



**Australian Government**

**Australian Radiation Protection  
and Nuclear Safety Agency**



# Australian National Radiation Dose Register

ANRDR in Review

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# ANRDR Background

Conceived in 2006 as a recommendation from Uranium Industry Framework report to Senate

Launched in 2010 to uranium mining and milling industry with full coverage from 2011

Contains dose records of over 44,000 individuals (uranium, mineral sands and Commonwealth entities)

# ANRDR Vision

To provide the long term storage and maintenance of radiation dose records for all occupationally exposed individuals in Australia.

# International best practice

Exposure records for each workers shall be maintained during and after the worker's working life, at least until the former worker attains or would have attained the age of 75 years and for not less than 30 years after cessation of the work in which the worker was subject to occupational exposure.

IAEA, 2014. Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, General Safety Requirements Part 3, Section 3.104.

- This requirement has been adopted by Commonwealth, state and territory legislation across Australia.
- International best practice is moving towards centralised national dose registers to store and maintain dose records of occupationally exposed workers.

# Australian overview

Australia is a multi-jurisdiction Commonwealth

Each jurisdiction is responsible for their own radiation safety legislation

The Radiation Health Committee (RHC) is responsible for national uniformity



# Radiation Protection Legislation

## Jurisdictions with overarching radiation protection legislation

- Victoria, Tasmania, South Australia, ACT & Commonwealth

## Jurisdictions with multiple legislation

- Northern Territory, Western Australia, Queensland & New South Wales

13 stakeholders to engage for radiation protection harmonisation

# Role of ARPANSA

We are the Australian Government's primary authority on radiation protection and nuclear safety. We protect the Australian people and the environment from the harmful effects of radiation through understanding risks, best practice regulation, research, policy, services, partnerships and engaging with the community.

# ARPANSA Objectives

Protect the public, workers and the environment from radiation exposure

Ensure radiological and nuclear safety and security and emergency preparedness

Promote the effective use of ionising radiation in medicine

Ensure effective and proportionate regulation and enforcement activities



# Radiation Health Committee

The role of the Radiation Health Committee is to advise the CEO and the Radiation Health & Safety Advisory Council on matters relating to radiation protection, including formulating draft national policies, codes and standards for **consideration** by the Commonwealth, states and territories.

# Fundamentals, Codes & Guides

## Fundamentals

- describe fundamental safety and security objectives.
- explanatory and non-regulatory
- describe the concepts and objectives of international best practice.

## Codes

- regulatory in style and may be referenced by regulations or conditions of licence.
- contain either general safety or security requirements
- provide overarching requirements

## Guides

- provide recommendations and guidance on how to comply with the Codes or apply the principles of the Fundamentals.
- explanatory and non-regulatory
- indicate measures recommended for good practice

# An NDR is an important part of record management

Key benefits include:

Provide dose history reports to workers

- Consolidation of dose records in one location
- Work planning and new employment

Enhances regulatory control

- Notification of overexposures

Provides feedback to industry and regulators on dose trends

- Maximum/averages for industries, workgroups and jurisdictions

Improves radiation protection of workers

- Awareness and dose optimisation

Contributes to health research and to scientific knowledge

- Epidemiology, IAEA, UNSCEAR, etc.

# What information do we collect?

## Employer details

- Business name
- ABN
- DSP
- Methodology
- Protection factors

## Personal information

- Full name
- DoB
- Gender
- Employee number

## Worker categorisation

- To allow for valid dose comparisons

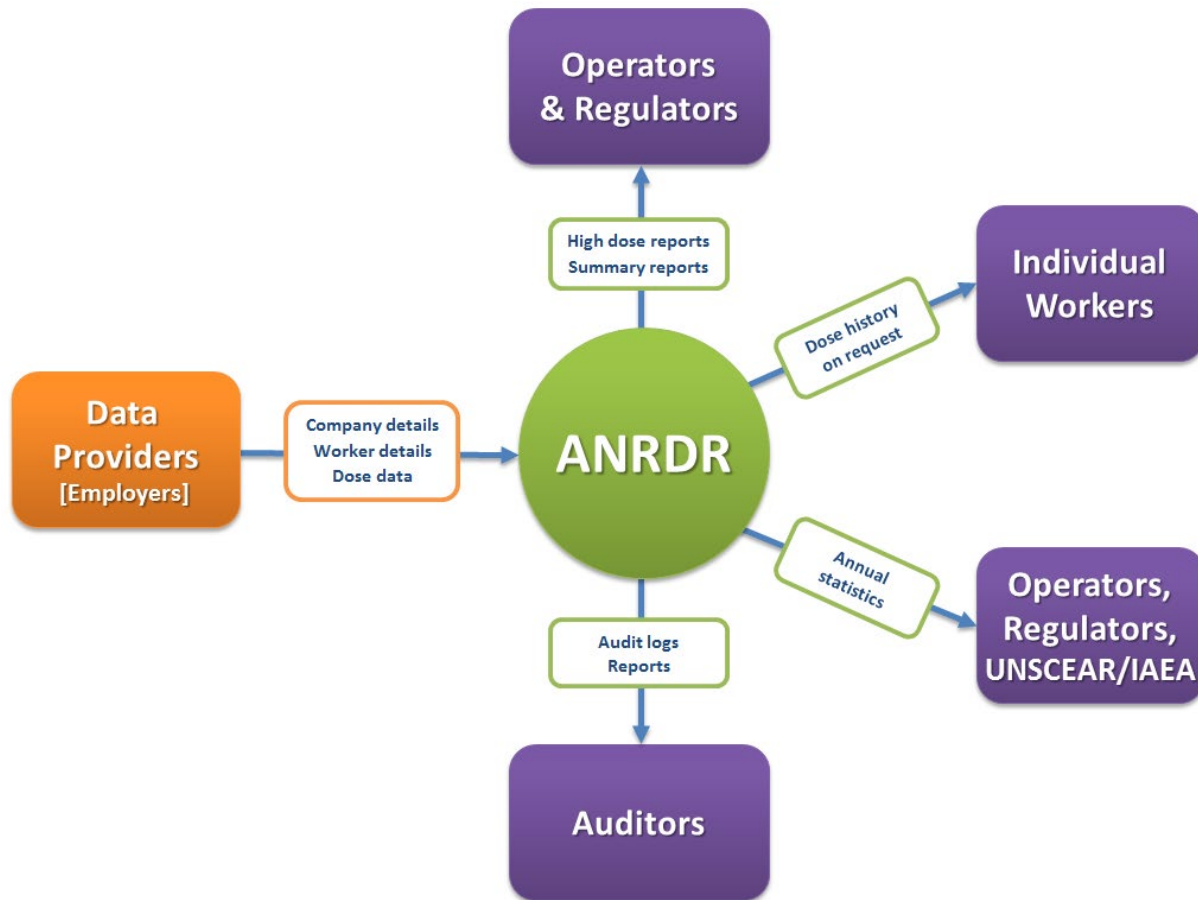
## Measure of external doses

- Photons, neutrons
- Hp(10)
- Extremities
- Skin

## Assessment of internal doses

- Inhalation
- Ingestion
- Wounds

# ANRDR data flow



# Challenges

## National uniformity

- Dose assessment and record management practices vary greatly within industry and across jurisdictions

## Privacy

- Perceived privacy issues
- Privacy Impact Assessment
- Privacy statement

## Existing framework

- Not conducive to establishment of an NDR
- Code of Radiation Protection in Planned Exposure Situations (ARPANSA 2016)
- Need to work with regulators and DSPs

# Privacy Concerns

Office of Australian Information Commissioner advises that exposure records are a part of the employee record

Disclosure of employee records directly relating to current or past employment are exempt from Australian Privacy Principles

Legal and reasonable expectation models also allow for disclosure

# ANRDR National Implementation Options

National Directory for Radiation Protection (NDRP)

- Guidance for jurisdictions to adopt

Reference to RPS C-1 with submission to ANRDR

- Does not have to be adopted

Direct submission from DSPs

- Working with DSP accreditation program for direct submission



# ANRDR Approach

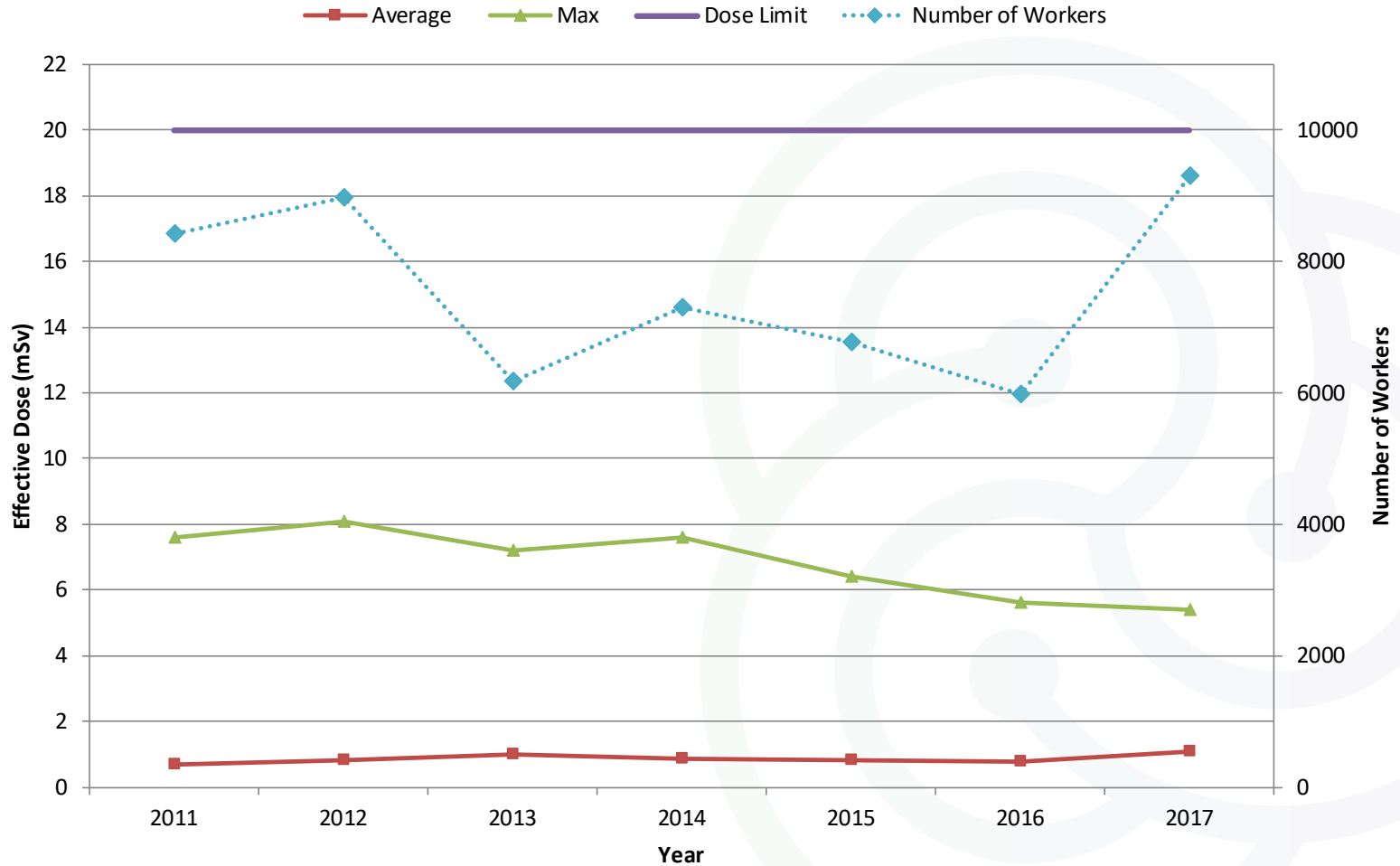
Development of an ANRDR regulator portal

Influencing jurisdictional regulators to add submission requirements to licences or regulations

Working with DSPs and accreditation program to include mandatory submission of doses to ANRDR

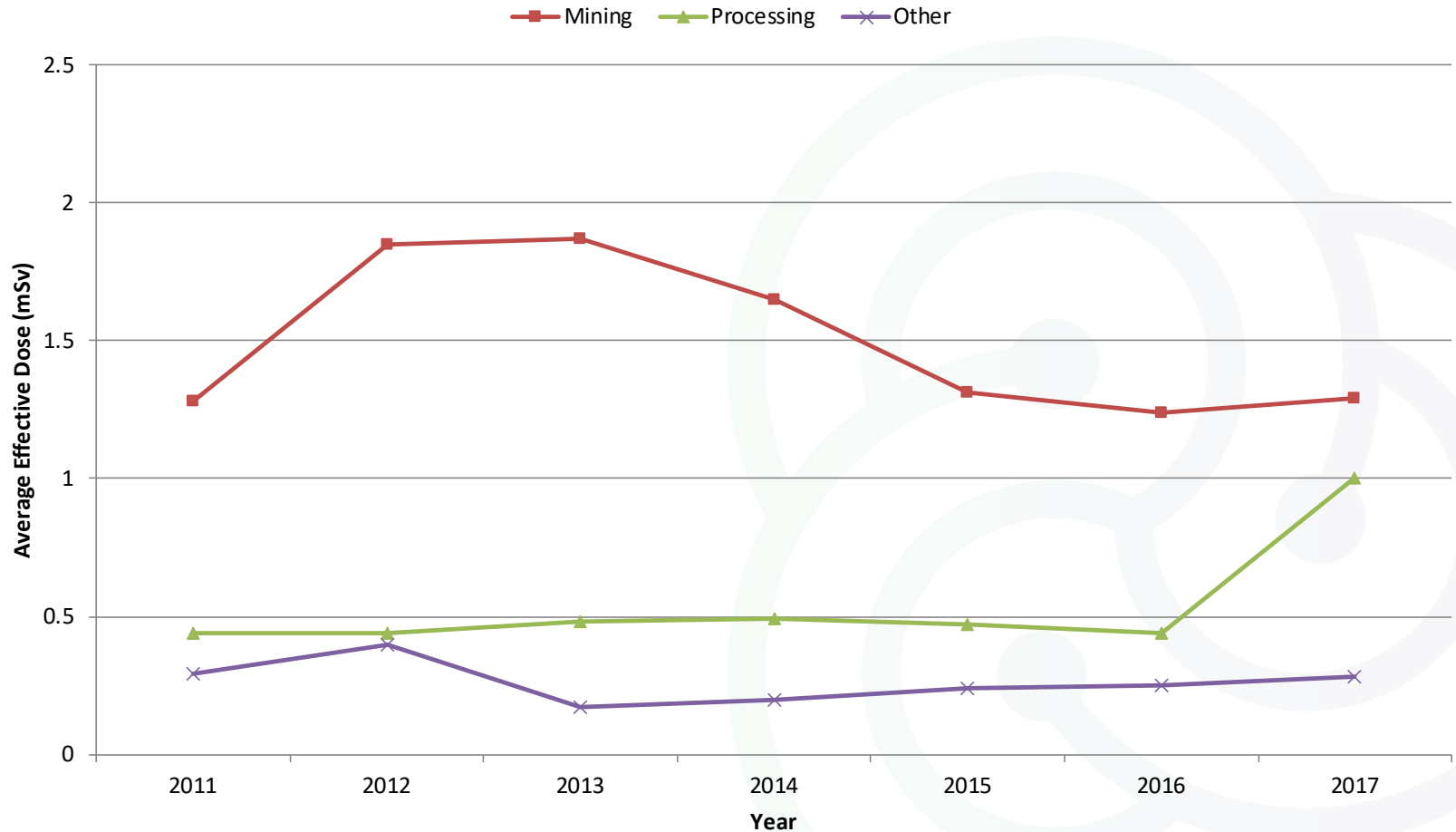
# Data analysis

Uranium industry average and maximum effective doses with workforce numbers



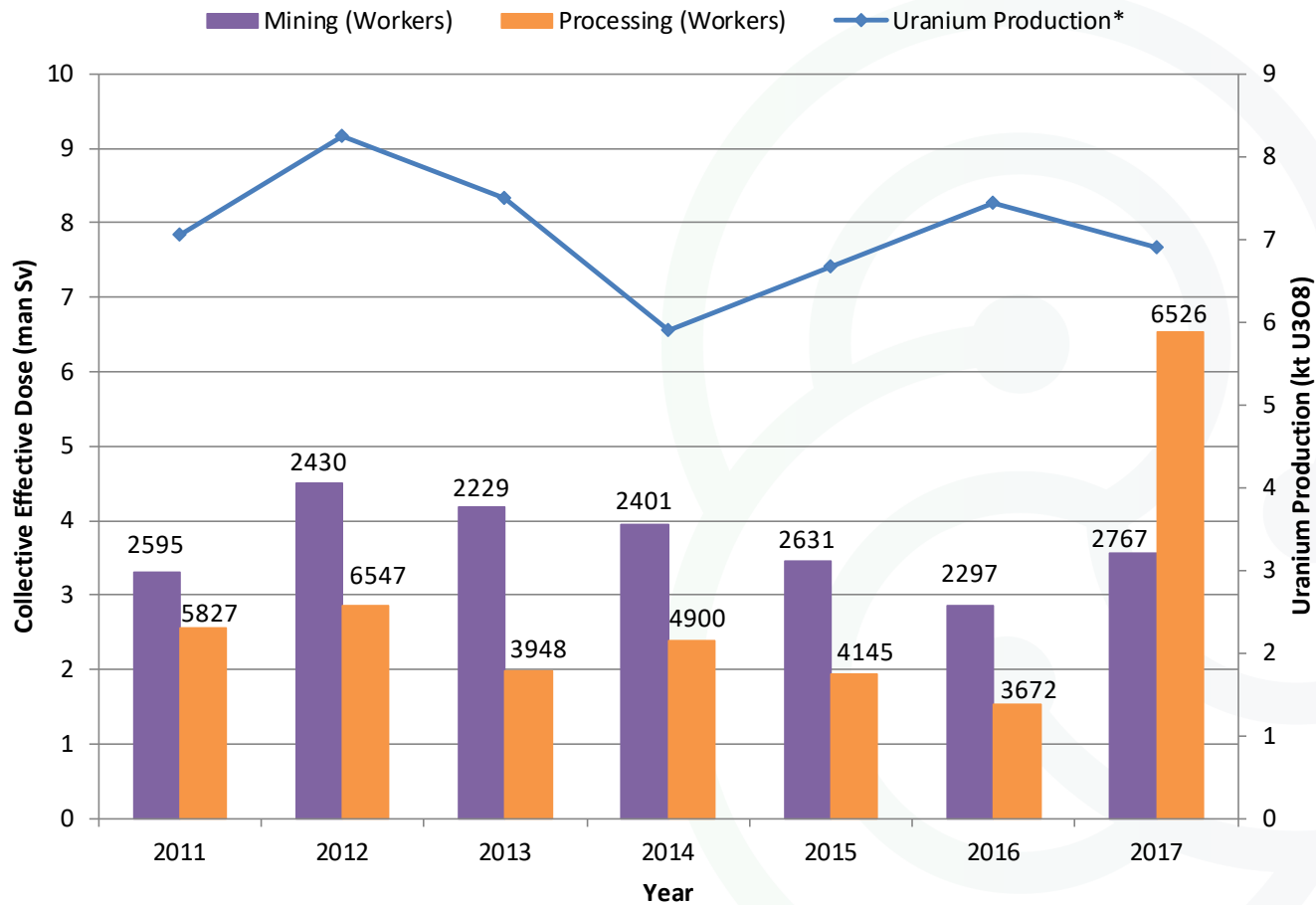
# Data analysis

## Uranium industry effective doses by worker categories



# Data analysis

Australian uranium industry collective effective doses and uranium production, with worker numbers



# Dose history reports

## AUSTRALIAN NATIONAL RADIATION DOSE REGISTER

619 Lower Plenty Road, Yallambie, Victoria 3085 Phone: (03) 9433 2211 Fax: (03) 9432 1835 E-mail: ANRDR@arpansa.gov.au

### Total Effective Dose Reported to the ANRDR for CAMERON LAWRENCE (ANRDR Registration No. 1451)

Year	Annual Total Effective Dose (mSv/year)	Five Year Average Annual Effective Dose (mSv/year)
2007	1.36	-
2008	1.27	-
2009	0.69	-
2010	0.45	-
2011	0.44	0.84
2012	N/A	0.57
2013	N/A	0.31
2014	N/A	0.18
2015	N/A	0.09
2016	N/A	-
2017	N/A	-

12/11/2017

CAMERON LAWRENCE (ANRDR Registration Number: 1451)

Page 4 of 12

### Reporting Group Details

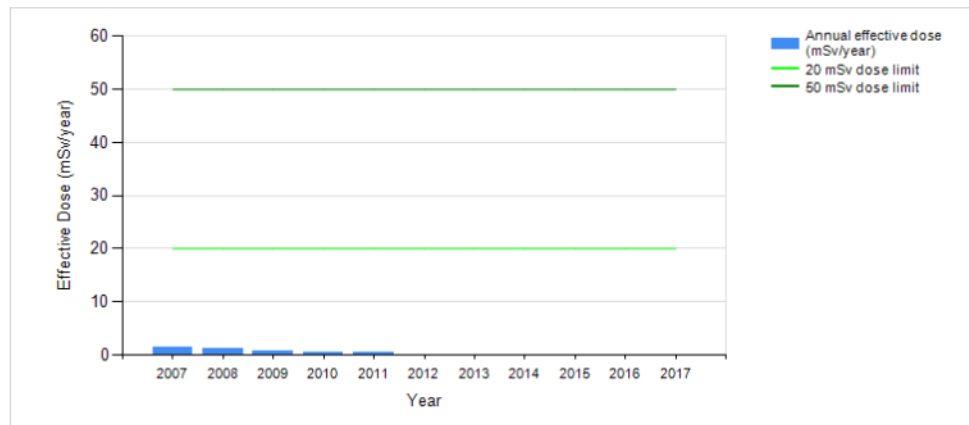
Company Identifier	Company Name
1001	BHP Billiton Olympic Dam

### Detailed ANRDR Dose Records for CAMERON LAWRENCE (ANRDR Registration No. 1451)

Period	Company ID	Company Name	Dose Type	Dose Situation	Dose (mSv)
2007 Apr-Jun	1001	BHP Billiton Olympic Dam	Gamma	Occ.	0.09
			Particle	Occ.	0.06
			Rn-222	Occ.	0.09
2007 Jul-Sep	1001	BHP Billiton Olympic Dam	Gamma	Occ.	0.19
			Particle	Occ.	0.55
			Rn-222	Occ.	0.11
2007 Oct-Dec	1001	BHP Billiton Olympic Dam	Gamma	Occ.	0.10
			Particle	Occ.	0.07
			Rn-222	Occ.	0.11
2008 Apr-Jun	1001	BHP Billiton Olympic Dam	Gamma	Occ.	0.10
			Particle	Occ.	0.21
			Rn-222	Occ.	0.21

### Annual Effective Dose Limits

- 20 mSv per year, averaged over a period of five consecutive calendar years [1]
- 50 mSv in any single year



# Worker Outreach Program

The ANRDR team takes a holistic approach to stakeholder engagement by providing support, advice and education on the ANRDR and other radiation protection matters.

The purpose of the Worker Outreach Program is to:

- **Educate** worker on the existence, purpose and benefits of the ANRDR
- **Encourage** workers to periodically request their personal dose history reports
- **Empower** workers to take a proactive approach in optimising radiation protection in their workplace

# Worker Outreach Program

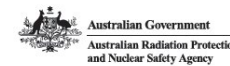
## Poster series and newsletter



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The ANRDR is working  
with your employer to  
**maintain your dose history.**

Find out more about the **Australian National Radiation Dose Register**  
and request your free dose history report.

[arpansa.gov.au/ANRDR](http://arpansa.gov.au/ANRDR)

1800 022 333



When was the last time you  
requested **your radiation  
dose history?**

Find out more about the **Australian National Radiation Dose Register**  
and request your free dose history report.

[arpansa.gov.au/ANRDR](http://arpansa.gov.au/ANRDR)

1800 022 333



The ANRDR can track your  
**radiation dose history,**  
even if you change jobs.

Find out more about the **Australian National Radiation Dose Register**  
and request your free dose history report.

[arpansa.gov.au/ANRDR](http://arpansa.gov.au/ANRDR)

1800 022 333

# Summary

- A national dose register is an **important part** of a radiation protection framework
- A national dose register needs to have **complete coverage** of all occupationally exposed workers to be successful
- A **regulatory framework** must support the disclosure of dose records
- **Engagement with stakeholders** (regulators, employers, workers and DSPs) is imperative





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# THANK YOU

## CONTACT THE ANRDR

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