Australian Government

Australian Radiation Protection and Nuclear Safety Agency

QUARTERLY REPORT

OF THE

CHIEF EXECUTIVE OFFICER

OF ARPANSA

FOR THE PERIOD 1 JANUARY 2013 TO 31 MARCH 2013

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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.

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Letter of Transmittal

22 April 2013

The Hon Shayne Neumann MP
Parliamentary Secretary for Health and Ageing
Parliament House
Canberra ACT 2600

Dear Parliamentary Secretary

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 2013 to 31 March 2013.

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* (NDRP) which is jointly developed by ARPANSA and the state and territory radiation regulators through the Radiation Health Committee (RHC).

During the quarter, the RHC requested that draft NDRP Amendment No. 6 (covering a number of topics including: exemption of lighting products; expansion of the licensing criteria for chiropractors; clarification of the incident reporting requirements and other editorial matters) proceed as agreed at the November 2012 RHC meeting and be forwarded to the Australian Health Ministers' Advisory Council's Standing Council on Health (AHMAC/SCoH) for endorsement.

Some jurisdictions are currently considering a ban on the commercial use of solaria. The NDRP sets the minimum standards for the regulation of solaria, however, given the evidence of risks from using solaria, the RHC supports moves to further control their use.

Significant Licensing Activities

During this quarter ARPANSA continued its periodic review of all licences which is required at three-yearly intervals under the Operations Services Quality Management System.

ARPANSA continued its assessment of the ANSTO application to site and construct a prescribed radiation facility at Lucas Heights Science Centre known as the SyMo facility. The purpose of the SyMo facility is to condition intermediate level liquid waste (ILLW)

arising from ANSTO's production of Molybdenum-99 (Mo-99). The facility plans to use ANSTO's Synroc technology which is a particular type of synthetic (ceramic) rock. Synroc can offer an effective and durable means of immobilising various forms of radioactive wastes and making it safer for storage purposes.

During this quarter, ARPANSA revised the ANSTO Waste Operations and ANSTO Fuel Operations licences and a revised amalgamated licence for ANSTO Waste Operations (F0260) covering both facilities has been issued.

ANSTO is in the process of submitting an application to ARPANSA for a siting and construction licence for an Interim Waste Store for Intermediate Level Waste. This follows further clarification of the waste form of the planned inventory to be stored in the facility. The revised application is expected in April 2013.

ANSTO submitted a licence application for a new and expanded Molybdenum-99 manufacturing facility during the previous quarter. Evaluation by ARPANSA is ongoing and will require public consultation as part of the evaluation process.

Since 1 January 2013, ANSTO has managed the Australian Synchrotron under a licence issued by ARPANSA on 20 December 2012. ANSTO have reported on their first quarter progress towards developing a new Safety Analysis Report as part of a plan to review this licence at the end of twelve months under ARPANSA oversight.

Inspections

ARPANSA continued its licensee inspection program and undertook 12 inspections and site visits during the quarter.

These inspections 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

In particular, a series of inspections was undertaken of Australian Defence Force service units using handheld industrial radiography units. The outcomes from these inspections are currently being finalised and will be reported in the near future.

An inspection was undertaken of the ANSTO PETNET facility to investigate the override of interlocks on the vault of the cyclotron facility which was self-reported to ARPANSA. The information collected during the inspection is currently being reviewed by ARPANSA.

Two inspections were conducted during this quarter of the OPAL research reactor in the following areas:

- OPAL refuelling
- OPAL reactor utilisation

The inspection of OPAL refuelling was a follow-up inspection from an earlier OPAL inspection undertaken on 7 December 2012 of fuel clamping procedures where difficulties had been encountered during the clamping process. Both inspection reports are currently being prepared.

ARPANSA issued two reports of inspections conducted at ANSTO Waste Operations Facilities in November 2012. No non-compliance was observed at the time of those inspections.

Release of Regulatory Guide: Licensing of Radioactive Waste Storage and Disposal Facilities

In March 2013, ARPANSA released a new *Regulatory Guide: Licensing of Radioactive Waste Storage and Disposal Facilities* (Regulatory Guide) which is intended to provide guidance for applications made under the *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act), for licences to site, construct, operate, and decommission or close a storage or disposal facility for radioactive waste.

This Regulatory Guide informs potential Commonwealth applicants for a licence under the Act, other stakeholders and the public, of the issues that need to be addressed by the applicant. It describes objectives for protection of human health and of the environment, drawing upon international best practice in relation to radiation protection and radioactive waste safety. The Regulatory Guide is intended for radioactive waste storage and disposal facilities that involve an inventory of radionuclides that would qualify as nuclear installations under section 13 of the Act. Aspects of the Regulatory Guide are also applicable to smaller radioactive waste management facilities that would be defined as prescribed radiation facilities under the Act.

The Regulatory Guide refers to storage as the placement of radioactive waste in a specific facility, with an intention to retrieve it for actions related to its final management and ultimate disposal, and with an anticipated operational life of up to 50-100 years. It is not, for example, intended for small-scale laboratory storage of small quantities of waste items.

While the Regulatory Guide's focus is mainly on human health and environmental safety concerns, it also refers to requirements and guidance for physical security. In preparing the new Regulatory Guide, a public consultation process was conducted.

Promote the Effective Use of Radiation in Medicine

Radiotherapy Calibration Service

The radiotherapy calibration service supports the accuracy of radiation dose delivery in treatment centres. It is currently based upon the ARPANSA cobalt-60 gamma-ray source facility. This quarter calibrations for five treatment centres were undertaken and an on-site output measurement for a kilovoltage therapy unit was performed. Progress continues

towards the introduction of a direct calibration service in 2013 using the ARPANSA linear accelerator (linac) megavoltage x-ray beams. A comparison of dose measurements at ARPANSA and at the National Research Council laboratories in Canada was performed as part of an international benchmarking exercise.

Australian Clinical Dosimetry Service (ACDS)

The ACDS commenced auditing radiotherapy centres in 2011. This program audits the accuracy of radiation dose delivery from linacs in treatment centres to assure correct delivery of radiation dose in treating patients. The audits are conducted at a range of levels including: basic output audits of operational linacs (Level I); pre-operational audits of new linacs (Level Ib); audits of the whole radiation field using a two-dimensional detector array (Level II); and audits involving the pseudo-treatment of a simulated human torso made from tissue equivalent plastic, which allows end-to-end audit of the treatment, planning and delivery process (Level III).

The ACDS has achieved several of its key audit and training targets. Two of the three main auditing requirements, targets for Level I and III audits have been met and will continue to be offered to Australian radiotherapy providers as requested, and to maintain ACDS expertise. The Level II audit is operational and the requirements will be achieved in Q4 2013. In addition, the first auditor training workshop was successfully completed in February 2013, with six individuals trained to perform Level Ib and Level III audits.

Australian Diagnostic Reference Levels (DRL) for Medical Imaging

Statistical analysis of survey data from the National Diagnostic Reference Level Survey has confirmed that 2012 data is consistent with 2011 data collected as part of the multidetector computed tomography (CT) program. Development of draft surveys for interventional cardiology and radiology are nearing completion with the establishment of liaison panels with the professional colleges. Negotiations for the direct capture from breast screen mammography systems of DRL data is continuing.

Protection of People from Natural Sources of Radiation

Exposures in Uranium Mining and Naturally Occurring Radioactive Materials (NORM) 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 ANRDR currently holds dose history records for more than 24,700 workers from the uranium mining and milling industry.

To ensure the ANRDR is consistent with international best practice of the more established national dose registers around the world, ARPANSA is seeking to expand the ANRDR beyond uranium mining to cover occupationally exposed workers in other industries. ARPANSA has commenced a review of the Australian mineral sands mining and processing

industry to inform future decisions for possible expansion of the ANRDR to cover workers in the mineral sands industry. ARPANSA is also investigating options to include occupationally exposed Commonwealth employees in the ANRDR.

In March 2013, ARPANSA was invited to deliver a presentation at the Siemens Low Dose Academy Forum on the role of the ANRDR for radiation protection of workers. The Forum provided a unique opportunity for ARPANSA to raise awareness for workers in the medical sector about the Australian radiation protection framework and occupational risks of exposure to radiation in the workplace, together with the role of ANRDR as a tool for the optimisation of worker protection.

Measurement and Assessment

Since the Fukushima Dai-ichi accident in Japan in March 2011, ARPANSA has continued the screening of food samples from Japan as part of the DAFF Biosecurity (Department of Agriculture, Forestry and Fisheries) Imported Food Program. Work has also continued on the analysis of naturally occurring radionuclides in food, with the aim of estimating the background radiation dose contribution from foods in the typical Australian diet.

Recent recommendations of the International Commission for Radiological Protection (ICRP) related to assessment of dose from inhalation of radon progeny are expected to result in an increase in dose conversion factors, and higher assessed radiation doses. In particular, this will affect the assessment of radiation doses for workers in the uranium mining industry, particularly in underground mining situations. In March 2013 ARPANSA chaired the first meeting of a radon progeny coordination group, with representation from mining companies and regulators, to develop a national approach to this issue, including a program of measurements in Australian uranium mines.

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

Public Information

ARPANSA continued to respond to a large range of enquiries relating to potential health effects from exposure to EMF and UVR. Predominantly, these enquiries focus upon electric and magnetic fields from electrical power infrastructure, including the radiofrequency transmissions from smart meters as well as radiofrequency arising from mobile phone base stations and handsets. ARPANSA published a new fact sheet on its website *How to reduce exposure from mobile phones and other wireless devices* to better inform the public about the known health effects from mobile phones and wireless devices.

The ARPANSA UVR network continued to provide real-time ‘live’ UV Index data for ten Australian sites and three Antarctic bases via the ARPANSA website. The UV Index data (which is updated every minute) is also provided to mobile phone users through third-party

applications. During this summer, the number of information enquiries to the UVR area on UV protection, sunglasses, sunscreens, UV levels and protection had risen sharply, as have the number of general public hits to the UV Index pages (254,000 in the last 4 months). The ARPANSA website advises of protective strategies for avoiding excessive sun exposure and now includes an updated sunscreens fact sheet so the public can have access to reliable information on the recently introduced SPF 50+ sunscreens and their protective capabilities.

Standards and Guides

Standards Australia has approved a proposal by ARPANSA to revise and update the *1996 Australian/New Zealand Standard on Sun Protective Clothing*. Given that shade cloth is now used predominately to provide shade and UV protection, ARPANSA has also initiated the reopening of the *Shade Cloth Standard AS 4174*.

The results of a research project measuring the UVR shading over toddlers' pools in Melbourne in collaboration with the Cancer Council Victoria have been accepted for publication in a scientific journal.

Security of Radioactive Sources, and Emergency Preparedness

Council of Australian Governments (COAG) Recommendations for Radiological Material

The National Register for High Activity Sealed Radioactive Sources database is operating and ARPANSA continues to work with the jurisdictions to ensure the integrity, harmonisation and availability of the data.

ARPANSA's Radiation Security Advisor Certification Scheme is close to full implementation with lesson plans and training material being developed during this financial year. A pool of nationally qualified security advisers for the endorsement of Source Security Plans in all states and territories will significantly improve each jurisdiction's ability and capacity to conduct assessments of security plans in accordance with the *Code of Practice on the Security of Radioactive Sources*.

Security of Radioactive Materials and Nuclear Facilities

Transport Security Plans must be developed, assessed and endorsed by ARPANSA for all high activity radioactive source movements, to ensure that all necessary measures are taken to prevent unauthorised access to radioactive materials. ARPANSA has conducted a number of assessments of Transport Security Plans submitted by ARPANSA license holders, in accordance with the requirements contained in ARPANSA's *RPS11 Code of Practice for the Security of Radioactive Sources*. ARPANSA is also currently assessing reference accident scenarios for ANSTO's siting application for the proposed Australian Nuclear Medicine Molybdenum-99 production facility. Integrated Safety, Security and Emergency Preparedness and Response requirements will be used to review and assess the application and the outcomes will form part of the recommendations to the CEO of ARPANSA for a decision.

Emergency Preparedness and Response Capability

ARPANSA maintains specialised radiation emergency capabilities in line with Australian emergency planning arrangements.

International Monitoring Network

As part of Australia's commitment to the Comprehensive Nuclear-Test-Ban Treaty (CTBT), ARPANSA continues to operate and maintain radionuclide air monitoring stations at Melbourne, Perth, Townsville, Darwin, the Cocos Islands, and Macquarie Island, including two noble gas analyser facilities, collocated with the air monitoring stations in Melbourne and Darwin. The new station at Mawson, Antarctica, continued in its testing and evaluation phase and underwent a certification visit during the quarter.

In addition to operating and maintaining the stations, ARPANSA also operates the Australian Radionuclide Laboratory under contract to the Comprehensive Nuclear-Test-Ban Treaty Organization. This laboratory has the role of testing samples obtained by other monitoring stations in the CTBT network and seven test samples were analysed during this quarter.

International Engagement

UNSCEAR Fukushima Assessment

The United Nations Scientific Committee on the Atomic Effects of Radiation (UNSCEAR) is preparing a report *Levels and Effects of Radiation Exposure due to the Nuclear Accident following the Great East-Japan Earthquake and Tsunami*. ARPANSA is leading Expert Group C in undertaking the assessment of doses to the public and environment as a result of the accident. In March 2013 this Expert Group finalised its analysis and submitted its draft reports to the UNSCEAR Secretariat. The draft report will be circulated to Member States for comment before it is presented to the Committee at their 60th meeting in Vienna during 26-31 May 2013.

International Atomic Energy Agency (IAEA)'s International Experts Meeting on Decommissioning and Remediation after a Nuclear Accident –– 28 January 2013 – 1 February 2013

This meeting, held in Vienna, is part of the IAEA implementation of the IAEA Action Plan on Nuclear Safety - endorsed by the IAEA's *General Conference* in September 2011 - and was organised by the IAEA Department of Nuclear Safety and Security and the Department of Nuclear Energy.

ARPANSA's CEO, Dr Carl-Magnus Larsson, chaired the International Experts Meeting attended by participants from more than 35 nations including radiation safety experts, decommissioning and remediation specialists, regulatory authorities, and radioactive waste management experts. Also participating were a number of international organisations,

including the Organization for Economic Co-operation and Development's Nuclear Energy Agency (OECD-NEA), the ICRP, UNSCEAR and the European Commission.

ARPANSA delivered a presentation on the lessons learned for remediation of contaminated sites based on Australian Radiation Laboratory's/ARPANSA's work on the successful Maralinga clean-up. This presentation attracted considerable interest.

The International Experts Meeting provided an opportunity for the participants to share lessons learned from the Fukushima Dai-ichi accident and to identify the complex safety, technical, environmental and economic issues that must be considered when managing long-term consequences of a nuclear accident. These issues include decommissioning, environmental remediation and radioactive waste management. The meeting will help Member States to improve their preparations and capacities for managing long-term consequences of a nuclear accident, as well as managing contaminated legacy sites in general.

IAEA Consultancy meeting, IAEA, Vienna – 4-8 February 2013

ARPANSA chaired this consultancy meeting which set out to explore a new paradigm for post-accident remediation following a nuclear accident. The new paradigm was to be based on past experience of different approaches: in the Ukraine (Chernobyl); the United States (Hanford) and in Australia (Maralinga rehabilitation). The scope of this consultancy was to draft guidance on the management and disposal of large amounts of waste arising after the ending of an emergency phase of a nuclear/radiological disaster.

Meeting of New Zealand Interagency Committee on Health Effects of Electromagnetic Fields – 5 February 2013

ARPANSA provided a report on Australian activities related to electromagnetic radiation (EMR) to the meeting of the New Zealand Interagency Committee on the Health Effects of Electromagnetic Fields held on 5 February 2013. The Committee, comprised of stakeholders from Government, community and industry, provides an update to the New Zealand Government on EMR issues. ARPANSA has been an invited observer since 2003.

IAEA – Emergency Preparedness and Response Expert Group, Vienna, 10-14 February 2013

The Deputy Director General of the IAEA called for a panel to be created consisting of nuclear emergency response experts to provide strategic advice on existing and emerging matters relating to the IAEA's Emergency Preparedness and Response activities. ARPANSA attended to represent Australia. Much of the guidance and recommendations of the first meeting surrounded the strong view to integrate safety and security response activities in order to ensure a seamless and coordinated approach. These recommendations, among others, will ensure that the IAEA is positioned to confront emerging challenges heading into the future.

IAEA - Regional Workshop on Effective Border Control Coordination in Asia Pacific and Middle East Countries, Manila, 20-22 February 2013

A regional coordination meeting was held in Manila in order to discuss best practice and lessons learned in implementing effective border control of radioactive materials. Emphasis was placed on better communications and coordination between regulatory bodies charged with the responsibility to resolve issues associated with deliberate and inadvertent shipments of radioactive materials. The focus of the discussions also considered best practice by border control agencies and how to improve information sharing with regulatory bodies to ensure an integrated and harmonised approach to resolve incidents at the border.

The 25th Annual Scientific Meeting of the Trans-Tasman Radiation Oncology Group, Wellington, New Zealand – 26 February – 1 March 2013

This meeting was about the development of clinical trials which included a technical workshop in Wellington, New Zealand. The meeting provided an overview and update on the developments in radiation oncology in Australia and New Zealand and an opportunity to discuss the Australian Clinical Dosimetry Service (ACDS) with colleagues of all three specialities: radiation oncologists, medical physicists and radiation therapists. Topics covered included clinical trials, current ACDS activities and future plans. Participants at this meeting prepared and performed an international dosimetric comparison (ACDS Level III audit equivalent) at the Radiation Oncology Department of Wellington Hospital in the presence of senior New Zealand radiation oncologists and a representative of the National Radiation Laboratory of New Zealand.

Organisation for Economic Cooperation and Development-Nuclear Energy Agency (OECD-NEA) – Radioactive Waste Management Committee and Regulators' Forum, Paris, 12-14 March 2013

The 46th meeting of the OECD-NEA Radioactive Waste Management Committee was held at the OECD Conference Centre, Paris, from 13-14 March 2013. This Committee was preceded by a meeting of the Regulators' Forum on 12 March 2013. Of particular interest to Australia was the presentation of the outcomes of a peer review of a licence application for a near surface disposal facility at Dessel in Belgium. In addition, the results of a peer review of the post-closure radiological safety case for a spent fuel repository in Sweden were presented. In both cases it was concluded that the international peer review processes added value to licence application assessments.

Consultancy Meeting to Assist in Planning the IAEA International Experts Meeting (IEM-5) on Human and Organisational Consultancy Meeting on Factors in Nuclear Safety in the Light of the Accident at the Fukushima Dai-ichi Nuclear Power Plant, Vienna, 12-15 March 2013

In March 2013, a consultancy meeting was held in Vienna to finalise the planning of the IAEA's International Expert's Meeting (IEM-5) scheduled for May 2013. ARPANSA was

also previously invited to present our approach and methodology to holistic safety to the IEM-5. Holistic safety is a best practice approach to nuclear safety management that includes technological, human, and organisational aspects and the often complex interaction and interdependence between these three aspects. ARPANSA's invitation to participate in the consultancy group demonstrates the IAEA's recognition of ARPANSA's best practice approach in developing methods to promote and assess safety holistically. At this consultancy meeting it was agreed that IEM-5 should be regarded as an opportunity to identify human and organisational factors which contributed to the Fukushima nuclear accident of March 2011. The overarching safety message to be promoted at the IEM is that human and organisational factors present during the Fukushima nuclear accident, and which may have contributed to the accident, are still evident in many other nuclear facilities around the world. Outcomes of the consultancy meeting included the selection of contributor papers for presentation at IEM-5. ARPANSA was selected to present a keynote paper describing its approach to the theory of Individual, Technology and Organisation to create guidance and a program to assess and improve holistic safety practices.

Meeting of the IAEA Safety and Security Standards Committees Chairs, and of the Commission of Safety Standards, Vienna, 18-21 March 2013

Various meetings of the five Chairs of IAEA safety and security standards committees were held, including the IAEA Commission on Safety Standards (CSS) (with Dr Geoff Williams of ARPANSA chairing the Waste Safety Standards Committee, and the CEO of ARPANSA being a member of the CSS). The meeting focused on ways for the IAEA committees to work together with a common purpose for better integrating the standards for security and safety, including exploring the possibility of producing documents combining guidance for both safety and security. Updates of current international standards under development were provided by the Chairs to the CSS, including completion of the safety guide, *Near Surface Disposal of Radioactive Waste* which is of importance for Australia in light of the impending development of the National Radioactive Waste Management Facility. This guide has been endorsed by the CSS for publication.

The CSS sets out the general directions of the IAEA's work on safety standards in the waste, radiation, transport and nuclear areas. Ongoing considerations relate to the integration of safety and security, as mentioned earlier, and the effective implementation of Safety Standards in the IAEA Member States.

Fukushima Comprehensive Report WG 5 Meeting, Vienna, 18-21 March 2013

ARPANSA co-chaired the IAEA group of international experts who are tasked with drafting Chapter 5 of the ***Fukushima Comprehensive Report WG 5: Post-Accident Assessments: Remediation, Decommissioning, Waste Management and Social Impacts***. The purpose of this report is to draw on the lessons learned and experience gained following the Fukushima nuclear disaster, in order to improve nuclear and radiation safety worldwide.

Chapter 5 of the report will cover the following topics:

- Summary of the relevant remediation experience in Japan including:
  - the basis for the decision making
  - the assessment of the implementation of remedial actions with special attention to the efficiency of the remedial options
  - the waste management alternatives associated with each one of the selected options.
- Social and economic implications of the Fukushima nuclear accident, and address the progress and challenges in involving and informing stakeholders in the course of remediation and decommissioning programs.
- Pre-decommissioning activities, preparatory activities organised in and outside Japan and brief description of short-term activities planned in a few following years.
- Management of waste generated during both off-site remediation and on-site activities, including spent fuel management.

Bureau International des Poids et Mesures (BIPM) Comité Consultatif pour les Rayonnements Ionisants (CCRI) Section I (X and gamma rays, charged particles) 26-28 March 2013

At this forum, representatives of primary standards laboratories from around the world met to discuss strategic and technical issues related to the measurement of ionising radiation. Of primary concern to Australia is the direct measurement of absorbed dose in linear accelerator beams used for radiotherapy. The meeting also covered measurement standards for kilovoltage therapy, brachytherapy and more advanced treatments such as protons. Key outcomes included preliminary results for the current international comparison of linear accelerator absorbed dose, and the establishment of a reference value for this comparison. The future work program of international comparisons was also decided.

Details of any Breach of Licence Conditions by a Licensee

Breaches with Safety Implications

Licensee	Number	Nature of breach	Action
Commonwealth Scientific and Industrial Research Organisation (CSIRO) Ecosystem Sciences	S0017	Breach of s31(2) of the Act. Personal monitoring device had not been collected and promptly submitted for assessment.	Corrective actions taken in response to the matter. No radiological consequences associated with the breach. No enforcement action was taken.
CSIRO Ecosystem Sciences	S0017	Breach of s31(2) of the Act. Sealed source assemblies used in portable gauges not locked in the shielded position whilst in storage or during transport.	Corrective actions taken in response to the matter. No radiological consequences associated with the breach. No enforcement action was taken.

Breaches with No or Minor Safety Implications

Four breaches with minor or no safety implications were recorded during the quarter across the following areas:

- disposal of a low hazard x-ray apparatus without prior approval
- failure to implement a radiation management plan
- exceeding the holding activity limit for a radionuclide.

In all of the above cases, the breach was assessed to have minor safety implications, corrective actions were implemented by the licence holder and no enforcement action was considered necessary.

Facilities Licensed Under Part 5 of the ARPANS Act

No new facilities were licensed during the quarter.

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 first meeting of the Council for this year is scheduled to take place from 18-19 April 2013. A full summary of that meeting will be available at www.arpansa.gov.au/AboutUs/Committees/rhsacmt.cfm later in the year and will be reported in the next Quarter.

Reports to the CEO from the RHSAC (s.20(f) of the Act)

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

Radiation Health Committee

The Committee met on 13 March 2013 at ARPANSA's Yallambie office, Victoria. A full summary of the meeting is available at www.arpansa.gov.au/AboutUs/Committees/rhcmt.cfm.

At the meeting, the Committee:

- Noted the current actions being taken by some jurisdictions to ban the commercial use of solaria. The *National Directory for Radiation Protection* (NDRP) sets the minimum standards for the regulation of solaria, however given the evidence of risks from using solaria the Committee supported moves to further control their use.
- Considered a revised draft of the *Fundamentals for Protection against Ionising Radiation* document following a proposal by the CEO at the November 2012 meeting for a new structure for the contents of the document.
- Considered the draft *Code of Practice for Radiation Protection in Planned Exposure Situations*, which had been revised in line with the draft fundamentals document, and agreed that the approach and the document's structure and format were appropriate.
- Endorsed a proposal for a sentence to be added to the table in Schedule 4 of the NDRP to clarify that the given exemption levels were not intended to apply to the control of discharges.
- Approved a project plan to update RPS 2 *Code of Practice for the Safe Transport of Radioactive Material* (2008) to reflect the recently published 2012 edition of the IAEA Regulations for Safe Transport of Radioactive Material (SSR-6).
- Regarding the proposed additional annexes to RPS 15, *Safety Guide for the Management of Naturally Occurring Radioactive Material (NORM)*, agreed that the coal extraction annex be completed and that no further work be undertaken at this time on the additional two annexes on electricity generation and metal extraction.

- Noted comment on the latest draft of the *Guidelines on Managing Exposure to Electric & Magnetic Fields — 0 to 3 kHz*, which was distributed in late December 2012 to working group and consultative group members, and to each jurisdiction for appropriate jurisdictional consultation.

Nuclear Safety Committee

The Committee met 14-15 February 2013 at ARPANSA's Yallambie Office, and at the Australian Synchrotron in Melbourne, Victoria. The Synchrotron has recently come under ARPANSA's regulatory control and a tour of the facility was included to familiarise members with the facility for which they may be asked to provide future advice. A summary of the meeting is available at www.arpansa.gov.au/AboutUS/Committees/nscmt.cfm

At the meeting, the Committee:

- Discussed the electrical substation overheating incident at the Australian Nuclear Science and Technology Organisation (ANSTO) which had automatically shut down the OPAL reactor (see OPAL Reactor).
- Reported that the Holistic Safety Guidelines and Sample Questions documents were now published on the ARPANSA website with explanatory web pages. ARPANSA officially launched both documents at the ARPANSA Licence Holders' Forum on 19 November 2012 where they were well received by licence holders.
- Considered the ARPANSA Regulatory Guide: Regulation 51 noting that Members had provided comments at the last two meetings, and the document was published on the ARPANSA website on 24 January 2013.
- ARPANSA reported that since 1 January 2013, ANSTO has managed the Australian Synchrotron under a licence issued by ARPANSA on 20 December 2012. Members discussed: safety plans and arrangements; organisational change; safety responsibilities and accountabilities; radiation protection measures; safety interlocks; safety committees; synergies between radiation safety and work health and safety; and licence conditions.
- ARPANSA updated the Committee on a number of ongoing applications and discussed important issues associated with these applications.

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 176 permits for medical radioisotopes including, 172 single shipments and 4 twelve-month permits.

ARPANSA authorised officers also issued 130 permits for customs release of non-medical radioisotopes, comprising 55 urgent single shipments, 69 standard single shipments and 4 twelve-month permits, with two permits cancelled.