

The logo consists of the letters 'RAC' in a bold, white, sans-serif font, rotated 45 degrees counter-clockwise. It is positioned on a dark orange diamond-shaped background that is part of a larger graphic design of overlapping geometric shapes in shades of orange and light orange.

RADIATION ADVISORY COUNCIL

ANNUAL REPORT 2018-19

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The Honourable Matt Kean MP
Minister for Energy and Environment

Dear Minister

It is my pleasure to forward to you for presentation to the Parliament of New South Wales the Annual Report of the Radiation Advisory Council for the period 1 July 2018 to 30 June 2019.

This report is prepared in accordance with the provisions of the *Radiation Control Act 1990*.

Asela Atapattu
Chairperson, Radiation Advisory Council
7 November 2019

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Chairperson's review

The Radiation Advisory Council provides advice to the Minister for Energy and Environment (formerly Minister for the Environment) and the NSW Environment Protection Authority (EPA) on technical and policy matters in relation to the management of radiation in NSW. This is within the parameters of the *Radiation Control Act 1990* (the Act) and the Radiation Control Regulation 2013 (the Regulation).

During the 2018-19 reporting period, the Council saw the appointments of Ms Ellen Rawstron (nominee of the Ministry of Health), Dr Dion Forstner (radiation oncologist) and Mr Luke Platt (diagnostic radiographer); and the re-appointment of Dr Hugh Dixon (nuclear medicine physician) and Dr Philip Pasfield (radiologist) to the Council.

The Council acknowledges the contribution and service to the Council of retiring members Mr Glen Burt (diagnostic radiographer) and Dr Mary Dwyer (radiation oncologist).

During the reporting period, the Council held six meetings and provided the EPA with policy and regulatory advice on the administration of the Act and a wide range of radiation matters.

The Council's work and activities during the reporting period included:

- consideration of national uniformity initiatives and Radiation Health Committee recommendations
- review of revised National Directory for Radiation Protection (NDRP)
- keeping informed on progress of the International Atomic Energy Agency (IAEA) Integrated Regulatory Review Services Mission to Australia. In November 2018, Australian jurisdictions took part in a regulatory benchmarking exercise of Australia's regulatory framework for radiation protection against IAEA safety standards.
- establishment of the Review Committee to consider the EPA radiation program. The Council at its June 2019 meeting reviewed and endorsed the NSW radiation program including the NSW radiation strategy 2019-2025.
- establishment of a committee to consider management of cosmetic users of lasers and intense pulse light devices in NSW. The Council noted the slow progress being made due to the difficulty in government agencies being able to compile data on accidents/incidents in this area. The Council is to consider the committee's term of reference and membership in the next period.
- review of the work of the Council's Course and Competency Committee. The Council endorsed the Committee's recommendations regarding 50 radiation user licensing courses submitted to the EPA.
- review and consideration of EPA radiation compliance activities
- a tour of Macquarie University Hospital radiation facilities (gamma knife, PET/CT suites and cyclotron) to provide Council members from varying professional backgrounds an opportunity to observe and inform themselves of the various radiation activities at sites that are outside their areas of expertise.

During the reporting year, the Council also provided advice to the EPA on a wide range of radiation matters including:

- radiation licensing (user and management licences)
- assessment of radiation safety courses for licensing and accreditation purposes
- accreditation of CREs and radiation security assessors
- review of radiation accidents and incidents.

The Council's work continues to focus on its strategic direction 2016-19 objectives, including:

- development of uniform regulatory initiatives through the National Director for Radiation Protection (NDRP)
- review and provision of advice to the EPA and the Minister on the remake of the Regulation (postponed to 1 September 2019).
- identifying and addressing emerging issues in radiation protection - new technology

- identifying procedures and requirements to prevent or minimise dangers arising from the misuse of radiation sources, specifically influencing better reporting of radiation accidents through education, emphasising responsiveness and prevention.

In the year ahead, the Council's work will focus primarily on:

- review of, and contribution to, national codes and standards in the NDRP and the Radiation Health Committee initiatives
- the possible remake of the Regulation
- provision of advice to the EPA on licensing, accreditation, safety courses, and radiation accidents
- development and implementation of an accreditation system for CREs engaged in design and assessment of shielding for premises
- review of the work of the Council's committees.

I sincerely wish to thank all members of the Council for their contribution and commitment to radiation safety in NSW.

I would also like to acknowledge the work of EPA staff in supporting the Council.

Asela Atapattu

Chairperson

Radiation Advisory Council

Responsibilities of the Council

The Radiation Advisory Council is established under section 29 of the *Radiation Control Act 1990* (the Act). The Act and the Radiation Control Regulation 2013 (the Regulation) are administered by the Minister for Energy and Environment through the NSW Environment Protection Authority (EPA).

Appendix 1 outlines the objects of the Act.

Annual report of the Council

Section 33(1) of the Act requires that 'as soon as practicable after 30 June (but on or before 31 December) in each year, the Council is to prepare and forward to the Minister a report of its work and activities for the 12 months ending on 30 June in that year'.

Constitution of the Council

The Council consists of 17 members appointed by the Minister as outlined in Appendix 2.

Functions of the Council

Section 30 of the Act prescribes the functions of the Council, namely:

1. The Council is to advise the Minister on:
 - a. proposed amendments to this Act and the making, amendment or repeal of regulations under this Act
 - b. the administration of this Act and the regulations
 - c. measures to prevent or minimise the dangers arising from radiation
 - d. the granting of exemptions authorised by the regulations for periods exceeding 60 days, and
 - e. such other matters relating to radiation safety as the Minister considers appropriate.
2. Any such advice may be given either at the request of the Minister or without any such request.
 - a. The Council may at any time, and must on the request of the Authority, provide advice to the Authority about licences and accreditations under Part 2 of the Act.
 - b. The advice provided to the Authority may be general or specific, as the circumstances require.
3. The Council has such other functions as are conferred or imposed on it by or under this or any other Act.

The EPA exercises responsibilities and powers under the Act and the staff of the EPA Hazardous Materials, Chemicals and Radiation Section provide secretariat support to the Council.

Meetings of the Council

During the reporting period ending 30 June 2019, the Council met on six occasions. The attendances of members at meetings during this period are shown in Appendix 3.

MoU between the EPA and the Council

The Memorandum of Understanding (MoU) between the EPA and the Council is reviewed every three years. The current MoU was signed by both parties on 30 June 2016 and is provided in Appendix 4. The Council will be reviewing the MoU in the next period.

The Council's strategic direction

The Council endorsed its strategic direction for 2016–19 in October 2016. The objectives of the Council over these three years will continue to focus on:

- development of uniform regulatory initiatives through the National Directory for Radiation Protection (NDRP) by reviewing national codes and standards and identifying regulatory gaps that may need to be addressed.
- reviewing and providing advice to the Minister on the possible remake of the Regulation. On 29 January 2018 the Minister sought approval from the NSW Premier, Gladys Berejiklian to postpone the remake of the Regulation to 1 September 2019.
- identifying and addressing emerging issues in radiation protection (e.g. new technology).
- identifying procedures and requirements to prevent or minimise dangers arising from the misuse of radiation materials.

The Council will be reviewing its strategic directions document in the next period.

The Council's work

During the reporting period, the Council focused on the following matters.

National uniformity

The Australian Health Ministers' Conference (AHMC), held in August 1999, agreed to national uniformity for radiation protection through each jurisdiction's radiation protection framework.

The Radiation Health Committee (RHC) is responsible for the development of national uniformity for radiation protection in Australia through the National Directory for Radiation Protection (NDRP). The EPA is represented on the RHC. The RHC role is to advise the CEO of Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and the Radiation Health and Safety Advisory Council on matters relating to radiation protection, including formulating draft national policies, codes and standards for consideration by the Commonwealth, states and territories.

The RHC and the development of the NDRP is facilitated by the ARPANSA.

The Council at its April 2019 meeting was advised that the RHC considered advice from the Commonwealth Department of Health that discussions on national uniformity have commenced through

the Environmental Health Standing Committee (enHealth), with a view to present a paper through the Australian Health Protection Principal Committee (AHPPC) to the Australian Health Ministers' Advisory Council (AHMAC) for consideration. The AHPPC and enHealth are expected to take a greater role in governance of the NDRP and national uniformity in radiation protection under proposals currently being considered by the Commonwealth.

The greater role by enHealth and AHPPC is because radiation regulation in all jurisdictions except for NSW and South Australia falls under the responsibility of states' Department of Health.

States and territories are being consulted primarily through enHealth and RHC on this proposal. The Council was advised that a workshop is planned for later in 2019 and that the EPA is consulting with NSW Health (which represents NSW on AHPPC and enHealth).

Radiation Health Committee

During the reporting period, the Council was advised that the RHC met on 17-18 July 2018, 9-10 October 2018 and 12-13 March 2019. The Council was kept informed of RHC recommendations arising from its meetings during this period.

Issues considered of significance during this period:

National Action Plan for Health Security (NAPHS)

The Australian Government published the National Action Plan for Health Security (NAPHS) in December 2018 in response to the World Health Organization Joint External Evaluation (JEE) of Australia's implementation of the International Health Regulations in 2017. ARPANSA and RHC have primary responsibility for the following three NAPHS actions:

- Enhance the interoperability of federal and state/territory radiation operations through broad multisectoral/multijurisdictional exercises – the EPA asked to be engaged in the exercise.
- Develop guidance for jurisdictional first responder occupational exposures.
- Conduct a national hazard assessment, to include creating an inventory of radiation sources, and establish a national radiation capability register. In October 2018, the RHC formed a working group to investigate the re-establishment of a national sealed source register.

The RHC approved the National Sealed Source Register Analysis Framework prepared by the working group.

The Commonwealth Health Department will work with ARPANSA to address all radiation priorities in the NAPHS, in consultation with states and territories.

National Directory for Radiation Protection (NDRP)

The Council at its October 2018 meeting noted that the Draft NDRP second edition was endorsed by the RHC in July 2018 and would now be submitted for endorsement to the COAG Health Minister's Council through enHealth and the AHPP.

Australian National Radiation Dose Register (ANRDR)

ARPANSA proposes to extend the ANRDR to all occupationally exposed persons who use dosimetry. RHC resolved to establish a working group, to report in the latter part of 2019.

Medical Exposures Code

The Council at its December 2018 meeting requested an update of the issues it raised during the public consultation on the draft Medical Exposure Code undertaken by the ARPANSA in May 2018. The EPA provided Council with the actions undertaken by ARPANSA relating to the comments it received on the draft Code. Council reviewed the advice provided and was satisfied that all issues raised had been resolved.

Emergency Exposure Guide

Comments on the draft Guide closed on 16 July 2018. During the review of comments Council was informed that a gap was identified regarding the need to develop a series of case studies to illustrate how the Guide could inform both the preparedness for an emergency and the response to different types of scenarios for Australia.

Cosmetic laser and IPLs

During the reporting period the Council noted the slow progress regarding the management of lasers and IPLs by ARPANSA and requested the EPA provide a paper on the matter. The Council at its June 2019 meeting reviewed the paper and options and acknowledged the difficulty experienced by government agencies in obtaining sufficient data on accidents in this area. The Council recommended that further information be gathered from subject matter experts and professional bodies and the findings analysed in order to establish whether any regulatory action is warranted. The Council agreed to establish a committee to consider the management of cosmetic users of lasers and intense pulse light devices in NSW (see Committees of the Council).

Review of national and international documents

During the reporting period the Council considered:

- IAEA Safety Standards
 - Occupational Radiation Protection GSG-7
 - Radiation Protection and Safety in Medical Uses of Ionising Radiation Medical GSG-46.
- International Commission on Radiological Protection (ICRP) Radiation weighting for reference animals and plants
- ICRP Main Commission Meeting summary
- The International Nuclear and Radiological Event Scale (INES) events. INES is a tool for communicating the safety significance of nuclear and radiological events to the public. Member states use INES on a voluntary basis to rate and communicate events that occur within their jurisdiction. It is not used to notify or report emergency response.
- *British Medical Journal Open* - Mobile phone use and incidence of brain tumour histological types, grading or anatomical location: a population-based ecological study dated 1 January 2019 - An Australian study found no link between the use of mobile phones in Australia and incidence of brain cancers.

IAEA - Integrated Regulatory Review Services Mission to Australia

EPA Participation in IAEA Integrated Regulatory Review Services (IRRS)

During 2016-17 the EPA informed the Council that it had committed to participating in the IAEA IRRS Mission to Australia along with all other states and territory jurisdictions.

The main elements of an IRRS include:

- a self-assessment against the IAEA safety requirements according to a prescribed format
- development of a draft action plan
- drafting of an overarching report to be submitted to the review team (the Advance Reference Material, ARM)
- a mission to Australia in November 2018 to verify the ARM, identify good practices and issue recommendations or suggestions
- a follow-up mission between two and four years after the mission to monitor progress against the recommendations, suggestions and implementation of action plans. The IAEA an IRRS mission to Australia in November 2018 to be led by the Head of the Finnish nuclear regulator.

During 2017-18 the EPA undertook the self-assessment in consultation with two members of the Council, Mr Lee Collins and Dr Richard Smart.

The self-assessment report was submitted to ARPANSA in February 2018. The report demonstrated the efficient and effective regulation of radiation in NSW.

The EPA's self-assessment was aggregated with the other jurisdictions' self-assessments to form a single Australian response coordinated by ARPANSA to the IRRS.

During this reporting period the Council was advised that the final IRRS report was published in February 2019. A key recommendation and theme of the report relates to enhancing harmonization of radiation protection across Australia.

The Council was also advised that ARPANSA and the Commonwealth Department of Health are developing an implementation action plan, in consultation with states and territories. Implementation will be overseen by AHPPC and enHealth, with particular work delegated to the RHC.

NSW radiation strategy 2019-2025

The Council at its December 2018 meeting established a committee to review the EPA Radiation Strategy and program logic package. The package included the program logic, key performance indicators and the draft NSW radiation strategy 2019-2025. The Council at its June 2019 meeting considered and endorsed the package (see Review Committee – EPA radiation program evaluation package).

EPA radiation compliance program

The Council at its June 2019 meeting considered and was provided with advice from the EPA on the following regulatory activities that occurred during the reporting period:

- **Australian Aged Dental Care Pty Ltd (AADC) fined \$198,000** – AADC, a mobile dental service provider that operates at schools and aged care facilities, was convicted by the Local Court on 26 July 2018 on several offences for failure to ensure that regulated material (orthopantomogram, which is X-ray apparatus) was only used by a person holding a licence under Section 6 (6) of the Act.
- **Licensed owner fined \$1,500** for possession of radiation regulated material without a current EPA radiation management licence. This company's licence had expired however, the EPA had not received notification of the sale or transfer of the regulated material nor had the company applied for consent to dispose of the material. Investigation revealed that the regulated material (gauges) were still on site.
- **Licensed owner of radiation apparatus fined \$750** for allowing regulated material to be used by unlicensed person (student). The EPA investigated a complaint about an unlicensed person using radiation apparatus at a private imaging facility. The student was unlicensed and was not the subject of an exemption under clause 10 of the Regulation nor was the student provided with the required level of supervision.
- **Licence holder fined \$1,500 for failing to implement and comply with a source transport security plan** under section 14(6) of the Act.
- **Desktop audit of expired radiation management licences** undertaken by the EPA identified over 30 radiation management licensees who continued to list sealed sources and/or sealed source devices on their licences. In most instances, failure to renew the management licence was due to oversight by the licensee. However, in two instances the licence was not renewed due to the licensee going into liquidation. A key outcome of the audit was the development of a process that will ensure these licensees are identified and regulated material is kept under regulatory control.
- **Inspection of dental practice** was undertaken by the EPA following an anonymous report alleging that radiation protection was inadequate at the practice and that unlicensed staff were operating X-ray apparatus. The practice was found to be compliant in the area assessed.
- **Investigation of dental practice** was undertaken by the EPA after a media inquiry alluded that the company had breached the Act. Inspection of the clinics confirmed that all the X-ray units installed at each clinic were under regulatory control and listed on their licence.

- **EPA commenced prosecution in the Land and Environment Court** against a licensee for failing to create and implement security plans, to have an endorsed source transport security plan, and for failing to transport a radioactive substance in accordance with the ARPANSA Transport Code. The matters are still before the court.
- **Contaminated items recovered from a Sydney landfill** were detected when the radiation gate alarm was activated by a truck carrying a load of waste. The items recovered were adult nappies contaminated with Lutetium-177, a radioisotope used for targeted cancer treatment. There was no load for the EPA to explore to identify the source of the articles.
- **Radiation accident investigation** – The EPA was informed by Western Local Health District of a radiation accident at Blacktown Hospital, where a patient was given an unplanned X-ray dose (incorrect body part). It was alleged that the accident occurred because the radiographer on duty did not verify the patient position for the procedure. Investigation suggested the radiographer was relying on the assisting nurses to perform patient positioning. The EPA sent a show cause notice seeking a statement from the radiographer. The radiographer took full responsibility for this incident and provided further information on the circumstances. The EPA did not proceed with further action.
- **Section 191 notice (requirement to provide information and records under the *Protection of the Environment Operations Act 1997*)** issued by the EPA to a licensee requesting information on why disposal of four sealed source devices had not occurred as per conditions of consent to dispose and to provide the current location of the sources in question. The disposal was not completed due to a communication breakdown between the EPA, the licensee and the company contracted to dispose of the sources. The EPA reissued the disposal consent, resulting in the proper disposal of the sources.
- **2018-19 follow up of audit of fixed radiation gauges in western NSW** – The EPA audit campaign of ten mines resulted in no major non-compliances being discovered, and all mines accounted for all regulated material. Recommendations of a minor nature were made in relation to ensuring warning signs were clean and legible, or that damaged signs be replaced. In the second half of 2018, advisory letters were sent to licensees. Each mine actioned recommendations by the deadline of 15 February 2019. Evidence of actioned recommendations was forwarded to the EPA (e.g. photographs of warning signs in situ that had been replaced, confirmation of new storage facilities).
- **Investigation by the EPA of alleged contravention of clause 41 of the Regulation**, the prohibition on commercial cosmetic tanning services. At the conclusion of the investigation the EPA did not find enough evidence to support the allegations.
- **Licensee inspected by EPA as regulated material was given away without the EPA being notified.** The licensee was invited to show cause for a contravention of section 6(2) of the Act, not complying with radiation management licence conditions. The licensee provided evidence that they had changed their internal procedures for ordering, managing and returning soil moisture density gauges with their suppliers. The EPA issued the licensee an official caution.

Offsite visit to Macquarie University Hospital

The Council in the previous period recommended that the Council visit radiation licensee facilities to keep itself informed on current uses of radiation at major facilities.

On 21 June 2019, the Council visited the Macquarie University Hospital and was given a tour of the hospital's gamma knife (advance radiation treatment used primarily to inactivate benign brain tumors), positron emission tomography-computed tomography (PET/CT) suites and cyclotron (production of radiopharmaceuticals) facilities. The Council found the visit very informative, providing members from varying professional backgrounds an opportunity to observe and inform themselves of the different radiation activities at sites that are outside their areas of expertise.

The Council proposes to visit ANSTO radiation facilities in the next period.

Council advice to the EPA on other radiation matters

During the reporting period, the Council continued to provide advice to the EPA in relation to routine radiation matters, including:

- licensing matters and non-standard licence applications (see Licensing and accreditation)
- radiation safety courses for the purposes of radiation user licensing (see Committees of the Council – Course and Competency Committee)
- accreditation matters and non-standard accreditation applications (see Licensing and accreditation)
- radiation accidents and incidents (see Radiation accidents).

Committees of the Council

Under section 31 of the Act, the Council can establish committees to help it perform its functions. In 2018-19, the Council had seven committees.

- National Directory Committee
- Course and Competency Committee
- Review Committee – EPA radiation program evaluation package
- Review of use of cosmetic lasers and intense pulse light devices
- Shielding Assessment and Verification Committee (including review of Guideline 7)
- Guideline 3 Recommendations for minimum standards and safety requirements for fixed radiation gauges (sealed source devices) Review Committee
- Guideline 6 Registration requirements & industry best practice for ionising radiation apparatus used in diagnostic imaging Review Committee

The roles and work of each of the Council's committees are outlined below. Membership details of the Council's committees are provided in Appendix 5.

National Directory Committee

The National Directory Committee (NDC) was established by the Council to help it develop and implement the National Directory for Radiation Protection (NDRP). The NDC is also to ensure that the recommendations proposed by the national Radiation Health Committee (RHC) are practical and effective in controlling radiation risks to human health and the environment.

The RHC advises the CEO of ARPANSA and the Radiation Health and Safety Advisory Council on matters relating to radiation protection. This includes formulating draft national policies, codes and standards for consideration by the Australian, state and territory governments.

The NDC role is to provide advice to the Council and the EPA on the priorities and suitability of material proposed for inclusion in the NDRP. It also advises on its legislative, financial and operational impact on the EPA, other NSW Government agencies and NSW stakeholders.

The committee did not meet during the reporting period as specific issues arising from the RHC were considered directly by the Council (see Radiation Health Committee).

Course and Competency Committee

The Council re-established the Course and Competency Committee (CCC) at its October 2017 meeting to undertake a periodical review of all radiation safety courses approved by the EPA for licensing radiation users.

The Council endorsed the CCC membership and terms of reference. The CCC is to carry out this work by:

- providing advice to the Council on proposed licensing requirements, specifically to review/determine generic attributes and competencies for each licence condition.
- reviewing generic advice provided to course providers.
- reviewing and recommending to the Council courses for approval or modification within the parameters endorsed by the Council.
- providing advice to the Council on the frequency of future reviews.
- making recommendations to Council of its own accord on emerging issues, technical developments, regulatory matters or policy development relating to suitability of or necessity for approved courses.

In 2017-18 the Council endorsed the CCC:

- methodology for assessing courses for radiation user licensing
- revised generic advice to course providers
- recommendation that 12 courses of the 70 submitted be approved.

During this reporting period the CCC met on six occasions and worked out-of-session to consider courses submitted to it by the EPA, recommending:

- 50 courses be approved
- that courses used for licensing purposes be reviewed every five years.

The Council thanked members of the Committee for their time and contribution given in assessing courses for radiation user licensing purposes.

The Council noted that in the next period the Committee will complete its review of remaining radiation user licence courses.

Review Committee – EPA Radiation Program Evaluation Package

On 7 December 2018, the Council at the request of the EPA established the Review Committee to review the EPA's radiation program evaluation package (see NSW Radiation Strategy 2019-2025).

The Council endorsed the committee's terms of reference at its 15 February 2019 meeting and provided initial comments on the draft package for the committee's consideration.

The committee met on 29 March 2019 to review the package. The package included the radiation program logic, key performance indicators and the draft NSW 2019-2025 radiation strategy.

The Review Committee:

- held a full-day workshop for the review, supported by EPA staff
- provided targeted input on the whole radiation program evaluation package
- reported progress on the review to the Council at its meeting on 5 April 2019
- reviewed the draft radiation program evaluation package and report to the Council
- provided a final report to the Council at its meeting on 21 June 2019.

The package was considered and endorsed by the Council at its June 2019 meeting.

Review of Use of Cosmetic Lasers and IPLs

The Council at its 21 June 2019 meeting agreed to establish a working group to consider the management of cosmetic use of lasers and intense pulse light devices in NSW. The committee's term of reference and membership is to be determined by the Council in the next period (see The Council's Work – Radiation Health Committee - Cosmetic laser and IPLs).

Shielding Assessment and Verification Committee

The Council at its August 2017 meeting reconvened the Shielding Assessment and Verification Committee (SAVC), on request of the EPA. The SAVC was reconvened to progress the accreditation of Consulting Radiation Experts (CREs) to certify premises where regulated material is kept or used as compliant with shielding requirements (*Radiation Guideline 7: Radiation shielding design assessment and verification requirements*).

Background: In 2009 the SAVC drafted the *Radiation Guideline 7* which the EPA published as a non-mandatory document. The EPA approached the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM) to provide training and to develop an accreditation program for CREs to be accredited in shielding for medical premises. In 2010 the ACPSEM agreed to develop a training and accreditation program for CREs. Due to administration changes within the ACPSEM the accreditation program was not progressed.

The SAVC is to carry out this work by:

- reviewing *Radiation Guideline 7: Radiation shielding design assessment and verification requirements*
- reviewing CRE competencies (approved by the RAC in 2010) and developing assessments for the accreditation of CREs (premises shielding).
- reviewing licensing and accreditation conditions.
- assessing CRE accreditation applications for premises shielding.

During 2017-18 the Committee met on six occasions and finalised the review of *Guideline 7* and competencies for the accreditation of CREs assessing shielding in NSW premises. The Council at its June 2018 meeting endorsed the revised *Radiation Guideline 7* and CRE competencies (self-assessment templates for low risk premises and CRE test requirements).

The Council was informed by SAVC that it was in abeyance until feedback from the guideline is received from the public consultation process.

During 2018-19 SAVC did not meet. The EPA informed the Council that it had halted the progression of guidelines until:

- the EPA guidance document for introducing guidelines had been approved by the EPA; and
- a cost benefit analysis associated with the implementation of the draft guideline is undertaken after which the draft guideline would be released for public comment.

Guideline 3 Review Committee

The Council at its December 2016 meeting established the Guideline 3 Review Committee to review *Guideline 3: Recommendations for minimum standards and safety requirements for fixed radiation gauges (sealed source devices)*. The Council endorsed the committee's terms of reference at its February 2017 meeting. The committee is to achieve its work by:

- reviewing the existing guideline requirements
- identifying and determining content of the guideline
- consulting with CREs and stakeholders
- reviewing all relevant codes and standards
- submitting a draft revised guideline for the Council's consideration.

During 2017-18, the committee started review and drafting of *Guideline 3*, and the Council endorsed the committee's recommendation that the guideline include all sealed source devices (SSDs) for industrial applications.

During 2018-19, the committee continued work on draft *Guideline 3* and informed the Council that it intended to provide the draft guideline, competencies for CREs and CRE training material to the Council in the next period.

The EPA during this period informed the Council that the guideline will need to undergo a cost benefit analysis prior to it being released for public comment.

Guideline 6 Review Committee

In 2013, the Council established the Guideline 6 Committee to review *Radiation Guideline 6: Registration requirements and industry best practice for ionising radiation apparatus used in diagnostic imaging (2004)* www.epa.nsw.gov.au/radiation/radiationpubs.htm.

The guideline was reviewed to incorporate new technology and to align the requirements of the guideline with the Act. In 2015-16 the committee finalised the review of the guideline and the Council endorsed it for the EPA to progress.

The revised guideline *Radiation Guideline 6: Compliance requirements for ionising radiation apparatus used in diagnostic imaging* consists of the following six parts:

- Part 1: Mammography
- Part 2: Radiography (medical) and bone mineral densitometry
- Part 3: Dentistry (including maxillofacial)
- Part 4: Fluoroscopy
- Part 5: Computed tomography
- Part 6: Veterinary science (radiography and fluoroscopy).

During 2016-17 the committee, in conjunction with the EPA and key stakeholders, considered extra training requirements for CREs to carry out new assessment requirements under the revised guideline. The Council in the same period endorsed the EPA seminar to upskill CREs.

During 2017-18 the committee did not meet as the Council continued to oversee the upskilling of CREs who will eventually be undertaking the compliance-testing of equipment under this guideline.

During 2018-19 the committee did not meet as the EPA informed the Council that it had halted the progress of the guideline until the document for introducing EPA guidelines had been approved by the EPA, and a cost benefit analysis associated with the implementation of the draft guideline had occurred.

Licensing and accreditation

Under Part 2 of the Act, the EPA is the authority responsible for administering:

- radiation user licences
- radiation management licences
- accreditation of consulting radiation experts
- accreditation of radiation security assessors.

Under section 30 of the Act, the Council may give generic or specific advice to the EPA on applications. The EPA considers the Council's standing advice for all applications submitted to it under the Act. The Council and the EPA work together on determining the outcomes of applications, as set out in the MoU between the Council and the EPA (see Appendix 4).

During the reporting period, the Council reviewed licensing and accreditation statistics reports provided by the EPA at each of its meetings. The Council also provided specific advice on licensing and accreditation matters (see below Council's advice to the EPA).

Radiation user licences

Under Section 7 of the Act, a natural person who intends to use regulated material is required to hold a radiation user licence and comply with any conditions the licence is subject to.

'Regulated material' means any of the following:

- radioactive substances
- ionising radiation apparatus
- non-ionising radiation apparatus of a kind prescribed by the regulations
- sealed source devices.

Purposes of a radiation user licence

The purposes of a radiation user licence are to:

- regulate, restrict or prohibit the use of regulated material
- ensure that those who use regulated material:
 - are fit and proper persons
 - have appropriate knowledge of the principles and practices of radiation safety and protection applicable to the activities proposed to be carried out
 - protect the NSW community and the environment from harmful exposure to radiation through the application of conditions of licence that restrict how, when and where radiation may be used.

Occupations requiring a radiation user licence

Radiation user licences are held by individuals who work across a wide range of occupations in NSW, such as scientists, medical specialists, nurses, radiographers, industrial radiographers, service engineers, technologists, dentists, chiropractors, veterinarians and tertiary lecturers.

Number of radiation user licences issued by the EPA

During the reporting period ending 30 June 2019, Council noted that the EPA:

- issued 2,469 radiation user licences
- renewed 5,654 user licences

At the end of the reporting period, there was a total of 15,448 active radiation user licences (4,825 one-year licences and 10,623 three-year licences) administered by the EPA.

Council's advice to the EPA

During 2018-19, the Council provided the EPA with specific advice regarding radiation safety and licensing requirements across a wide range of occupational areas that use radiation:

Non-standard user licence applications

- Council reviewed and endorsed 31 non-standard user licence applications.

Radiation user licence criteria and conditions

- Council endorsed the amendment to user licence IA8 licence to use radiation apparatus for scientific and research purposes to clarify that licensees can only use radiation apparatus for which the licensee has documented training.
- Council noted amendment to IA42 user licence - use apparatus for human imaging for security screening purposes:

For the IA42 condition the licensee must only use whole body X-ray screening apparatus:

- a. on persons for security screening purposes
- b. on persons 18 years and over who are aware they are not pregnant
- c. once consent for the security screening has been given.
- d. which delivers a maximum dose per scan of no greater than 0.0045 mSv.

- e. on a person if satisfied they have not received annually more than 150 scans or a radiation dose of 1.0 mSv whichever occurs first.
- endorsed the amendments to the IA18 user licence criteria to use radiation apparatus while undertaking the duties of a Radiation Safety Officer by removing courses no longer appropriate for this licence use.

Radiation licensing matters

During the reporting period the Council considered:

- requirements for persons providing cadaver workshops for surgeon training - the Council recommended that persons providing the training should complete fluoroscopic radiation safety training and be issued with an IA9 licence to use radiation apparatus for educational purposes.
- radiation doses to animals undergoing diagnostic CT examinations and agreed that the current veterinary licensing conditions and structure are satisfactory for licensing persons undertaking CTs on animals.
- licensing surgeons injecting radiopharmaceuticals prior to surgery for tumour removal evaluation. The Council agreed that it is not practicable to license or train surgeons to undertake this procedure due to the activity of the radionuclide and the risk of contamination that may arise from a spill. The Council recommended that these types of substances need to be injected by persons with equivalent training in radiation protection as nuclear medicine technologist or higher.
- supervision of radiographers by cardiologist for coronary angiography CT procedures. While there was some discussion on this matter, Council would further consider it when an application is received.
- whether all occupationally exposed nurses/staff in theatre should be issued with personal monitoring devices (PMDs) – the Council recommended that PMDs should only apply to theatre staff who are directly involved with the use of ionising radiation, for example the surgeon, scrub nurse, anaesthetist. Theatre staff who do not directly assist the person carrying out the procedures are not involved in the use of ionising radiation and therefore do not have to be provided with a PMD. The Council did however advise that if an employer is in doubt about whether other staff working in theatres should be provided with PMDs then they should undertake a risk assessment to ascertain the need.

Radiation safety courses

- endorsed 50 courses for radiation user licensing purposes (see Course and Competency Committee).

Radiation management licences

Requirement for management licences

Under section 6 of the Act persons responsible for the regulated material are required to hold a radiation management licence and comply with its conditions.

There are two types of management licences issued by the EPA:

- to own, store, give away, sell and possess regulated material (valid for one year)
- to only sell regulated material (valid for either one or three years).

Persons responsible for regulated material

Persons responsible for regulated material are owners of regulated material, persons storing, selling or giving away regulated material and persons in possession of regulated material, other than:

- a person who is the holder of a radiation user licence in respect of the regulated material and who has possession of the regulated material only for the purposes of using it, or

- a person who has possession of the regulated material only for the purposes of transporting it.

Purposes of management licences

The purposes of radiation management licences are to regulate, restrict or prohibit the possession, sale, storage, giving away and disposal of regulated material. This is to protect people and the environment from exposure to radiation.

Number of radiation management licences issued by the EPA

During the reporting period ending 30 June 2019, the Council was advised that the EPA issued:

- 290 general management licences
- 14 sell-only management licences.

At the end of the reporting period, there was a total of 2,576 management licences (2,464 general and 112 sell-only) issued by the EPA.

Council's advice to the EPA

During 2018-19 the Council:

- reviewed a management licence application submitted by Cyclotek for the operation of dual cyclotrons and a radioisotope laboratory

Background: The application involved the leasing of two cyclotrons and a radioisotope laboratory from ANSTO. Cyclotek activities were deemed to be under NSW jurisdiction and thus regulated by the EPA.

The Council at its August 2018 meeting noted the application and requested further information be provided to the EPA prior to a decision being made. The Council recommended:

- additional information be provided relating to clarification of the responsibilities in the Radiation Protection Plan (RPP) between ANSTO and Cyclotek
- minor amendments be made to the RPP
- the Council be provided with the most recent report on the operation of the cyclotron so that it can be assessed against the three-monthly operational report.

The EPA informed the Council at its October 2019 meeting that the EPA had issued Cyclotek with a radiation management licence to commence operation of the dual cyclotrons and ancillary equipment on 12 September 2018 as it was satisfied with:

- the leasing agreement between ANSTO and Cyclotek
- the provision of services in the case of emergency situations; and
- the revised RPP and supporting documents.

The Council at its June 2019 meeting reviewed and noted Cyclotek quarterly operational report. The Council

- considered the potential issue of no disposal path for depleted uranium shielding contained in radiography cameras (now obsolete). This issue was raised by Australian Institute of Non-Destructive Testing. Council recommended that AINDT liaise with the Australian Nuclear Science and Technology Organisation and ARPANSA regarding this matter.
- considered and noted South Western Sydney Local Health District Liverpool Hospital report on the operation of the medical cyclotron and ancillary facilities, in relation to safety and radiation control issues for the first 12 months of its operation.
- requested the EPA to provide a paper in the next period to the Council on the current changes to measuring and assessing risk of exposure to radon, monitoring of cave guides, radon in caves and requirements for radiation management plans. The matter arose as the EPA had met with Jenolan Trust to consider exposure of staff working in caves to radon due to recent amendments to ICRP

publication 137 which increases the recommended levels of radon exposure and risk and new ways of determining exposure.

- endorsed Global Medical Solutions revised radiation management plan subject to minor amendment.
- reviewed the ARPANSA regulatory guideline *Wipe testing & use of sealed sources beyond recommended working life* (Sept 2018) and recommended
 - that the EPA endorse the granting of one automatic extension of the working life for a sealed source at the end of its first life period without the written consent of the EPA, and that any further extensions to be dealt with by the EPA on a case by case basis
 - the approval for the extension of the MRWL remains on the condition that wipe tests be undertaken every 12 months
 - wipe testing only be carried out on the external surfaces of the sealed source device or gauge rather than the source itself
 - the EPA write to ARPANSA advising of the Council's modification to its policy.
- considered and noted the Royal Prince Alfred Hospital's cyclotron and radiopharmaceutical production unit report for January - December 2018.

Consulting radiation experts

Accreditation and activities of consulting radiation experts

Section 8(1) of the Act provides for the accreditation of consulting radiation experts (CREs). The Regulation sets out the activities of a CRE, which include:

- a. advising on the design of premises, in relation to radiation safety requirements, on which regulated material is kept or used, for the purposes of certifying compliance with any conditions imposed on a radiation management licence
- b. assessing plans for premises on which regulated material is kept or used, for the purposes of certifying compliance with any conditions imposed on a radiation management licence
- c. assessing any regulated material and the premises at which it is kept or used, for the purposes of certifying compliance with any conditions imposed on a radiation management licence
- d. assessing the integrity of any shielding of premises at which any regulated material is kept or used, for the purposes of certifying compliance with any conditions imposed on a radiation management licence.

Purpose of accrediting consulting radiation experts

The EPA accredits CREs to assess apparatus and/or premises and issue a certificate of compliance verifying that regulated material complies with the requirements of licensing.

Council's advice to the EPA

The EPA, under section 9A of the Act, may seek the Council's advice on accreditation matters. During the reporting period ending 30 June 2019, the Council:

- approved two applications for accreditation subject to the applicants undergoing an assessment by a CRE selected by the EPA in the following categories:
 - diagnostic radiography, dental, fluoroscopy, computed tomography, bone mineral density, chiropractic and veterinary
 - dentalBoth applicants underwent independent assessments and were granted accreditation.
- considered an application for accreditation as a CRE assessing diagnostic imaging apparatus in mammography and fluoroscopy. The Council recommended:

- the applicant be required to undergo an assessment by a CRE, selected by the EPA, in fluoroscopy. The applicant was assessed and granted the accreditation in the category of fluoroscopy.
- the accreditation in the category of mammography not be approved until the applicant had completed the mammography training course endorsed by the Royal Australian and New Zealand College of Radiologists.
- reviewed and noted a report prepared by the EPA at the request of the Council on the role of CREs.

Number of CREs accredited by the EPA

At 30 June 2019, the EPA had a total of 98 accredited CREs.

Radiation security assessors

Accreditation and activities of radiation security assessors

Section 8(2) of the Act provides for the accreditation of radiation security assessors. The activities of a radiation security assessor, as prescribed in clause 13 of the Regulation, are:

- reviewing security plans or amended security plans to assess whether the plans are made or amended in accordance with the Act
- endorsing security plans so that the plan, or the plan as amended, satisfies the requirements of the Act.

Purpose of accrediting radiation security assessors

The purpose of accrediting radiation security assessors is to ensure that those responsible for security-enhanced sources prepare source security plans and source transport security plans in accordance with the requirement of the Act. A sealed radioactive source (or an aggregation of sealed radioactive sources) that is a Category 1, 2 or 3 is a 'security-enhanced source' for the purposes of the Act

Number of radiation security assessors accredited by the EPA

At 30 June 2019, the EPA accredited a total of four radiation security assessors.

Summary of licences and accreditations issued by the EPA

Table 1 summarises the total number of radiation licences and accreditations issued by the EPA at 30 June 2019.

Table 1: Active licences and accreditations at 30 June 2019

Category	Number
Licence to use regulated material	15,448
Management licences (general)	2,464
Management licences (sell only)	112
Accredited consulting radiation experts	98
Accredited radiation security assessors	4
Total radiation licences and accreditations	18,126

Radiation accidents

Mandatory requirement to report radiation accidents

Clauses 38 and 39 of the Regulation outline the mandatory requirements imposed on persons responsible for regulated material for the reporting and recording of radiation accidents. The types of incidents classified as radiation accidents are outlined in clause 37 of the Regulation.

Causes of radiation accidents

Normally radiation accidents are caused by:

- a deficiency in the management system or
- failure on the part of individuals to implement those systems correctly.

Most reported accidents do not result in any harm to an individual.

Serious accidents reported to the Health Care Complaints Commission (HCCC)

The EPA has standing advice from the Council to refer all matters considered serious health-related accidents to the HCCC. During 2018-19 the Council did not refer any accidents to the HCCC.

Australian Incident Register

All accidents reported to the EPA are reported to ARPANSA for compilation in the Australian Radiation Incident Register. This is intended to raise awareness of radiation safety and to facilitate the sharing of lessons learnt from radiation incidents across Australia.

Number of accidents reported to the EPA

During the reporting period ending 30 June 2019, the EPA received and forwarded to the Council to consider:

- 89 instances involving 93 people where accidents involving doses over 1 milliSievert (mSv) may have occurred (refer to table 2 for summary)
- 69 instances involving 67 people where accidents involved doses of less than 1 mSv may have occurred (refer to table 4 for summary).

Council's advice to the EPA

The Council considered each case and, where appropriate, made recommendations that, in its opinion, would reduce the risk of a recurrence.

Where investigations reveal that accidents have been caused by a deficiency in the management system, the Council may recommend the development and implementation of new procedures or that specific regulatory action is taken. Where an individual is at fault, the Council may (if this has not been done by the organisation) recommend counselling or further training to prevent this type of incident from happening again.

The Council's emphasis is that it is vital that accidents are consistently reported, even if the radiation dose received has been found to be negligible. The knowledge gained from the reporting of accidents is necessary in developing processes and procedures that reduce the risk of similar accidents happening again.

Summary of radiation accidents considered by the Council in 2018-19

The summary of accidents reported to the Council during this period shows an increase in the reporting of accidents over the previous year, suggesting better reporting compliance. The primary types of reported accidents are similar to those of the previous reporting period, involving nuclear medicine, diagnostic radiology and CT procedures. Human error was the leading cause for most of these accidents, contributing to incorrect procedures, wrong settings, misidentification (wrong patient) and procedures to the wrong body part. Additionally, equipment malfunctions and extravasation (for nuclear medicine procedures) were also significant causes. For most of these incidents, improving the use of timeout procedures and such protocols to ensure correct patient, correct site and correct procedure may help prevent similar future occurrences.

Table 2 provides a summary of the causes of accidents reported to the EPA in the specific categories of nuclear medicine, therapy, radiology and other as reviewed by the Council in 2018-19, for accidents **greater than 1 mSv**.

Table 2: Summary of causes of radiation accidents (> 1 mSv) reported in 2018-19

Type of accident		Accident group categories				
		Nuclear medicine	Therapy	Radiology	Other	Total
Patient notes/plans/requests not interpreted/read/checked correctly		3	1	8	0	12
Incorrect isotope selected and drawn up		5	-	-	0	5
Incorrect isotope drawn up by a supplier		0	0	0	0	0
Equipment/software failure		14	0	3	0	17
Booking/request error	Incorrect procedure requested for the right patient	0	0	4	0	4
	Failure to cancel booking	0	1	2	0	3
	Booking request not amended with new scan requested	0	0	0	0	0
	Same examination repeated	0	0	0	0	0
	Wrong patient name entered on request form	0	0	3	0	3
Radiopharmaceutical not administered correctly (injection into cannula)		18	-	-	0	18
Operator error (CTs, PET/CT)		3	0	4	0	7
Physiology (failure of radiopharmaceutical)		4	-	-	0	4
Calculation error		0	1	0	0	1
Protocols not followed (scan ordered before diagnostic MRI received; inadequate handover; unauthorised person incorrectly completed request)		0	4	4	0	8
Patient ID not checked		0	0	7	0	7
Industrial/other		0	0	0	0	0
Total number of reported accidents		47	7	35	0	89

Table 3 provides the number of accidents reported in the last five-year period in the categories of nuclear medicine, therapy, radiology and other for accidents **greater than 1mSv**.

Table 3: Accidents (> 1 mSv) reported to the Council by category between 2014 and 2019

Accident group category	2014–15	2015–16	2016–17	2017-18	2018-19
Nuclear medicine	17	38	24	48	47
Therapy	6	7	13	3	7
Radiology	15	24	23	54	35
Other	1	1	0	0	0
Total	39	70	60	105	89

Table 4 provides a summary of the causes of accidents reported to the EPA in the categories of nuclear medicine, therapy, radiology and other as reviewed by the Council in 2018-19, for accidents **less than 1 mSv**.

Table 4: Summary of causes of radiation accidents (<1 mSv) reported in 2018-19

Type of accident		Accident group categories				
		Nuclear medicine	Therapy	Radiology	Other	Total
Patient notes/plans/requests not interpreted/read/checked correctly		1	0	19	0	20
Incorrect isotope selected and drawn up		0	-	-	0	0
Incorrect isotope drawn up by a supplier		0	0	0	0	0
Equipment/software failure		1	0	9	0	10
Booking/ request error	Incorrect procedure requested for the right patient	0	0	7	0	7
	Failure to cancel booking	0	0	1	0	1
	Booking request not amended with new scan requested	0	0	0	0	0
	Same examination repeated	0	0	0	0	0
	Wrong patient name entered on request form	0	0	1	0	1
Radiopharmaceutical not administered correctly (injection into cannula)		4	-	-	0	4
Operator error (CTs, PET/CT)		4	0	2	0	6
Physiology (failure of radiopharmaceutical)		0	0	0	0	0
Calculation error		0	0	0	0	0
Protocols not followed (scan ordered before diagnostic MRI received; inadequate handover; unauthorised person incorrectly completed request)		1	0	10	0	11
Patient ID not checked		0	0	8	0	8
Industrial/other		0	0	0	1	1
Total number of reported accidents		11	0	57	1	69

Note: Table 4 provides the first summary of reported accidents < 1 mSv.

Appendix 1: Objects of the Act

Section 3 of the Act prescribes the objects of the Act as follows:

- to secure the protection of persons and the environment from exposure to ionising and harmful non-ionising radiation to the maximum extent that is reasonably practicable, taking into account social and economic factors and recognising the need for the use of radiation for beneficial purposes
- to protect security-enhanced sources from misuse that may result in harm to people or the environment
- to promote the radiation protection principles.

The radiation protection principles are as follows:

- justification of a practice** by assessing that the benefits of the practice involving exposure to ionising radiation outweigh any detriment

- b. **optimisation of protection** by ensuring that each of the following is kept as low as reasonably achievable, taking into account economic and social factors:
 - i. the magnitude of individual doses of ionising radiation
 - ii. the number of people exposed to ionising radiation
 - iii. the likelihood of exposure to ionising radiation.
- c. **dose and risk limitation** by setting dose limits or imposing other measures so that the health risk to any person exposed to ionising radiation is kept below levels that are generally considered to be unacceptable.

A person is to take the radiation protection principles into consideration when exercising functions under this Act or under a licence.

Appendix 2: Constitution of the Council

The Council consists of 17 members appointed by the Minister:

- a. the Chairperson of the Authority or a member of staff of the Authority, who is to be the Chairperson of the Council
- b. a medical practitioner who is a specialist in radiology
- c. a radiographer with expertise in the field of human diagnostic radiography
- d. a person with expertise in the industrial uses of radiation
- e. a person with expertise in health physics
- f. a medical practitioner who specialises in nuclear medicine
- g. a person with expertise in non-ionising radiation
- h. a person with expertise in work health and safety
- i. a person who is an Australian lawyer of at least seven years standing
- j. a person who represents community interests
- k. a person nominated by the Secretary of the Ministry of Health
- l. a radiation oncologist
- m. a medical physicist
- n. a person nominated by the Secretary of the Department of Finance, Services and Innovation and who is employed in the part of the Department that is principally involved in the administration of the [Work Health and Safety Act 2011](#)
- o. a person with expertise in naturally occurring radioactivity
- o.1 a person with expertise in mine radiation safety
- p. a person chosen by the Minister for such reasons as the Minister thinks fit.

Appendix 3: Membership and attendance at Council meetings in 2018-19

Member	Appointed position	Meetings attended
Mr Asela Atapattu (term expires 15/2/2021)	Chairperson	3
Mr Andrew Battye (term expires 15/2/2021)	Person nominated by the Secretary of the Department of Finance, Services and Innovation involved in the administration of the <i>Work Health and Safety Act 2011</i>	1
Mr Glen Burt (term expired 22/1/2019) Mr Luke Platt (appointed 23/1/2019, term expires 22/1/2022)	Radiographer with expertise in the field of human diagnostic radiography	4
Assoc. Prof. Lee Collins AM (term expires 30/11/2020)	Person with expertise in non-ionising radiation	4
Dr Hugh Dixson (term expires 22/1/2022)	Medical practitioner who specialises in nuclear medicine	4
Dr Mary Dwyer (term expired 22/1/2019) Dr Dion Forstner (appointed 23/1/2019, term expires 22/1/2022)	Radiation oncologist	4
Mr Frank Galea (term expires 30/11/2020)	Person with expertise in the industrial uses of radiation	6
Ms Fiona Henderson (term expires 30/11/2020)	Person who is an Australian lawyer of at least seven years standing	2
Ms Leanne Houston (term expires 15/2/2021)	Person chosen by the Minister	5
Mr Cameron Jeffries (term expires 30/11/2020)	Person with expertise in naturally occurring radioactivity	6
Ms Kate Lloyd (term expires 16/2/2021, resigned 18/10/2019) Ms Ellen Rawstron (appointed, 19/10/2019 term expires 15/2/2021)	Person nominated by the Secretary of the Ministry of Health	6
Ms Kelly Lovely (term expires 18/12/2019)	Person with expertise in work health and safety	4

Mr Robert McLaughlin (term expired 22/1/2019) Vacant	Person with expertise in mine radiation safety	
Ms Joanne Muller (term expires 15/2/2021)	Person who represents community interests	3
Dr Philip Pasfield (term expires 22/1/2022)	Medical practitioner who is a specialist in radiology	3
Mr Brent Rogers (term expires 18/12/2019)	Person with expertise in health physics	6
Dr Richard Smart (term expires 30/11/2020)	Medical physicist	6

Appendix 4: MoU between the EPA and the Council

Statement of Common Intent

This Memorandum of Understanding (MoU) has been agreed between the EPA and the Radiation Advisory Council (the Council) to document the practical aspects of the way that each will work with the other to advance radiation safety in NSW. The EPA provides administrative support to the Council.

Both the Council and the EPA are committed to a cooperative and collaborative partnership with the aim of advancing the objectives of the *Radiation Control Act 1990* (the Act). This MoU shall be reviewed every three years and remain in force until such time as both parties agree otherwise.

The roles and responsibilities for each body are set out in the Act. Fundamentally, the Council provides expert advice to the EPA and the Minister across all radiation safety matters, while the EPA has responsibility for administering the regulatory functions provided by the Act. This MoU includes an agreement on how advice from the Council will be used by the EPA in the details of issuing licences and accreditations.

The Council also has a key role in helping the EPA develop radiation safety policy for NSW. The EPA has responsibility for formally adopting and giving effect to such policies. The EPA must also take into account NSW Government policy, any direction from the Minister and other advice it receives in developing and implementing policy. In recognition of the Council's special expertise, the EPA will engage openly, early and in detail with the Council in the development of radiation safety policy matters.

Agreed details of how the Council and the EPA collaborate

1. Development of regulatory guidelines and policies

The EPA will provide the Council with drafts of any new or amended guidelines, policies or standards that are developed or reviewed by the EPA or other external bodies.

The EPA will seek the formal advice of the Council at each stage in the process of the development of these guidelines, policies and standards. This consultation will include the results of any feedback from community consultations. The Council will also be formally asked to consider endorsing the final products of the development of guidelines, policies and standards.

2. Provision of advice from the Council to the Minister

Section 30 of the Act gives the functions of the Council in relation to provision of advice to the Minister.

1. The Council is to advise the Minister on:
 - a. proposed amendments to this Act and the making, amendment or repeal of regulations under this Act
 - b. administration of this Act and the regulations
 - c. measures to prevent or minimise the dangers arising from radiation
 - d. the granting of exemptions authorised by the regulations for periods exceeding 60 days
 - e. such other matters relating to radiation safety as the Minister considers appropriate.
2. Any such advice may be given either at the request of the Minister or without any such request.

The Council may also provide advice to the EPA from time to time, as it sees fit and on issues that it considers of relevance, at the request of the EPA or of its own accord.

3. Correspondence

When requested by the Council to prepare correspondence on its behalf, the EPA will present a draft of the correspondence for comment. After amendments to the draft have been prepared in light of the comments offered by the Council, the EPA will submit a final version for endorsement before it is signed by the Chairperson of the Council.

The time frames for the preparation of drafts and presentation of final versions of correspondence for endorsement by the Council will be managed by the EPA to accommodate the workload of the Hazardous Materials, Chemicals and Radiation Section at the time.

Finalised correspondence which has been mailed out, and correspondence received, will be tabled by the EPA at the next Council meeting, subject to the deadlines for submission of business papers for that meeting.

4. Storage of documents

Records of meetings, including agendas, minutes and all associated documents, are kept by the EPA. These records will, as far as is possible, be kept in electronic format and will be made available to the members of the Council upon request to the EPA in a timely manner.

5. Provision of secretariat support

The EPA will provide secretariat support to the Council and all its committees. This support will include:

- preparation of agendas for meetings of the Council and committees and their distribution to Council members
- taking of minutes and their distribution to members
- preparation of any correspondence requested by the Council.

6. Development of procedures

The EPA and the Council will further develop the system of generic advice for applications to the EPA for licences and accreditations and the EPA will continue to refer applications not covered by the generic advice to the Council. The EPA will also seek the advice of the Council regarding radiation accidents and incidents and their investigation, and the assessment of radiation safety courses.

The EPA will seek active input from the Council on strategic and policy matters. These will include substantive input on any review or development of legislation, with emphasis on the development of standards, codes of practice and guidelines. There will be substantial activity during the development of the National Directory for Radiation Protection.

While recognising that the Council performs an advisory function, and that the EPA is the decision maker, the parties agree to work through disagreements as follows:

- There will be an opportunity for discussion, including consideration of the decision-making processes of both the Council and the EPA.
- The EPA will advise the Council if it has formed a view that it intends to make a decision that is inconsistent with the Council's advice and will provide an opportunity for discussion about the differences.

- The Council may request the EPA to provide an independent facilitator and the EPA will agree to consider each request in good faith.
- If the EPA decides to proceed in a manner inconsistent with the Council's advice, it will provide the Council with a written explanation of why it has decided to do so.

7. Determinations for licensing and accreditation

The EPA is the determining authority for applications for licences and accreditations and for variations to licences and accreditations as made under Part 2 of the *Radiation Control Act 1990*. The EPA is empowered by section 9(8) of the Act to seek and take into consideration the advice of the Council on such matters.

Section 30 (2A and 2B) of the Act empowers the Council to provide advice to the EPA on Part 2 applications at any time and requires the Council to do so when asked by the EPA. The advice provided by the Council may be generic or specific, as the circumstances require.

The Council has provided the EPA with generic advice on Part 2 applications and this advice, known as 'standing advice', is recorded at Schedule 2 of the Council's Corporate Governance and Operating Procedures manual. It is the duty of the EPA to keep the standing advice in Schedule 2 up to date. Part 2 applications that are fully covered by the standing advice at Schedule 2 are known as 'routine applications'. Part 2 applications that are not covered by the standing advice, or are only partly covered, are known as 'non-routine applications'.

Before any officer with the delegated authority to do so determines a Part 2 application, they must have regard to the relevant requirements of Part 2 of the Act, the Radiation Control Regulation 2013 and the standing advice of the Council.

Unless the CEO of the EPA has agreed in writing to the following procedure being varied, the officer:

- may approve any routine application without first seeking the specific advice of the Council on the application, but
- before approving any non-routine application, must seek and take into consideration the advice of the Council on the application, and
- before refusing any application, must seek and take into consideration the advice of the Council on the application.

Normally the CEO of the EPA will approve a variation in this procedure only in an emergency, in which case the agreement of the Council with the determination is to be sought retrospectively as soon as practicable.

Barry Buffier

CEO

NSW Environment Protection Authority

Craig Lamberton

Chairperson

Radiation Advisory Council

[The MoU was signed by both parties on 30 June 2016.]

Appendix 5: Membership of Council committees in 2018-19

National Directory Committee

Member	Membership category
Dr Richard Smart (Chair)	Medical physicist
Dr Philip Pasfield	Radiologist
Dr Mary Dwyer	Radiation oncologist
Assoc. Prof. Lee Collins	Expert in non-ionising radiation
Mr Frank Galea	Expert in industrial uses of radiation
Mr Len Potapof	EPA (Hazardous Materials, Chemicals and Radiation Section)
Ms Daniela Freschi	EPA (Hazardous Materials, Chemicals and Radiation Section)

Course and Competency Committee

Member	Membership category
Assoc. Prof. Mr Lee Collins (Chair)	Expert in non-ionising radiation (medical physicist (radiology))
Mr Glen Burt	Diagnostic radiographer
Mr Paul Cardew	Expert outside RAC: medical physicist specialist (radiation oncology, radiology and nuclear medicine)
Mr Frank Galea	Expert in industrial uses of radiation
Mr Cameron Jeffries	Expert in naturally occurring radioactivity
Ms Daniela Freschi	EPA (Hazardous Materials, Chemicals and Radiation Section)

Review Committee – EPA radiation program evaluation package

Member	Membership category
Assoc Prof Lee Collins (Chair)	Expert in non-ionising radiation (medical physicist)
Dr Philip Pasfield	Radiologist
Mr Brent Rogers	Health Physicist
Mr Frank Galea	Expert in industrial uses of radiation
Dr Richard Smart	Medical physicist
Mr Cameron Jeffries	Expert in naturally occurring radioactivity
Mr Rob McLaughlin	Expert in radiation mine safety
Ms Fiona Henderson	Australian lawyer of at least seven years standing
Ms Kelly Lovely	Expert in work health and safety

Shielding Assessment and Verification Committee

Member	Membership category
Dr Richard Smart (Chair)	Medical physicist (nuclear medicine)
Mr Paul Cardew	Expert outside RAC: medical physicist specialist (radiation oncology, radiology and nuclear medicine)
Mr Lee Collins	Expert non-ionising radiation (medical physicist (radiology))
Mr Kevin Fitzsimmons	Expert outside RAC: Industry (shielding and construction)
Mr Frank Galea	Expert in industrial uses of radiation
Mr Nick Hille	Medical physics specialist (radiology and nuclear medicine)
Mr Dean Inwood	Medical physics specialist (radiation oncology)
Mr Adam Jones	Medical physics specialist (radiology)
Mr Brent Rogers	Health physicist
Ms Daniela Freschi	EPA (Hazardous Materials, Chemicals and Radiation) Section)

Guideline 3 Review Committee

Member	Membership category
Mr Frank Galea (Chair)	Expert in industrial uses of radiation
Mr Brent Rogers	Expert in health physics
Mr Robert McLaughlin	Expert in mine radiation safety
Mr Sean Nunan	EPA (Hazardous Materials, Chemicals and Radiation)

Guideline 6 Review Committee

Member	Membership category
Dr Richard Smart (Chair)	Medical physicist (nuclear medicine)
Mr Lee Collins	Expert in non-ionising radiation
Dr Philip Pasfield	Radiologist
Mr Glen Burt	Diagnostic radiographer
Mr Paul Cardew	Expert outside RAC: medical physicist specialist (radiology, radiotherapy and mammography)
Ms Tiffany Chiew	Expert outside RAC: radiographer
Ms Lucy Cartwright	Expert outside RAC: medical physicist specialist (radiology)
Dr Jennifer Diffey	Expert outside RAC: medical physics specialist (radiology)
Dr Ravinda Grewald	Expert outside RAC: medical physics specialist (radiology)
Mr Adam Jones	Expert outside RAC: medical physicist (radiology)
Mr Peter Williams	EPA (Hazardous Materials, Chemicals and Radiation)

Acronyms and abbreviations

ACPSEM	Australian College of Physical Scientists and Engineers in Medicine
ANSTO	Australian Nuclear Science and Technology Organisation
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
CRE	consulting radiation expert
CT	computed tomography
EPA	NSW Environment Protection Authority
HCCC	NSW Health Care Complaints Commission
IAEA	International Atomic Energy Agency
MoU	Memorandum of Understanding
mSv	milliSievert
NDRP	National Directory for Radiation Protection
PET	positron emission tomography
RAC	Radiation Advisory Council
RHC	Radiation Health Committee (national)
