



# Mining Radiation Safety Australia

Telephone: +61 8 9353 6359  
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Mobile: 0417 950 110  
info@radsafe.com.au

## **Mining Radiation Safety Awareness - Site and Company Management**

1 Day Course

This course is appropriate for management personnel involved in the uranium mining industry. The course is intended to give a broad overview of the uranium industry in Australia. Time will be allocated in each session for participants to ask specific questions about the topic.

The course is designed to fill gaps in your understanding of the industry in a holistic sense and provide up to date information on where the industry is going.

Topics included in the course are:

9:00 - 9:30	Brief review of radiation and NORM
9:30 - 10:30	Radiation safety principles
10:30 - 11:00	MORNING TEA
11:00 - 11:30	Legal and regulatory aspects.
11:30 - 12:30	Safety - Codes of Practice, Radiation Management Plans, transport, licensing and monitoring etc.
12:30 - 13:15	LUNCH
13:15 - 14:15	Overview of the industry economics and government policy.
14:15 - 15:15	Overview of current uranium mining and exploration methods and technology.
15:15 - 15:30	AFTERNOON TEA
15:30 - 16:30	Review of global energy issues.
16:30 - 17:30	Review of current nuclear power technology

Morning and afternoon tea will be provided

Course Notes: Will be provided prior to the course

Fee: In Perth: \$650 + \$65 GST per person (minimum 3 people)

On Site: \$650 + \$65 GST per person, travel and accommodation (minimum 4 people)



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## **Mining Exploration Radiation Safety - Drillers and Field Personnel**

½ Day Course

This course is appropriate for Drillers and Field Personnel involved in the uranium mining industry where geological surveys, drilling, mineral bagging and transport operations are undertaken. The nature of the hazards and their control are outlined, in particular how protection can best be afforded using appropriate working techniques, equipment, radiation monitoring, administrative arrangements and legal obligations.

The course will comprise of lectures on basic physics of radiation (production, interactions with matter, measurements, units), hazards from materials and equipment (acute, chronic), safety procedures (personal hygiene, decontamination, hazard mitigation, reporting, recording) and regulations, working rules etc.

Assessment will take the form of an in-class open book exam. A pass mark of at least 60% is required.

Timetable:

9:00 – 9:30	Radiation and its properties
9:30 – 9:45	Biological Effects of Radiation
9:45 – 10:10	Principles of Protection
10:10 – 10:30	Radiation in Uranium Exploration
10:30 – 10:45	MORNING TEA
10:45 – 11:10	Radiation detection, personal monitoring, survey instruments and area monitoring
11:10 – 11:35	Responsibilities and Legal Aspects
11:35 – 11:40	Radiation in Perspective
11:45 – 12:00	Assessment
12:00 – 12:15	Review

Morning tea will be provided

Course Notes: Will be provided prior to the course

Fee: In Perth: \$350 + \$35 GST per person (minimum 3 people)

On Site: \$350 + \$35 GST per person, travel and accommodation (minimum 4 people)



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## **Mining Radiation Safety - Laboratory and Assay Personnel**

### 2 Day Course

This course is designed for Laboratory and Assay Personnel involved in the uranium mining industry where samples are assayed in a laboratory environment. Transport and waste disposal operations are reviewed. The nature of the hazards and their control are outlined, in particular how protection can best be afforded using appropriate working techniques, equipment, radiation monitoring, administrative arrangements and legal obligations.

The course will comprise of lectures on basic physics of radiation (production, interactions with matter, measurements, units), hazards from materials and equipment (acute, chronic), radiation detection and monitoring, safety procedures (personal hygiene, decontamination, hazard mitigation, reporting, recording) and regulations, working rules etc.

Assessment will take the form of an in-class open book exam. A pass mark of at least 65% is required.

### Timetable:

#### Day 1

9.00 – 9.45	Basic Radiation Physics
9.45 – 10.30	Properties of Ionising Radiations
10:30 – 10.35	MORNING TEA
10.45 – 11.15	Internal and External Hazards
11.15 – 12.00	Radiation Detection & Measurement
12.00 – 13.00	LUNCH
13.00 – 14.00	Safe Working Techniques
14.00 – 15.00	Radioactive Waste Management
15.00 – 15.15	AFTERNOON TEA
15.15 – 16.00	Radiation Calculators
16.00 – 16.30	Review

(see next page)



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## Day 2

09:00 – 10:00	Biological Effects of Ionising Radiations
10:00 – 10:45	Decontamination and Emergency Procedures
10:45 – 11:00	MORNING TEA
11:00 – 11:30	Radiation monitoring practical
11:30 – 12:00	Monitoring program
12:00 – 13:00	LUNCH
13:00 – 14:00	Radiation Management Plan
14:00 – 15:00	Codes
15:00 – 15:15	AFTERNOON TEA
15:15 – 16:15	Legal Aspects and Radiation Safety
16:15 – 17:00	Radiation in perspective and review

Morning and afternoon tea will be provided

Course Notes: Will be provided prior to the course

Fee: In Perth: \$1300 + \$130 GST per person (minimum 2 people)

On Site: \$1300 + \$130 GST per person, travel and accommodation (minimum 3 people)



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## **Mining Radiation Safety - Geologists, Exploration managers**

2 Day Course (If in a Safety Role then the 3 day RSO course below is applicable)

This course is appropriate for personnel involved in the uranium mining industry where geological surveys, drilling, mineral processing and sample analysis for uranium and where Naturally Occurring Radioactive Materials (NORM) materials may be significant. The nature of hazards is outlined, how protection might best be afforded, appropriate working techniques to minimize the radiation dose and administrative arrangements and legal obligations.

The course will comprise of lectures on basic physics of radiation (production, interactions with matter, measurements, units), hazards from materials and equipment (acute, chronic), radiation detection and monitoring, safety procedures (personal hygiene, decontamination, hazard mitigation, reporting, recording) and regulations, working rules etc.

Assessment will take the form of an in-class open book exam. A pass mark of at least 60% is required.

Timetable:

Day 1

9.00 – 10.00	Basic Radiation Physics
10.00 – 10.45	Properties of Ionising Radiations
10:45 – 10.55	MORNING TEA
10.55 – 11.15	Internal and External Hazards
11.15 – 12.15	Biological Effects of Ionising Radiations
12.15 – 13.15	LUNCH
13.15 – 14.15	Radiation Safety Principles & Radiation Hazards in Exploration
14.15 – 15.00	Safe Working Techniques
15.00 – 15.15	AFTERNOON TEA
15.15 – 16.00	Radiation Detection and Measurement
16.00 – 16.30	Radiation Monitoring Programs

(see next page)



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## Day 2

9.00 – 9.45	Radiation Calculations & Dose Assessment
9.45 – 10.45	Radiation Management Plans, Reporting and Audits
10.45 – 11.00	MORNING TEA
11.00 – 11.30	Radioactive Waste Management and Decontamination
11.30 – 12.15	Transport and Licensing
12.15 – 13.00	LUNCH
13.00 – 13.15	Radiation in Perspective
13.15 – 14.00	Course Review
14.00 – 14.15	AFTERNOON TEA
14.15 – 16.15	Assessment
16.15 – 16.30	General Review

Morning and afternoon tea will be provided

Course Notes: Will be provided prior to the course

Fee: In Perth: \$1300 + \$130 GST per person (minimum 2 people)

On Site: \$1300 + \$130 GST per person, travel and accommodation (minimum 3 people)



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## **Mining Radiation Safety - Radiation Safety Officer (RSO) introduction**

### 3 Day Course

This course is appropriate for personnel involved in the uranium mining industry where geological surveys, drilling, mineral processing and sample analysis for uranium and where Naturally Occurring Radioactive Materials (NORM) materials may be significant. In particular the nature of the hazards are outlined, how protection might best be afforded when working with relevant equipment, appropriate working techniques to minimise exposure, administrative arrangements and associated legal obligations.

The course will comprise of lectures on basic physics of radiation (production, interactions with matter, measurements, units), hazards from materials and equipment (acute, chronic), radiation detection and monitoring, safety procedures (personal hygiene, decontamination, hazard mitigation, reporting, recording), waste management, regulations, working rules etc.

Assessment will take the form of an in-class open book exam. A pass mark of at least 65% is required.

### Timetable:

#### Day 1

9.00 – 9.45	Basic Radiation Physics
9.45 – 10.30	Properties of Ionising Radiations
10:30 – 10.35	MORNING TEA
10.45 – 11.15	Internal and External Hazards
11.15 – 12.00	Biological Effects of Ionising Radiations
12.00 – 13.00	LUNCH
13.00 – 14.00	Radiation Safety Principles
14.00 – 15.00	Radiation Hazards in Exploration
15.00 – 15.15	AFTERNOON TEA
15.15 – 16.00	Safe Working Techniques
16.00 – 16.30	Review

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## Day 2

9.00 – 9.30	Personal Hygiene in Radiation Protection
9.30 – 10.30	Administrative Controls
10.30 – 10.45	MORNING TEA
10.45 – 11.15	Radiation Detection and Measurement
11.15 – 12.00	Radiation Monitoring Practical
12.00 – 13.00	LUNCH
13.00 – 14.00	Radiation Monitoring Programs and Software
14.00 – 15.00	Radiation Dose Assessment and Dose limits
15.00 – 15.15	AFTERNOON TEA
15.15 – 16.15	Radiation Calculations
16.15 – 16.30	Review

## Day 3

9.00 – 10.00	Radiation Management Plans, Reporting and Audits
10.00 – 10.30	Waste Management and Decontamination
10.30 – 10.45	MORNING TEA
10.45 – 11.30	Transport and Licensing
11.30 – 12.00	Radiation in Perspective
12.00 – 13.00	LUNCH
13.00 – 13.50	Course Review
13.50 – 14.00	AFTERNOON TEA
14.00 – 16.00	Assessment
16.00 – 16.30	General Review

Morning and afternoon tea will be provided

Course Notes: Will be provided prior to the course

Fee: In Perth: \$1900 + \$190 GST per person (minimum 2 people)

On Site: \$1900 + \$190 GST per person, travel and accommodation (minimum 3 people)



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## **Mineral Sands - NORM Radiation Safety Course**

### 1 Day Course

This course is appropriate for personnel involved in geological surveys, drilling, mineral processing and sample analysis where uranium and other Naturally Occurring Radioactive Materials (NORM) materials may be significant. The nature of hazards is outlined, how protection might best be afforded, appropriate working techniques to minimize the radiation dose and administrative arrangements and legal obligations.

The course will comprise of lectures on basic physics of radiation (production, interactions with matter, measurements, units), hazards from materials and equipment (acute, chronic), radiation detection and instrumentation, safety procedures (personal hygiene, decontamination, hazard mitigation, reporting, recording) and regulations, working rules etc.

Assessment will take the form of an in-class open book exam. A pass mark of at least 60% is required.

### Timetable:

9.00 – 9.45	Basic Radiation Physics
9.45 – 10.30	Properties of Ionising Radiations
10:30 – 10.35	MORNING TEA
10.45 – 11.30	Radiation Instrumentation and Detection
11.15 – 12.00	Principles of Protection/Practical
12.00 – 13.00	LUNCH
13.00 – 14.00	Biological Effects of Radiation and Radiation in Perspective
14.00 – 14.15	AFTERNOON TEA
14.15 – 15.15	Legal Aspects, Transport Requirements
15.15 – 16.30	Assessment

Morning and afternoon tea will be provided

Course Notes: Will be provided prior to the course

Fee: In Perth: \$650 + \$65 GST per person (minimum 3 people)

On Site: \$650 + \$65 GST per person, travel and accommodation (minimum 3 people)



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## Unsealed Radioisotope Handling Course

### 3 Day Course

This course is appropriate for personnel assaying samples with unsealed radioisotopes. The nature of hazards is outlined, how protection might best be afforded, appropriate working techniques to minimize the radiation dose and administrative arrangements and legal obligations.

The course will comprise of lectures on basic physics of radiation (production, interactions with matter, measurements, units), hazards from materials and equipment (acute, chronic), radiation detection and monitoring, safety procedures (personal hygiene, decontamination, hazard mitigation, reporting, recording) and regulations, working rules etc.

The course has been approved by the Radiological Council and fulfils the necessary training requirements for personnel using unsealed radioisotopes under the Radiation Safety Act WA 1975. A test concludes the course. A pass mark of at least 65% is required.

Times	Day 1	Day 2
09:00 - 10:00	Basic Radiation Physics	General Laboratory Safety
10:00 - 10:45	Properties of Ionising Radiations	Radiation Management Plan
10:45 - 11:00	Morning Tea	Morning Tea
11:00 - 11:45	External and Internal Hazards	
11:45 - 12:30	Radiation Detection & Measurement	
12:30 - 13:30	Lunch	Lunch
13:30 - 14:15	Safe Working Techniques	Legal Aspects and Radiation Safety
	Biological Effects of Ionising Radiations	
15:15 - 15:30	Afternoon Tea	Afternoon Tea
15:30 - 16:15	Decontamination and Emergency Procedures	Radiation Calculations
16:15 - 17:00	Radioactive Waste Management	Laboratory Preview and Course Review

(see next page)



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## Day 3 Laboratories and Examination

Time	Duration	Activity
09.00 - 11.45	165 min	Laboratory Session 1
11.45 - 12.30	45 min	Lunch
12.30 - 15.15	165 min	Laboratory Session 2
15.15 - 15.30	15 min	Break
15.30 - 16.45	75 min	Exam
16.45 - 17.00	15 min	Examination Review

Morning and afternoon tea will be provided

Course Notes: Will be provided prior to the course

Fee: In Perth: \$1600 + \$160 GST per person (minimum 2 people)

On Site: \$1600 + \$160 GST per person, travel and accommodation (minimum 2 people)

## **Mining Radiation Safety - Radiation Safety Officer (RSO) full course**

5 Day Course

Applicable for people looking at going into the RSO role in Uranium Mining (not exploration) or Mineral Sands Mining.

***Please contact us for details***

**NOTE: Cancellations by attendee less than 7 days prior to course incur a \$350 cancellation fee**



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## Radiation Safety Seminars

The seminar is appropriate for staff directly involved with the uranium exploration and mining industry. The seminar is aimed at raising awareness of the risks associated with the uranium exploration and mining industry and the legal and ethical obligations held by companies operating in the industry.

The seminar covers radiation safety in relation to the handling of sources of ionising radiation commonly found in exploration and mining. In particular the nature of the hazard is outlined, how protection might best be afforded from the hazard, appropriate working techniques to minimise the risk and levels of the exposure, administrative arrangements and legal obligations. Seminar content includes:

- Basic radiation physics - what is radiation
- Radiation biology - what is the effect
- Radiation safety - how to protect yourself
- Radiation protection
- Legal aspects - your obligations
- Discussion and questions

Times: As organised approximately 1½ hour

Fees: \$55 per person, minimum of 10 people per seminar.