



**Australian Government**

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

# **RIIUND309A Conduct mechanical underground ground support drilling and installation**

**Release: 1**

## **RIIUND309A Conduct mechanical underground ground support drilling and installation**

### **Modification History**

Not applicable.

### **Unit Descriptor**

This unit covers the conducting of mechanical underground ground support drilling and installation in the resources and infrastructure industries. It includes planning and preparing for drilling and installation, setting up and preparing for installation, and installing ground support. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

### **Application of the Unit**

This unit is appropriate for those working in an operational role at worksites 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**

|                                                                   |                                                                                                                                                                                                                                                                                                                  |
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| Elements describe the essential outcomes of a unit of competency. | 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. |
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## Elements and Performance Criteria

| ELEMENT                                           | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| 1. Plan and prepare for drilling and installation | <ul style="list-style-type: none"> <li>1.1. Access, interpret and apply <b>compliance documentation</b> relevant to the work activity</li> <li>1.2. Plan and prepare work</li> <li>1.3. Receive, interpret and clarify shift changeover details</li> <li>1.4. Select appropriate personal protective equipment</li> <li>1.5. Inspect and assess site conditions to determine scaling requirements, misfires and starting point, and take action accordingly</li> <li>1.6. Conduct <b>equipment</b> pre-start and visual checks in readiness for operation</li> <li>1.7. Identify, address and report <b>potential risks and hazards</b></li> <li>1.8. Assess site conditions and review historical information to clarify drilling requirements</li> <li>1.9. Use approved <b>dust suppression and extraction methods</b> if required</li> </ul> |
| 2. Set up and prepare for installation            | <ul style="list-style-type: none"> <li>2.1. Scale loose material and make site safe (where applicable)</li> <li>2.2. Connect <b>auxiliary services</b> where required</li> <li>2.3. Align equipment to access drill pattern according to site conditions</li> <li>2.4. Drill holes according to ground support design and work plan</li> <li>2.5. Erect <b>boundaries</b> to prevent unauthorised access</li> <li>2.6. Complete all required documentation clearly, concisely and on time</li> </ul>                                                                                                                                                                                                                                                                                                                                             |
| 3. Install ground support                         | <ul style="list-style-type: none"> <li>3.1. Position and stabilise drill equipment ensuring safety of operating <b>personnel</b></li> <li>3.2. Install reinforcements</li> <li>3.3. Conduct equipment shutdown procedures</li> <li>3.4. Pass on end of shift information to oncoming shift</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## 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 of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following as required to conduct mechanical underground ground support drilling and installation in metalliferous mines:

- apply legislative, organisation and site requirements and procedures for setting up, preparing and installing ground support
- drilling techniques
- operation of hand and power tools
- hazard identification
- monitor operations
- operation of power tools
- report defects

### Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following as required to conduct mechanical underground ground support drilling and installation in metalliferous mines:

- dewatering procedures and characteristics
- drilling procedures
- equipment safety requirements
- ground support characteristics and applications
- hazardous goods procedures (handling and transport)
- inspection procedures
- isolation procedures
- site procedures
- working knowledge of all stope areas

## Evidence Guide

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.

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| <b>Overview of assessment</b>                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b> | <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 conducting of mechanical underground ground support drilling and installation in metalliferous mines</li> <li>• implementation of requirements, procedures and techniques for the safe, effective and efficient completion of conducting of mechanical underground ground support drilling and installation in metalliferous mines</li> <li>• working with others to undertake and complete the conducting of mechanical underground ground support drilling and installation in metalliferous mines that meets all of the required outcomes</li> <li>• consistent timely completion of the conducting of mechanical underground ground support drilling and installation in metalliferous mines that safely, effectively and efficiently meets the required outcomes</li> </ul> |
| <b>Context of and specific resources for assessment</b>                                             | <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>• Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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|                                            | <p>may differ due to the site circumstances.</p> <ul style="list-style-type: none"> <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 should sensitively accommodate cultural diversity.</li> <li>• Aboriginal people and other people from a non English speaking background may have second language issues.</li> <li>• Where applicable, physical resources should include equipment modified for people with disabilities. 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 requirements, procedures and techniques for the safe, effective and efficient achievement of required outcomes</li> <li>• consistent achievement of 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 undertake and complete the conducting of mechanical ground support drilling and installation 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

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised 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.

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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| <b>Relevant compliance documentation</b> may include: | <ul style="list-style-type: none"> <li>• legislative, organisational and site requirements and procedures including:           <ul style="list-style-type: none"> <li>• relevant site safety and health</li> <li>• site inspection</li> <li>• explosives</li> </ul> </li> <li>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul> |
| <b>Equipment</b> may include:                         | <ul style="list-style-type: none"> <li>• rig</li> <li>• drilling</li> <li>• approved anchor points</li> <li>• approved charge hose</li> <li>• approved cord cutters</li> <li>• lanyards (safety rope)</li> <li>• lights</li> <li>• line/string</li> <li>• paint</li> <li>• scaling bar</li> <li>• signage</li> <li>• tape measure</li> <li>• recommended/required PPE</li> </ul>                                                                                                                                    |
| <b>Potential risks and hazards</b> may include:       | <ul style="list-style-type: none"> <li>• broken detonation leads</li> <li>• contaminants</li> <li>• eye hazards (flying chips)</li> <li>• falling rock when collaring</li> <li>• faulty equipment</li> <li>• ground conditions</li> <li>• high air and water pressures</li> <li>• high voltage electricity</li> <li>• hydraulic oil pressure</li> <li>• lack of ventilation</li> </ul>                                                                                                                              |

|                                                              |                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                              | <ul style="list-style-type: none"> <li>• misfires</li> <li>• overhanging rock</li> <li>• tipping hazards</li> <li>• unauthorised personnel</li> <li>• wet holes</li> <li>• uncontrolled radio frequencies and transmitters</li> </ul>                                                                                                                                                   |
| <b>Dust suppression and extraction methods</b> may include:  | <ul style="list-style-type: none"> <li>• mobile/fixed sprays</li> <li>• screens (vent doors, vent blinds)</li> <li>• use of water trucks</li> <li>• ventilation bags operational</li> <li>• watering down site</li> <li>• fans</li> </ul>                                                                                                                                               |
| <b>Auxiliary services</b> may include:                       | <ul style="list-style-type: none"> <li>• compressed air</li> <li>• de-watering pumps</li> <li>• electricity</li> <li>• ventilation</li> <li>• water</li> </ul>                                                                                                                                                                                                                          |
| <b>Boundaries</b> may be physical or manned and may include: | <ul style="list-style-type: none"> <li>• cable across drive (wire, chain)</li> <li>• witches hats, barricade tape</li> </ul>                                                                                                                                                                                                                                                            |
| <b>Personnel</b> may include:                                | <ul style="list-style-type: none"> <li>• contractors</li> <li>• drillers</li> <li>• drivers</li> <li>• holders of appropriate tickets</li> <li>• inspectors</li> <li>• licensed operators</li> <li>• maintenance staff</li> <li>• personnel authorised by mine management</li> <li>• service personnel</li> <li>• supervisors</li> <li>• surveyors</li> <li>• trades persons</li> </ul> |

## Unit Sector(s)

Underground Mining

## Competency field

Refer to Unit Sector(s).

## **Co-requisite units**

Not applicable.