of France for a Type B(U) Package and issued the following certificate of validation to ANSTO:

- AUS/2014-50/B(U)F-96.

ARPANSA assessed and endorsed three transport security plans.

In January, ARPANSA conducted a 'Readiness Review' for the transport of three iridium-192 sources from ANSTO to South Africa.

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

Radiation Health and Safety Advisory Council

The Council did not meet during this quarter. The next meeting is scheduled for 3-4 April 2014.

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 5 March 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 introduced a discussion paper on interactions between ARPANSA and the advisory bodies focusing on revitalising the Committees and Council and promoting the Committee's role in the promotion of national uniformity including encouraging broader public interaction with the Committee's work. The Committee endorsed the CEO's discussion paper which will now be formalised as a guidance document in ARPANSA's Quality Management System.

It was noted that the current membership term of the Committee will end in December 2014 and that nominations will be sought mid-year with the CEO's discussion paper forming the basis for the Committee work program.

The Committee noted progress on the mapping of the Radiation Protection Series documents against relevant international publications, particularly in the area of planned exposure situations. Further detail about this work is described under the heading ***Standards and Guides*** on page 3 above.

The Committee noted the recent publication of the National Directory for Radiation Protection (National Directory) Amendment 6 and that as it is directed to regulators and that the National Directory should not be a document in the Radiation Protection Series. Members further noted that aspects of the National Directory were similar to the IAEA's Governmental, Legal and Regulatory Framework for Safety, GSR Part 1, and that these aspects of the National Directory should form the basis of a new RPS document reflecting GSR Part 1.

The Committee noted the 2008 '*Review of the Efficiency and Effectiveness of the National Directory for Radiation Protection- Edition 1 (NDRP)*' with members agreeing that that national uniformity has not been fully achieved in its implementation.

The Committee considered the issue of duplication of authorisations for vessels operating in Australian waters as an example of the perception of non-uniformity to some radiation users that work across state borders. Members agreed that while a licence is required in each jurisdiction, however, when operators are undertaking the same dealing in multiple jurisdictions, there should be a reasonable expectation that a licence issued by one state/territory regulator will be recognised by another without additional requirements other than a licence application and fee.

The Committee considered the Australian Government's current deregulation agenda and its possible ramifications for the National Directory and future amendments. A deregulation agenda presents an opportunity for better regulation, as well as the Radiation Health and Safety Advisory Council's 2008 advice that the National Directory model be reviewed. Members discussed the relevance of the current National Directory and various options for its future including a single national law with continued enforcement by the Commonwealth, states and territories within each of jurisdiction. It was acknowledged that national legislation or nationally consistent legislation would contribute to nationally uniform outcomes and further deregulation objectives. The majority

of members indicated their support for uniform legislation. This and the future of the National Directory will be further considered at the next meeting.

The Committee discussed the status of the Planned Exposure Code noting that comments on the current draft were received from four jurisdictions including ARPANSA and that the document now needs to be progressed to the next stage by a Working Group with agreement achieved by all jurisdictions on this key document.

The Committee noted that an additional consultation process will be required on the ELF Guide to meet the Office of Best Practice Regulation requirements, and an updated Proposed Project and Work plan would be provided.

The Committee considered the proposed National Directory Amendment 4.2 relating to the disposal of radioactive material both to sewers and to the atmosphere with the focus of the amendment being that the requirements would be directed to regulators. The Committee voted unanimously in favour of the National Directory amendment progressing to the next step in the 21 Step Work plan.

The Committee praised the working group for the quality of work performed on the *Draft Safety Guide for Radiation Protection of the Environment* approving its progress to the next stage.

In relation to clearance and closure criteria, the Committee recommended a clear regime for moving between exposure situations to ensure that planned exposure situations do not turn into existing or emergency situations. The Committee heard that the Working Group is planning to consider how radiological contamination criteria can be built into the National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) with considerations about how the relevant IAEA publications can be incorporated or adopted (including Safety Guide *'Release of Sites from Regulatory Control on Termination of Practices'* WS-G-5.1).

The Committee considered the IAEA *Draft Safety Guide DS453* on *Occupational Radiation Protection* noting that it is possible that this Safety Guide might be adopted in whole or part as a guide in the RPS series supporting the Planned Exposure Code with focus directed particularly to Chapter 7 Personal Radiation Monitoring Services and its relevance to the current RHC project. Committee members were asked to provide comment on the Draft Safety Guide within six weeks so that a consolidated national response can be considered at the June Committee meeting.

The Committee discussed a Japanese report on the incorrect delivery of cancer treatment and considered it unlikely that similar events could occur in Australia but that individuals subverting safety procedures can always introduce a risk of incidents.

In relation to the proposed national ban on commercial solaria, the Committee noted correspondence received from the Australian Competition & Consumer Commission (ACCC) and members advised that their respective jurisdictions are already moving towards a ban on commercial solaria noting that this ban is not expected to extend to domestic solaria.

The Committee noted IAEA TECDOC No 1731 *Implications for Occupational Radiation Protection of the New Dose Limit for the Lens of the Eye* published in December 2013.

The Committee noted correspondence between ARPANSA and NSW Trade & Investment suggesting revisions to RPS 9 and RPS 15 to cover uranium exploration and offering assistance. It was agreed that any review of RPS 9 and RPS 15 would be considered in conjunction with work underway on RPS Mapping and any subsequent review of the Committee's Work Program and Priorities. New South Wales and other uranium exploration and mining jurisdictions would be included in such a review.

The Committee noted the recent publication of the *Fundamentals for Radiation Protection* RPS F-1 and Amendment No 6 of the National Directory.

The Committee praised the excellent work performed on the Radiofrequency (RF) Research report and concluded that the current Radiation Protection Standard 3 (RPS3) continues to provide an adequate level of protection to the public. It was agreed that a proposal to revise RPS3 will be considered at the next meeting.

The Radiation Health Committee will next convene in June 2014.

Nuclear Safety Committee

The Committee met on 28 February 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/nscmt.cfm***

The Committee discussed and agreed to finalise its advice to the CEO out-of-session on: (1) best practice approaches to applying licence conditions; and (2) beam calibration work that ARPANSA's Medical Radiation Branch currently performs at the Australian Synchrotron.

Members provided a number of suggestions on how to best to conduct the series of thematic inspections ARPANSA was planning to undertake. This included questions that would help identify nuclear safety strengths and vulnerabilities; and the importance of 'lessons to be learned' and 'lessons learned'. ARPANSA's thematic inspections aim to examine the internal supporting services provided to the multiple facilities and operations that fall under ARPANSA licensing. The first of these was conducted on 27 February 2014 examining the radiation protection services ANSTO provides to the OPAL reactor, the Bragg Institute and the Camperdown Cyclotron Facility.

The Committee reviewed ANSTO's hypothetical assessment of the scenario of a fuel plate being released from a fuel assembly during normal reactor operation. Key aspects discussed were the design and physical characteristics of fuel plates; potential storage of fuel plates or other items should they be dislodged; and the assumptions applied to operator performance. ARPANSA had required ANSTO to describe the range of potential consequences and recovery options had fuel plates been lost from any of the affected fuel assemblies following the 2007 fuel fault. Members considered that while modified fuel design renders the possibility of this event virtually impossible, the assessment was useful to help ANSTO understand and continuously improve its organisational resilience and response capability.

Members provided comments reviewing ANSTO's investigation report regarding the difficulties occasionally experienced during fuel assembly clamp operations. The Committee discussed: the thoroughness and breadth of the report; ANSTO's assessment of systemic factors; processes and practices of both management and operational staff; risk assessment and mitigation; and OPAL procedures and document control.

The Committee reviewed ARPANSA's discussion paper which outlined the roles and expectations of the Committee, the Radiation Health Committee and the Radiation Health and Safety Advisory Council. Members discussed: the potential for increased interactions with the Radiation Health Committee and Council; the Committee's visibility to the public; and facilitating advice to the CEO.

The Nuclear Safety Committee will next convene on 20 June 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 Minister for Health and Ageing may authorise ARPANSA officers to approve import permissions.

ARPANSA authorised officers issued 204 permits for medical radioisotopes including zero urgent permits, six 12-month permits and 198 single shipment permits.

ARPANSA authorised officers also issued the total of 172 permits for customs release of non-medical radioisotopes, comprising of: 97 urgent permits; 66 standard permits; and six twelve-month permits.