



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



Quarterly Report
of the
Chief Executive Officer of ARPANSA
July to September 2023

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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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Letter of transmittal

December 6, 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 July to 30 September 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

Rick Tinker
Acting 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 2023-24 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 2023-24 PBS, describes 4 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 September, ARPANSA published a study in Sax Institute's journal *Public Health Research and Practice* which evaluated two of the EME program's community engagement activities. The study found that our health complaints register, established in 2003, was poorly utilised and did not assist in addressing community concerns when compared to our Talk to a Scientist service. Our Talk to a Scientist's success can be attributed to our experts engaging in a two-way dialogue with the community, where people can have their concerns heard and resolved by a radiation protection specialist.

In August, ARPANSA hosted a delegation from Japan's Mitsubishi Research Institute. This meeting was an opportunity to share our work and understand how Japanese authorities inform their citizenry and protect them from EME. Building and maintaining relationships with experts abroad allows us to build new knowledge and contribute to international best practice on EME measurement, safety standards, risk communication and research.

Researchers at Swinburne University have commenced a study at our newly opened anechoic chamber. They are collaborating with scientists at ARPANSA to understand the health effects of exposure to wireless technology above 6 GHz, which is the frequency range that the 5G network operates in.

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

Missing source in South Australia

The Environmental Protection Agency South Australia (EPA SA) was notified on the afternoon of Thursday 28 September by OneSteel Manufacturing Pty Ltd (trading as Liberty OneSteel) that an industrial bin level gauge containing a radiation source had been misplaced at its Whyalla plant. EPA SA is the lead agency and regulator for this incident.

ARPANSA was notified by EPA SA on 29 September 2023. ARPANSA also received a request by EPA SA for support in the form of a deployment of experts and specialised detection equipment to assist in the search for the missing item. ARPANSA responded to the request for assistance in the October 2023 quarter.

Promote patient safety in radiotherapy and diagnostic radiology

Primary Standards Dosimetry Laboratory

A new linear accelerator (linac) was installed after significant upgrades to the laboratory space in which it is housed. The new linac is identical to those used to deliver radiotherapy in hospitals, and will be used to calibrate radiation-measuring equipment and help design audits to evaluate the quality of radiotherapy delivered in Australian hospitals.

Australian Clinical Dosimetry Service (ACDS)

The ACDS conducted 29 dosimetry audits of radiotherapy facilities in the quarter, comprising 19 mailout audits and 10 onsite audits. Regular dosimetry audits contribute to frameworks for patient safety in radiotherapy.

Medical Imaging

ARPANSA's National Diagnostic Reference Level Service (NDRLS) received 1,407 surveys of patient dose in computed tomography (CT) scans during the quarter, bringing the cumulative total for the 2023 calendar year to 2,493. NDRLS surveys, completed by participating imaging facilities, collect data on metrics for patient dose from ionising radiation in diagnostic imaging, particularly for CT. ARPANSA uses this data to calculate Australian diagnostic reference levels (DRLs) for common types of CT scans, which in turn provide a point of comparison so a given imaging facility can compare their practice with that of their peers.

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:

- Request to modify the Active Ventilation System (AVS) for the Australian Nuclear Science and Technology Organisation (ANSTO) Nuclear Medicine (ANM) facility by incorporating a new standby pathway to reduce pressure on the system and increase the operational safety margin.
- Request to implement a medium-term management solution for ANSTO's Little Forest Legacy Site (LFLS) and the periodic review and update of the LFLS Safety Analysis Report. The change involves constructing a temporary water-proof capping membrane for the medium-term management of the LFLS.

Inspections

ARPANSA conducted one inspection 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.

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 are as follows.

- ARPANSA attended a stakeholder engagement event organised by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of the CSIRO Contaminated Waste Remediation Pilot

Project (Pilot Project), Woomera, South Australia. The Pilot Project is subject to a regulatory approval issued in March 2023 under section 63 the Australian Radiation Protection and Nuclear Safety Regulation 2018. The approval authorised the safe removal of a representative sample of waste drums and the evaluation of work methods and processes to safely handle, characterise and dispose or recycle the waste material. Information from the Pilot Project will be utilised to inform CSIRO's full-scale remediation project.

- ARPANSA is engaging in public consultation on the updated A1 and A2 values (the activity value of radioactive material) for the latest revision (Rev.2) of the IAEA Regulations for the Safe Transport of Radioactive Material. The A1 and A2 values tabulated in the IAEA transport regulations SSR-6 (Rev.1) have been determined to limit the contents of packages so that *"the radiological consequences following failure of the package after an accident are deemed to be acceptable, within the principles of radiological protection, following failure of the package after an accident"*. Updated A1 and A2 values will be incorporated into the latest revision of the IAEA Regulations for the Safe Transport of Radioactive Material. The Australian Code for the Safe Transport of Radioactive Material (RPS C-2, Rev.1) will adopt the latest revision of the IAEA Transport Regulations once they are published. Public consultation closes on 20 October 2023.
- ARPANSA attended an information session for stakeholders and permit issuing authorities held by the Australian Border Force (ABF) on border controls reform to permits and other border controls. Part of the session covered a proposed interim digital solution, specifically a common capability for permit issuing agencies to digitise their issued permits, and for the digital verification of these permits when they are used. ARPANSA will monitor further developments and opportunities in relation to the ABF reform agenda.
- ARPANSA attended the National Radioactive Waste Management Facility (NRWMF) Interdepartmental Committee (IDC) Meeting and discussed the updates on NRWMF activities.
- ARPANSA participated as an advisor during a Comcare inspection at Sydney International Airport. An advisory report was provided to Comcare detailing an assessment of the X-ray unit against the relevant national radiation standard. The collaboration was an example of two regulators working together with the aim of improving safety.

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:

Type of permits	Urgent (Single shipment)	Standard (Single shipment)	12 months
Import of non-medical radioisotope	52	53	7
Import of medical radioisotope	0	134	7
Export of high activity source	9	0	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.

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.

There were 2 breaches with significant safety implications this quarter:

- ANSTO's Australian Centre for Accelerator Science was found in breach of the Act for failing to comply with conditions of their licence by not taking reasonably practicable steps to prevent human and organisational failures and to manage safety. ANSTO failed to comply with Regulations 57A and 60 when it deviated from standard operating procedures and adherence to radiation protection requirements. ARPANSA placed additional conditions on the operating licence to restrict specific experiments until such time as ANSTO has updated its safety case to cover those experiments.
- ANSTO Health Products was found to be in breach of the Act for failing to comply with subsection 60(1) of the Regulations in relation to failing to take all reasonably practicable steps to manage the safety of the facility and preventing human and organisational failures as required by their licence. ANSTO failed to properly monitor the status of its intermediate and low-level liquid waste tanks. ANSTO has confirmed that the tanks are not leaking and undertook to restore the full functionality of its waste tank monitoring system. ARPANSA is maintaining oversight of the corrective actions to ensure that it is dealt with in a timely manner.

There were 2 breaches confirmed this quarter with minor safety implications or administrative failures to meet regulatory requirements:

- The Commonwealth Bureau of Meteorology (BOM) was found to be in breach of the Act for failing to comply with conditions of their licence. It was identified that the BOM had failed to review and update plans and arrangements for managing the safety of sources as required by subsection 61(1) of the Regulations and failed to comply with the condition to ensure persons who deal with sources authorised by the licence receive appropriate training in radiation safety.
- ANSTO's Australian Centre for Neutron Scattering was found to be in breach of the Act for failing to comply with subsection 61(1) of the Regulations in relation to the review and update of plans and arrangements for managing the safety of sources under their licence. The Regulation is designed to ensure that arrangements to manage safety are maintained to reflect current standards and best practice.

Facilities licensed under Part 5 of the ARPANS Act this quarter

There were no facility licences issued this quarter.

The operations of the Council and Committees

Radiation Health and Safety Advisory Council

The Radiation Health and Safety Advisory Council (the Council) met on 10 – 11 August 2023 in Canberra.

The meeting was opened by Assistant Minister Ged Kearney at the opening of the new term of the Council, followed by a review of issues highlighted by the previous term. The Council received presentations from health industry professionals regarding incomplete national uniformity in radiation protection regulations, followed by further discussion of this issue. The Council discussed emergency preparedness and response in relation to radiological incidents in Australia and areas in which there are opportunities for improvement. The Council also discussed the need for growth in Australia's radiation protection workforce and current challenges in this area. The UN Sustainable Development Goals in relation to radiation protection were discussed by the Council and it was noted this is a growing area of interest internationally.

Minutes of Council meetings are available at www.arpansa.gov.au/rhsac.

The next Council meeting is scheduled for 11 December 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 27 July 2023 in Fremantle.

The RHC received presentations on investigation findings from the lost source incident which occurred in Western Australia in January 2023 and discussed these findings in relation to radiation safety regulation. The RHC discussed radiation protection regulation related to initial implementation of the nuclear-powered

submarine program, including implications for the Australian codes and standards framework for radiation protection and updates to part of the Radiation Protection Series (RPS). Preparations for the International Atomic Energy Agency Integrated Regulatory Review Service follow-up mission in October 2023 were discussed. The RHC received updates from working groups reviewing several areas of regulatory guidance as well as discussion regarding several items of new draft regulatory guidance. National regulatory knowledge exchange was undertaken with a discussion of an overview of radiation safety regulatory systems and operations in Western Australia and an overview of some regulatory decisions in Western Australia.

The minutes of previous meetings are published online at www.arpansa.gov.au/rhc.

The next meeting of the RHC is scheduled for 14 November 2023.

Nuclear Safety Committee

The Nuclear Safety Committee (NSC) met on 20 July 2023 in Sydney.

Topics discussed during the meeting included advance reference material for the upcoming IAEA Integrated Regulatory Review Service follow-up mission that examined Australia's implementation of recommendations arising from a mission to Australia in 2018. Matters associated with nuclear installations were discussed, including how ARPANSA may approach some previously identified defects to the ANSTO OPAL reactor and associated safety system upgrades.

The minutes of the meeting are available at www.arpansa.gov.au/nsc.

The next meeting of the NSC is scheduled for 16 November 2023.

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

No reports were provided during this quarter.