The Hon. Gabrielle Upton MP  
Minister for the Environment  
Minister for Local Government  
Minister for Heritage

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 2016 to 30 June 2017.

This report has been prepared in accordance with the provisions of the *Radiation Control Act 1990*.  
Yours sincerely

Sarah Gardner  
*Chairperson*  
*Radiation Advisory Council*

November 2017
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Chairperson’s review


During the 2016–17 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:

- review of, and input into, national codes and standards developed for inclusion in the National Directory for Radiation Protection (NDRP)
- consideration of investigations and incidents arising from the EPA 2016–17 radiation compliance program
- review and endorsement of the work of the Council’s Guideline 6 Review Committee, specifically the upskilling of consulting radiation experts (CREs) who will compliance-test equipment under Radiation Guideline 6: Compliance requirements for ionising radiation apparatus used in diagnostic imaging, which was endorsed by the Council in the previous period. The guideline now provides coverage for new technology being used in NSW. In June 2017, the EPA ran a seminar endorsed by the Council to upskill 40 CREs.
- establishment of the Council’s Radiation Management Plan Committee to review the requirement for the mandatory development and application of radiation management plans under clause 28 of the Regulation. The Council reviewed and endorsed the new Radiation Guideline 2: Preparation of Radiation Management Plans developed by the committee. In addition, the Council also supported the committee’s recommendation for the removal of clause 28 from the Regulation. This would allow the EPA to implement Radiation Management Plan requirements through conditions of licence, thus simplifying the process and reducing red tape.
- establishment of the Council’s Guideline 3 Review Committee to consider updating Radiation Guideline 3: Recommendations for minimum standards and safety requirements for fixed radiation gauges (sealed source devices)
- review and endorsement of a management licence variation submitted by South West Sydney Local Health District for the inclusion of a cyclotron and radioisotope laboratory at Liverpool Hospital. The Council at its April 2017 meeting considered the test results provided for the new facility by Liverpool Hospital and was satisfied that the EPA could approve its normal operation.
- discussion informed by new and emerging issues in radiation protection, including the potential for research proposals to be approved without a radiation dose assessment being undertaken; review of controls for persons referring patients for imaging procedures; and a presentation to the Council by the Australian Radiation Protection and Nuclear Safety on radiation protection of the patient module and radiation protection training for medical personnel.

During this period, the Council also endorsed its strategic direction for 2016–19. The Council, through its work plan, will focus on the following objectives over the next three years:
• development of uniform regulatory initiatives through the NDRP by reviewing national codes and standards and identifying regulatory gaps that may need to be addressed. This objective will be carried out by the Council through its review and input to NDRP amendments, national codes, standards, recommendations and the EPA radiation compliance and audit programs. Where necessary, the Council provides recommendations to the EPA in relation to any regulatory gaps and may establish committees to investigate projects and address these gaps, such as reviews of guidelines and statutory requirements.

• review and provision of advice to the EPA and the Minister on the remake of the Regulation

• identifying and addressing emerging issues in radiation protection (e.g. new technology) The Council meets this objective by inviting relevant agencies and organisations to the Council to discuss new technology and potential emerging issues in radiation protection and, where necessary, providing recommendations to the EPA.

• identifying procedures and requirements to prevent or minimise dangers arising from the misuse of radiation sources

The Council’s focus for this objective is on influencing better reporting of radiation accidents through education, emphasising responsiveness and prevention. The Council will also undertake this objective by participating in emergency response exercises and activities by government agencies.

During the reporting year, the Council also continued to provide 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.

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 review of Australia’s radiation regulatory system

• the possible remake of the Regulation

• 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

• participation in the International Atomic Energy Agency’s Integrated Regulatory Review Services Mission to Australia, which will assist the national Radiation Health Committee to ensure that national policies, codes and standards in relation to radiation protection continue to reflect world best practice.

I sincerely wish to thank all members of the Council, both current and of the recent past, 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.

Sarah Gardner
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 the Environment through the 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.

(2A) 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.

(2B) 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 agency’s Hazardous Materials, Chemicals and Radiation Section support the work of the Council.

Meetings of the Council

During the reporting period ending 30 June 2017, the Council met on six occasions. The attendances of members at meetings during this period are shown in Appendix 3.

Memorandum of Understanding between the EPA and the Council

In the previous reporting period, the Council reviewed the Memorandum of Understanding (MoU) between the EPA and the Council and endorsed the MoU with no changes. The MoU was signed by both parties on 30 June 2016 and is provided in Appendix 4.
The Council’s strategic direction

The Council at its October 2016 meeting considered and endorsed its strategic direction for 2016–19. The objectives of the Council over the next 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
- 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’s work

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

National Uniformity and Radiation Health Committee

The Australian Health Ministers’ Conference (AHMC) 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 and is facilitated by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) through the delivery of the NDRP.

During the reporting period, the RHC met on three occasions: 16 November 2016 and 15 March and 7 June 2017.

The Council was kept informed about, and provided comment on, the RHC deliberations and recommendations. Significant issues considered and deemed important during this period are discussed below.

Review of Australia’s radiation regulatory system

The RHC at its November 2016 meeting agreed to review issues relating to national uniformity, mutual recognition and the NDRP. At its March 2017 meeting, the committee reviewed a paper which outlined the current problems and likely causes that were impeding national uniformity.

The RHC subsequently endorsed the development of an options paper to redesign Australia’s radiation regulatory system. The agreed options included, but were not limited to:

- making the NDRP more effective
- a national model Act
- a single law and regulatory system delivered by Commonwealth, State and Territory regulators
- a single national regulator.

IAEA Integrated Regulatory Review Services Mission to Australia

The NSW EPA informed the Council that it had committed to participating in the International Atomic Energy Agency (IAEA) Integrated Regulatory Review Services (IRRS) Mission to Australia.

The main elements of an IRRS are:

- 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 and suggestions and implement an action plan.

Participation in the IRRS assists the RHC in fulfilling one of its functions as stated in section 23(d) of the Australian Radiation Protection and Nuclear Safety Act 1998: ‘from time to time, to review national policies, codes and standards in relation to radiation protection to ensure that they continue to substantially reflect world best practice’.

Review of national and international documents

During the reporting period, the Council considered and provided comment on the documents below.

Draft ARPANSA Code: Radiation Protection in Medical Exposure Situations

The Council considered the above draft ARPANSA Code and a preliminary assessment of it by the Office of Best Practice provided by the RHC.

The Council resolved that a Regulatory Impact Assessment (RIA) would need to be prepared for the draft to fully explore the additional regulatory burden associated with the new Code on both the regulated community and the EPA. The Council recommended that the EPA write to ARPANSA outlining the Council’s concerns emphasising that the additional impost in the Code need to be properly assessed and justified as part of the formal consultation process.

The ARPANSA response noted the concerns of the EPA, the Council and other jurisdictions and committed to carry out a proper RIA on the new draft code. This would include a thorough consultation process with regulators, industry representatives and professional bodies to ensure that the Code provides a functional and suitable framework for radiation protection of persons receiving medical radiation exposures.

International Atomic Energy Agency drafts

• DS459 Management of radioactive residues from uranium production and other NORM activities
• DS474 Arrangements for the termination of a nuclear or radiological emergency

Standards Australia draft

AS2243.4 Safety in laboratories: part 4 ionizing radiation (revision of AS2243.4–1998)

Amendments to radiation legislation

Protection of the Environment Legislation Miscellaneous Amendments Act 2017

The Council was informed of passage of this Act through Parliament on 24 May 2017 with most provisions commencing on 1 June 2017.

The Act amends the Radiation Control Act 1990 to:

• allow prosecutions to be heard in the Land and Environment Court (rather than the Supreme Court), consistent with other environment protection legislation
- allow the Land and Environment Court to hear appeals against EPA decisions under the Radiation Control Act and the associated Regulation, consistent with other environment protection legislation
- remove the requirement for the Minister’s approval to commence prosecutions, consistent with other environment protection legislation
- increase the maximum penalty that may be imposed by Local Courts for offences under the Act and the Regulation from 100 penalty units ($11,000) to 200 penalty units ($22,000)
- remove the statutory cap on penalty notice amounts, consistent with other environment protection legislation
- extend the limitation period for offences under the Act from one year to two years.

Proposed amendments

During the current reporting period, the Council considered a letter from the Hospital and University Radiation Safety Officers Group (HURSOG) seeking amendment to the definition of ‘occupationally exposed person’ as defined in clause 3 of Part 1 of the Radiation Control Regulation 2013. HURSOG felt that the current definition may be open to varying interpretations in relation to which particular work-related groups need to be provided with personal monitoring devices. They also recommended amending clause 29 of Division 2 of the Regulation (personal monitoring) to specifically exclude from monitoring those employees whose routine radiation levels would be ‘consistently low’ (i.e. an annual effective dose of less than 1 mSv).

The EPA informed the Council that these recommendations will be considered at the time when the Regulation is being remade.

New and emerging issues in radiation protection

During the reporting period, the Council considered and kept itself informed of the new and emerging issues in radiation protection discussed below.

Potential for approval of research proposals without a prior radiation dose assessment

In the previous reporting period, the EPA wrote to the RHC on behalf of the Council raising concerns that some research proposals were being presented for review in a way that negated the need for the assessment of the radiation component by a medical physicist required by ARPANSA’s Code of Practice for the Exposure of Humans to Ionizing Radiation for Research Purposes (2005). The RHC advised the Council that the wording in the guideline is clear and that the responsibility for ensuring that this requirement is not bypassed rests with the ethics committee when considering research proposals.

Background: Clause 33 of the Radiation Control Regulation 2013 requires that a person not be exposed to ionising radiation for research purposes unless it is done in accordance with RPS8 Code of Practice for the Exposure of Humans to Ionizing Radiation for Research Purposes (2005). Researchers must adhere to the Regulation and the Code when seeking approval for a research program.

When a patient is under a doctor for treatment, a standard care of clinical practice is used as a guide on when and how often radiological procedures are performed as part of the patient’s management. When a patient is part of a research program, any radiological procedures that are performed in addition to standard care practices that are required to measure the effectiveness of the research program must be assessed to ensure that the additional radiation exposure is warranted and not detrimental to the patient’s health.
During this reporting period, on the advice of the Council, the EPA wrote to the NSW Ministry of Health outlining the Council’s concerns that there appears to be a significant increase in the number of research proposals involving radiation being submitted by researchers to ethics committees as ‘standard care’ protocols. As such, additional doses in the protocol are not subjected to the required independent assessment by a medical physicist. The EPA requested that the Council’s concerns be brought to the attention of ethics committees responsible for approving medical research proposals.

In response, NSW Health’s Office for Health and Medical Research (OHMR) advised that it had forwarded the letter to the executive officers of all Human Research Ethics Committees (HRECs) operating within NSW public health organisations. OHMR invited the EPA and the Council to work with HRECs to develop a checklist of questions that they should consider when presented with a protocol involving radiation doses which are described as ‘standard care’. Dr Richard Smart, on behalf of the Council, attended the HREC Chairs and Executive Officers meeting on 31 October 2016 to discuss regulatory requirements and provide the Council’s advice in relation to the assessment of standard care research protocols.

In February 2017, OHMR sought the Council’s advice on amendments it would propose to the ARPANSA Code of Practice to deal with the issue. The Council considered that the proposed changes to the Code appeared to be reasonable with minor recommended inclusions.

Regulation of persons who refer patients for imaging procedures

In the previous reporting period, the Council asked the EPA to investigate the potential issue of unauthorised personnel requesting imaging procedures involving radiation. The EPA prepared advice to the Council regarding the matter and the Council agreed that the issue needed to be addressed by the NSW Ministry of Health to ensure that only authorised personnel could refer patients for imaging procedures.

During this reporting period, on the advice of the Council, the EPA wrote to the Ministry of Health informing them of the issue. The Ministry advised that local health districts and specialty health networks in NSW are responsible for their own radiology management system and are able to set restrictions on which health professional may order specific medical procedures. The Ministry further advised that it had written to each local health district and specialty health network in NSW that refer or accept referrals for medical imaging procedures regarding their controls. The responses received indicated that all have policies, processes and/or systems that restrict those who can refer medical imaging procedures.

The Ministry also informed the Council that the specific facility that first raised this issue with the EPA had instituted a system of information, education and audit to ensure that only authorised health professionals are able to refer patients for medical imaging procedures and that it was working with this facility to ensure the integrity of these controls.

Presentations to the Council

ARPANSA made a presentation to the Council on radiation protection of the patient module as well as new radiation protection for medical personnel training, which the agency is developing. Several members of the Council nominated to participate in ARPANSA’s Radiation Protection for Medical Personnel Project reference group.

Journals considered by the Council

Fellow of the Royal Australian and New Zealand College of Radiologists Journal:

- Radiation dose in fluoroscopy: experience does matter
- Diagnostic reference levels for common paediatric fluoroscopic examinations performed at a dedicated paediatric Australian hospital
• **Diagnostic reference levels of paediatric computed tomography examinations performed at a dedicated Australian paediatric hospital.**

**Journal of Nuclear Medicine:**

• **Recommendations for nuclear medicine technologists drawn from an analysis of errors reported in Australian radiation incident registers**

**EPA radiation compliance program**

The Council in the last reporting period reviewed and provided advice to the EPA on its Radiation Compliance Program 2016–17.

During the current reporting period, the Council considered and was provided with advice from the EPA on the following matters:

• The owner of a radiation neutron source, americium-241 (which became dislodged in a bore hole and could not be retrieved) had met the conditions of the EPA notice to comply. The Council in the previous period recommended that where the source could not be recovered, its presence and location should be added to the section 149 planning certificate of the property and a concrete plinth erected on the site to indicate that a radioactive source was located below ground level.

• Investigation by the EPA of four sites where solaria units were allegedly being illegally used resulted in three sites showing no evidence of commercial solaria operations and one site still under review.

• Several incidents involving waste containing radioactive material in the form of Iodine-131 at Suez Recycling and Recovery Australia (landfill) were investigated by the EPA. The EPA met with Suez to discuss the incidents and determine actions to help minimise the likelihood of further incidents. The EPA requested that Suez consider raising the contaminated waste issue with their customers and also install detection devices at the Artarmon waste transfer station.

The EPA further requested that Suez ensure trained staff and monitoring equipment are available to deal with any contaminated waste incidents. Suez is reviewing its standard operating procedures for the detection and management of potential radioactive waste.

The Council recommended that the EPA write to hospitals advising that several incidents had been reported to the EPA involving I-131 being disposed in the general waste stream and the appropriate method of disposal of radioactive material. The EPA wrote to licensees asking them to investigate whether any contaminated waste had inadvertently been disposed of to landfill from their facilities and to report back their findings. The responses received by the EPA from public and private facilities indicated that they had not identified any problems with their management of radioactive waste material systems.

• South Western Sydney Local Health District was fined $1500 after two capsules containing I-131, a radioactive substance used in patient treatment, were accidentally placed into a general waste garbage compactor by a staff member at the Bankstown–Lidcombe Hospital. The compactor containing the waste was isolated and safely removed to a licensed landfill for storage until the radioactivity decayed to a level allowing for safe disposal.

In August 2016, the waste was re-assessed and found to have decayed to a level for final disposal to occur. This resulted in the hospital implementing additional safety measures, including delivery of radiation safety training to relevant staffing groups and making changes to the delivery and storage of radioactive substances at the hospital.

• Failure to register a sealed source device (SSD) by Universal Dye Works Pty Ltd and its disposal without EPA consent resulted in a magistrate judgement on 5 July 2016. The
company was required by the court to pay the prosecutor’s costs of $15,000, forfeit the SSD to the Crown under section 26(1) of the Act and meet the cost of the proper disposal of the SSD.

- An EPA notice to provide information issued to Western NSW Local Health District required the facility to provide orthovoltage apparatus commissioning measurements and analysis and copies of all planning data used for orthovoltage treatment. The EPA was investigating whether the apparatus had been correctly calibrated.

- During its review of a Rigaku x-ray generator, the Council recommended inspection of the equipment by an appropriately qualified person to ascertain whether the unit was enclosed and thus exempt from licensing under the Regulation. The EPA wrote to the facility advising that the Council was unable to determine whether the apparatus was exempt under the Regulation based on the information provided and that the facility would need to have the apparatus assessed for compliance.

**Council advice to the EPA on other radiation matters**

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

- non-standard licensing applications
- acceptance of radiation safety courses for the purposes of licensing
- non-standard accreditation applications
- radiation accidents and incidents.

**Committees of the Council**

Under section 31 of the Act, the Council is able to establish committees to help it perform its functions. In 2016–17, the Council had four such committees.

- National Directory Committee
- Guideline 6 Review Committee
- Radiation Management Plan Committee
- Guideline 3 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 at Appendix 5.

**National Directory Committee**

The Council established the National Directory Committee to help it develop and implement the National Directory for Radiation Protection (NDRP) and 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, including formulating draft national policies, codes and standards for consideration by the Australian, state and territory governments.

The committee’s role is to provide advice to the Council and the EPA on the priorities and suitability of material proposed for inclusion in the NDRP, as well as on its legislative, financial and operational impact on the EPA, other NSW Government agencies and NSW.

The committee reviews documents that are produced by the RHC.
The committee did not meet during the reporting period as specific issues arising from the RHC were considered directly by the Council.

**Guideline 6 Review Committee**


In the previous reporting period, the Council finalised the revised guideline which now incorporates new technology and updates the requirements in line with changes to the Act.

The new *Radiation Guide 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 this reporting period, the committee met on two occasions in conjunction with the EPA and key stakeholders to consider additional training requirements required by consulting radiation experts (CREs) in order to carry out new assessments under the revised guideline. This resulted in the EPA developing material for a seminar and workshop to upskill existing CREs and these additional requirements were reviewed and endorsed by the Council at its June 2017 meeting.

The seminar and workshop was delivered to approximately 40 CREs on 24 June 2017.

**Radiation Management Plan Committee**

The Council established the Radiation Management Plan Committee at its October 2016 meeting to investigate which radiation management licensees should be required to prepare and adopt radiation management plans (RMPs) in accordance with clause 28 of the Radiation Control Regulation 2013.

The Council endorsed the committee’s terms of reference at its December 2016 meeting which are to:

- review radiation management licensees including the industries and context they work in
- develop a policy and framework to determine which of these should be required to prepare and adopt a RMP
- determine the communication approach for requesting licensees to prepare a RMP, including time frame for its delivery
- determine which existing industry RMP templates could be adopted, such as those in the ARPANSA Codes of Practice
- provide advice on any necessary amendment to existing RMP templates and framework to improve effectiveness and efficiency
- review RMPs against the EPA template
- provide advice and feedback to licensees to ensure consistency and compliance with EPA RMP requirements
• prepare a submission to the Council for approval and adoption of RMPs finalised by licensees
• assess the impacts of the requirement to prepare and adopt RMPs on the regulated community and practice in general.

During the current reporting period, the committee met on three occasions and recommended:
• removal of clause 28 of the Regulation as it is very cumbersome to administer and its deletion would allow the EPA to implement similar requirements through the adoption of specific Codes of Practice and conditions of licence
• endorsement of an RMP requirements template
• endorsement of a revised Radiation Guideline 2: Preparation of Radiation Management Plans.

The Council considered and endorsed the committee’s revised Guideline 2 and the committee’s recommendation to remove clause 28 from the Regulation. The Council also acknowledged that the committee had completed its work.

Guideline 3 Review Committee
The Council at its December 2016 meeting established a 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 the current reporting period, the Committee met on three occasions and commenced work on the draft guideline. The Council agreed that the guideline should be extended to include all sealed source devices (SSDs). The committee informed the Council that a draft guideline would be provided to the Council for its review in 2017–18.

Licensing and accreditation
Under Part 2 of the Act, the EPA is the authority responsible for administering radiation user and management licences and accreditation of consulting radiation experts and radiation security assessors. Under section 30 of the Act, the Council may give generic or specific advice to the EPA on applications.

During the current reporting period, the Council provided advice to the EPA on licensing and accreditation areas reported below.

The EPA considers the Council’s standing advice in 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 also:
• considered and reviewed all licensing and accreditation statistics reports provided to it by the EPA
was informed that the EPA had developed an online user licence applications system (E-connect) which commenced in December 2016.

**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 2017.

**Table 1: Active licences and accreditations at 30 June 2017**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licence to use regulated material</td>
<td>14,131</td>
</tr>
<tr>
<td>Management licences (general)</td>
<td>2,361</td>
</tr>
<tr>
<td>Management licences (sell only)</td>
<td>108</td>
</tr>
<tr>
<td>Accredited consulting radiation experts</td>
<td>107</td>
</tr>
<tr>
<td>Accredited radiation security assessors</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total radiation licences and accreditations</strong></td>
<td><strong>16,713</strong></td>
</tr>
</tbody>
</table>

**Radiation user licences**

Section 7 of the Act requires a natural person who intends to use regulated material 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 and sealed source devices.

**Purpose of a radiation user licence**

The aim of a user licence is 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 user licence**

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 user licences issued by the EPA**

During the reporting period ending 30 June 2017, the EPA issued 2063 radiation user licences and renewed 5646 user licences. At the end of the reporting period, there was a total of 14,131 active radiation user licences (4248 one-year licences and 9883 three-year licences) administered by the EPA.
Council’s advice to the EPA

During the reporting period, the Council gave the EPA specific expert advice in relation to radiation safety and licensing requirements across a wide range of occupational areas that use radiation as outlined.

Non-standard licence conditions

The Council reviewed and endorsed five non-standard licence applications.

Radiation user licence criteria and conditions

The Council endorsed the following amendments to user licence criteria and conditions:

- an amendment to the criteria for a licence to use radiation apparatus for medical fluoroscopy – specialist other than radiologists (IA22) which requires all course providers to include CT fluoroscopy in their course material

  The EPA became aware that some medical specialists might be using CT apparatus while in fluoroscopy mode. This practice was discussed at the August 2016 Council meeting and, while no specific issues were raised regarding the use of CT fluoroscopy by medical specialists, it was considered that radiation safety training given to medical specialists should be revised to include:
  
  o CT fluoroscopy technology
  o hazards and typical doses for CT fluoroscopy
  o safety measures and use of shielded observation windows
  o EPA licence condition information specifically that CT fluoroscopy is automatically regarded as high-dose fluoroscopy and a radiographer is required to be present when it is operated.

  The EPA wrote to the relevant course providers advising them of the additional requirements that needed to be included in their courses.

- an amendment to the user licence criteria for both IA24 dental cone-beam-computed tomography (CBCT) and IA20 general dental radiography to include CBCT

- an amendment to the criteria for a licence to use radiation apparatus (dual energy x-ray absorptiometry) for bone mineral or body composition analysis criteria (IA27/IA27S) by including medically related degrees or a degree in biomedical science or equivalent

- a two-tiered licensing system for nuclear medicine physicists

  The Council reviewed a letter from the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM) which recommended amendments to the new radiation user licence for nuclear medicine physicist conditions and criteria (IA17/S17). On the recommendation of the EPA, the Council agreed to hold over consideration of these recommendations until key stakeholders could be consulted. After extensive consultation, the Council endorsed the two-tiered licensing system based on the ACPSEM proposal at its June 2017 meeting.

- changed criteria and conditions of licence to use radiation apparatus (IA18) and radioactive substances (S18, S18A) while undertaking the duties of a radiation safety officer (RSO)

  The Council endorsed two conditions of licence for RSOs using radioactive substances to differentiate between those working in large organisations, such as universities and teaching hospitals responsible for a range of radioactive substances and activities, and RSOs in smaller organisations where the use of radioactive substances and activities is limited.
• an amendment to the licence criteria to use radioactive substances for radiopharmacy (S36) to include requirements for applicants to have completed a science degree in chemistry, pharmacy or biology.

**Radiation safety courses**

The Council considered and approved the following radiation safety courses for the purposes of licensing:

• Bartolo Safety Management Services: *Safe use of portable x-ray equipment for scientific and analytical purposes* for the licensing of individuals to use portable x-ray fluorescence (XRF) radiation apparatus for analysis (IA19)

• Western Sydney Local Health District: *i-125 seed handling for breast pathology* for the licensing of individuals to use radioactive substances for scientific and research purposes (S8) subject to the licence being restricted to the use of I-125 seeds

• Virtual Accident Pty Ltd: *Sealed sources* for the licensing of individuals to use radioactive substances for analytical purposes (S5) and radioactive substances for scientific or research purposes (S8)

• RadSafety Solutions: *Safe use of portable moisture density gauges* to license individuals to use radioactive substances for density/moisture determination (S30) subject to the inclusion of a practical component to the course approved by the EPA, which the EPA has now done.

During the reporting period, the Council was also informed and noted that Radtest Australia was granted the rights from Radsmart to run the course *Radiation safety in the installation and maintenance of x-ray equipment* for the licensing of users to install and service radiation apparatus.

The Council considered but did not approve the following radiation safety course for the purposes of licensing:

• RadSafety Solutions: *Safe use of a fixed radiation gauge* for the licensing of individuals to use radioactive substances for industrial gauging (S7) and installing and/or servicing devices containing a radioactive substances (S10). The Council considered that the course and assessment (practical component) was not adequate for the proposed uses.

**Radiation management licences**

**Requirement for management licences**

Section 6 of the Act requires those responsible for regulated material to hold a radiation management licence and to comply with the conditions of the licence.

Two types of management licence are issued by the EPA: one to own, store, give away, sell and possess regulated material (valid for one year) and the other only for the purposes of selling regulated material (valid for either one or three years).

**Persons responsible for regulated material**

Those 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 the regulated material, or

• a person who has possession of the regulated material only for the purposes of transporting the regulated material.
Purpose of management licences

Radiation management licences are used to regulate, restrict or prohibit the possession, sale, storage, giving away and disposal of regulated material to secure the protection of people and the environment from exposure to radiation.

Number of management licences issued by the EPA

During the reporting period ending 30 June 2017, the Council was advised that the EPA issued 238 general management licences and three sell-only management licences. At the end of the reporting period, there was a total of 2469 management licences (2361 general and 108 sell-only) issued by the EPA.

Council’s advice to the EPA

During the current reporting period, the Council:

- considered a management licence variation submitted by South West Sydney Local Health District in relation to the inclusion of a cyclotron and radiopharmaceutical laboratory at Liverpool Hospital.
  
The Council noted several issues with the application and requested the applicant address these. The EPA reviewed the additional information provided and endorsed the revised radiation management plan, advising that the hospital could commence commissioning of the cyclotron facility. The Council at its April 2017 meeting considered the test results provided and recommended to the EPA that the cyclotron and radioisotope laboratory at Liverpool Hospital could commence normal operations.

- noted the Royal Prince Alfred Hospital’s cyclotron and radiopharmaceutical production unit report for January–December 2016.

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 they comply with the requirements of licensing.

Council’s advice to the EPA

Under section 9A of the Act, the EPA may seek the Council’s advice on accreditation matters. During the reporting period ending 30 June 2017, the Council endorsed:
• an application for accreditation in the category of dental, subject to the applicant undergoing an independent assessment by a CRE selected by the EPA, which is yet to occur
• two applications for accreditation for the category of diagnostic imaging apparatus excluding mammography, subject to the applicants undergoing an independent assessment by a CRE selected by the EPA, with both applicants subsequently proving successful and being issued with the accreditation
• revised CRE conditions for diagnostic imaging with minor amendments
  The EPA suggested that the Council might consider reworking the CRE conditions by breaking them down into specific categories as reflected in the revised Radiation Guideline 6. The Council agreed to proceed with this approach and suggested that the EPA provide the reworked conditions to the Council for its consideration in 2017–18.

The Council also received an update on progress by the Australian College of Physical Scientists and Engineers in Medicine (ACPSEM) towards developing qualifications suitable for accreditation of CREs designing and assessing shielding for medical premises in that the ACPSEM has almost completed the requirements for training and assessing these CREs. These will be used by the EPA as criteria for accrediting CREs working in this area.

Number of CREs accredited by the EPA
At 30 June 2017, the EPA had 107 accredited CREs to perform one or more of the prescribed activities.

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 accreditation of 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 source is a ‘security-enhanced source’ for the purposes of the Act

Number of radiation security assessors accredited by the EPA
At 30 June 2017, the EPA had accredited a total of six radiation security assessors to perform the prescribed activities.

Radiation accidents
Mandatory requirement to report radiation accidents
Clauses 38 and 39 of the Regulation set out the mandatory requirements for those responsible for regulated material to report and record radiation accidents. Clause 37 of the Regulation specifies the types of incidents that are classified as radiation accidents for the purposes of the Act.
The Council reviews accident reports at the request of the EPA. The Council’s emphasis is that it is vital that accidents are consistently reported, even if the radiation dose received has been negligible. This is not just because of the legal requirement, but also because the knowledge gained can be used to develop processes and procedures that reduce the risk of similar accidents occurring in the future. Most reported accidents do not result in any actual harm to an individual.

**Causes of radiation accidents**

Radiation accidents are normally caused by either a deficiency in the management system or failure on the part of individuals to implement those systems correctly. 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 recurring.

**Serious accidents reported to the Health Care Complaints Commission**

The Council may also recommend referral of serious health-related accidents to the Health Care Complaints Commission (HCCC). The EPA has standing advice from the Council to refer all matters considered significant by the Council to the HCCC.

In the previous reporting period, the Council considered an accident where a patient was prescribed 1.7 Gray (Gy) per fraction and a total of 29 fractions were delivered. As a result, the patient received a 49.3 Gy overlap in error. Due to the seriousness of the accident, the Council recommended referral of this accident to the HCCC.

The HCCC responded to the complaint in the current reporting period, advising that it had consulted with the Medical Council of NSW and that both the Commission and the Medical Council agreed that the Medical Council would further consider the accident.

**Number of accidents reported to the EPA**

During the reporting period ending 30 June 2017, the Council considered 60 instances where accidents involving doses over 1 milliSievert (mSv) may have occurred involving 59 people as well as 47 incidents that involved doses of less than 1 mSv.

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

**Summary of radiation accidents considered by the Council in 2016–17**

Table 2 provides a summary of the types accidents reported to the EPA in the specific categories of nuclear medicine, therapy, radiology and other reviewed by the Council in 2016–17. Table 2 does not include incidents that involved doses less than 1 mSv.
Table 2: Summary of causes of radiation accidents (> 1 mSv) reported in 2016–17

<table>
<thead>
<tr>
<th>Type of accident</th>
<th>Accident group categories</th>
<th>Nuclear medicine</th>
<th>Therapy</th>
<th>Radiology</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient notes/plans/requests not interpreted/read/checked correctly</td>
<td></td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>n/a</td>
<td>7</td>
</tr>
<tr>
<td>Incorrect isotope selected and drawn up</td>
<td></td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>3</td>
</tr>
<tr>
<td>Incorrect isotope drawn up by a supplier</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td>Equipment/software failure</td>
<td></td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>n/a</td>
<td>7</td>
</tr>
<tr>
<td>Booking/request error</td>
<td>Incorrect procedure requested for the right patient</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Failure to cancel booking</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>n/a</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Booking request not amended with new scan requested</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>n/a</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Same examination repeated</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>n/a</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Wrong patient name entered on request form</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>n/a</td>
<td>4</td>
</tr>
<tr>
<td>Radiopharmaceutical not administered correctly (injection into cannula)</td>
<td></td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>n/a</td>
<td>6</td>
</tr>
<tr>
<td>Operator error (CTs, PET/CT)</td>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>n/a</td>
<td>3</td>
</tr>
<tr>
<td>Physiology (failure of radiopharmaceutical)</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td>Calculation error</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td>Protocols not followed (scan ordered before diagnostic MRI received; inadequate handover; unauthorised person incorrectly completed request form)</td>
<td></td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>n/a</td>
<td>4</td>
</tr>
<tr>
<td>Patient ID not checked</td>
<td></td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>n/a</td>
<td>7</td>
</tr>
<tr>
<td>Wrong anatomy x-rayed</td>
<td></td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>n/a</td>
<td>4</td>
</tr>
<tr>
<td>Radiation oncology wrong area treated</td>
<td></td>
<td>n/a</td>
<td>6</td>
<td>n/a</td>
<td>n/a</td>
<td>6</td>
</tr>
<tr>
<td>Contamination with radioactive material</td>
<td></td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>3</td>
</tr>
<tr>
<td>Industrial/other</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total number of reported accidents</strong></td>
<td></td>
<td><strong>60</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 provides the number of accidents reported in the last five-year period in the categories of nuclear medicine, therapy, radiology and other. Table 3 does not include incidents that involved doses less than 1 mSv.

The higher number of accidents reported in the nuclear medicine category in the previous period were the result of regulatory initiatives.
### Table 3: Accidents (> 1 mSv) reported to the Council by category between 2012 and 2017

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuclear medicine</td>
<td>13</td>
<td>19</td>
<td>17</td>
<td>38</td>
<td>24</td>
</tr>
<tr>
<td>Therapy</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Radiology</td>
<td>12</td>
<td>16</td>
<td>15</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>28</td>
<td>41</td>
<td>39</td>
<td>70</td>
<td>60</td>
</tr>
</tbody>
</table>

### Follow up from previous period

**Notice to appoint Radiation Safety Officer (RSO)**

Global Medical Solutions (GMS) was issued with a notice to appoint a radiation safety officer following the resignation of its previous RSO. The EPA sought advice from the Council prior to accepting the new nominee. The requirement to appoint an RSO was made under the provisions of clause 28 of the Regulation.
Appendix 1: Objects of the Act

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

(a) 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

(b) to protect security security-enhanced sources from misuse that may result in harm to people or the environment

(c) to promote the radiation protection principles.

The radiation protection principles are as follows:

(a) 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
(o1) 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: Attendance at Council meetings in 2016–17

<table>
<thead>
<tr>
<th>Member</th>
<th>Appointed position</th>
<th>Meetings attended</th>
</tr>
</thead>
</table>
| Ms Sarah Gardner (appointed 4/8/16)  
Mr Craig Lamberton (resigned 1/7/17) | Chairperson | 6 |
| Dr Philip Pasfield | Medical practitioner who is a specialist in radiology | 4 |
| Mr Glen Burt | Radiographer with expertise in the field of human diagnostic radiography | 5 |
| Mr Frank Galea | Person with expertise in the industrial uses of radiation | 6 |
| Mr Brent Rogers (reappointed 16/12/16) | Person with expertise in health physics | 5 |
| Dr Hugh Dixson | Medical practitioner who specialises in nuclear medicine | 6 |
| Assoc. Prof. Lee Collins AM | Person with expertise in non-ionising radiation | 5 |
| Ms Kelly Lovely (appointed 19/12/16)  
Mr Jon D’Astoli (term expired 16/12/16) | Person with expertise in work health and safety | 4 |
| Ms Fiona Henderson | Person who is an Australian lawyer of at least seven years’ standing | 5 |
| Ms Elizabeth Akmentins | Person who represents community interests | 5 |
| Dr Daniel Comerford (appointed 19/12/16)  
Ms Vanessa Brooks (term expired 6/12/16) | Person nominated by the Secretary of the Ministry of Health | 4 |
| Dr Mary Dwyer | Radiation oncologist | 4 |
| Dr Richard Smart | Medical physicist | 5 |
| Position vacant  
Ms Colleen Harris (resigned 30/1/17) | Person nominated by the Secretary of the Department of Finance, Services and Innovation involved in the administration of the Work Health and Safety Act 2011 | 2 |
| Mr Cameron Jeffries | Person with expertise in naturally occurring radioactivity | 6 |
| Mr Robert McLaughlin | Person with expertise in mine radiation safety | 3 |
| Ms Elizabeth Bailey | Person chosen by the Minister | 1 |
Appendix 4: Memorandum of Understanding between the EPA and the Council

Statement of Common Intent

This Memorandum of Understanding has been agreed between the Environment Protection Authority (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 New South Wales. 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 Memorandum of Understanding 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 (the Minister) across all radiation safety matters, whereas the EPA has responsibility for administering the regulatory functions provided by the Act. This Memorandum of Understanding includes an agreement on how advice from the Council will be utilised by the EPA in the details of issuing licences and accreditations.

The Council also has a key role in helping the EPA to 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 obtained in community consultation processes. 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 documents associated with the meetings of the Council, 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 in regard to radiation accidents and incidents and their investigation, and in regard to 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 disagreement 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 such 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 so requested 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 concurrence of the Council with the determination is to be sought retrospectively as soon as practicable.

Barry Buffier  
CEO  
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 2016–17**

### National Directory Committee

<table>
<thead>
<tr>
<th>Member</th>
<th>Membership category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Richard Smart</td>
<td>Medical physicist</td>
</tr>
<tr>
<td>Mr Jon D’Astoli</td>
<td>Work health and safety</td>
</tr>
<tr>
<td>Dr Philip Pasfield</td>
<td>Radiologist</td>
</tr>
<tr>
<td>Dr Mary Dwyer</td>
<td>Radiation oncologist</td>
</tr>
<tr>
<td>Assoc. Prof. Lee Collins</td>
<td>Expert in non-ionising radiation</td>
</tr>
<tr>
<td>Mr Frank Galea</td>
<td>Expert in industrial uses of radiation</td>
</tr>
<tr>
<td>Mr Len Potapof</td>
<td>EPA (Hazardous Materials, Chemicals and Radiation Section)</td>
</tr>
<tr>
<td>Ms Daniela Freschi</td>
<td>EPA (Hazardous Materials, Chemicals and Radiation Section)</td>
</tr>
</tbody>
</table>

### Guideline 6 Review Committee

<table>
<thead>
<tr>
<th>Member</th>
<th>Membership category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Richard Smart</td>
<td>Medical physicist</td>
</tr>
<tr>
<td>Assoc. Prof. Lee Collins</td>
<td>Expert in non-ionising radiation</td>
</tr>
<tr>
<td>Dr Philip Pasfield</td>
<td>Radiologist</td>
</tr>
<tr>
<td>Mr Glen Burt</td>
<td>Diagnostic radiographer</td>
</tr>
<tr>
<td>Mr Paul Cardew</td>
<td>Expert outside RAC: medical physicist specialist (radiology, radiotherapy and mammography)</td>
</tr>
<tr>
<td>Ms Tiffany Chiew</td>
<td>Expert outside RAC: radiographer</td>
</tr>
<tr>
<td>Ms Lucy Cartwright</td>
<td>Expert outside RAC: medical physicist specialist (radiology)</td>
</tr>
<tr>
<td>Dr Jennifer Diffey</td>
<td>Expert outside RAC: medical physics specialist (radiology)</td>
</tr>
<tr>
<td>Dr Ravinda Grewald</td>
<td>Expert outside RAC: medical physics specialist (radiology)</td>
</tr>
<tr>
<td>Mr Adam Jones</td>
<td>Expert outside RAC: medical physicist</td>
</tr>
<tr>
<td>Mr Peter Williams</td>
<td>EPA (Hazardous Materials, Chemicals and Radiation Section)</td>
</tr>
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</table>

### Radiation Management Plan Committee

<table>
<thead>
<tr>
<th>Member</th>
<th>Membership category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Richard Smart</td>
<td>Medical physicist</td>
</tr>
<tr>
<td>Mr Frank Galea</td>
<td>Expert in industrial uses of radiation</td>
</tr>
<tr>
<td>Mr Cameron Jeffries</td>
<td>Expert in naturally occurring radioactivity</td>
</tr>
<tr>
<td>Ms Sarah Atyeo</td>
<td>EPA (Hazardous Materials, Chemicals and Radiation Section)</td>
</tr>
<tr>
<td>Ms Angela Donald</td>
<td>EPA (Hazardous Materials, Chemicals and Radiation Section)</td>
</tr>
</tbody>
</table>
## Guideline 3 Review Committee

<table>
<thead>
<tr>
<th>Member</th>
<th>Membership category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Frank Galea</td>
<td>Expert in industrial uses of radiation</td>
</tr>
<tr>
<td>Mr Brent Rogers</td>
<td>Expert in health physics</td>
</tr>
<tr>
<td>Mr Robert McLaughlin</td>
<td>Expert in mine radiation safety</td>
</tr>
<tr>
<td>Mr Sean Nunan</td>
<td>EPA (Hazardous Materials, Chemicals and Radiation Section)</td>
</tr>
<tr>
<td>Mr Ross McAllum</td>
<td>EPA (Hazardous Materials, Chemicals and Radiation Section)</td>
</tr>
</tbody>
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# Acronyms and abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACPSEM</td>
<td>Australian College of Physical Scientists and Engineers in Medicine</td>
</tr>
<tr>
<td>ARPANSA</td>
<td>Australian Radiation Protection and Nuclear Safety Agency</td>
</tr>
<tr>
<td>CRE</td>
<td>consulting radiation expert</td>
</tr>
<tr>
<td>CT</td>
<td>computed tomography</td>
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<tr>
<td>EPA</td>
<td>Environment Protection Authority</td>
</tr>
<tr>
<td>Gy</td>
<td>Gray</td>
</tr>
<tr>
<td>HCCC</td>
<td>Health Care Complaints Commission</td>
</tr>
<tr>
<td>IAEA</td>
<td>International Atomic Energy Agency</td>
</tr>
<tr>
<td>MoU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>mSv</td>
<td>milliSievert</td>
</tr>
<tr>
<td>NDRP</td>
<td>National Directory for Radiation Protection</td>
</tr>
<tr>
<td>PET</td>
<td>positron emission tomography</td>
</tr>
<tr>
<td>RAC</td>
<td>Radiation Advisory Council</td>
</tr>
<tr>
<td>RHC</td>
<td>Radiation Health Committee (national)</td>
</tr>
</tbody>
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