



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **RIIERR305A Control underground fires**

**Release: 1**

## RIIERR305A Control underground fires

### Modification History

Not applicable.

### Unit Descriptor

This unit covers controlling fires in underground metalliferous mines. It includes: assessing the situation and preparing for fire control operations; controlling the fire; and restoring and refurbishing fire equipment to operational condition.

### Application of the Unit

This unit is appropriate for those working in a operational roles, underground mines within:

- Metalliferous mining

### Licensing/Regulatory Information

Refer to Unit Descriptor.

### Pre-Requisites

Not applicable.

### Employability Skills Information

This unit contains employability skills.

### Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</p>
--	---

## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Assess situation and prepare for fire control operations	1.1. Access, interpret and apply <b>compliance documentation</b> relevant to controlling fires in underground metalliferous mines 1.2. Interpret data and reports to determine cause and location of <b>fire</b> and record on the mine plan 1.3. Assess type, size and spread of fire to determine risk to people and plant/machinery 1.4. Identify and assess <b>potential ignition sources</b> for further fires to determine control measures, and record on the mine plan 1.5. Assess <b>secondary risks</b> and recommend actions to control these risks and protect people 1.6. Assess <b>fire-fighting</b> personnel's exposure to fire, and identify methods and equipment to control these identified risks 1.7. Determine personnel numbers, equipment and <b>personal protective equipment</b> requirements for fire control operations 1.8. Determine fire-fighting strategy and procedures to best control the situation 1.9. Assess <b>fire control equipment</b> and <b>fire fighting media</b> capability and quantity and make decisions about the most appropriate course of action 1.10. Assign duties to personnel available to control the fire 1.11. Identify and apply ventilation monitoring and control measures 1.12. Assess need for evacuation of personnel and take appropriate action 1.13. Prepare <b>action plan</b> for fire control operations
2. Control the fire	2.1. Secure fire area/zone to prevent entry of non-involved personnel 2.2. Access, assemble and test equipment determined in the action plan to manufacturer's instructions and

	<p>recommended/site practices and safety parameters</p> <p>2.3. Employ fire-fighting techniques and methods determined in the action plan, within given personnel competence and availability and equipment constraints to standard operating procedures</p> <p>2.4. Maintain <b>communication</b> with other fire-fighters and <b>Incident Control</b> on condition of fire and status of fire control operations</p> <p>2.5. Continuously monitor fire and put controls in place to ensure the safety of personnel in the vicinity of the fire</p> <p>2.6. Continuously reassess and apply ventilation control measures to operations</p> <p>2.7. Continuously monitor fire and fire-fighting activities to determine ability to continue to handle the situation, and take action</p> <p>2.8. Minimise damage and disruption to mine working during the fire control operation, consistent with safety requirements</p> <p>2.9. Assess fire intensity and magnitude and withdraw from fire zone and relocate fire control equipment to a safe place if fire is uncontrollable</p> <p>2.10. Bring fire safely under control and extinguish</p> <p>2.11. Monitor fire site and take actions to prevent possible re-ignition according to site-recommended procedures</p> <p>2.12. Report to Incident Control according to site-recommended procedures</p> <p>2.13. Monitor for <b>structural</b> and ground support <b>integrity</b></p>
<p>3. Restore and refurbish fire equipment to operational condition</p>	<p>3.1. Inspect equipment for any damage sustained in fire control operations</p> <p>3.2. Repair, replenish or replace defective/depleted equipment to meet manufacturer's specifications and/or Australian standards</p> <p>3.3. Tag and quarantine unusable equipment</p> <p>3.4. Return fire control system and equipment to <b>operational readiness</b></p>



## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

Specific skills are required to achieve the performance criteria in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to control fires in underground metalliferous mines:

- apply legislative, organisation and site requirements and procedures
- locate fire fighting equipment on mine sites
- interpret emergency preparedness plans
- navigate in underground mines
- read maps and interpret symbols
- apply fires call-outs response procedures
- work as a member of a team
- handle and control hazardous substances in a fire situation
- locate plant and fire suppression systems on a mine layout plan
- locate and operate fixed and portable fire suppression equipment
- locate and demonstrate the correct use of ladders and other approved devices
- select appropriate extinguishing media for fire control and extinguishment
- operate emergency communications systems
- carry out effective fire-ground management procedures
- utilise and troubleshoot water supply systems and identify alternative systems
- interpret and use signals
- access, interpret and apply technical and safety information
- apply diagnostic/faultfinding techniques
- comply with environmental requirements
- apply isolation procedures

### Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to control fires in underground metalliferous mines:

- the location of fire fighting equipment on mine sites
- interpretation of emergency preparedness plans
- response to call-outs to fires
- types of fire and associated risks and control measures
- mine plant and fire suppression systems
- ventilation management during fire situations
- operation of fixed and portable fire suppression equipment

- the correct use of ladders and other devices
- interpretation of Hazchem labels and signs
- hazard/risk management principles and practices (including assessment and control)
- the hazards associated with hazardous chemicals and how to handle them in a fire situation
- identification, selection and operation of appropriate equipment
- identification and application of appropriate personal safety equipment
- identification of the properties of extinguishing media and the selection of those appropriate to the situation
- communications systems' types and protocols
- fire-ground management procedures
- utilisation and troubleshooting of water supply systems and identification of alternative systems
- interpretation and use of signals
- refurbishment of fire-fighting equipment and systems

## Evidence Guide

<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p><b>Overview of assessment</b></p>	
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following:</p> <ul style="list-style-type: none"> <li>• knowledge of the requirements, procedures and instructions for controlling fires in underground metalliferous mines</li> <li>• implementation of requirements, procedures and techniques for the safe, effective and efficient controlling of fires in underground metalliferous mines</li> <li>• working with others to control fires in underground metalliferous mines that meet all of the required outcomes</li> <li>• consistent timely controlling of fires in underground metalliferous mines that safely, effectively and efficiently meets the required outcomes</li> </ul>
<p><b>Context of and specific resources for assessment</b></p>	<ul style="list-style-type: none"> <li>• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.</li> <li>• The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.</li> <li>• Customisation of assessment and delivery environment to sensitively accommodate cultural diversity.</li> <li>• Aboriginal people and other people from a non</li> </ul>



	<p>English speaking background may have second language issues.</p> <ul style="list-style-type: none"> <li>• Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site circumstances.</li> <li>• Where applicable, physical resources should include equipment modified for people with disabilities.</li> <li>• Access must be provided to appropriate learning and/or assessment support when required.</li> </ul>
<b>Method of assessment</b>	<p>This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods:</p> <ul style="list-style-type: none"> <li>• written and/or oral assessment of the candidate's required knowledge</li> <li>• observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>• implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes</li> <li>• consistently achieving the required outcomes</li> </ul> </li> <li>• first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>• working with others to control fires in underground metalliferous mines</li> </ul> </li> </ul>
<b>Guidance information for assessment</b>	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>

## Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. <b>Bold italicised</b> wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<p><b>Relevant compliance documentation</b> may include:</p>	<ul style="list-style-type: none"> <li>• legislative, organisation and site requirements and procedures</li> <li>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• code of practice</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul>
<p><b>Fires</b> may include:</p>	<ul style="list-style-type: none"> <li>• A, B, C, D, F class fires and E rated fires (International Standard-check name)</li> <li>• accessible</li> <li>• inaccessible</li> <li>• uncontrolled fires</li> <li>• mobile plant</li> <li>• structural fires</li> </ul>
<p><b>Potential ignition sources</b> may include but limited to:</p>	<ul style="list-style-type: none"> <li>• ignition sources associated with friction eg belt conveyors</li> <li>• ignition sources associated with fuel and oil storage/service bays</li> <li>• ignition sources associated with electricity eg battery charging stations, shorting of cables</li> <li>• frictional ignition sources at the mining face eg explosives, gases</li> <li>• static electricity as an ignition source</li> <li>• ignition sources associated with the combustion of synthetic materials</li> <li>• hot materials/surfaces</li> </ul>
<p><b>Secondary risks</b> may include:</p>	<ul style="list-style-type: none"> <li>• environmental</li> <li>• electrical</li> <li>• smoke</li> <li>• toxic gases</li> <li>• loss of visibility</li> <li>• volatile substances (oxidising agents)</li> <li>• heat illness</li> </ul>

	<ul style="list-style-type: none"> <li>• secondary explosions</li> <li>• burns</li> <li>• spillage</li> <li>• structural collapse</li> </ul>
<b>Fire-fighting</b> is limited to:	<ul style="list-style-type: none"> <li>• fires within the capability of the rescue team members</li> </ul>
<b>Personal protective equipment</b> may include:	<ul style="list-style-type: none"> <li>• industrial clothing</li> <li>• thermal suits</li> <li>• face shields</li> <li>• eye protection</li> <li>• respiratory protection</li> <li>• safety footwear</li> <li>• head protection</li> <li>• hand protection</li> </ul>
<b>Fire control equipment</b> may include:	<ul style="list-style-type: none"> <li>• fire hoses and fittings</li> <li>• extinguishers</li> <li>• mine water supply systems</li> <li>• hydrants</li> <li>• foam generators</li> <li>• water turbine</li> <li>• vehicles</li> <li>• fixed and mobile fire suppression plant</li> <li>• ladders</li> </ul>
<b>Fire fighting media</b> may include:	<ul style="list-style-type: none"> <li>• water</li> <li>• low expansion foam</li> <li>• high expansion foam</li> <li>• dry chemical powder</li> <li>• Carbon Dioxide</li> <li>• vaporising liquid</li> <li>• alcohol rated foam</li> <li>• dry agents</li> </ul>
<b>Action plans</b> may include:	<ul style="list-style-type: none"> <li>• RECEO VS - (rescue exposures control/contain extinguish overhaul - ventilate and salvage) International Response</li> <li>• fire control equipment requirements</li> <li>• fire fighting capability</li> <li>• personnel numbers and experience</li> <li>• duties assigned to fire control and support personnel</li> <li>• fire fighting strategy and procedures</li> <li>• PPE requirements</li> <li>• communications methods and protocols</li> </ul>

	<ul style="list-style-type: none"> <li>• risk assessment requirements</li> <li>• ventilation management</li> <li>• emergency and First Aid procedures</li> <li>• contingency plans</li> </ul>
<b>Communications</b> may include:	<ul style="list-style-type: none"> <li>• reports</li> <li>• 2- way radio</li> <li>• telephone</li> <li>• mobile phone</li> <li>• hand signals</li> <li>• runners</li> <li>• light signals</li> </ul>
<b>Incident Control</b> has:	<ul style="list-style-type: none"> <li>• overall planning, approval and control of an incident</li> </ul>
<b>Structural integrity</b> may include:	<ul style="list-style-type: none"> <li>• stability of walls and backs in underground</li> <li>• stability of major structures on surface</li> </ul>
Returning equipment to <b>operational readiness</b> may include:	<ul style="list-style-type: none"> <li>• inspection</li> <li>• cleaning</li> <li>• repair</li> <li>• replacement</li> <li>• re-fill</li> </ul>

## Unit Sector(s)

Emergency Response and Rescue

## Competency field

Refer to Unit Sector(s).

## Co-requisite units

Not applicable.