

**Radiation Safety Advisory
Council
Annual Report 2022**

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Foreword

This is the 2022 annual report of the Radiation Safety Advisory Council (the Council), produced in accordance with section 85 of the Radiation Safety Act 2016 (the Act).

Section 85(1) of the Act requires the Council to provide the Minister of Health (the Minister) with a report, at least once each year, setting out advice provided to the Director for Radiation Safety (the Director), the Director-General of Health and the Minister over that period.

This annual report covers the Council's activities for the period 1 January 2022 to 31 December 2022.

The Council was established by section 80 of the Act and has the functions set out in section 81 of the Act.

For the reporting period, formal advice was provided to the Director under section 81(b)(ii) of the Act on adopting recommendations, policies, codes of practice and standards relating to radiation safety.

No recommendations and no advice were provided under section 81(a), 81(b)(i), 81(b)(iii) or 81(c) of the Act.

The Council's activities for the reporting period are set out in this report.

The Council's next annual report is due by 30 April 2024.

Two blue ink signatures are shown side-by-side. The signature on the left is more compact and stylized, while the one on the right is more fluid and extends further to the right.

Brian Lunt
Chairperson
Radiation Safety Advisory Council

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Background

The Radiation Safety Act 2016

The Radiation Safety Act 2016 (the Act) came in force in March 2017 to establish a framework to protect the health and safety of people and protect the environment from the harmful effects of ionising radiation while allowing for the safe and beneficial use of ionising radiation. The Act also enables Aotearoa New Zealand to meet its international obligations relating to radiation protection, radiation safety and security, and nuclear non-proliferation. The Act repealed and replaced the Radiation Protection Act 1965.

Administration of the Act

The Minister of Health (the Minister) is the Minister responsible for the Act and Manatū Hauora (the Ministry of Health, the Ministry) administers the Act. The Ministry's Office of Radiation Safety (ORS) conducts the day-to-day administration of the Act, and ORS is managed by the Director for Radiation Safety (the Director). Most of the duties and functions of the Act rest with the Director. The Director-General of Health has some duties under the Act in relation to appointing and employing the Director. The Minister has powers and duties under the Act to: appoint Radiation Safety Advisory Council (Council) members, request advice from the Council, grant authorisations with respect to nuclear material (currently delegated to the Director), recommend fees and some exemptions made in regulations and recommend the setting of acceptable levels of radioactivity and dose limits specified in the Act.

Besides the Act, other radiation safety requirements are specified in the Radiation Safety Regulations 2016 (the Regulations) and Codes of Practice (the Codes) issued under the Act. The Codes specify the technical requirements that individuals and organisations must comply with when they deal with radiation sources.

ORS also provides secretariat support for the Council.

The Radiation Safety Advisory Council

The Act requires the Council to have 4 members to constitute a quorum and to consist of at least:

- 2 members who have appropriate knowledge, expertise or interest in radiation and nuclear safety and
- 2 members who have appropriate knowledge and experience in the use of radiation and radiation sources and
- 1 lay member.

The Council is funded to comprise up to 7 members. The Act requires the Council to appoint a member as the chairperson and provides discretion for the Council to appoint another member as the deputy chairperson. Members are appointed within the terms and conditions specified by Cabinet for this type of committee.

Council members for the 2022 annual report year were:

- Brian Lunt (chairperson), medical physicist in the public and private Aotearoa New Zealand health care sectors
- Lois Hutchinson (deputy chairperson), former chief executive of the Transport Accident Investigation Commission
- Karen Coleman, radiology manager at Te Whatu Ora – Capital, Coast and Hutt Valley
- Dr Andrew Cousins, chief radiation oncology physicist at Christchurch Hospital
- Carl Dawson, managing director of Radiation Protection Services Ltd
- Dr John Laban, radiation physics consultant, BSc (Hons) and PhD in solid states physics.

Functions

The Council is part of the established radiation safety framework, contributing to the protection of people and the environment from the harmful effects of ionising radiation. The Council achieves this by carrying out the functions set out in section 81 of the Act. The Council provides independent advice to the Director, the Minister or the Director-General of Health on matters and standards relating to radiation safety. The Council may also make recommendations to:

- the Minister on exercising the Minister’s powers under the Act
- the Director on adopting recommendations, policies, codes of practice and standards relating to radiation safety
- the Director in respect of authorisations referred to it by the Director.

In carrying out its functions, the Council may appoint advisory or technical committees under section 82 for the Act, regulate its procedure in any manner it thinks fit under section 83 of the Act and consult any person or body it considers appropriate under section 84 of the Act.

Council activities in 2022

The Council held 4 meetings over the 2022 reporting period, with the support of the secretariat. A significant focus for the year has been on ensuring the Council is functioning appropriately by developing and documenting its procedures under section 83 of the Act. Other matters considered by the Council were general matters on radiation safety and codes of practice for the mining industry as described below.

- Council administration
 - Finalising and documenting Council procedures under section 83(1) of the Act
 - Further considering Council membership to recognise: its lack of medical oncology expertise, members' first terms expiring in 2023 and the ongoing issue of maintaining a quorum.
- General matters
 - Considering emerging radiation safety issues
 - Providing regulatory oversight of cyclotrons and related technologies
 - Considering whether Aotearoa New Zealand's radiation safety legislation adequately addresses the International Atomic Energy Agency's (IAEA's) standards for naturally occurring radioactive materials (NORM), with particular reference to bulk material
 - Considering personal dosimetry monitoring requirements
 - Considering survey meters – equipment to detect and measure ionising radiation.
- Codes of Practice:
 - Mining, focusing on industrial use of radiation source licensing (continuing work begun in 2021)
 - Personal dosimetry dose records.

The matters raised in this reporting period remain under consideration and form part of the 2023 work programme.

Advice and recommendations

The Council received no requests for advice from the Director or the Minister on general matters relating to or affecting radiation safety or standards relating to radiation safety under s81(a) of the Act.

The Council provided no advice or recommendations to the Minister on the exercise of the Minister's powers under s81(b)(i) of the Act.

Recommendations

3 formal recommendations were made to the Director under section 81(b)(ii) of the Act.

1. Letter of recommendation (LOR#2-22/1) 'Radiation safety aspects of I131 treatment of thyrotoxic cats'
2. Letter of recommendation (LOR#3-22/1) 'Equipment for the detection and measurement of ionising radiation'
3. Letter of recommendation (LOR#5-22/1) 'Adoption of the ISO/IEC Directives, Part 2 Principles and rules for the structure and drafting of ISO and IEC documents – Section 7 Verbal forms for expressions of provisions in the writing of Codes'.

Summary of recommendations

LOR#2-22/1: Radiation safety aspects of I131 treatment of thyrotoxic cats

Background

The Council noted that the iodine-131 (I-131) treatment of thyrotoxic cats is increasing in veterinary practices under conditions where there is no longer a specific code of practice covering veterinarian therapeutic use of I-131. This elevates the radiation safety risk where the radiation safety aspects are not well managed.

Summary of recommendation

The Council recommended the Director appoint a technical committee or expert to publish guidance notes¹ or a code of practice covering the therapeutic use of I-131 in the veterinary setting.

LOR # 3-22/1: Equipment for the detection and measurement of ionising radiation (survey meters)

Background

The use of equipment for detecting and measuring ionising radiation is a legal requirement under Codes issued under section 86 of the Act. The safe use of such equipment requires the support of specialist knowledge and appropriate guidelines to verify the equipment is suitable for individuals and/or organisations to use. It is generally expected that individuals and/or organisations with responsibility for a radiation source will have access to suitable equipment for detecting and measuring ionising radiation. Specialist guidance is needed to verify that the 'suitable equipment' is fit for its intended purpose.

The Council made 3 recommendations to the Director to ensure the appropriate level of technical guidance is specified and accessible to minimise the risks of adverse consequences from people using unsuitable equipment.

Summary of recommendations

1. Where the use of equipment for the detection and measurement of ionising radiation is either an explicit or implicit regulatory requirement, the Council recommended ORS set

¹ As referenced in Ministry of Health. 2020. *Code of Practice for Veterinary Radiation: ORS C9*. Wellington: Ministry of Health. URL: www.health.govt.nz/publication/code-practice-veterinary-radiation

out minimum technical equipment specifications directly or by reference to a suitable standard(s) in either the Codes or as guidance notes.

2. The Council recommended ORS publish an equipment selection guide to help with selecting the most appropriate type of equipment and the essential characteristics for each use case (fitness for purpose) encountered within the Aotearoa New Zealand context as a guidance note.
3. The Council recommended ORS publish a guide detailing how equipment is to be used to satisfy the associated regulatory requirement. This guide would include acceptable methods for determining the minimum detectable activity for situations where contamination monitoring is undertaken.

LOR# 5-22/1: Adoption of the ISO/IEC Directives in the writing of Codes

Background

The Council has noticed variability in the structure and style of Codes, with some written more prescriptively than others. This variability lends itself to inconsistencies in the application and interpretation of the Codes and variation from international standardised terminology.

Summary of recommendation

To mitigate the risk of inconsistent application and interpretation of Codes, the Council recommended the Director adopt *ISO/IEC Directives, Part 2 Principles and rules for the structure and drafting of ISO and IEC documents*,² section 7: Verbal forms for expressions of provisions.

Requests for information from the Director

The Council requested further information from the Director on the following 2 matters under consideration.

1. Letter to the Director (LD#1-22/1) 'Re: Inclusion of IAEA recommendations for bringing bulk materials under the Radiation Safety Act'. This request seeks advice on the appropriate mechanism to ensure regulatory oversight of bulk materials in Aotearoa New Zealand.
2. Letter to the Director (LD#4-22/1) 'Clarification on the requirement to obtain previous dose records'. This request seeks information about the intent of existing requirements to do with record keeping in Codes issued under section 86 of the Act.

² ISO/IEC. 2021. *ISO/IEC Directives, Part 2, Principles and rules for the structure and drafting of ISO and IEC documents, Ninth Edition 2021*. Geneva: International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC). URL: www.iso.org/sites/directives/current/part2/index.xhtml

Work programme for 2023

The Council considered a wide range of potential topics for its work and developed a work programme for the 2023 reporting period. Areas under active consideration for the next reporting period are described below.

General matters

- Cyclotrons (used to manufacture radiopharmaceuticals)
- Council administration: members' appointments
- Authorisations (licences and consents granted under the Act)
- Codes: NORM, adoption of the ISO/IEC directives when writing Codes
- Standards: disposal of radiation sources.

Next annual report

The Council's next annual report will be for the period 1 January 2023 to 31 December 2023 and is due by 30 April 2024.

Appendix 1: Membership

Brian Lunt (Chairperson)

Brian has worked as a medical physicist involved in the safe and effective application of radiation in diagnostic radiology, nuclear medicine, cardiology, dentistry and veterinary medicine in the public and private health care sectors in Aotearoa New Zealand.

Lois Hutchinson (Deputy chairperson)

Lois is the former chief executive of the Transport Accident Investigation Commission. She has 30 years' experience in senior executive roles across the state sector, working in health delivery, regulatory services and transport. She developed particular expertise in delivering both domestic and international mandated services that operate to avoid or reduce harm to people and organisational operating environments. Lois holds master's degrees in public policy (Victoria University of Wellington) and managing organisational performance (Cranfield University, United Kingdom). She was made a Fellow of the Australian Institute of Health and Safety (Hon.) in 2019 and was appointed to the WorkSafe New Zealand board in 2022.

Karen Coleman

Karen has significant experience at the managerial level in radiation safety. She was the director and head of the radiation therapy department at the University of Otago for 17 years and is currently the radiology manager at Hutt Hospital, Te Whatu Ora – Capital, Coast and Hutt Valley. Karen has held several directorship roles for various governance boards, including being president of the New Zealand Institute of Medical Radiation Technology (NZIMRT). Her qualifications include a Bachelor of Science with honours.

Dr Andrew Cousins

Andrew has over 20 years' clinical experience working as a radiation oncology medical physicist in the United Kingdom and Aotearoa New Zealand with experience in scientific research and consulting. He is the chief radiation oncology physicist at Christchurch Hospital and sits on other national and international advisory groups, including being a current director of the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM).

Carl Dawson

Carl has a background in electronic and software engineering and is the managing director of Christchurch-based ancillary radiation services provider Radiation Protection Services Ltd (RadPro). RadPro supplies personal dosimetry, protection-level instrument calibration and analytical and consultancy services to users of ionising radiation in Aotearoa New Zealand. Before starting RadPro, Carl was based at the National Radiation Laboratory, Christchurch, supporting their operational and regulatory activities.

Dr John Laban

John has worked in the radiation protection industry in Aotearoa New Zealand for 25 years as an advisor, scientist, consultant and medical physicist, providing training and services related to radiation physics and safety. He is currently engaged by Te Whatu Ora and private radiology practices, providing medical physics support for their diagnostic imaging services.

Appendix 2: Table of topics 2022

Reference File reference for year item activated	Topic	Action	Stage As at end of reporting period	Closing action
1-22	NORM in mining	Letter to Director (LD#1-22/1)	Council has received acknowledgement from the Director	
2-22	I-131 treatment of thyrotoxic cats	Recommendation – LOR#2-22/1	Council has received acknowledgement from the Director	
3-22	Survey meters: Equipment for detecting & measuring ionising radiation	Recommendation – LOR#3-22/1	Under consideration by the Director	
4-22	Personal dosimetry	Request for information – Letter to Director (LD#4-22/1)	Under consideration by the Director	
5-22	Adoption of ISO/IEC directives	Recommendation – LOR#5-22/1	Council has received acknowledgement from the Director	