Environment Protection Authority

Radiation Advisory Council

Annual report 2022–23

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Chairperson's review

The Radiation Advisory Council (the Council) provides advice to the Minister for Climate Change, Minster for Energy, Minister for the Environment, and Minister for Heritage, and the NSW Environment Protection Authority (EPA). The Council advises on matters in relation to the management of radiation in NSW under the *Radiation Control Act 1990* (the Act) and the Radiation Control Regulation 2013 (the Regulation).

In 2022–23 the Council:

- welcomed newly appointed members:
  - Ms Violeta Sutherland (nominee Secretary Ministry of Health)
  - Mr Anthony Margetts (person with expertise in mine radiation safety)
- congratulated re-appointed members: Mr Brent Rogers (person with expertise in health physics) and Mr Andrew Niven (person with expertise in work health and safety).
- acknowledged the contribution of Mr Mark Moskvitch (person nominated by the Secretary of the Department of Finance, Services and Innovation (now Customer Service) involved in the administration of the *Work Health and Safety Act 2011*) whose term expired on 17/10/2022 and who has agreed to continue to contribute to the Council meetings as an observer.
- farewelled and acknowledged the contribution and service of retiring member Mr John Stacpoole (person with expertise in mine radiation safety).

During this period the Council held six meetings and provided the EPA with advice on the administration of the Act and Regulation. The Council's work during the reporting period included:

- assisting in the review of the Regulation (see The Council's Work – Radiation Control Regulation 2013)
- consideration of national uniformity matters arising from the Radiation Health Committee (RHC) and enHealth initiatives (see The Council's Work – National Uniformity)
- providing advice to the EPA on non-standard radiation licence applications
- assessing radiation safety courses for radiation user licensing purposes
- reviewing matters arising from radiation user licences, radiation management licences and the accreditation of consulting radiation experts and security assessors
- providing advice in relation to radiation accidents and incidents reported to the EPA
- receiving presentations on phytosanitary irradiation (irradiation of fresh produce for pest control); and bereavement services radiation safety (see The Council's Work, Presentations to the Council).
- The Council's work continues to focus on its strategic objectives:
  - developing uniform regulatory initiatives through the National Directory for Radiation Protection (NDRP)
  - providing advice to the Minister on amendments to the Act and the remake of the Regulation
  - identifying and addressing emerging issues in radiation protection, such as new technology
  - identifying procedures and requirements to prevent or minimise dangers arising from the misuse of radiation sources.

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

- advising on the remake of the Regulation
- reviewing and contributing to national codes and standards in the NDRP, and RHC and enHealth initiatives

- providing advice to the EPA on licensing, accreditation, safety courses, and radiation accidents
- reviewing the work of the Council's committees.

I would like to acknowledge the commitment and contribution made by previous and existing members of the Council, and the EPA staff who support the Council.

Karen Marler
Chairperson
Radiation Advisory Council
October 2023

Composition of the Council

The 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 Climate Change, Minster for Energy, Minister for the Environment, and Minister for Heritage through the NSW Environment Protection Authority (EPA).

The Council consists of 17 members appointed by the Minister. Appendix A provides the current Council membership.

Annual report

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

Functions of the Council

The Council's function, under Section 30 of the Act, is to advise the Minister on:

- proposed amendments to the Act and the making, amendment or repeal of regulations under the Act
- the administration of the Act and the regulations
- measures to prevent or minimise the dangers arising from radiation
- the granting of exemptions authorised by the regulations for periods exceeding 60 days, and
- such other matters relating to radiation safety as the Minister considers appropriate.

The Council may at any time, and must on the request of the EPA, provide advice to the EPA about licences and accreditations under Part 2 of the Act.

The EPA exercises responsibilities and powers under the Act, and staff of the EPA provide secretariat support to the Council.

Meetings of the Council

During the reporting period ending 30 June 2023, the Council met six times.

Strategic direction

The Council endorsed the terms of reference for a Strategic Direction Committee to review and revise the Council's strategic direction document (see Council's Work – Committees of the Council – Strategic Direction Committee).

Until this review is complete, the Council will continue to focus on its strategic objectives:

- developing uniform regulatory initiatives through the National Directory for Radiation Protection
- reviewing and providing advice to the Minister on amendments to the Act and a remake of the Regulation
- identifying and addressing emerging issues in radiation protection, such as 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.

The Council's work

National uniformity

Australian jurisdictions have developed the National Directory for Radiation Protection to promote national uniformity. Jurisdictions agree to adopt codes and standards in the National Directory for Radiation Protection in their frameworks.

Radiation Health Committee

The Radiation Health Committee is responsible for developing codes and standards in the Radiation Protection Series for inclusion in the National Directory for Radiation Protection. The EPA represents NSW on the Radiation Health Committee.

During 2022–23, the Council was briefed on Radiation Health Committee activities and advised the EPA on matters, including:

- draft guidance for exposure to radon in the workplace
- draft dosimetry service providers standards
- proposed expansion of the Australian National Radiation Dose Register
- draft national standard for compliance testing of diagnostic imaging apparatus
- implementation guidance for RPS C-5 - Code for Radiation Protection in Medical Exposure
- Radiation Health Committee work program reviewing Radiation Protection Series and Radiation Health series publications, including:
    - RPS 5 - Code of Practice and Safety Guide for Portable Density/Moisture Gauges Containing Radioactive Sources
    - RPS 8 - Code of Practice for the Exposure of Humans to Ionizing Radiation for Research Purposes
    - RPS 10 - Code for Radiation Protection in Dentistry
    - RPS 11 - Code of Practice for the Security of Radioactive Sources
    - RPS 13 - Code of Practice and Safety Guide for Safe Use of Fixed Radiation Gauges
    - RHS No. 9 - Code of Practice for Protection Against Ionizing Radiation Emitted from X-ray Analysis Equipment
    - RHS No. 21 - Statement on cabinet X-ray equipment for examination of letters, packages, baggage, freight and other articles for security, quality control and other purposes
    - RHS No. 22 - Statement on enclosed X-ray equipment for special applications
    - Draft Nuclear medicine regulatory guidance and expectations document

EnHealth and Radiation Health Expert Reference Panel (RHERP)

In 2019 the Standing Committee on Environmental Health (enHealth) – a committee of the Australian Health Protection Principal Committee – established the Radiation Health Expert Reference Panel to advise enHealth on radiation health-related matters.

The EPA represents NSW on the Radiation Health Expert Reference Panel.

While the Radiation Health Committee's work plan focuses on the development of codes, guides and standards, the focus of Radiation Health Expert Reference Panel's work is to implement policy

and develop regulatory approaches with a view to achieving national consistency in the areas of radiation safety and protection, and to provide oversight of implementation of the findings from theInternational Atomic Energy Agency Integrated Regulatory Review Service 2017 Mission to Australia.

A return International Atomic Energy Agency mission, which will measure progress towards addressing its recommendations, is scheduled to occur in the second half of 2023.

The EPA, during the reporting period informed the Council that it had engaged a consultant to prepare the Integrated Regulatory Review Service return mission NSW self-assessment report in the latter part of 2023.

The Council, during the reporting period, was kept informed on the deliberations and recommendations arising from the Radiation Health Expert Reference Panel meetings.

Mutual recognition arrangements under occupational mobility reform

On 13 November 2020, National Cabinet endorsed the model and principles for automatic mutual recognition. Under the scheme, occupational licence holders from participating jurisdictions will be able to move interstate more easily for work.

During the reporting period the Council was briefed on the mutual recognition arrangements under occupational mobility reform, specifically:

- the automatic mutual recognition scheme is a streamlined alternative to the existing mutual recognition scheme and workers who are licensed or registered to carry out activities in their home Australian state or territory to carry out those activities in another state or territory without the need to apply and pay fees for a licence or registration there.
- automatic mutual recognition is available in all Australian states and territories except Queensland, which is not currently participating in the scheme. Automatic mutual recognition does not extend to New Zealand licences and registrations and arrangements under the existing trans-Tasman mutual recognition scheme continue to apply.

From 1 December 2022, NSW radiation occupational registrations were included in the automatic mutual recognition scheme, which includes radiation user licences and radiation security assessor accreditations. Workers from a participating state or territory who hold an interstate licence or registration equivalent to one of these NSW occupational registrations may be eligible to work in NSW under automatic mutual recognition.

Radiation Control Regulation 2013

Automatic repeal of the Radiation Control Regulation 2013 is scheduled to occur on 1 September 2024, unless remade, under the provisions of the *Subordinate Legislation Act 1989* (see Committees of the Council – Radiation Regulation Review Committee).

Presentations to the Council

During the reporting period the Council was provided with presentations on the following radiation matters:

- **phytosanitary irradiation (irradiation of fresh produce to manage pest control)**

  The presentation covered the purpose of phytosanitary irradiation, treatment methods, dosimetry, public perceptions, product labelling, knowledge and practise development, International Atomic Energy Agency guidance, industry and trade growth, and phytosanitary treatment in Australia. Phytosanitary irradiation of food does not currently take place in NSW.
- **bereavement services radiation safety**

  The presentation covered the current radiation regulatory requirements pertaining to bereavement services where a deceased person has received radiation therapy.

The Council noted that there is a need for clearer industry guidance on who is responsible for various aspects of cremation and burial pertaining to radiation safety requirements in cases where a deceased person has been treated with radiation therapy.

The EPA advised the Council that it is working directly with Cemeteries & Crematoria NSW to discuss industry guidance and will consult with NSW Health and The Cemeteries & Crematoria Association of NSW in the drafting of industry guidance.

Council advice to the EPA on 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)
- assessment of radiation safety courses, for radiation user licensing purposes (see Committees of the Council – Course and Competency Committee)
- accreditation matters and non-standard accreditation applications (see Licensing and accreditation)
- review of radiation accidents and incidents (see Radiation accidents).

Committees of the Council

The Council, under section 31 of the Act, can establish committees to help it perform its functions. In 2022–23, the following Council committees were active:

Course and Competency Committee

During the reporting period the committee continued to review radiation safety course applications for radiation user licensing purposes as part of its ongoing work and provided the Council and the EPA with its recommendations. The committee during this reporting period:

- recommended
  - the approval of five courses after additional information was provided.
  - one course not be approved until it is reviewed and amended as recommended by the committee. At the time of writing this report the course had not been resubmitted for consideration.
  - one nationally recognised course be referred to the Council for consideration in the next period.
- reviewed several persons' qualifications and experience seeking approval to deliver courses for radiation user licensing purposes and were satisfied that these persons held appropriate qualifications and experience to provide the nominated courses.

Radiation Regulation Review Committee

In the previous period, the Council agreed that the membership for the working group established to review the Act reconvene as the Radiation Regulation Review Committee to advise on the review of the Regulation. The committee met for the first time in June 2022.

During the reporting period the committee met on four occasions and provided the Council with an update of its work and progress on the review of the Regulation. The Committee considered issues, including:

- licensing and equipment exemptions
- radiation accident and incident definitions and reporting requirements

- radiation management plan requirements
- radiation safety officer/committee requirements
- personal monitoring of occupational doses, dosimetry approval and record-keeping
- transport, disposal and discharge of regulated material.

Standard 6 Review Committee

During the reporting period the Council established the Standard 6 Review Committee to review current requirements in *Radiation Standard 6: Compliance requirements for ionising radiation apparatus used in diagnostic imaging* (2020), which replaced *Radiation Guideline 6* (2004), being the mandatory requirements for all radiation apparatus used in diagnostic imaging from 5 April 2021.

During the reporting period the committee met twice to discuss amendments to Standard 6 as a result of the new requirements arising from the 2020 amended Standard 6.

In the next period, the committee will provide the Council with the revised Standard 6 and its six parts:

- Mammography
- Radiography (medical) and bone mineral densitometry
- Dentistry (including maxillofacial)
- Fluoroscopy
- Computed tomography
- Veterinary science (radiography and fluoroscopy).

Strategic Direction Committee

In June 2020, the Council established the Strategic Direction Committee to review the Council's strategic direction. During the last reporting period the Council endorsed the terms of reference and membership of the committee.

The EPA in this period informed the Council that the committee's work had not progressed due to changes in Government.

In the next period it is intended that the Council will:

- review the Council's strategic direction approach, objectives, priorities and achievements
- develop the Council's strategic approach and develop the Council strategic direction with objectives and priorities for the period 2024 to 2027
- ascertain whether outstanding projects need to be carried forward and/or new projects should be considered.

Licensing and accreditation

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

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

The Council, under section 30 of the Act, 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. The Council and the EPA work together on determining the outcomes of applications, as set out in the memorandum of understanding between the Council and the EPA.

During 2022–23, the Council:

- provided specific advice on licensing and accreditation matters (see Council's advice to the EPA)
- reviewed licensing and accreditation statistics reports provided by the EPA at each meeting.

Radiation user licences

Number of radiation user licences issued by the EPA

An individual who uses regulated material must hold a radiation user licence (under s 7 of the Act) to use that regulated material and must comply with any conditions to which the licence is subject.

During the reporting period ending 30 June 2023, the Council was advised that the EPA:

- issued 3,498 radiation user licences
- renewed 8,356 radiation user licences.

At the end of the reporting period, the EPA administered a total of 20,261 active radiation user licences (7,199 one-year licences and 13,062 three-year licences).

Council's advice to the EPA

During 2022–23, the Council provided the EPA with advice regarding radiation safety and licensing requirements as provided below.

Non-standard user licence applications

The Council reviewed and provided advice on seven non-standard user licence applications.

Radiation user licence criteria and conditions

During the reporting period the Council endorsed amendment to user licence conditions IA14R to use radiation apparatus for medical diagnostic radiography for remote operators, to clarify the user responsibilities and update requirements to take into account current technology and work practices (raised in the previous period). The Council asked that prior to the changes being implemented, the EPA liaise with NSW Health to review and update the schedule of location of the IA14R user licence.

The EPA reissued IA14R user licences with the new changes; and liaised with NSW Health regarding the status of the replacement of the remote operator's course (now no longer being provided). The EPA advised Council that NSW Health is liaising with the Health Education and Training Institute (HETI) regarding the remote operator's course.

Other radiation licensing matters

During the reporting period the Council:

- considered Australian Society of Medical Imaging and Radiation Therapy (ASMIRT) correspondence seeking advice on the potential for radiographic procedures being performed by remote control without the physical presence of a radiographer. The Council asked the EPA to investigate the matter further.

  The EPA in conjunction with the Council reviewed the current requirements relating to the use of diagnostic imaging apparatus by licensed medical radiation technologists, the provisions of the NSW Radiation Control Act and the national Code of Practice for Radiation Protection in Medical Exposure. Following this review the EPA found that under existing legislative

requirements in NSW, doing diagnostic medical radiographic examinations where the licensed radiographer is not physically present in the examination room to position the patient, would not be permitted. The EPA wrote to ASMIRT advising that the EPA and the Council agreed with it that such a practice is not in the best interest of the patient and does not align with the key principles of radiation protection.

- asked that the Council's regulation review committee consider a review of Schedule 3 exemptions in the Regulation pertaining to the wording and exemption of sealed irradiators, as currently it isn't clear what is exempt. The matter was referred to the regulation review committee to consider.
- received advice that the EPA had approved, a licence application to use radiation apparatus and radioactive substances for radiation oncology physics - under supervision (IA29S and S29S), out-of-session, on the advice of five Council's expert members.
- asked that the EPA review the S36 user licence (use radioactive substances for radiopharmacy) criteria and licence wording and to consider the Australian College of Physical Scientists and Engineers in Medicine accreditation in radiochemist/radiopharmacy as a criterion. At the time of writing this report the EPA was in the process of reviewing the S36 user licence requirements.

Radiation management licences

Number of radiation management licences issued by the EPA

Persons responsible for the regulated material are required (under s 6 of the Act) to hold a radiation management licence. This regulates, restricts or prohibits the possession, sale, storage, giving away, and disposal of regulated material to protect the community and the environment from exposure to radiation.

During the reporting period ending 30 June 2023, the Council was advised that the EPA issued:

- 340 general management licences
- 2 sell-only management licences.

The EPA, at the end of the reporting period, administered 3,002 active management licences (2,901 general and 101 sell-only).

Council's advice to the EPA

During 2022–23, the Council:

- reviewed Cyclotek NSW Pty Ltd revised radiation management plan for the operation of the cyclotron at Macquarie University Hospital. The Council requested further information be provided on the discharge limits into the environment and the life cycle of the cyclotron

  The Council received and reviewed the extra information pertaining to the radiation management plan and was satisfied, however asked that that although the limits on discharging into the environment are embedded in the EPA radiation management licence, that Cyclotek and other licensees include within their annual cyclotron reports, the limits used on discharging into the environment including reference documents.

  The Council also considered and were satisfied with the recommissioning documentation for the start of the Macquarie University Hospital cyclotron for commercial production of radiopharmaceuticals. On the advice of the Council the EPA granted Cyclotek NSW Pty Ltd approval to restart the cyclotron at Macquarie University Hospital for the commercial production of radiopharmaceuticals.
- considered the annual report on the operation of the Cyclotron - Southwest Sydney Local Health District, Liverpool Hospital.

- considered the annual report on the operation of the Cyclotron - Royal Prince Alfred Hospital . Council requested further information which was provided and was satisfied with the report fulfilling the requirements of the radiation management plan.
- considered the annual report on the operation of the Cyclotron - Cyclotek NSW Pty Ltd (Lucas Heights). Council requested further information which was provided and was satisfied with the report fulfilling the requirements of the radiation management plan.

Consulting radiation experts

Accreditation and activities of consulting radiation experts

The EPA accredits consulting radiation experts to assess apparatus and/or premises and issue a certificate of compliance verifying that the 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 2023, the Council:

- reviewed the proposed changes to the assessment of applicants seeking accreditation as consulting radiation experts for diagnostic imaging apparatus excluding mammography. The changes proposed by the EPA included the introduction of a standardised way to assess new consulting radiation experts. The Council endorsed the proposal as an interim measure until a training program for consulting radiation experts can be established.
- received advice from the EPA that the EPA had issued five non-standard accreditations on the advice of independent assessments carried out by Australian College of Physical Scientists and Engineers in Medicine accredited consulting radiation experts.

Number of consulting radiation experts accredited by the EPA

During the reporting period ending 30 June 2023, the Council was advised that the EPA held a total of 100 active accreditations.

Radiation security assessors

Accreditation and activities of radiation security assessors

Radiation security assessors are accredited to review source security and source transport plans to make sure they are made or amended according to the requirements of section 14 of the Act, and to endorse the plans that satisfy those requirements.

A person responsible for a category 1, 2 or 3 security-enhanced source must prepare and follow an endorsed source security or transport security plan as required under the provisions of Part 2A of the Act.

Number of radiation security assessors accredited by the EPA

During the reporting period ending 30 June 2023, the EPA advised Council that two radiation security assessors held active accreditation.

Summary of licences and accreditations issued by the EPA

Table 1 summarises active radiation licences and accreditations issued by the EPA at 30 June 2023.

Table 1: EPA radiation licences and accreditations as at 30 June 2023

Category	Number
Licence to use regulated material	20,261
Management licences (general)	2,901
Management licences (sell only)	101
Accredited consulting radiation experts	100
Accredited radiation security assessors	2
Total radiation licences and accreditations	**23,365**

Radiation accidents

Mandatory requirement to report radiation accidents

Clause 37 of the Regulation states the types of incidents classified as radiation accidents. Clauses 38 and 39 of the Regulation details the mandatory requirements imposed on persons responsible for regulated material for the reporting and recording of radiation accidents.

Causes of radiation accidents

Typically the root causes of radiation accidents are complex and usually involve many contributing factors. Accidents can be prevented by addressing one or more causal factors. Factors include deficiencies in management systems, a failure to implement controls and procedures correctly, communication errors and equipment failure.

The Council promotes the continual improvement of practices to reduce preventable accidents. The Council, through its membership affiliations, encourages safety leadership, thorough investigation of the cause of accidents as a means of improving risk controls and sharing lessons learned.

Serious accidents reported to the Health Care Complaints Commission

The EPA, as well as conducting its own investigations into possible breaches of the radiation legislation, has standing advice from the Council where any reported accident which may cause a patient to have a serious health-related affect be reported to the Health Care Complaints Commission for further investigation.

During the reporting period the Council did not recommend the referral of any accident to the Health Care Complaints Commission.

Australian Radiation Incident Register

The EPA reports all accidents reported to it to the Australian Radiation Protection and Nuclear Safety Agency for inclusion in the Australian Radiation Incident Register. The incident register is intended to raise awareness on where, how and why incidents and events happen, how they can be prevented and to facilitate the sharing of lessons learned from radiation incidents across Australia.

Number of accidents reported to the EPA

During the reporting period ending 30 June 2023, the EPA received, and the Council reviewed 278 accident reports:

- 190 instances involving 198 people who may have received doses of over 1 millisievert (mSv), summarised in Table 2
- 88 instances involving 89 people who may have received doses of less than 1mSv, summarised in Table 4.

Council's advice to the EPA

During this reporting period, the Council reviewed each accident report and where appropriate made recommendations that in its opinion would reduce the risk of a recurrence. In addition, the Council:

- recommended that the EPA amend the summary of accident reports to the Council so that all Cone Beam Computed Tomography accidents are grouped together and subdivided into various categories to enable better analysis of trends. The report was amended by the EPA as requested.
- asked the EPA to liaise with relevant radiation safety officers to ascertain why 50% of accidents reported at the Council's August 2022 meeting were equipment failures and whether there is a need for the Therapeutic Goods Administration to be informed. The EPA has reviewed the type of equipment failures that lead to reportable accidents and determined that reporting these to the Therapeutic Goods Administration would not be of any benefit as the types of malfunction varied in nature and were also distributed across multiple manufacturers.
- suggested there may be a need to ascertain whether personal monitoring services and personal monitoring devices providers, still meet the NSW personal monitoring devices requirements. The EPA advised the Council that the Australian Radiation Protection and Nuclear Safety Agency is currently developing a national framework for minimum requirements for personal monitoring badges.
- asked the EPA, due to the wide variety of dosimetry calculation sources used by persons reporting radiation accidents, to consider providing clear guidance to reporters on how to calculate doses and what reference sources should be used when calculating radiation accident doses. The EPA agreed to draft an information sheet with recommendations to reporters. At the time of writing this report the EPA was in the process of drafting an information sheet for persons reporting radiation accidents.

Summary of radiation accidents considered by Council in 2022–23

In 2022–23, 278 accidents were presented to the Council for comment. This total is a small increase in the number of accidents reported in the previous period (262).

Human error is the primary cause of reported accidents in this period with the majority (55%) due to failure to follow procedures or the incorrect interpretation of patient information.

Equipment failures remain a substantial cause of reported accidents, accounting for 32% of reports in this period (30% 2022 and 20% in 2021).

With human error as a leading contributor of most accidents, preventative strategies remain focused on improving the awareness of radiation workers, for example by improving systems that minimise misinterpretation or improve double-check procedures before any planned exposure.

Campaign and educational activities carried out by the EPA have led to the increased reporting of machine/software-based accidents in radiation oncology in 2022 and this has carried through to 2023.

Tables 2 and 4 provide summaries of the causes of accidents that were reported to the EPA and reviewed by the Council in 2022–23.

Table 2: Summary of causes of radiation accidents (>1mSv) reported in 2022–23, by accident category and type.

Type of accident	Nuclear medicine	Radiology	Therapy	Other	Total
Patient notes/plans/requests not interpreted/read/checked correctly	1	17	0	0	18
Incorrect isotope selected and drawn up	4	0	0	0	4
Incorrect isotope drawn up by supplier	0	0	0	0	0
Equipment/software failure	14	11	35	0	60
Booking/request error: Incorrect procedure requested for the right patient	1	2	0	0	3
Booking/request error: Failure to cancel booking	0	0	0	0	0
Booking/request error: Booking request not amended with new scan requested	0	0	0	0	0
Booking/request error: Same examination repeated	0	1	0	0	1
Booking/request error: Wrong patient name entered on request form	1	0	0	0	1
Radiopharmaceutical not administered correctly (injection into cannula)	1	0	1	0	2
Operator/medical radiation practitioner error	8	10	11	0	29
Physiology (failure of radiopharmaceutical)	1	1	0	0	2
Calculation error	0	1	0	0	1
Protocols not followed	6	15	18	0	39
Patient ID not checked	0	4	0	0	4
Industrial/other	0	0	1	0	1
Human error (other)	3	0	0	0	3
Unforeseeable patient factor	9	11	2	0	22
Total number of reported accidents	**49**	**73**	**68**	**0**	**190**

Table 3 gives the number of accidents, greater than 1mSv, reported to the Council between reporting period 2017–22.

Table 3: Accidents (>1mSv) reported to the Council between July 2017 and June 2022, by category.

Accident category	2017–18	2018–19	2019–20	2020–21	2022–22	2022–23
Nuclear medicine	48	47	49	54	51	49
Radiology	54	35	27	56	64	73
Therapy	3	7	9	22	57	68

Other	0	0	0	0	0	0
Total	**105**	**89**	**85**	**132**	**172**	**190**

Before 2018 the Council was only provided with summaries of accidents involving more than 1mSv of radiation.

Table 4 summarises the causes of incidents, less than 1mSv, that were reported to the EPA and reviewed by the Council during 2022–23.

Table 4: Summary of causes of radiation incidents (<1mSv) reported in 2022–23.

Type of accident	Nuclear medicine	Radiology	Therapy	Other	Total
Patient notes/plans/requests not interpreted/read/checked correctly	0	18	2	0	20
Incorrect isotope selected and drawn up	0	0	0	0	0
Incorrect isotope drawn up by supplier	0	0	0	0	0
Equipment/software failure	0	15	24	1	40
Booking/request error: Incorrect procedure requested for the right patient	0	2	0	0	2
Booking/request error: Failure to cancel booking	0	0	0	0	0
Booking/request error: Booking request not amended with new scan requested	0	0	0	0	0
Booking/request error: Same examination repeated	0	0	0	0	0
Booking/request error: Wrong patient name entered on request form	0	0	0	0	0
Radiopharmaceutical not administered correctly (injection into cannula)	0	0	0	0	0
Operator/medical radiation practitioner error	1	3	0	0	4
Physiology (failure of radiopharmaceutical)	0	0	0	0	0
Calculation error	0	0	0	0	0
Protocols not followed	3	9	2	1	15
Patient ID not checked	0	3	0	0	3
Industrial/other	0	0	0	0	0
Human error	0	1	0	1	2
Unforeseeable patient factor	0	2	0	0	2
Total number of reported accidents	**4**	**53**	**28**	**3**	**88**

Table 5 summarises reported incidents <1mSv between reporting period 2018–23.

Table 5: Summary of reported incidents <1mSv between 2018–23.

Accident group category	2018–19	2019–20	2020–21	2021–22	2023-23
Nuclear medicine	11	8	12	2	4
Radiology	57	21	64	72	53
Therapy	0	16	1	17	28
Other	1	1	0	0	3
Total	**69**	**46**	**77**	**91**	**88**

Appendix A: Council's membership in 2022–23

Member	Appointed position
Ms Karen Marler (Appointed 16/4/2021, term expires 15/4/2024)	Chairperson
Dr Philip Pasfield (re-appointed 8/6/2022, term expires 22/1/2025)	Medical practitioner who is a specialist in radiology
Mr Luke Platt (Appointed 8/6/2022, term expires 22/1/2025)	Radiographer with expertise in the field of human diagnostic radiography
Mr Frank Galea (Re-appointed 1/12/2020, term expires 30/11/2023)	Person with expertise in the industrial uses of radiation
Mr Brent Rogers (Re-appointed 19/12/2022, term expires 18/12/2025)	Person with expertise in health physics
Dr Hugh Dixson (Re-appointed 8/6/2022, term expires 22/1/2025)	Medical practitioner who specialises in nuclear medicine
Assoc. Prof. Lee Collins AM (Re-appointed 1/12/2020, term expires 30/11/2023)	Person with expertise in non-ionising radiation
Andrew Niven (Re-appointed 19/12/2022, term expires 18/12/2025)	Person with expertise in work health and safety
Ms Penny Murray (Appointed 1/2/2021, term expires 30/11/2023)	Person who is an Australian lawyer of at least seven years' standing
Ms Joanne Muller (re-appointed 16/4/2021, term expires 15/4/2024)	Person who represents community interests

Ms Violeta Sutherland (Appointed 1/8/2022, term expires 31/7/2025)	Person nominated by the Secretary of the Ministry of Health
Dr Dion Forstner (re-appointed 8/6/2022, term expires 22/01/2025)	Radiation oncologist
Mr Thomas Greig (Appointed 8/6/2022, term expires 22/01/2025)	Medical physicist
Vacant	Person nominated by the Secretary of the Department of Finance, Services and Innovation (now Customer Service) involved in the administration of the *Work Health and Safety Act 2011*
Mr Cameron Jeffries (Re-appointed 1/12/2020, term expires 30/11/2023)	Person with expertise in naturally occurring radioactivity
Mr Anthony Margetts (Appointed 19/12/2022, term expires 18/12/2025)	Person with expertise in mine radiation safety
Ms Taleen Shamlian (Appointed 16/4/2021, term expires 15/4/2024)	Person chosen by the Minister