



**Australian Government**  
**Australian Radiation Protection  
and Nuclear Safety Agency**



**Quarterly Report**

**of the**

**Chief Executive Officer of ARPANSA**

**April to June 2023**

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ARPANSA  
619 Lower Plenty Road  
Yallambie VIC 3085  
email: [info@arpansa.gov.au](mailto:info@arpansa.gov.au)

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### **Acknowledgement of Country**

ARPANSA respectfully acknowledges Australia's Aboriginal and Torres Strait Islander communities and their rich culture and pays respect to their Elders past and present. We acknowledge Aboriginal and Torres Strait Islander peoples as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely.

We recognise and value the ongoing contribution of Aboriginal and Torres Strait Islander peoples and communities to Australian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

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CanPrint Communications Pty Ltd  
16 Nyrang Street  
Fyshwick ACT 2609

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# Letter of transmittal

4 October 2023

The Hon Ged Kearney MP  
Assistant Minister for Health and Aged Care  
PO Box 6022  
House of Representatives  
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 directions given by the Minister to the CEO under section 16 of the Act
- details of directions given by the CEO under section 41 of the Act
- details of improvement notices given by inspectors under section 80A of the Act
- details of any breach of licence conditions by a licensee, of which the CEO is aware
- details of all reports received by the CEO from the Council and the NSC under Part 4, paragraphs 20(f) or 26(1)(d) of the Act, and
- a list of all 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 to 31 March 2023.

Please note that subsection 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

CEO of ARPANSA

## The operations of the CEO and ARPANSA

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is the Australian Government's primary authority on radiation protection and nuclear safety. Our purpose is to protect the Australian people and the environment from the harmful effects of radiation, through understanding risks, best practice regulation, research, policy, services, partnerships and engaging with the community.

ARPANSA sits within the Department of Health portfolio and has a single outcome, as set out in the 2022-23 Portfolio Budget Statements (PBS):

***Protection of people and the environment through radiation protection and nuclear safety research, policy, advice, codes, standards, services and regulation.***

The Radiation Protection and Nuclear Safety Program, contained within the 2022-23 PBS, describes four key performance measures, against which ARPANSA seeks to achieve its outcome. These measures are:

- Provide high quality advice to government and the community on health, safety and environmental risks from radiation.
- Provide emergency preparedness and response systems for a radiological or nuclear incident.
- Promote patient safety in radiotherapy and diagnostic radiology.
- Ensure protection of people and the environment through efficient and effective regulation.

The report on the operations of the CEO and ARPANSA focuses on these.

## **Provide high quality advice to government and the community on health, safety and environmental risks from radiation.**

### ***Enhanced Electromagnetic Energy (EME) Program***

In May, ARPANSA presented at Swinburne University on the scientific consensus that there are no established health effects from radio wave exposure below our safety standard, especially in relation to high frequencies that are being deployed by the 5G network. The talk forms part of the EME program's commitment to provide clear and reliable information to the Australian public.

Also in May, ARPANSA and Swinburne University of Technology published a systematic map of 334 papers investigating the effects of radio waves on animals and plants in the environment. It found that the majority of available studies are of poor quality, highlighting the need for high-quality research into the effects of radio waves from high-frequency wireless technology such as 5G on plants and animals.

## **Provide emergency preparedness and response systems for a radiological or nuclear incident**

### ***Response to situation in Ukraine***

This quarter, ARPANSA continued to provide advice to Government on the evolving radiation safety situation in the Ukraine. In June, ARPANSA undertook atmospheric modelling which supported the assessments of the risk associated with the Zaporizhzhia nuclear plant, as a result of the Kakhovka dam breach. ARPANSA as the Australian Government's primary authority on radiation protection and nuclear safety is designated as the National Competent Authority for radiation emergencies occurring both domestically and overseas.

### ***Fukushima Daiichi***

This quarter, ARPANSA provided advice to Government on the proposed plans to discharge treated wastewater from the Fukushima Daiichi Nuclear Power Plant (NPP). In 2011, the Fukushima Daiichi NPP site experienced irreparable damage to its reactor units and as a result, has been undergoing extensive decommissioning activities – including the removal of stored wastewater from the site. ARPANSA has been reviewing information released by Japan and the International Atomic Energy Agency (IAEA), who convened a Task Force made up of top specialists from within the IAEA and advised by internationally recognised nuclear safety experts from eleven countries. This included ARPANSA's Chief Radiation Health Scientist, Dr Rick Tinker. ARPANSA's advice to the Australian Government, including the Department of Foreign Affairs and Trade, was critical to understanding the potential impacts on Australia and the broader region, as well as shaping our foreign policy response to the issue.

## **Promote patient safety in radiotherapy and diagnostic radiology**

### ***Primary Standards Dosimetry Laboratory***

This quarter, the laboratory made changes to the procedure for irradiating personal dosimeters with a known radiation dose and developed new irradiation services especially for eye dose. This means that personal monitoring services can test their equipment and make their services traceable to Australian primary standards of radiation measurement. The result is more accurate dosimetry for occupational exposure to radiation.

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

The quarter, ARPANSA updated our website to capture the national dataset of ACDS audit results, including all audit data, up to June 2023. The national dataset assists radiotherapy facilities in benchmarking their performance with other facilities with similar resources. The update to the national dataset now includes data from comprehensive audits of stereotactic ablative body radiotherapy (SABR). The SABR audit measures and evaluates dose for high-dose treatment delivery techniques where there is an increased likelihood and consequence of adverse effects from incorrect treatment delivery. The ACDS audit program measures and evaluates the radiation dose delivered by radiation oncology treatment machines, giving confidence to the facility and their patients that accurate radiation doses are delivered.

## **Ensure protection of people and the environment through efficient and effective regulation**

### ***Significant regulatory activities***

ARPANSA routinely assesses licence applications and requests for approval to make changes to facilities and associated activities which may have significant implications for safety. ARPANSA's independent assessment and oversight of these changes provides assurance that the facilities are operated safely in compliance with the Act and in consideration of best practice in radiation protection and nuclear safety.

ARPANSA approved the following changes with significant implications for safety, under section 63 of the Regulations:

- Two requests for the characterisation of intermediate level liquid waste generated by the Australian Nuclear Science & Technology Organisation (ANSTO) Nuclear Medicine facility. Characterisation identifies the chemical composition of the waste and is important to ensure that it is compatible with the Synroc for Molybdenum (SyMo) process. This liquid waste will be processed into an immobilised solid form at ANSTO SyMo waste facility, which is currently under construction. Immobilisation of radioactive waste reduces the potential for migration or dispersion of radionuclides after its disposal.
- A request to modify OPAL Reactor Operating Limits and Conditions (OLC). The application of OLCs ensures that the reactor operates within the limits, is demonstrated to be safe by the OPAL reactor's safety case. The change improved operational flexibility, without undermining safety, by consolidating and streamlining the existing OLCs related to the active ventilation system.

An exemption was granted to ARPANSA's Medical Radiation Services (MRSB) for the decommissioning licence for a linear accelerator. The subsequent application to operate a new, replacement linear accelerator was assessed and granted in May. To provide independent input and oversight, the review and approval of these applications was performed with the assistance of the Tasmanian State regulator.



## ***Inspections***

ARPANSA conducted 14 inspections this quarter. ARPANSA undertakes a program of scheduled inspections of licence holders to monitor compliance with the Act and the ARPANS Regulations. Finalised inspection reports can be found at: [www.arpansa.gov.au/regulation/inspections/reports](http://www.arpansa.gov.au/regulation/inspections/reports).

## ***Stakeholder engagement***

ARPANSA is open and transparent in its regulation of licence holders and recognises that effective communication is important to deliver good safety outcomes. Notable engagement activities included:

- Collaborating with the Australian Safeguards and Non-Proliferation Office (ASNO) on the assessment of the Australia's Open Pool Australian Lightwater (OPAL) Reactor Periodic Safety and Security Review submission. The OPAL reactor carries out the review every 10 years according to the respective licence condition. The regulatory review assures safety and security of the plant have been carried out according to appropriate standards.
- During this quarter, a meeting was held between ANSTO and ARPANSA to provide an update on the progress of significant ANSTO projects, concentrating on the mitigation and rectification options for a previously reported mechanical defect in the OPAL Reactor Riser. ANSTO has previously shown to ARPANSA's satisfaction that the current configuration of the riser does not present an operational safety concern. However, the ongoing management of the defect has implications for reactor availability and options for its resolution involve structures, systems, and components important to safety and for radiation protection of workers.

### ***Radioactive material import and export permits***

The import and export of radioactive material to and from Australia requires permission under Regulation 4R of the Customs (Prohibited Imports) Regulations 1956 and Regulation 9AD of the Customs (Prohibited Exports) Regulations 1958. Under these regulations, ARPANSA officers are authorised to issue import and export permits.

Permits issued this quarter:

<b>Type of permits</b>	<b>Urgent (Single shipment)</b>	<b>Standard (Single shipment)</b>	<b>12 months</b>
Import of non-medical radioisotope	43	53	4
Import of medical radioisotope	0	141	8
Export of high activity source	0	11	0

### ***Transport of radioactive material***

This quarter, ARPANSA validated two transport security plans. Under the Code of Practice for the Security of Radioactive Sources (RPS 11, 2019), security-enhanced sources are assessed to ensure the security considerations, including the transport arrangements and route, are suitable for the shipment.

ARPANSA also validated two Type B(U) packages this quarter. One package will be used for transporting radiopharmaceuticals generated by ANSTO Health Products and the other is for cesium-137.

## **Details of directions given by the Minister under section 16 of the Act**

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

## **Details of directions given by the CEO under section 41 of the Act**

No directions were given by the CEO under section 41 of the Act.

## **Details of improvement notices given by inspectors under section 80A of the Act**

No improvement notices were issued by ARPANSA under section 80A of the Act.

## **Details of any breach of licence conditions by a licensee**

ARPANSA publishes performance history of licence holders on the ARPANSA website: [www.arpansa.gov.au/regulation-and-licensing/regulation/our-regulatory-services/who-we-regulate/licence-holder-performance](http://www.arpansa.gov.au/regulation-and-licensing/regulation/our-regulatory-services/who-we-regulate/licence-holder-performance).

There was one breach confirmed this quarter with minor safety implications or administrative failures to meet regulatory requirements:

- ANSTO self-reported a failure to comply with the licence conditions of the ANSTO Centre of Accelerator Science, under section 57A and section 60 of the ARPANS Regulations, which is related to the prevention of human error and organisational failures, and management of safety. The breach was associated with a scientific procedure, undertaken in November 2022, that was outside the scope of the entity's safety case.

## Facilities licensed under Part 5 of the ARPANS Act this quarter

ARPANSA issued a facility licence to ARPANSA Medical Radiation Services (MRSB) to authorise operation of the Elekta Versa HD linear accelerator subject to the conditions stated in the licence limiting operations to hot commissioning. The recently decommissioned Elekta Synergy linear accelerator was removed and replaced by the new accelerator, which will allow the ACDS to continue to perform their work as part of the MRSB.

## The operations of the Council and Committees

### Radiation Health and Safety Advisory Council

The Radiation Health and Safety Advisory Council (the Council) did not meet this quarter.

Minutes of Council meetings are available at [www.arpansa.gov.au/rhsac](http://www.arpansa.gov.au/rhsac). The next Council meeting is scheduled for 10 – 11 August 2023.

### *Reports to the CEO from the Council under paragraph 20(f) of the Act*

No reports were received from the Council this quarter.

### Radiation Health Committee

The Radiation Health Committee (RHC) met on 5 April 2023 via videoconference.

The RHC discussed emerging lessons learned from ongoing review of the lost source incident which occurred in Western Australia in January 2023. Preparations for the October 2023 follow-up Integrated Regulatory Review Service mission to Australia by the International Atomic Energy Agency were discussed. The RHC noted for out of session review a draft statement to align some regulatory definitions across jurisdictions.

The minutes of previous meetings are published online at [www.arpansa.gov.au/rhc](http://www.arpansa.gov.au/rhc). The next meeting of the RHC is scheduled for 27 July 2023.

### Nuclear Safety Committee

The Nuclear Safety Committee (NSC) did not meet during the quarter.

The minutes of the meeting are available at [www.arpansa.gov.au/nsc](http://www.arpansa.gov.au/nsc). The next meeting of the NSC is scheduled for 20 July 2023.

***Reports to the CEO from the NSC under paragraph 26(1)(d) of the Act***

No reports were provided during this quarter.