Australian Government
Australian Radiation Protection and Nuclear Safety Agency

Expansion of the Australian National Radiation Dose Register

Sarsha Collett, Robert Guilfoyle, Ben Paritsky

Sarsha.Collett@arpansa.gov.au

Overview

- International best practice
- Australian National Radiation Dose Register
- Proposed expansion of the ANRDR
- Mineral sands industry review
  - methodology
  - results
  - draft recommendations
- Practical considerations for implementation

International Best Practice

Exposure records for each worker 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, 2011. Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, General Safety Requirements Part 3 (Interim Edition), Section 3.104.

- This requirement has been adopted in Commonwealth, State and Territory legislation across Australia
- International best practice is moving towards a centralised national dose register to collect dose history records of occupationally exposed workers

Australian National Radiation Dose Register

- The ANRDR is a centralised database designed for the collection and long-term storage of radiation dose records for uranium mine workers
- Database opened in July 2010
- Dose data is uploaded to the ANRDR by uranium operators through a secure web portal
- Currently holds dose records for more than 27,000 workers from the uranium industry

ANRDR – Where to From Here?

Current Limitations of the ANRDR

- ANRDR was designed for uranium mining and milling workers
- Current application to workers in planned exposure situations
  - not existing exposures

Future of the ANRDR

- Evaluate expansion of the ANRDR to include other workers occupationally exposed to radiation
- Desirable for all occupationally exposed workers in Australia to be included in the ANRDR to ensure the ANRDR is in-line with international best practice for recording dose data in a national database

Proposed Expansion of the ANRDR

Phase 1

Mining

- Mineral sands mining and processing

Phase 2

Commonwealth

- CSIRO, Defence, AFP, AQIS, ANSTO

Phase 3

Medical, Research & Industrial

- Hospitals, Educational Institutions, Dental, Veterinary

?

Existing Exposure Situations

- Aircrew

Mineral Sands Industry Review

Scope of the Review

- Identify mineral sands operations to assess the number and types of workers monitored for radiation exposure
- Gather information on how radiation dose reporting and data management occurs across different operations and jurisdictions
- Identify legislative issues impacting on the collection and disclosure of dose records to the ANRDR
- Provide recommendations that will inform future decisions for expansion of the ANRDR to the mineral sands industry

Methodology

STAKEHOLDER ANALYSIS

Identified key industry and government stakeholders

DESKTOP RESEARCH

Reviewed data and literature on mineral sands mining and radiation protection considerations

DATA COLLECTION

Circulated a survey to mineral sands operations

Performed a review of the relevant legislation

ANALYSIS AND REPORTING

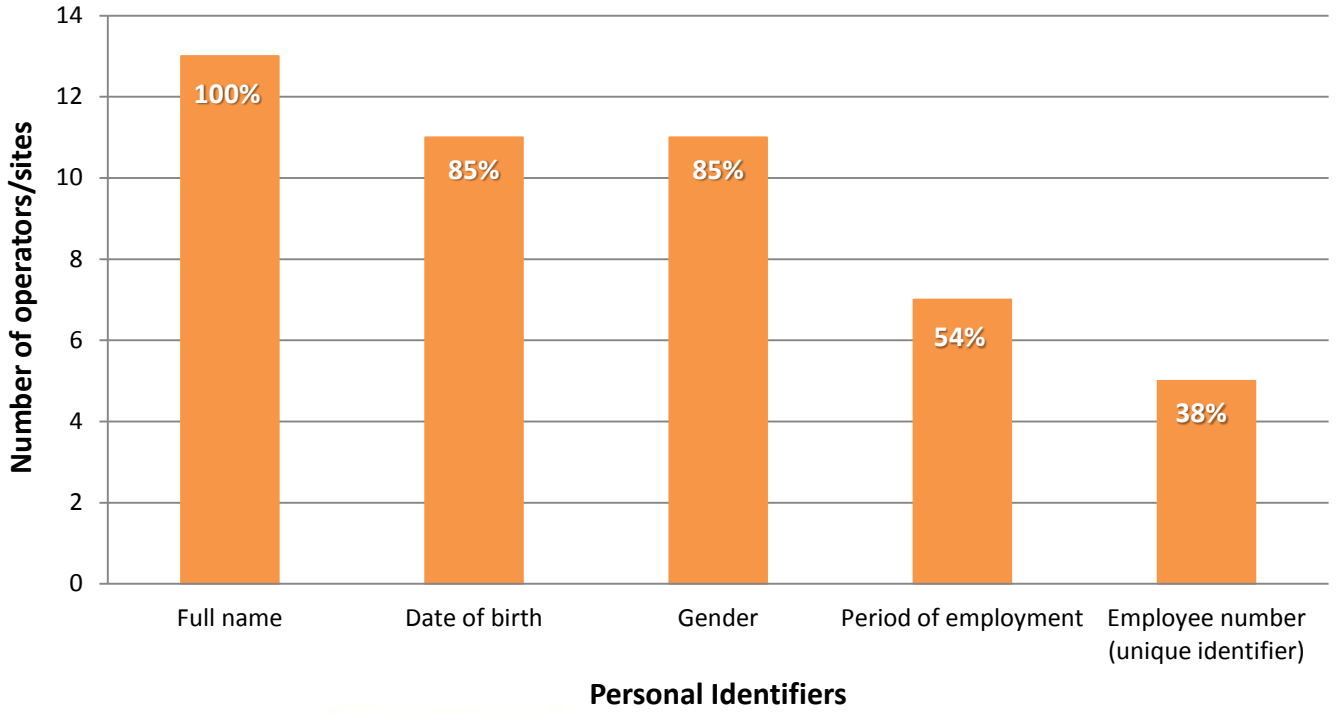
Key findings and recommendations presented in an ARPANSA Technical Report

INDUSTRY FEEDBACK

Technical Report to be reviewed by industry prior to publication in late 2013

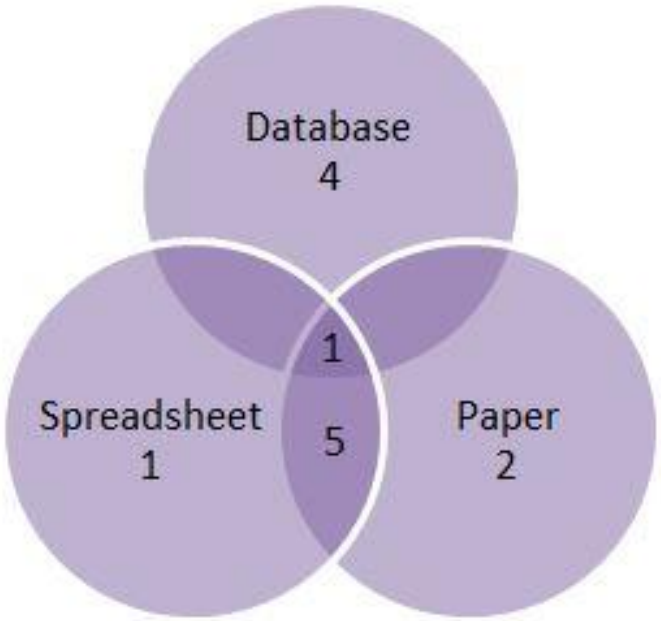
Survey Results – Personal Data Collected

Types of personal data collected for occupational exposure records



Survey Results – Dose Record Management

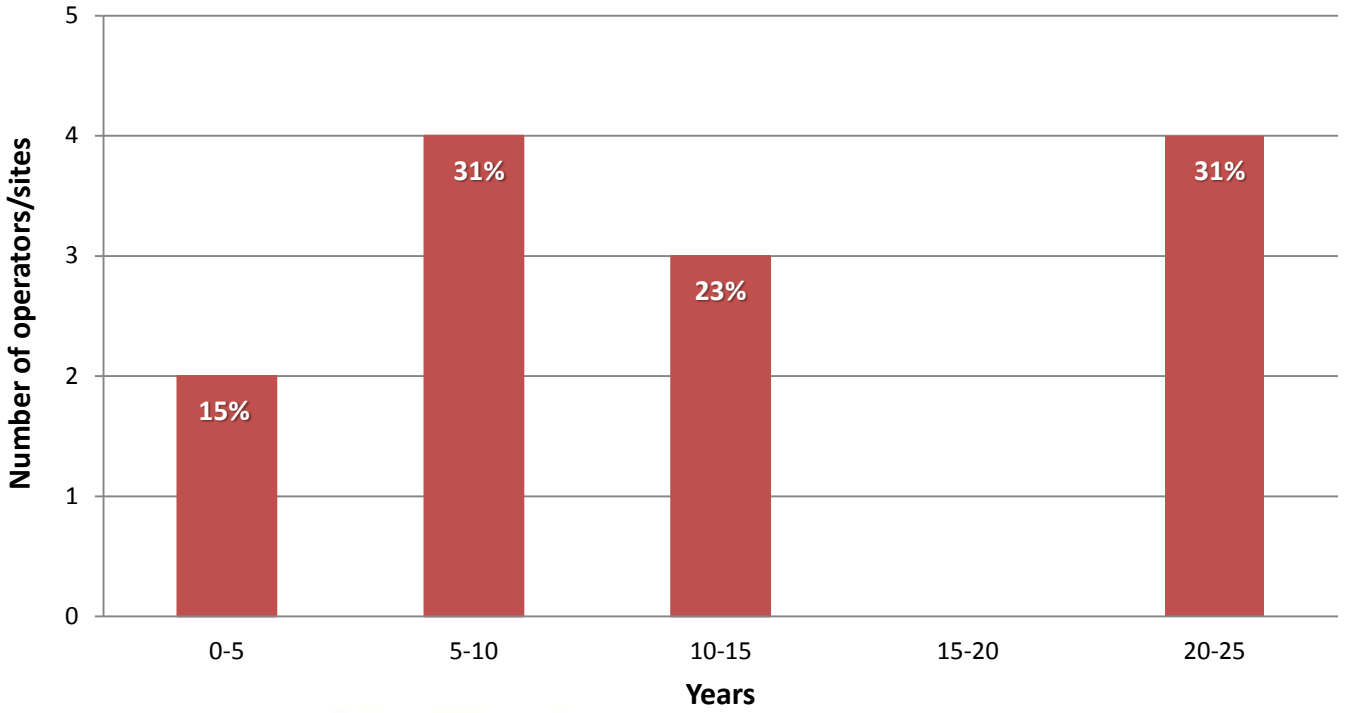
Current industry dose record management practices



- Most operators use a combination of digital and paper records
- Operators that maintain digital records are able to export the data in a variety of formats
  - CSV and XML are the most common
- 69% of mineral sands operations operate multiple sites
  - of these, 44% don't have a centralised system for managing dose records

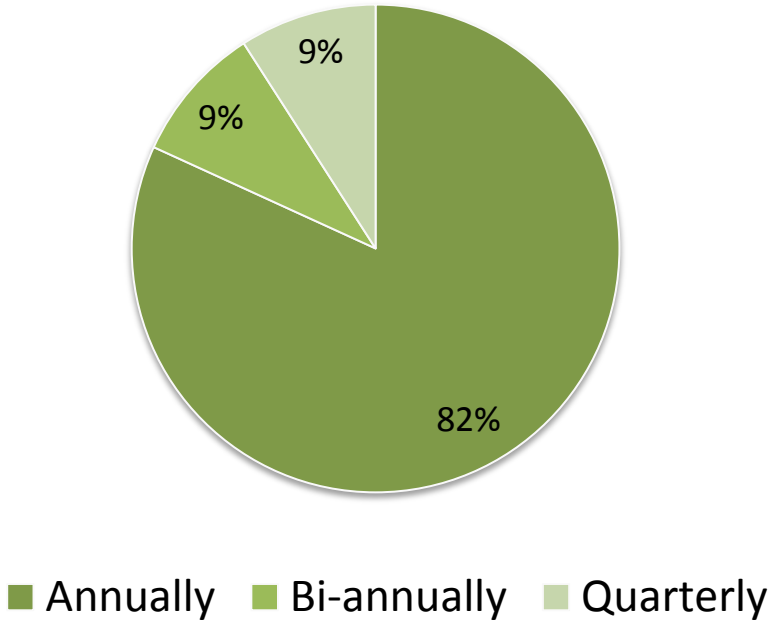
Survey Results – Historical Data

Number of years for which data is maintained



Survey Results – Dose Record Reporting

Current dose data reporting frequency



- Currently 11 operators report dose data to the relevant regulatory authority
- Annual reporting is the most common frequency

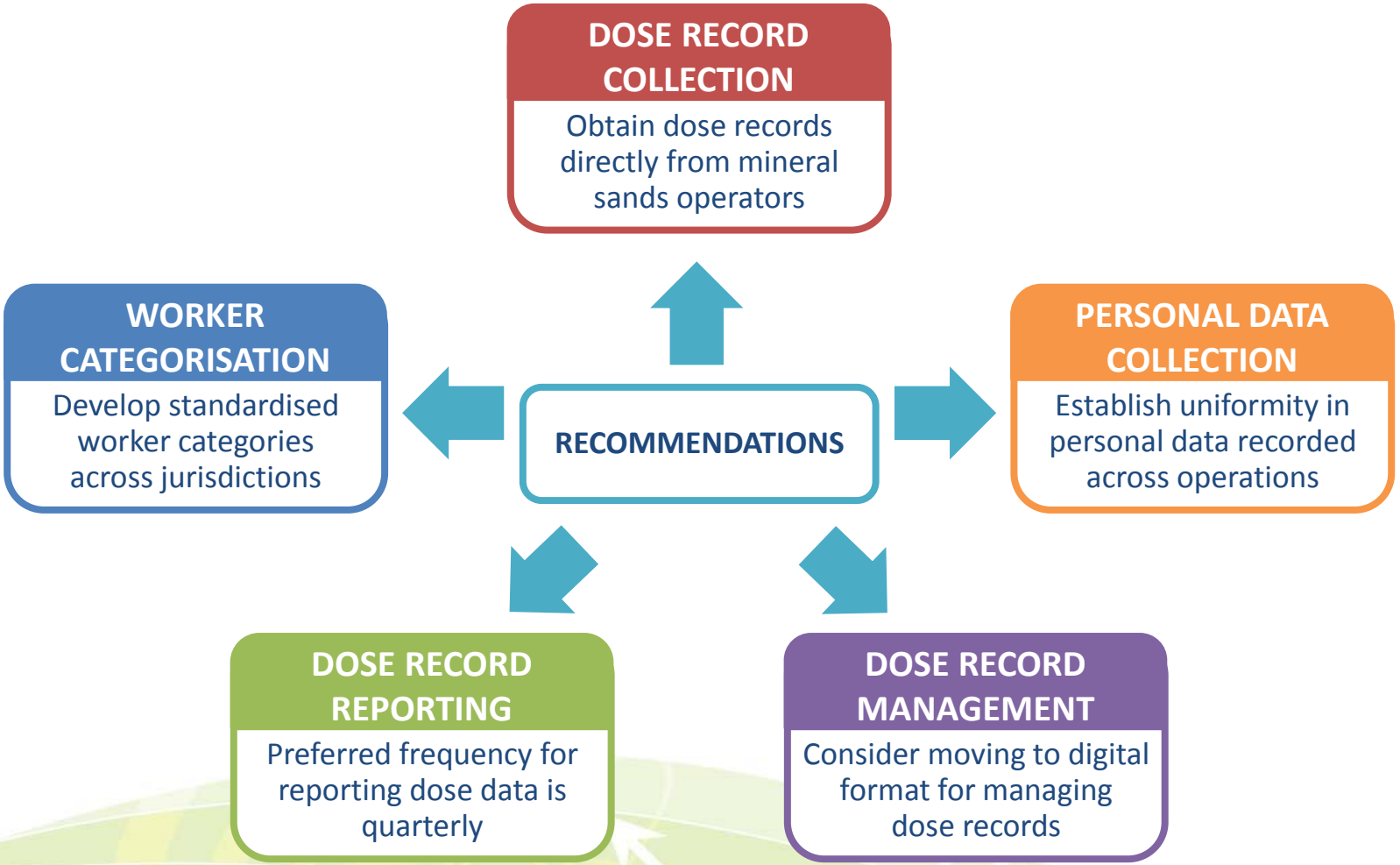
Survey Results – Worker Categorisation

Common worker categories

WORKER CATEGORY
Dry plant operator
Engineering maintenance - dry plant
Laboratory
Administrative services
Miscellaneous (metallurgist, geologist)
Wet plant operator
Mine site (and concentration plant)
Technical services
Transport
Synthetic rutile plant
Earth-moving equipment

- Worker categorisation varies greatly within the industry
- Some workers have more than one category classification
- Categories that were not common to at least two operators have not been included in this list

Draft Recommendations



Practical Considerations

- Proper operation and maintenance of a national register requires that an adequate information system be in place to:
  - provide consistency in data collection and recording
  - allow for valid dose comparisons
- Reliable and convenient processes are required to receive data from operations to ensure:
  - processes impose the least burden on industry
  - quality data is received in a timely manner to optimise worker protection efforts

Acknowledgements

- Uranium mining and milling operators
- Australian Uranium Association
- State/Territory regulators
- Mineral sands mining and processing operators

Australian Government
Australian Radiation Protection and Nuclear Safety Agency

Thank-you

CONTACT THE ANRDR

Email: anrdr@arpansa.gov.au
Website: www.arpansa.gov.au/Services/ANRDR
Phone: 1800 022 333