



**Australian Government**

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**Australian Radiation Protection  
and Nuclear Safety Agency**

**QUARTERLY REPORT**

**OF THE**

**CHIEF EXECUTIVE OFFICER**

**OF ARPANSA**

**FOR THE PERIOD 1 JULY 2013 TO 30 SEPTEMBER 2013**





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## Letter of Transmittal

13 November 2013

The Hon Senator 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 July 2013 to 30 September 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* (the National Directory) which is jointly developed by ARPANSA with the state and territory jurisdictions through the Radiation Health Committee.

During this quarter, the Radiation Health Committee noted that the proposed Amendment of the National Directory (covering Schedules 5, 6, 9 and 13) was endorsed by the Australian Health Ministers' Advisory Council and has now gone to the Standing Council on Health for consideration.

Work continued on proposed National Directory amendments relating to: control of intense pulsed light (IPL) and lasers for cosmetic use; Personal Radiation Monitoring Service (PRMS) certification; Schedule 13 National Incident reporting framework; and user disposal of radioactive material.

#### ***Significant Licensing Activities***

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

- Siting licence application for the ANSTO Nuclear Medicines Mo-99 facility
- Siting application for the ANSTO Interim Waste Store
- Construction licence application for the ANSTO Interim Waste Store
- Siting and Construction licence application for the ANSTO SyMo facility
- Operating licence application up to hot commissioning for the ANSTO Centre for Accelerator Science



Licensing decisions are expected on several of these applications early in the second quarter of the financial year.

During the course of the quarter ARPANSA also issued amended source licences to hot commission the ANSTO Bragg Institute neutron beam instruments DINGO and KOOKABURRA.

Two breaches were recorded during the quarter, one with safety implications and one without. Aspects of these are described later in this report.

### ***Inspections***

ARPANSA continued its licensee inspection program with one inspection and one site visit undertaken during the quarter. There have been a reduced number of inspections and site visits this quarter due to the large number of licence applications being assessed concurrently. ARPANSA also conducted an unannounced inspection of the DINGO neutron beam instrument in response to an incident at the ANSTO Bragg Institute where the primary shutter HB1 inadvertently opened during the commissioning of the instrument, albeit with no adverse radiological consequences.

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](http://www.arpansa.gov.au/regulation/inspections/index.cfm)

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

The radiotherapy calibration service supports the accuracy of radiation dose delivery in cancer treatment centres. Calibrations using cobalt-60 gamma radiation were performed for five treatment centres. In addition, two new calibration services were made available as field trials. These services allow treatment centres to have their equipment calibrated directly in linear accelerator beams and will result in more accurate and simpler clinical dose measurements.

### ***Australian Clinical Dosimetry Service (ACDS)***

The ACDS commenced auditing radiotherapy centres in 2011. The ACDS audits the accuracy of radiation dose delivery from linacs in treatment centres to assure correct delivery of radiation dose to 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 auditing requirements are described in a Memorandum of Understanding with the Department of Health and Ageing. To date, the ACDS has achieved the audit requirements for the Level I and III audits, and is expected to achieve the Level II requirement before the

end of 2013. This quarter, the ACDS completed Level I audits on 18 linacs, Level II audits on ten linacs, Level III audits on eight linacs and a Level Ib audit on five linacs.

### ***Australian Diagnostic Reference Levels (DRL) for Medical Imaging***

The multi-detector computed tomography (MDCT) DRL survey continued receiving input from participants and further development of analysis software was ongoing. During this quarter, the first draft survey for Image Guided Interventional Procedures was completed and analysed. BreastScreen Victoria provided 25,000 de-identified mammography patient datasets for initial analysis in developing a mammography DRL survey. The first Nuclear Medicine Liaison Panel meeting was held to develop nuclear medicine DRL survey forms.

### ***Protect 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 (the Dose Register) 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 27,900 workers from the uranium mining and milling industry.

To ensure the Dose Register is consistent with international best practice of the more established international dose registers, ARPANSA is investigating the potential for expansion of the Dose Register to cover occupationally exposed workers in other industries. ARPANSA has completed a survey of 13 mineral sand operators and will publish the key findings and recommendations for expansion into this industry by the end of 2013. ARPANSA has also commenced stakeholder engagement to include occupationally exposed Commonwealth employees in the Dose Register. ARPANSA has provided an overview to the Radiation Health and Safety Advisory Council on the application of the Dose Register to existing exposure situations, such as exposure of aircrew to cosmic radiation.

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

In July 2013, the ARPANSA Environmental Electromagnetic Energy (EME) Report template, version 11, was released (available from [www.arpansa.gov.au/emereports/reports.cfm](http://www.arpansa.gov.au/emereports/reports.cfm)). Changes to the format were introduced after consultation with the EME Reference Group in order to make the report easier to read and understand. In order to facilitate the transition, the revised and superseded EME Report formats may both be used until the end of February 2014. Existing reports will remain in their current format.

#### ***Ultraviolet Radiation (UVR)***

ARPANSA's Non-Ionising Radiation Section/UVR Group, in conjunction with Regulatory Services, tested an Ultraviolet (UV) Ultra Vacuum cleaner that emitted Ultraviolet Radiation C (UVC) to kill germs when operated. UVC has wavelengths of between 200 and 280 nanometres and is typically used for germicidal treatment.

The vacuum unit which was tested and found to emit UVC at levels hazardous to the skin and the eyes if the safety overrides were circumvented. There were inadequate warning labels on these devices, and although the device did have an instruction manual it was considered to have insufficient information for safety purposes. The matter was referred to the Australian Competition and Consumer Commission's product safety team who were also provided with ARPANSA's test report.

### ***Standards and Guides***

The Sun Protective Clothing Standard AS/NZS 4399 was reconsidered at the request of ARPANSA and the first meeting of newly reformed Standards Committee took place at Standards Australia in Sydney, on 8 August 2013. The Committee formed two working groups, Working Group 1 to examine test methods for ultraviolet radiation protection factors and Working Group 2 to examine the question of UV protection and body coverage.

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

### ***Emergency Preparedness and Response Capability***

In August, ARPANSA hosted a two day National Training Workshop on the Accident Reporting and Guidance Operational System (ARGOS). ARGOS is ARPANSA's primary decision support software tool for emergency atmospheric dispersion. The Workshop participants included Commonwealth agencies, state agencies, first responders and ARPANSA staff. The material covered various aspects of the software, from the mathematical description and input selection to meteorological data, editing databases, and exporting outputs to decision making. The purpose of the workshop was to expand and strengthen the user community in Australia.

### ***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.

## ***International Engagement***

### ***IAEA International Conference on Nuclear Security: Enhancing Global Efforts – Vienna, Austria – 1-5 July 2013***

ARPANSA was part of the Australian delegation to the International Conference on Nuclear Security: Enhancing Global Efforts, held in Vienna, Austria. ARPANSA provided assistance to the Australian Embassy and Permanent Mission to the United Nations during the Ministerial sessions; and shared Australian delegation responsibility in covering Plenary and

Technical sessions held concurrently during the conference. ARPANSA also took the opportunity to meet in the margins of the conference with the IAEA's Office of Nuclear Security on draft guidance to detect illicit trafficking of nuclear and other radioactive material across borders. This conference and side-meetings provided a useful opportunity for ARPANSA to learn about international practices in border security and influence the development of international guidance to detect illicit trafficking of nuclear and other radioactive material across borders.

***International Atomic Energy Agency (IAEA) Waste Safety Standards Committee (WASSC) and Radiation Safety Standards Committee (RASSC) – 1-5 July 2013***

ARPANSA's Dr Geoff Williams was Australia's representative and Chair of the IAEA Waste Safety Standards Committee (WASSC) which was convened in Vienna, Austria from 1 to 5 July 2013. Dr Williams was also co-Chair of the IAEA Radiation Safety Standards Committee (RASSC) meeting held concurrently. Of significance was the decision by WASSC that the draft *Safety Guide DS433 "Safety Aspects in Siting for Nuclear Installations"* be sent to the IAEA Commission on Safety Standards for endorsement for publication. This document is relevant to ARPANSA's work in drafting new regulatory guidance for siting of controlled facilities. The main outcome for Australia from the RASSC meeting was the inclusion of modified wording in draft safety guide *DS401 Application of the Principle of Justification to Practices, including Non-Medical Imaging*. These changes related to the acceptance of the practice of using inspection imaging devices for detection of illicit trafficking of drugs. This will ensure that trials underway in Australia are not out of step with international best practice recommendations. Both WASSC and RASSC Committees were also presented with an update on current issues of radioactive waste management at the Fukushima Dai-ichi nuclear power plant, with an emphasis on the importance of developing adequate safety cases for the disposal options being proposed, so as not to end up with future legacy problems such as those which arose at Chernobyl due to "disorganised disposal of disorganised waste".

ARPANSA co-ordinates the Australian submissions for Member State comment on IAEA publications and documents currently open for comment can be found on the ARPANSA website at: [www.arpansa.gov.au/Publications/international/memberstate.cfm](http://www.arpansa.gov.au/Publications/international/memberstate.cfm)

***AAPM Annual Meeting – Indianapolis, United States – 4-8 August 2013***

A member of ARPANSA's Australian Clinical Dosimetry Service (ACDS) attended and presented a paper at the Annual Meeting of the American Association of Physicists in Medicine, held in Indianapolis, Indiana, USA. This meeting enabled ARPANSA to present on the ACDS in an expert international forum and receive feedback.

***IAEA Basic Safety Standards Medical Safety Guide Drafting Meeting No. 2: VIENNA, VIC, 19-23 August 2013***

ARPANSA attended and participated in the IAEA Basic Safety Standards (BSS) Medical Safety Guide Drafting Meeting No 2 held between 19 to 23 August 2013, in Vienna Austria. This meeting was designed as a five day follow-up event to further develop the drafting of

*IAEA Safety Guide DS 399 - Radiation Safety in Medical Uses of Ionizing Radiation.* Drafting of the first two chapters was completed and will be sent to the Coordination Committee for ratification. This Safety Guide will provide guidance on how to apply the requirements of the revised BSS to medical uses of radiation, including giving guidance on medical exposure (of patients, of carers and comforters, and of volunteers as part of a programme of biomedical research), occupational exposure, and public exposure.

#### **41st Session of CTBT Working Group B, Vienna Austria – 26-30 August 2013**

ARPANSA attended the 41<sup>st</sup> sessions of the Comprehensive Test Ban Treaty (CTBT) Working Group B held in Vienna, Austria between 26 to 30 August 2013. ARPANSA maintains the Australian CTBT atmospheric radionuclide measurement stations (seven particulate and two noble gas stations). In addition, ARPANSA is one of 12 certified CTBT radionuclide laboratories which carry out check measurements on samples from stations in other countries. CTBT Working Group B is a meeting of Member State representatives to discuss technical issues related to the CTBT, and is generally attended by representatives from ASNO, Geoscience Australia and ARPANSA. The CTBT Organization (CTBTO) presented the 2014 Program and Budget, which included discussion of the Medium Term Strategy 2014-2017, with two main strategic goals being: “Operation and Sustainment of the Verification System” and “Development of On-Site Inspection (OSI) Operational Capabilities”. The CTBTO also delivered a presentation on a logistic support analysis model which was developed to calculate how various factors (such as shipping times and location of spare parts) can influence the availability of data from CTBT stations; the presentation used the ARPANSA and Geoscience Australia data as a case example. ARPANSA and Geoscience Australia are highly regarded by CTBTO’s technical staff for the high level of competence demonstrated in the installation and operation of Australia’s CTBT stations. The CTBTO’s focus on OSI-related activities, combined with a limited budget, are likely to put pressure on budgets for ongoing station operations in the future.

#### **Visit to Swedish Radiation Safety Authority (SSM), Stockholm, Sweden, 26-27th August 2013**

On 26 August 2013, a member of ARPANSA’s medical radiation team attended a presentation at Karolinska University Hospital, Stockholm, Sweden on a quality improvement software package called XQuality which is a radiology procedural QA innovation product. On 27 August 2013, ARPANSA held discussions with staff from the Swedish Radiation Authority (SSM) concerning regulatory and diagnostic reference level (DRL) development of diagnostic imaging procedures in Sweden. The Swedish Radiation Authority has developed DRLs for many diagnostic imaging procedures which have not been recently updated and our Swedish counterparts were very interested in obtaining a copy of the ARPANSA National DRLs (NDRLs) software platform for application in their jurisdiction. The Swedish Radiation Authority also showed considerable interest in ARPANSA’s linac primary standards dosimetry laboratories program.

***IAEA – Emergency Preparedness and Response Expert Group (EPREG), Vienna, Austria – 29-30 August 2013***

ARPANSA participated in the second IAEA Emergency Preparedness and Response Expert Group meeting (EPREG) held in Vienna, Austria 29 to 30 August 2013. The EPREG reviewed the work of the IAEA's Incident and Emergency Centre (IEC); and considered the proposal for the IAEA Secretariat's process for assessment of emergency consequences and prognosis of likely event progression and the competent authorities' 2014 agenda and other priorities. At this meeting, ARPANSA expressed views on the effectiveness of the extended mandate to introduce assessment and prognosis capabilities for facilities/countries experiencing an emergency, the integration of safety and security in EPR and the promotion of the IEC and its cross-cutting leadership role within the IAEA. A key outcome of this meeting was that ARPANSA will now be expected to take a leading role during upcoming Competent Authority meetings based on our experience and expertise.

***Preparatory Meeting for an Integrated Regulatory Review Service (IRRS) Mission to Jakarta, Indonesia, 29 – 31 August 2013***

Between 29 to 31 August 2013, ARPANSA CEO Dr Carl-Magnus Larsson travelled to Jakarta, Indonesia to participate as Team Leader in preparatory work for an IRRS Mission to Indonesia scheduled for March 2014. This preparatory mission was hosted by the Indonesian nuclear and radiation regulator, BAPETEN at their Jakarta headquarters. IRRS Missions review the governmental, legal and regulatory system for safety (nuclear, radiation, waste, transport) as well as some aspects of security, in IAEA Member States. The purpose of an IRRS mission is to evaluate a host state's regulatory infrastructure in relation to IAEA safety standards. ARPANSA's participation in IRRS missions is vital to Australia's understanding on the work of international nuclear safety frameworks. Our work in this area provides valuable feedback on international best practices. Leading a mission to Indonesia is well aligned with ARPANSA's international strategy where Indonesia is a priority country. The IAEA IRRS Guidelines which were revised in May 2013 can be viewed at the link: [www-pub.iaea.org/MTCD/publications/PDF/SVS-23\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/SVS-23_web.pdf)

***Accident Reporting Guidance and Operating System (ARGOS) Consortium Meeting, Copenhagen, Denmark – 2-5 September 2013***

Between 2 to 5 September 2013, ARPANSA attended the ARGOS Consortium meeting held annually in Copenhagen, Denmark at the offices of ARGOS system developer, Prolog Development Center (PDC). Presentations covered the current draft of Canada's guidelines for emergency situations, and a comprehensive study assessing the potential consequences of new nuclear power plants being built in the United Kingdom using the HySplit model as well as ARGOS and modelling food doses using the ECOSYS model. ARPANSA met with counterparts from Public Health England and negotiated access for ARPANSA to the ECOSYS model and related methodologies. At the conclusion of this consortium, it was agreed that PDC-ARGOS would create a discussion forum for ARGOS users to encourage increased interaction between users outside the current mechanisms of the user group and annual consortium meetings where users can discuss various aspects of ARGOS such as

development, how-to guides and troubleshooting. A more active user community developed in this forum may also relieve some of the current burden placed on PDC-ARGOS for currently handling requests and questions from users.

***Norwegian Radiation Protection Authority, Oslo, Norway 9-11 September 2013***

ARPANSA met with the Norwegian Radiation Protection Authority on matters relating to clinical dosimetry, diagnostic reference levels, solaria and laser regulation, management of spent nuclear fuel, radioecology research activities, mining activities, naturally occurring radioactive material waste management, emergency preparedness and legacy sites. The discussions identified a number of topics where future collaboration would be beneficial to both parties, and arising from this meeting, it was agreed that a cooperative arrangement would be established between our agencies in the near future.

***Committee for Radiological Protection and Public Health– Expert Group on Radiological Protection Science (EGRPS) 12-13 September 2013***

The Organisation for Economic Cooperation and Development Nuclear Energy Agency's (OECD-NEA) Committee on Radiological Protection and Public Health is made up of regulators and radiation protection experts, with the broad mission to provide timely identification of new and emerging issues to analyse their possible implications and to recommend or take action to address these issues to further enhance radiation protection regulation and implementation. ARPANSA was invited to participate in the Expert Group on Radiological Protection Science (EGRPS) in May 2013. The EGRPS was tasked to review the 1998 and 2007 reports on this topic and prepare a new report by May 2015. This first meeting of the EGRPS agreed the emerging scientific issues that the new report should include, and considered the challenges that are emerging from the application of the radiological protection system. Participation in the EGRPS will enable Australia to be actively engaged in the review of the status of radiation protection science and be at the forefront of understanding what the critical issues are on the international research agenda.

***IAEA Consulting Activity, Operating Experience Feedback from incidents reported in International Reporting System for Research Reactors, Vienna, Austria – 7-15 September 2013***

From 9 to 13 September 2013, ARPANSA attended meetings at the IAEA Headquarters in Vienna, Austria, and participated in consulting work associated with development of the IAEA report on Incident Reporting System for Research Reactors (IRSRR). This work was partially financed by the IAEA. The outcome of the work was a draft report entitled: *Operating Experience from Research Reactors* that drew conclusions particularly on event causes and lessons that could be learnt from them. The knowledge and experience obtained will assist in ARPANSA's regulatory activities, particularly in the area of associated with ARPANSA licence holders' safety management - event management, human performance, plant maintenance and its ageing.

### **IAEA General Conference, Vienna, Austria 16-20 September 2013**

From 16 to 20 September 2013, ARPANSA CEO Dr Carl-Magnus Larsson attended the IAEA General Conference as well as a number of important bilateral meetings held in Vienna, Austria. The General Conference (GC) is a yearly event which brings together all IAEA Member States for agreement on budget, work programme and resolutions. In addition, numerous side events are held in the margins of the Conference, such as the Senior Regulators' Forum and the Scientific Forum. The Australian delegation was headed by the Head of Mission in Vienna with further delegation members came from DFAT/post in Vienna, ARPANSA, ASNO, ANSTO and Resources, Energy & Tourism (now Department of Industry). ARPANSA coordinated the Australian input to the safety resolution and Australia, through the Mission to Vienna, coordinated the international negotiations of the resolution which was unanimously approved with 52 co-sponsors. This resolution has considerably improved text on waste management and remediation after accidents, introduced by ARPANSA/Australia. For full text, see [www.iaea.org/About/Policy/GC/GC57/Resolutions/](http://www.iaea.org/About/Policy/GC/GC57/Resolutions/)

The General Conference offers a unique opportunity for ARPANSA to interact in the margins of the Conference and ARPANSA's CEO met with counterparts from the Indonesian regulator, BAPETEN, the Argentine Nuclear Regulatory Authority, the United States Nuclear Regulatory Commission, the Canadian Nuclear Safety Commission, the United Arab Emirates' Federal Authority for Nuclear Regulation (FANR) and representatives of the Mongolian Government to discuss mutual cooperation in the region. ARPANSA also attended the Second Plenary of the Asian Nuclear Safety Network (ANSN) meeting. ARPANSA CEO Dr Larsson also signed separate Arrangements for Cooperation with the United States Nuclear Regulatory Commission and with the United Arab Emirates' (UAE) Federal Authority for Nuclear Regulation (FANR) which provided for the exchange of technical information and cooperation in the fields of nuclear safety regulation, emergency preparedness and response, radiation protection, waste management and the security of other radioactive material.

ARPANSA's CEO also chaired the Senior Regulators' meeting which is a yearly full-day event in connection with the General Conference. This meeting was organised around three themes: Benefits and future developments of the Integrated Regulatory Review Service (IRRS) Programme; Cyber and information security from a regulatory viewpoint; and, Establishing and strengthening the regulatory infrastructure in states without nuclear power plants: the constraint of limited resources.

The opportunity for bilateral and multilateral discussions with agency heads is extremely valuable. ARPANSA entered into two new Memoranda of Understanding. This accords well with ARPANSA's international engagement strategy and is particularly important in times of contracting resources (not only felt by ARPANSA and in Australia). By broadening the basis for networking ARPANSA may sustain its international position and recognition in both the regulatory and scientific areas, as well as maintain its service delivery to the Australian Government and community, at a time when resources are constrained.



***Bilateral meeting with WHO, Geneva, Switzerland, 23-24 September 2013***

From 23 to 24 September 2013, ARPANSA CEO Dr Carl-Magnus Larsson attended a bilateral meeting at the World Health Organization (WHO) held in Geneva, Switzerland as part of ARPANSA's work as a WHO Collaborating Centre.

Dr Larsson (en-route back to Australia following attendance at the IAEA General Conference) met with the radiation protection team of the WHO. The discussions covered many topics. A common theme is how to maintain and further develop the high level of cooperation in the emergency, EME and UV areas, where ARPANSA has been a very strong supporter of WHO, and where the WHO activities have been very important to ARPANSA. Discussions also concerned risk communication including a brief meeting with the WHO communications team to discuss the upcoming presentation of the UNSCEAR report to the UN General Assembly.

ARPANSA's close collaboration with the WHO is described under the terms governing our status as a WHO Collaborating Centre. This work is strategically very relevant to ARPANSA, particularly in this current global economic climate. Incidentally, the WHO is struggling to continue its work despite significant budget cuts. ARPANSA is highly regarded as contributor to WHO activities in the radiation area – although WHO has 800 Collaborating Centres around the world, only a few deal with radiation. The very small but highly efficient team at WHO helps us to significantly broaden our 'external interface' in very important areas of radiation health. ARPANSA needs to make sure this can continue.

***Preparation, Conduct and Evaluation of Emergency Preparedness and Response Exercises Training Workshop, Serpong, Indonesia 23-27 September 2013***

ARPANSA was invited by the Indonesia Government to lead an Emergency Preparedness and Response Training Workshop held in Serpong, Indonesia from 23 to 27 September 2013. This workshop was a capacity building exercise for Indonesia to develop confidence in the roles of exercise controller, evaluator and players with practical experience in each phase of the process. Indonesia requested ARPANSA's expert assistance in emergency preparedness and response to develop a training course on preparing, conducting and evaluating EPR exercises for their 30MW Serpong Research Reactor and participants included ARPANSA staff and Indonesian authorities from senior military, police and conventional emergency services. The exercise concluded with the successful completion by the Indonesian authorities of two training exercises with limited guidance from the Australian experts based on two scenarios likely to result in radiation releases and tested security and safety responses. Given the strategic significance of Indonesia to Australia and the likelihood of Indonesia to embark upon a civilian nuclear energy program in the near future, ARPANSA's work in this area continues to be highly relevant. This is supported by ARPANSA's already robust relationship with our counterpart regulator in Indonesia: BAPETEN. This exercise demonstrates that Indonesia has been well trained to prepare for responses to these events, and is likely to engage directly with ARPANSA to share information in these areas.

**IAEA – Consultancy to Review the Gulf Cooperative Council (GCC) Regional Radiological and Nuclear Emergency Preparedness and Response Plan (RNEPRP), Vienna, Austria – 26-28 September 2013**

From 27 to 29 August 2013, ARPANSA participated in an IAEA Consultancy Workshop to review the Draft Regional Radiological and Nuclear Emergency Preparedness Plan for the Gulf Cooperation Council (GCC) held at the IAEA Headquarters in Vienna, Austria. This Workshop was attended by six other IAEA member states: Bahrain, Oman, Qatar, Saudi Arabia, South Africa, and United Arab Emirates. The Workshop was tasked with reviewing first draft of the Regional Radiological and Nuclear Emergency Preparedness and Response Plan and to check its consistency against the IAEA Guidelines for Radiological and Nuclear Emergency Preparedness and Response Plan and to make appropriate recommendations for improvement and completion. Workshop objectives were achieved and ARPANSA's input was considered favourably by contributing Member States of the Gulf Cooperation Council.

**Details of any Breach of Licence Conditions by a Licensee**

***Breaches with Safety Implications***

| <b>Licensee</b>    | <b>Number</b> | <b>Nature of breach</b>  | <b>Action</b>   |
|--------------------|---------------|--|---|
| ANSTO OPAL Reactor | F0157         | Breach of Regulation 49 for failing to follow the approved change control process and for use of an unauthorised tool (pry bar) during fuel assembly clamping. | Redesign of the pneumatic cylinder tool to prevent the need to use the pry bar in future. |

***Breaches with No or Minor Safety Implications***

There was one breach with minor or no safety implications recorded during the quarter as follows:

- Possession of two handheld dental X-ray units for forensic purposes without the appropriate licence being in place.

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**

No new facilities were licensed during the quarter.

**Transport of Radioactive Material**

ARPANSA did not approve the shipment of any radioactive material or validate/certify any transport packages during this 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 Council met on 8-9 August 2013 at ARPANSA's Miranda offices. A full summary of the meeting is available at: [www.arpansa.gov.au/AboutUs/Committees/rhsacmt.cfm](http://www.arpansa.gov.au/AboutUs/Committees/rhsacmt.cfm).

The Council was briefed on cosmic radiation exposure of aircrew, monitoring programs, exposure levels and company policies within the Australian airline industry. Council was updated on future developments for the Australian National Radiation Dose Register and discussed how this could be a valuable tool for recording and tracking doses to occupationally exposed aircrews in the future.

Council was also briefed on current radiofrequency research and public exposures, and the preliminary outcomes of the ARPANSA radiofrequency literature review. Council agreed that ARPANSA could be in the position to provide input, about research priorities, to the National Health and Medical Research Committee research review process.

At the meeting, the Council also:

- Agreed that occupational exposure to cosmic radiation is an important issue that should be considered in the development of any future Codes of Practice covering existing exposure situations.
- Considered the following three priority areas should be included in future strategic plans:
  - Medical radiation, with a focus on paediatric doses, computed tomography, breast scanning and rationalisation of diagnostic imaging.
  - Radiation exposure from non-regulated activities (eg, air crews, legacy sites, inadvertent import of contaminated material and other similar activities not currently regulated), and
  - Ongoing and emerging issues in radiation science, including those associated with non-ionising radiation.

### ***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 23 July 2013 at ARPANSA's office in Yallambie, Victoria. A full summary of the meeting is available at:

[www.arpansa.gov.au/AboutUs/Committees/rhcmmt.cfm](http://www.arpansa.gov.au/AboutUs/Committees/rhcmmt.cfm)

It was noted that the draft *Fundamentals for Protection against Ionising Radiation*, which was undergoing public consultation processes this quarter, would be presented for comment at the Australasian Radiation Protection Society Conference in October 2013.

The Committee noted progress on the *Code of Practice for Radiation Protection in Planned Exposure Situations* (Planned Exposure Code) which is expected to reduce regulatory burden as it will consolidate several existing codes into a single document.

The Committee noted good progress on the *Safety Guide for radiation protection of the environment* and the planned establishment of a consultative group to review the draft Guide.

The Committee considered a proposal for a combined code and safety guide based on ARPANSA's *Regulatory Guide: Licensing of Radioactive Waste Storage and Disposal Facilities* noting that such documents are high priority due to anticipated plans for a national radioactive waste management facility.

The Committee noted work on a *Safety Guide on radiological clearance/closure criteria* and management of sites contaminated as a result of past and present activities and that while this guide will focus upon mining activities, it may have other applications.

The Committee noted progress on a proposed annex to RPS 15, *Safety Guide for the Management of Naturally Occurring Radioactive Material (NORM)* which is a technical reference tool to cover coal extraction but does not impose requirements on industry or regulators.

It was noted that work on proposed National Directory amendments were continuing, relating to:

- Control of IPLs and lasers for cosmetic use;
- PRMS certification;
- Schedule 13 National incident reporting framework; and
- User disposal of radioactive material.

The Committee agreed to adopt the mapping of current and planned Radiation Protection Series (RPS) publications to align with the IAEA document framework and that the work program would be amended to target identified gaps in the framework. It was also agreed that the draft *Guidelines on Managing Exposure to Electric & Magnetic Fields — 0 to 3 kHz* can proceed to the next stage of regulatory assessment and submission to the Office of Best Practice Regulation (OBPR).

It was noted that progress on the draft *Code of Practice for the Safe Transport of Radioactive Material (2008)* and preliminary cost assessment had occurred and the Committee agreed that the draft code can proceed to regulatory assessment and submission to the OBPR.

The Committee considered the future of the Transport Competent Authorities Forum and acknowledged the contribution of forum members including the Civil Aviation Safety Authority and the Australian Maritime Safety Authority. Acknowledging that there will no longer be a formal link to the Committee; the forum will meet as required or requested by its members or ARPANSA. Customs & Border Protection will also be invited to participate in future meetings. The Committee noted the Graduate Certificate in Radiation Management proposed by the University of Adelaide and acknowledged its value to the mining industry.

## **Nuclear Safety Committee**

The Committee did not meet during the quarter. The next meeting is scheduled for 18 October 2013.

## **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 251 permits for medical radioisotopes including nil urgent permits, 16 twelve month permits and 235 single shipment permits.

ARPANSA authorised officers also issued the total of 170 permits for customs release of non-medical radioisotopes, comprising of: 85 urgent permits; 73 standard permits; and 12 twelve month permits.