



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



Quarterly Report

of the

Chief Executive Officer of ARPANSA

January to March 2022

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ARPANSA
619 Lower Plenty Road
Yallambie VIC 3085
email: info@arpansa.gov.au

Further information about this publication

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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

20 July 2022

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

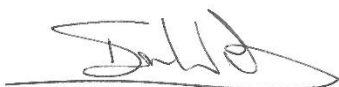
The *Australian Radiation Protection and Nuclear Safety Act 1998* (the Act) requires the Chief Executive Officer (CEO) of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) to submit to the Minister, at the end of each quarter, a report on:

- 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
- 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 January to March 2022.

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



Ivan Williams
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 2021-22 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 2021-22 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

Skin Cancer Prevention

In March, ARPANSA published a review on the effectiveness of sunscreen in a skin cancer prevention special edition, of the journal *Public Health Research and Practice*. This review shows that sunscreen is safe to use and, when applied correctly, reduces the risk of skin cancer and sunburn. ARPANSA co-sponsored this special edition of the journal, recommending continued regulation and long-term skin cancer prevention policies and programs to promote effective use of sunscreen and other sun protection measures.

More information can be found at www.arpansa.gov.au/news/study-shows-sunscreen-saves-skin.

Enhanced Electromagnetic Energy (EME) Program

ARPANSA staff attended the New Zealand Interagency Committee on the Health Effects of Non-Ionising Fields. This technical advisory committee monitors and reviews research on the health effects of electromagnetic fields and ensures that ARPANSA can advise government informed by international best practice.

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

Incident Management Team Response to Ukraine Conflict

Following the commencement of conflict in Ukraine, ARPANSA activated an Incident Management Team (IMT) from 24 February to 31 March to respond to the potential radiological/nuclear implications that could arise from the conflict. The response was undertaken concurrently within regular business and was aimed at supporting the Australian Government's response as led by the Department of Foreign Affairs and Trade. ARPANSA obtained information through international partners such as International Atomic Energy Agency (IAEA) and World Health Organization (WHO) and undertook technical modelling and assessments of the situation.

Emergency preparedness and response desktop exercise

ARPANSA held a series of meetings to explore conducting an Australian emergency preparedness and response desktop exercise which will be hosted with the USA's National Nuclear Security Administration Office of Radiological Security. Working with international and domestic counterparts, the exercise will provide an opportunity for the Commonwealth and a State Government to test the plans and arrangements for a radiological emergency in Australia.

Promote patient safety in radiotherapy and diagnostic radiology.

Medical Imaging (MI)

In January, ARPANSA finalised the *National Diagnostic Reference Level Service Year in Review 2020*. The publication summarised data collected by the National Diagnostic Reference Level Service (NDRLS) in 2020.

The analysed data identified a reduction in dose per procedure, for all measured procedures. This information helps to avoid excessive radiation dose to patients from medical imaging. The NDRLS Year in Review 2020 can be found at: www.arpansa.gov.au/sites/default/files/arpansa_tr187.pdf.

Primary Standards Dosimetry Laboratory (PSDL)

ARPANSA commenced “Key Comparisons” of ionising radiation standards, for megavoltage linear accelerator photons and low energy kilovoltage X-rays. The Key Comparison is a scientific exercise to establish the equivalence of radiation measurements in Australia with those overseas.

ARPANSA’s dosimetry calibration services calibrated 7 ionisation chambers for 5 radiotherapy facilities and an on-site X-ray source calibration performed for a skin clinic. These calibrations ensure patients receive the correct dose of radiation.

Australian Clinical Dosimetry Service (ACDS)

ARPANSA’s Australian Clinical Dosimetry Service (ACDS) audit program continued full-service delivery, completing the quarterly on-site and remote mail-out audit schedule. The 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.

ARPANSA hosted the ACDS Stakeholder Engagement Meeting with representation from government, patient advocacy groups, subscribing facilities, and representatives from professional bodies.

ARPANSA is working with the IAEA and dosimetry auditors globally to develop a world-first film dosimetry intercomparison tool. The intercomparison tool will enhance the quality and certainty of results in film dosimetry comparison for radiation auditors around the world.

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 approved the following safety significant changes:

- ARPANSA approved a request from ANSTO to modify the Australian Synchrotron imaging and medical beamline. ANSTO will install additional safety systems important to the conduct of breast Computed Tomography (CT) imaging for research using human volunteers. A separate request to approve the use of human volunteers for research projects is expected soon.
- ARPANSA approved a request from ANSTO to amend the safety analysis report for the Open Pool Australian Lightwater (OPAL) reactor. The amendment allowed the reactor’s control rod guide box (CRGB) to comply to a different class of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC). The request was made after it was found that the original part did not meet the specification. ARPANSA used an independent expert to verify the conclusions

of the regulatory assessment and determined that in meeting the revised code, the CRGB would continue to meet the original design basis for nuclear safety and is still fit for service.

- ARPANSA approved a request from ANSTO to install equipment important to safety at the SyMo waste processing facility which is currently under construction. The requested equipment is part of the “back-end” processes that convert the solidified liquid waste into an immobilised synthetic rock structure, making it suitable for long term storage and disposal.
- ARPANSA approved a request to carry out radiological characterisation work on legacy radioactive sources owned by Commonwealth Scientific and Industrial Research Organisation (CSIRO). This work will provide important information about the sources and the status of their containers, including contamination checks. Where required, sources will be repackaged to allow for storage, transport or disposal as appropriate.

As part of a multi-agency process, ARPANSA oversaw the transport of intermediate level solid radioactive waste from Port Kembla in NSW to the ANSTO intermediate waste store in Sydney. The waste will be stored at ANSTO temporarily, pending construction of a national radioactive waste management facility for longer-term storage prior to separate disposal. The waste was reprocessed nuclear fuel from the now permanently shut down High Flux Australian Reactor (HIFAR) reactor. Following reprocessing in the UK, the waste was returned in a TN81 storage/transport container.

ARPANSA granted an exemption to CSIRO, regarding the requirement to obtain prior approval for sale and transfer of a medical isotope (Pb-212), where certain requirements are met. This allows for the timely supply of nuclear medicine that can be used as part of cancer treatment.

Inspections

ARPANSA conducted six inspections during the quarter. ARPANSA undertakes a program of scheduled inspections of licence holders to monitor compliance with the Act and the ARPANS Regulations. The scope and frequency of inspections is risk-informed, accounting for a range of factors including licence holder safety performance. Inspections play an important part in ARPANSA's compliance and performance monitoring program providing assurance that licence holders are operating safely. The inspection reports can be found at: www.arpansa.gov.au/regulation/inspections/reports.

Stakeholder engagement

ARPANSA has continued international meetings to explore practical implementation of human and organisational factors and other regulatory approaches to safety. Meetings have been held with the Swedish Radiation Safety Authority (Sweden), the Office for Nuclear Regulation (United Kingdom), the United States Nuclear Regulatory Commission (United States of America) and the Radiation and Nuclear Safety Authority (Finland).

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	43	44	3
Import of medical radioisotope		116	5
Export of high activity source		12	

Transport of radioactive material

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 validated three transport security plans this quarter (including the container for the shipment of repatriated radioactive waste from UK reprocessing mentioned above).

Details of directions given by the Minister under section 16 of the Act.

No directions were given by the Minister

Details of directions given by the CEO under section 41 of the Act.

No directions were given by the CEO

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

No improvement notices were issued by ARPANSA

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 are no breaches to be reported this quarter.

Facilities licensed under Part 5 of the ARPANS Act this quarter

The CEO of ARPANSA issued a licence to ANSTO to prepare a site for a nuclear installation. The facility will be known as the Intermediate Level Waste Capacity Increase store. This facility is proposed to allow temporary additional storage of intermediate level solid waste from the production of nuclear medicine and research until 2037. The current storage facility is predicted to reach capacity by 2027.

The operations of the Council and Committees

Radiation Health and Safety Advisory Council

The Radiation Health and Safety Advisory Council (the Council) met on the 3 and 4 March in Adelaide. This was their first in person meeting since the start of the Covid 19 pandemic.

The Council met with representatives from the Australian Radioactive Waste Agency (ARWA) to hear an update on the proposed National Radioactive Waste Management Facility (NRWMF). It also toured the site of the South Australian Health and Medical Research Institute (SAHMRI) and attended presentations given by representatives from the Molecular Imaging and Therapy Research Institute (MITRU), the Australian Bragg Centre for Proton Therapy and Research and the Space Agency.

The Council also heard a presentation from Rear Admiral the Honourable Kevin Scarce, the Chair of the 2015 South Australian Nuclear Fuel Cycle Royal Commission.

The minutes of the meeting are provided online at www.arpansa.gov.au/rhsac. The next meeting is scheduled for 16 June 2022 at ARPANSA's Yallambie site.

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

The Council did not provide any reports to the CEO during this quarter.

Radiation Health Committee

The Radiation Health Committee (RHC) met virtually on 11 March 2022.

The RHC reviewed its program of work for the year ahead. It noted progress on the public consultation to incorporate updated dose conversion factors from the updated International Commission of Radiological Protection (ICRP) Occupational Intakes of Radionuclides (OIR) Series. The updating of the ICRP OIR means that key Australian radiation protection documents which ARPANSA publishes are now out of date, and adoption of the updated ICRP values brings Australia in line with international best practice.

The RHC received a brief update on public consultation feedback received on the draft Compliance Testing Standard. Compliance testing, to confirm the radiation safety and performance of diagnostic and interventional X-ray units, is carried out to various extents in all jurisdictions. The results of the tests can be used by regulators as a basis for registering the units or for authorising use.

The RHC was introduced to the work of the Australian Commission on Safety and Quality in Health Care (ACSQHC), to understand its role in medical radiation safety. An overview was also given of new Australian Clinical Dosimetry Service audits being offered next financial year.

The minutes of the meeting are provided online at: www.arpansa.gov.au/rhc. The next RHC meeting is scheduled for 26 May at ARPANSA's Yallambie site.

Nuclear Safety Committee

The Nuclear Safety Committee (NSC) met virtually on 25 February 2022. Topics discussed included the forthcoming decision on a new radioactive waste storage facility at ANSTO and updated information of other ASSTO facilities including the OPAL Reactor, ANSTO Nuclear Medicines and ANSTO Health facilities

The minutes of the meeting are provided online at www.arpansa.gov.au/nsc. The next meeting of the NSC is scheduled for 10 June 2022.

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

The NSC did not provide any reports to the CEO during this quarter.