



**Australian Government**

---

**Australian Radiation Protection  
and Nuclear Safety Agency**

**QUARTERLY REPORT**

**OF THE**

**CHIEF EXECUTIVE OFFICER**

**OF ARPANSA**

**FOR THE PERIOD 1 JULY 2009 TO 30 SEPTEMBER 2009**





**Australian Government**

---

**Australian Radiation Protection  
and Nuclear Safety Agency**

**QUARTERLY REPORT**

**OF THE**

**CHIEF EXECUTIVE OFFICER**

**OF ARPANSA**

**FOR THE PERIOD 1 JULY 2009 TO 30 SEPTEMBER 2009**

© Commonwealth of Australia 2009  
ISSN 1443 - 654X

**Copyright Notice**

*This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior written permission from the Commonwealth. Requests and inquiries concerning reproduction and rights should be addressed to the Commonwealth Copyright Administration, Attorney General's Department, Robert Garran Offices, National Circuit, Barton ACT 2600 or posted at <http://www.ag.gov.au/cca>*

**Further Information About This Publication**

*If you would like to know more about the content of this publication please contact ARPANSA's Manager Policy and Security of Sources on 1800 022 333 or e-mail at [info@arpansa.gov.au](mailto:info@arpansa.gov.au). Further information about ARPANSA can be found on the Agency's website at [www.arpansa.gov.au](http://www.arpansa.gov.au).*

Printed by:

CanPrint Communications Pty Ltd  
16 Nyrang Street  
Fyshwick ACT 2609

## Table of Contents

Letter of Transmittal .....	5
Report on the operations of the CEO and ARPANSA .....	6
National uniformity and regulation .....	6
Radiation in medicine .....	9
Protection of individuals from natural sources of radiation .....	11
Monitoring and mitigating population exposures to extremely low frequency, magnetic fields and radiofrequency electromagnetic radiation .....	13
Security of sources and response to radiation emergencies .....	15
Details of any breach of licence conditions by a licensee during the quarter, of which the CEO is aware .....	18
A list of all facilities licensed under Part 5 of the <i>ARPANS Act</i> during the quarter .....	21
Operations of the Radiation Health and Safety Advisory Council, the Radiation Health Committee and the Nuclear Safety Committee .....	22
Radiation Health Committee .....	22
Nuclear Safety Committee .....	22
Reports to the CEO from the RHSAC and NSC (paragraphs 20(f) and 26(1)(d) of the Act) .....	22
Details of directions given by the Minister under Section 16 .....	23

This page has been left blank.

## Letter of Transmittal

5 November 2009

The Hon Mark Butler MP  
Parliamentary Secretary to the Minister  
for Health  
Parliament House  
Canberra ACT 2600

Dear Parliamentary Secretary

The *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act) requires the Chief Executive Officer 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
- a list of facilities licensed under Part 5 of the Act during the quarter.

I am pleased to provide you with a report, meeting the requirements of the Act, covering the period 1 July to 30 September 2009.

As you would be aware, 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



**Peter Burns**  
**Acting 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.

### **National uniformity and regulation**

#### **National Directory and national uniformity**

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 with the State and Territory jurisdictions through the Radiation Health Committee (RHC).

During the quarter, endorsement of three amendments to the National Directory by Ministers was awaiting the response of one jurisdiction before being included in the Directory. Amendment 1 provided for adoption of a range of Codes and Standards published since Edition 1 of the Directory. Amendment 2 clarified provisions related to exemptions and exclusions. Amendment 3 provided for adoption of the *Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation*.

A fourth amendment on solaria was endorsed by AHMAC and was forwarded to Ministers for approval.

Progress on further amendments to the National Directory during the quarter included:

- A proposed NDRP amendment clarifying that ionizing radiation justification principles do not apply to non-ionizing radiation (NIR) sources/practices was agreed in principle and will be prepared to be released for public comment.
- Regulatory Impact Statement work on NDRP amendments on cosmetic use of lasers and intense pulsed light sources (IPLs), and on X-ray analysis equipment is still required to be completed.

- The development of an amendment on competencies is dependent on finalising the Government Skills Australia project.

The *Code of Practice and Safety Guide for Radiation Protection in Veterinary Medicine* was published in July 2009. The Code will now be proposed for inclusion in the National Directory for Radiation Protection.

## **International engagement**

### **IAEA GENERAL CONFERENCE AND SENIOR REGULATORS' FORUM**

ARPANSA, including the CEO, was part of the Australian delegation at the IAEA General Conference and participated in the Senior Regulators' Forum both held in Vienna from 14-18 September 2009.

ARPANSA negotiated measures to strengthen international cooperation in nuclear radiation transport and waste safety at the General Conference and also attended meetings in relation to:

- coordination of international regulatory support for newcomers and countries expanding their nuclear programs;
- IAEA Illicit Trafficking Database;
- round table discussion on the Asian Nuclear Safety Network and other regulatory networks including the Ibero-American network and the very recently established Forum of Nuclear Regulatory Bodies in Africa;
- licensing of geological repositories;
- results based management and field level capacity building in technical co-operation programs, and
- medical radioisotope production and supply – issues for regulators.

### **IAEA CONSULTANCY MEETING TO DRAFT THE IAEA NUCLEAR SECURITY SERIES RECOMMENDATION ON SECURITY OF RADIOACTIVE MATERIAL AND ASSOCIATED FACILITIES DOCUMENT**

The fifth Consultancy Meeting to develop Recommendations on the Security of Radioactive Material and Associated Facilities was held at the IAEA Headquarters in Vienna from 7 to 11 September 2009. Documents were provided to the meeting with comments on the previous draft from Australia, Belgium, Japan and Sweden. The Australian submission from ARPANSA gave guidance on risk reduction from the threat of sabotage against radiological material and facilities.

## IAEA TECHNICAL MEETING ON IMPLEMENTATION OF CODE OF CONDUCT

ARPANSA participated in the IAEA meeting on the Implementation of the Code of Conduct on the Safety and Security of Radioactive Sources and the Joint IAEA/ITWG meeting on International Cooperation in Nuclear Forensic, both held in Vienna from 26 June to 3 July 2009. The technical meeting discussions centred around the legal and technical issues and strategies related to the management of orphan sources detected at borders and the transport of sealed sources, particularly those at the end of their useful cycle.

## IAEA INTERNATIONAL NUCLEAR EVENT SCALE WORKSHOP

ARPANSA participated in the International Nuclear Event Scale workshop organised by International Atomic Energy Agency. The workshop was held from 22 to 25 September 2009 in Vienna and provided training in rating assessment of radiological and nuclear events.

## Commonwealth regulation

### SIGNIFICANT LICENSING ACTIVITIES

ARPANSA approved construction, installation and pre-commissioning phases of the OPAL Heavy Water Isotopic Purification Plant that is to be built to compensate gradual deterioration of heavy water used in the reactor. The deterioration is caused by a small leak of normal water into the heavy water circuit. The leakage itself is of no safety significance.

ARPANSA received an application for a facility licence to operate the PetNet facility by PetNet Australia Pty Ltd which is a wholly owned subsidiary of ANSTO, during July 2009. ARPANSA continues to assess this application.

ARPANSA approved:

- three additional molybdenum-99 production hot runs by the ANSTO Radioisotope Industrials on 27 July 2009 and another two runs on 17 August 2009 under Regulation 51 of the ARPANS Regulations 1999;
- ANSTO transport of radioactive material under special arrangement during August 2009 in accordance with the ARPANSA *Code of Practice for the Safe Transport of Radioactive Material*;
- the routine operation by the ANSTO Radioisotope Industrials of the molybdenum-99 production process during September 2009 under Regulation 51 of the ARPANS Regulations 1999;
- CSIRO to transport under special arrangement an americium-241 source during September 2009 in accordance with the ARPANSA *Code of Practice for the Safe Transport of Radioactive Material*.

A periodic review of ARPANSA licences is underway, and 13 ARPANSA source licences were updated and re-issued during the quarter.

## SAFETY OUTCOMES AND REGULATORY BURDEN

A series of inspections, both announced and unannounced, took place during the quarter to monitor compliance with the *ARPANS Act 1998* and Regulations 1999. No non-compliances were observed during the inspections.

No events of safety importance were reported during this quarter.

## REGULATORY GUIDANCE

ARPANSA held another Licence Holder Forum on 29 September 2009 at the Australian Nuclear Science and Technology Organisation. The purpose of these fora is to enhance communication between ARPANSA and its licence holders.

The theme of the Forum was 'compliance and reporting' with the intention of hearing from licence holders about difficulties faced in compliance and reporting and discussing and agreeing on how improvements could be made to facilitate compliance and reporting.

The Forum was well attended and a survey conducted at the forum indicated it was well received by attendees and was useful to them.

Presentations from the Forum and revised regulatory guides on the use of sealed sources beyond their recommended working life and on licence holder compliance reporting were posted on the regulatory section of the ARPANSA website.

## Radiation in medicine

### Radiotherapy calibration service

In moving to a direct calibration capability of hospital reference dosimeters, the measurement of baseline beams from the Elekta medical standards linear accelerator (linac) has been completed and dose benchmarks have been established for the reference set of x-ray photon beams (6 MV, 10 MV and 18 MV) that have been matched to treatment beams available in Australia. Elekta has implemented modifications to provide better stability and to facilitate external control.

Absorbed dose standards are being applied and calorimetric measurements of the photon beams are giving consistent results.

Indirect therapy calibrations have continued based on the therapy level ARPANSA cobalt-60 reference source. Calibration certificates were issued to seven cancer treatment centres over the quarter for eight therapy reference dosimeters and seven associated electrometers. Three neutron survey meters were also calibrated for protection level purposes. The number of cancer centres maintains pro rata coverage to ensure that a three year cycle is maintained for most centres. Two therapy centres have been audited for Level I reference dosimetry over the past quarter and were found to be within guidelines for accuracy.

The strength of the therapy level cobalt-60 source used for the indirect calibration of hospital dosimeters continues to decay. A cobalt-60 source of comparable original strength (145 TBq) was located in the USA, and the transfer operation will be carried out by US technicians accompanying the source to Yallambie. Procedures are being developed to support ARPANS Regulation 51 approval of this procedure under the existing Commonwealth licence for a prescribed radiation facility. It is possible that delivery could be made within a few months if the necessary US export permits can be obtained.

## **Australian Diagnostic Reference Levels for CT**

The basic design of the Multi Detector Computed Tomography (MDCT) radiation dose survey has been completed and planning for the next stage (itemisation of IT project requirements) has begun.

To test the design of the survey a small Excel spreadsheet based dose survey was sent out to selected radiology practices as a data logging trial to establish the utility of the data set. All work has been accomplished in conjunction with the RANZCR Diagnostic Reference Levels (DRLs) liaison committee and the radiologist members of the committee are taking part in the trial survey.

## **Promoting optimisation in the medical application of ionising radiation**

Activities with the medical linac have included:

- Quality assurance procedures used for intensity modulated radiotherapy (IMRT) were studied. In July, radiation oncology medical physicists from the Austin Hospital (Heidelberg, Victoria) supplied a Mapcheck quality assurance device and four IMRT treatment plans that were loaded and run on the linac. All views were collapsed to a beam angle of zero degrees. The integrated outputs compared very favourably with those achieved in the clinic and, in one case indicated an improved delivery.
- In August, second year radiotherapy students from RMIT University undertook irradiation of several cell lines with 6 MV and 18 MV x-ray beams to study radio-sensitivity effects. The post-irradiated cells were to be cultured to determine survival rates and a report will be produced.
- In early September, the Ionizing Radiation Standards Megavoltage Dosimetry Group held a training day in “External beam radiation dosimetry” for Victorian radiation oncology medical physicists enrolled in the Australasian College of Physical Scientists & Engineers in Medicine Training, Education and Accreditation Program. Lectures were given in dosimetry standards and protocols and in measurement techniques, followed by a series of practical exercises. Some senior medical physicists as well as a couple of interstate physicists also attended the course which appears to have been well regarded.

In other dosimetry activities during the quarter, ARPANSA participated in a “Dosimetry Day” in Queensland at the Princess Alexandra Hospital in early August.

ARPANSA also attended an irradiation at the Peter MacCallum Cancer Centre as part of a clinical trial arranged through the Radiation Physics Centre in the USA.

Other medical physics activities have included:

- Presentation to the Royal Australian and New Zealand College of Radiologists (RANZCR) Council on the need to establish Australian national DRLs. Collaboration with RANZCR was sought and obtained.
- A presentation was given on 'MDCT Optimisation Overview' at the RadAIM conference (which is a national multidisciplinary conference of radiologists and radiographers) in Melbourne.
- Australian data for an international IAEA Interventional Radiology dose data survey for occupationally exposed staff was submitted to the IAEA.
- Attendance at an IAEA workshop on 'Justification of Medical Exposure in Diagnostic Imaging' in Brussels, Belgium.
- Meetings with Victorian Department of Human Services on future requirements for medical physics staffing and implementation of Multi Detector Computed Tomography optimisation programs to comply with the requirements of the *Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation* (ARPANSA 2008).

Students from RMIT University third year Nuclear Medicine Technology successfully completed projects at ARPANSA on gallium-68 (from a Ge-68/Ga-68 generator) labelled potential radiopharmaceuticals. They presented their results at the 3rd Annual Nuclear Medicine Research Symposium in Melbourne.

## **Protection of individuals from natural sources of radiation**

### **Measurement and assessment capability**

ARPANSA continued to provide commercial services for radionuclide measurements. Standard commercial tests were performed to comply with requirements of the National Association of Testing Authorities.

### **Exposures in uranium mining and NORM industries**

ARPANSA has been commissioned to develop, construct and implement The Australian National Radiation Dose Register (ANRDR). The ANRDR involves the collection, storage and auditing of radiological dose histories for uranium industry workers across Australia. An online draft version was finalised in September for testing and evaluation.

A safety guide for the methods of monitoring, assessing and recording occupational radiation doses in mining and mineral processing continued to be developed in

relation to the ANRDR project. An updated draft of the safety guide was completed in August 2009.

The IAEA's Environmental Modelling for Radiation Safety Programme (EMRAS II) aims to improve capabilities in the field of environmental radiation dose assessment. ARPANSA attended the first EMRAS II meetings of the Working Group 1 (Controlled discharges) and Working Group 2 (Legacy Sites and Naturally Occurring Radioactive Material (NORM)) in Vienna during the week of 22 to 25 September 2009. Preliminary work was carried out on the development of a general methodology for assessing legacy and NORM sites, and a general methodology for developing models for assessing the impact of such sites on human health and the environment.

## **Environmental assessment in mining**

The 2007 Recommendations of the International Commission on Radiological Protection makes the radiological protection of the environment explicitly part of international best practice and promulgates the use of reference plants and animals for radio-ecological impact assessments. ARPANSA has commenced a review of existing models and methodologies and has established a bibliography and existing assessment tools and associated databases have been acquired to examine their suitability and limitations in the context of Australian uranium mining environments.

ARPANSA provided advice on the National In-Situ Leach Uranium Mining Best Practice Guide and the Draft Guidelines for Preparation on an EIS for the Ranger Uranium Mine Heap Leach Facility.

## **Solar UVR**

### **EDUCATION**

The ARPANSA UV network continues to display live UV index data on the ARPANSA website. Work is continuing to increase availability of the UV data to more mobile phone applications.

A colour poster covering UVR and Health and Safety has been developed and made available through the ARPANSA website. These posters proved to be very popular as well as educational, with requests for the poster from workplaces and schools quickly depleting the first print run of 100, with the second print run of 200 also rapidly dwindling.

ARPANSA hosted the UV Alert meeting/teleconference with the Bureau of Meteorology and the state Cancer Councils. A number of media exercises and launches are planned for later in spring and early summer. Information on solar UVR is being provided to the Victorian Department of Human Services for their Youth Report section in their 2009 Annual Report, as well as to ANU researchers for a paper on Prenatal ultraviolet radiation exposure, month of birth and subsequent risk of Multiple Sclerosis.

## ARPANSA UPF TESTING SERVICE

The Annual international UPF testing inter-comparison and external lab accreditation commenced in early June and was completed in September, with seven of the nine laboratories achieving ARPANSA accreditation.

## STUDIES

A collaborative paper with the Menzies Centre for Population Health Research in Hobart on “Lower levels of serum 25-hydroxy Vitamin D3 are associated with a reduced hazard of relapse in Multiple Sclerosis” has been drafted and submitted to the Journal of the American Medical Association. Another collaborative paper with the Queensland Institute of Medical Research has been submitted to Photochem Photobiol. Work is continuing on draft manuscripts on solaria measurements, UVR exposures of lifeguards at pools in Melbourne and UVR emissions from compact fluorescent lamps (CFL’s).

ARPANSA has made measurements of the UVR emissions from Compact Fluorescent Lights (CFL’s) and provided the Department of the Environment, Water, Heritage and the Arts (DEWHA) Lighting and Equipment Energy Efficiency Team with a report summarizing the UVR emissions and their possible effects on people with Lupus or other photosensitivity conditions. Collaborative work with DEWHA has begun to compile a list of low UVR emitting CFL’s from the manufacturers, with these lamps to be provided to ARPANSA to undergo testing.

## PUBLICATIONS

Peter Gies, Roland Watzl, John Javorniczky, Colin Roy, Stuart Henderson, Jeff Ayton and Melissa Kingston. *Measurement of the UVR Exposures of Expeditioners on Antarctic Resupply Voyages*. Photochem Photobiol. (in Press) June 2009.

## TARGET GROUP EXPOSURE REDUCTION

The collaborative paper on the Solar UVR Exposures of Expeditioners with the Australian Antarctic Division is in press and is now available on line on the Photochem Photobiol website and will be published in the October issue of the journal.

## **Monitoring and mitigating population exposures to extremely low frequency, magnetic fields and radiofrequency electromagnetic radiation**

ARPANSA continued to provide information to state and Australian government agencies and to the public and media regarding possible health effects of electric and magnetic fields and electromagnetic radiation from a variety of sources. The majority of enquiries relate to electric and magnetic fields in the extremely low frequency range, predominantly from electrical power infrastructure such as sub-stations,

transmission lines and domestic installations. Other enquires relate to mobile phone base, mobile phone handsets, broadcast radio and television and computer wireless networks.

ARPANSA attended, as an observer, a meeting of the New Zealand Ministry of Health Interagency Committee on the Health Effects of Non-Ionising Fields in Wellington, New Zealand on 9 September 2009. The meeting considered New Zealand public information on health effects of electromagnetic fields and radiation, current research in this area and the status of relevant standards and guidelines. A report on Australian activities was provided by ARPANSA.

ARPANSA attended a meeting on 18th August in Melbourne of the Standards Australia TE7 committee on Human Exposure to Electromagnetic Fields and the TE7/2 working group currently preparing a revised Standard (AS2772.2) on assessment of radiofrequency electromagnetic fields and radiation,. Subsequent telephone conferences have been held to expedite completion of the draft standard.

ARPANSA was invited to give a guest lecture on “Radiation in the Environment” for Monash University students doing a Masters in Public Health.

ARPANSA published on its web site a summary of submissions to the Electromagnetic Radiation Health Complaints Register. A total of six reports were received in the period July 2008 to June 2009. The reported complaints related to power lines, mobile phones, broadcast transmitters and mobile phone base stations.

The National Association of Testing Authorities accredited calibration service for RF hazard meters and alarms carried out 42 calibrations involving 12 monitors, 10 probes and 30 personal monitors and RF badges. During this period the service was restricted as a result of equipment failure and necessary validation and quality control measurements.

## PUBLICATIONS

NHL paper published Karipidis KK, Benke G, Sim MR et al, *Non-Hodgkin lymphoma and occupational radiation exposure assessed using local data*. Occup Med (Lond). 2009 Sep; 59(6):437-9. Epub 2009 Jul 3.

## ELF Standard

Following the meeting of the ARPANSA working group preparing the radiation protection standard, “*Limits and Precautionary Measures for Reducing Exposure to Electric & Magnetic Fields — 0 Hz to 3 kHz*” on 26 June to agree on necessary changes to the standard, a technical editor was contracted to review the draft and address stakeholder concern regarding clarity and readability. A revised Regulatory Impact Statement, taking into account expected changes in costs and benefits arising from modification to the standard, has been prepared.

## Emerging science on ELF, EMF and EMR

The ongoing EMR literature survey provides unbiased monthly updates on published literature related to electromagnetic fields in the frequency range 0-300 GHz.

Published literature is selected to be of significance and of interest to the general public and includes articles in peer-reviewed journals, scientific-body reports, fact-sheets, conference proceedings etc. New literature is found via search of several databases (e.g. EMF Portal, Pubmed, etc) as well as notification from peers. Each update usually contains one or more featured articles for which critical commentary may be provided. During this quarter feature articles included an International Commission on Non-Ionizing Radiation Protection (ICNIRP) review of the epidemiological evidence on mobile phones and tumour risk, a review of extremely low frequency electric fields and cancer, and a COMAR technical information statement on potential health effects of radiofrequency electromagnetic fields and comments on the BioInitiative Report. Two further important publications by ICNIRP during the quarter were the statement on the guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz) and the open consultation draft for limiting exposure to time-varying electric and magnetic fields (1Hz-100 kHz). The EMR literature survey is available at: [www.arpana.gov.au/RadiationProtection/EMR/literature/index.cfm](http://www.arpana.gov.au/RadiationProtection/EMR/literature/index.cfm)

## **EMR exposure from Mobile Phones and new technologies**

The ARPANSA survey of radiofrequency exposure levels produced by mobile phone base stations continued with further sites in the Northern Territory, ACT and Queensland being planned in detail. Exposure levels for a site in Holt, ACT, were measured, and the results published on the ARPANSA web site.

## **PUBLIC INFORMATION**

In the reporting period there were 157,862 visits to the ARPANSA website. The most popular web pages were radiation and health information sheets, particularly those concerning electromagnetic fields (EMF) from power lines.

Visitors downloaded 33,048 documents predominantly from the ARPANSA Radiation Protection series (RPS) which can be found at [www.arpana.gov.au/Publications/codes/rps.cfm](http://www.arpana.gov.au/Publications/codes/rps.cfm). The most frequently downloaded single page was RPS No.3, Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields - 3 kHz to 300 GHz (2002). When visitors used the search facility, the two most frequently used search terms were 'lasers' and 'radon'.

## **Security of sources and response to radiation emergencies**

## **COAG recommendations on regulation and control of radiological material**

### **CODE OF PRACTICE IMPLEMENTATION**

The *Code of Practice for the Security of Radioactive Sources* was published in 2007 as Radiation Protection Series No. 11. It is a general condition of licence in the

*ARPANS Regulations 1999*. It is also a condition of licence or registration in all other States and Territories.

In the quarter ending September 2009, ARPANSA completed consultations with radiation regulators in all States and Territories on the implementation of the Code and compiled a list of issues for resolution. A key issue to be addressed in the current financial year is the implementation of security background checking for persons with access to certain radioactive sources.

During the quarter, ARPANSA also laid down guidelines to Commonwealth licensees for the submission of Source Security Plans under the Code and initiated a review of regulatory guidelines to streamline the requirements in the Code with other existing regulatory requirements.

#### EDUCATION AND AWARENESS

ARPANSA has delivered an education and awareness program for security of radioactive sources to support the Code of Practice. In the quarter, the program reached near completion and further specialised training will be conducted in the near future for relevant stakeholders. Overall, in excess of 300 users of radioactive sources have participated in workshops on source security requirements.

Work has also been carried out on the preparation of training packages for the development of source transport security plans.

#### NATIONAL SOURCE SECURITY REGISTER

ARPANSA has now completed the building and testing of a national register of radiation sources with only minor system configuration for remote access to be completed. Integration of the nine federal and state radiation regulators' systems and upload of data starts in October 2009.

### **Emergency response capability**

#### NATIONAL

In August 2009 ARPANSA attended a meeting of the Visiting Ships Panel (Nuclear) to chair the Technical Working of the VSP(N) to provide expert advice on radiation protection and nuclear safety issues, as part of the Australian contingent to allow visits by nuclear powered warships (NPW). ARPANSA maintained a 24 hour radiation emergency duty officer to provide 24 hour access to ARPANSA resources and expertise. ARPANSA maintained on call teams during a NPW visit to Western Australia during July 2009 and ARPANSA carried out environmental sampling before and after the visit.

## REGIONAL

The Fifth Meeting of Representatives of the National Competent Authorities for the Notification and Assistance Conventions took place during 7 to 10 July 2009 at IAEA Vienna. ARPANSA is the designated Australian Competent Authority under the Early Notification and Assistance Conventions. The meeting reviewed the status of implementation of the IAEA *Action Plan for Strengthening the International Preparedness and Response System for Nuclear and Radiological Emergencies* and the outcomes of the International Nuclear Emergency Exercise, ConvEx-3 held in Mexico in 2008.

A workshop held in Manila, the Philippines between 27 to 31 July 2009 was organised in the framework of the Asian Nuclear Safety Network (ANSN), to discuss the requirements for an off-site emergency and to assess the current status of the radiation emergency preparedness in the region. The meeting provided an opportunity to advance work by ARPANSA in strengthening regional emergency preparedness networks.

## COMPREHENSIVE NUCLEAR-TEST-BAN TREATY – AIR SAMPLING MONITORING STATIONS

As part of Australia's commitment to the Comprehensive Nuclear-Test-Ban Treaty, ARPANSA continued to operate and maintain radionuclide air monitoring stations at Melbourne, Perth, Townsville, Darwin, and the Cocos Islands, Australia, including two noble gas sampling facilities, co-located with the stations in Melbourne and Darwin. The two remaining stations to be installed are located at Macquarie Island and Mawson, Antarctic, and in December 2008, a contract for the installation of the Macquarie Island station was signed. In September, the equipment for the Macquarie Island installation was packed and transported to Hobart for shipping to Macquarie Island on the scheduled October voyage of the *Aurora Australis*.

In addition to operating the stations, ARPANSA also operates the Australian Radionuclide Laboratory, which has the role of testing samples obtained by other monitoring stations. The Laboratory operates under contract to CTBTO. ARPANSA continues to maintain a National Data Centre that provides advice to the Australian Safeguards and Non-Proliferation Office (ASNO) on any event detected by the CTBT radionuclide network that may be indicative of a nuclear weapon test explosion.

## Details of any breach of licence conditions by a licensee during the quarter, of which the CEO is aware

### BREACHES DETERMINED BY THE CEO

Licensee	Number	Nature of breach	Action
Australian Defence Force and Department of Defence (3 Combat Support Hospital, RAAF Richmond)	S0042	Breach of s 31(2) of the ARPANS Act by failing to comply with licence condition 1 which requires the licence holder to keep an up-to-date, accurate source inventory	No enforcement action required
Australian Defence Force and Department of Defence (RAN Diving School, HMAS Penguin)	S0042	Breach of s 31(2) of the ARPANS by failing to comply with licence condition 1 which requires the licence holder to keep an up-to-date, accurate source inventory	No enforcement action required
Australian Defence Force and Department of Defence (RAN Diving School, HMAS Penguin)	S0042	Breach of s 31(2) of the ARPANS Act by failing to comply with licence condition 5 which requires the licence holder to have appropriately documented policies and procedures in place, and to follow those procedures	No enforcement action required
Australian Defence Force and Department of Defence (RAN Diving School, HMAS Penguin)	S0042	Breach of s 31(2) of the ARPANS Act by failing to comply with licence condition 6 which requires the licence holder to comply with the relevant sections of the Standards and Codes of Practice	No enforcement action required
Australian Institute of Marine Science	S0007	Breach of s 31(1) of the ARPANS Act by dealing with controlled material without the appropriate licence	No enforcement action required. Remedial action has been taken to rectify the breach
Australian Institute of Marine Science	S0007	Breach of s 31(2) of the ARPANS Act by failing to comply with the relevant sections of the Standards and Codes of Practice	No enforcement action required. Remedial action has been taken to rectify the breach

<b>Licensee</b>	<b>Number</b>	<b>Nature of breach</b>	<b>Action</b>
Australian Sports Commission	S0208	Breach of s 31(1) of the ARPANS Act by dealing with controlled apparatus without the appropriate licence in place	No enforcement action required. Licence now in place
Australian War Memorial	S0080	Breach of s 31(2) of the ARPANS Act by failing to maintain an accurate and up-to-date source inventory	No enforcement action required
Australian War Memorial	S0080	Breach of s 31(2) of the ARPANS Act by failing to comply with licence condition 5 which requires the licence holder to have appropriately documented policies and procedures in place, and to follow those procedures	No enforcement action required
CSIRO Livestock Industries	S0022	Breach of s 31(2) of the ARPANS Act by failing to calibrate radiation monitors at the required frequency	No enforcement action required. Monitors have now been calibrated
CSIRO Mathematical and Information Sciences	No licence	Breach of s 31(1) of the ARPANS Act by being in possession of a class 3B laser without the appropriate licence in place	No enforcement required. Laser has been disposed of, and steps taken to prevent a similar occurrence
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by disposing of controlled apparatus and controlled material without prior approval in July 2007	No enforcement required. Details of the disposal have now been provided
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by disposing of controlled apparatus and controlled material without prior approval in March 2009	No enforcement required. Details of the disposal have now been provided
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by failing to submit a quarterly report for the period from 19/04/07 to 30/06/07 within the required time period	Report provided at a later date. No enforcement action necessary
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by failing to submit a quarterly report for the period from 1/07/07 to 30/09/07 within the required time period	Report provided at a later date. No enforcement action necessary

Licensee	Number	Nature of breach	Action
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by failing to submit a quarterly report for the period from 1/10/07 to 31/12/07 within the required time period	Report provided at a later date. No enforcement action necessary
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by failing to submit a quarterly report for the period from 1/04/08 to 30/06/08 within the required time period	Report provided at a later date. No enforcement action necessary
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by failing to submit a quarterly report for the period from 1/07/08 to 30/09/08 within the required time period	Report provided at a later date. No enforcement action necessary
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by failing to submit a quarterly report for the period from 1/10/08 to 31/12/08 within the required time period	Report provided at a later date. No enforcement action necessary
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the Act by failing to review plans and arrangements and advise the CEO of ARPANSA as required by regulation 50	No enforcement required as plans and arrangements have now been reviewed
Department of Infrastructure, Transport, Regional Development and Local Government	S0181	Breach of s 31(2) of the ARPANS Act by failing to comply with regulation 44 which requires the licence holder to take all reasonably practical steps to prevent breaches of licence conditions	Licence surrendered. No enforcement action necessary

## **A list of all facilities licensed under Part 5 of the *ARPANS Act* during the quarter**

There were no new facility licences issued during the quarter.

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

## **Radiation Health Committee**

The Committee met on 22 and 23 July at ARPANSA's Yallambie offices. A full summary of the meeting is available at [www.arpansa.gov.au/AboutUs/Committees/rhcmt.cfm](http://www.arpansa.gov.au/AboutUs/Committees/rhcmt.cfm).

The key matters discussed included:

- A revised draft of the Radiation Health Committee (RHC) Strategic Directions for the 2009-11 triennium. The Committee agreed that 'nationally uniform outcomes' was a key objective of the RHC and therefore an issues paper should be developed for the next meeting.
- Progress on the development of several draft amendments to the National Directory for Radiation Protection.
- Progress on the development of the Draft Radiation Protection Standard for Exposure Limits to Electric and Magnetic Fields 0 Hz - 3 kHz (the ELF Standard). The Committee considered a 'near-final' draft of the ELF Standard, which had been revised to incorporate feedback from Consultative Group members. The draft Standard will be reviewed by a technical editor. The consultant was preparing a final regulatory impact statement and industry and other costings were being obtained.
- Revision of *Recommendations for Limiting Exposure to Ionizing Radiation (1995) and National Standard for Limiting Occupational Exposure to Ionizing Radiation* (ARPANSA republished 2002) (RPS1). The Committee noted the proposed timelines for the development of the revised RPS1. The Committee requested that the membership of the Consultative Group be arranged, with key stakeholders and peak bodies to be included.

## **Nuclear Safety Committee**

The Committee did not meet during the quarter. The next meeting is scheduled to be held in February 2010.

## **Reports to the CEO from the RHSAC and NSC (paragraphs 20(f) and 26(1)(d) of the Act)**

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

## **Details of directions given by the Minister under Section 16**

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