



Australian Government

Department of Education, Employment and Workplace Relations

RIIUND602A Establish and maintain mine services systems

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the establishment and maintenance of mine service systems in the resources and infrastructure industries. It includes designing mine services systems, selecting equipment for mine services systems, establishing installation and commissioning procedures, establishing systems for the operation and maintenance of mine service systems and equipment, planning and preparing for the implementation of systems for the operation and maintenance of mine services systems and equipment, and establishing systems for audit and review of mine services systems and equipment. 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 a management or supervisory role at worksites within:

- Coal mining
- 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

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
1. Design mine services systems	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Identify the requirements for, and purpose of, mine services systems in accordance with relevant legislative requirements and the system of mining 1.3. Develop a specification for the mine services system from a comprehensive analysis of site requirements 1.4. Identify system options from an analysis of all relevant technical, operational and financial information 1.5. Select the preferred service systems options, including reticulation on the basis of performance against specification requirements
2. Select equipment for mine services systems	2.1. Identify the requirements for, and purpose of, mine services equipment against systems requirements 2.2. Conduct a detailed scoping of the work requirements and develop key selection criteria, including hazard identification and risk analysis 2.3. Develop a specification for the required mine services equipment 2.4. Select the preferred equipment solutions on the basis of performance against specification requirements
3. Establish installation and commissioning procedures	3.1. Establish a procedure to identify hazards and analyse and evaluate risks associated with the installation of mine services systems and equipment 3.2. Plan and prepare for the integration of new and existing systems and processes to achieve optimum performance 3.3. Develop safe operating procedures and rules from a detailed analysis of site requirements 3.4. Develop and establish procedures for installing and commissioning mine services systems and equipment

	3.5. Establish a program, including systems and procedures, to satisfy identified mine services training requirements 3.6. Establish emergency response and evacuation systems, plans and procedures 3.7. Establish protection systems
4. Establish systems for the operation and maintenance of mine services systems and equipment	4.1. Develop operational procedures for mine services systems and equipment from site and legislative requirements and incorporate into site documentation 4.2. Develop maintenance procedures for mine services systems and equipment from site and legislative requirements and incorporate into site documentation 4.3. Develop and establish procedures for reviewing and modifying work processes
5. Plan and prepare for the implementation of systems for the operation and maintenance of mine services systems and equipment	5.1. Identify and interpret the relevant legislative and site requirements related to the operation and maintenance of mine services systems and equipment 5.2. Access, interpret and clarify mine services systems and equipment procedures 5.3. Identify, clarify and communicate to all personnel roles and responsibilities, as specified in mine services systems and equipment procedures 5.4. Identify, forecast, obtain and allocate/schedule resources required for the implementation of mine services systems and equipment procedures 5.5. Implement the mine services systems and equipment procedures training program. 5.6. Encourage, receive, review and, where appropriate, implement suggestions and recommendations for changes to the operation and maintenance of mine services systems and equipment procedures
6. Establish systems for audit and review of mine services systems and equipment	6.1. Establish procedures to evaluate and confirm system/equipment compliance with legislative and site requirements 6.2. Identify, assess future mine services systems and equipment requirements and incorporate into planning processes 6.3. Establish procedures to confirm the

	currency and compliance of mine services maintenance and safety standards 6.4. Establish the system for recording and reporting of mine services and equipment information 6.5. Audit the mine services training program for currency and relevance 6.6. Establish procedures for incorporating feedback into the audit/review system 6.7. Audit emergency response and evacuation systems, plans and procedures for compliance with site requirements 6.8. Establish procedures for response to instances of non compliance or other discrepancies/deficiencies revealed by audit
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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 establish and maintain mine services systems:

- access, interpret and apply technical information
- apply legislative, organisation and site requirements and procedures for establishment and maintenance of mine services systems
- site/legislative requirements
- records and reports
- briefings and handover details
- apply the principles of mine design
- assess the risks and consequences attached to mine services systems and equipment
- plan and coordinate work
- identify training needs related to mine services systems
- interpret and apply manufacturer's instructions
- conduct maintenance surveys

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 establish and maintain mine services systems:

- audit review processes and techniques
- computer based systems
- emergency response and disaster planning processes and techniques
- fire fighting systems and precautions
- legislative and site specific requirements for mine services including:
 - mine plans
 - electrical distribution
 - ventilation
 - compressed air
 - electrical/mechanical equipment
 - inspection requirements
 - environmental management
 - communication
 - emergency procedures

- risk management
- recording and reporting
- mines rescue
- OHS
- manufacturer's instructions
- standard work procedures
- training
- maintenance surveys
- mine design relating to mine services systems
- mine operating procedures including those applying to transport systems, conveyor systems, systems of mining, ventilation system, gas management and mine water management
- power sources including electrical, hydraulic, compressed air, diesel
- safety design features for maintenance of mine services systems
- safety design features of mine services systems
- stores systems

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.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	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: • knowledge of the requirements, procedures and instructions for establishment and maintenance of mine services systems • implementation of procedures and techniques for the safe, effective and efficient establishment and maintenance of mine services systems • the identification of the relevant information and scope of the work required to meet the required outcomes • the identification of viable options and the selection of methods for the establishment and maintenance of mine services systems that best meet the required outcomes • working with others to establish and maintain mine services systems • consistent successful establishment and maintenance of mine services systems
Context of and specific resources for assessment	• 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. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites

	may differ due to the site circumstances. • 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. • Customisation of assessment and delivery environment should sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • 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.
Method of assessment	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: • written and/or oral assessment of the candidate's required knowledge to apply in undertaking the establishment and maintenance of mine services systems • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate requirements, procedures and techniques for the safe, effective and efficient achievement of required outcomes • identification of the relevant information and scope of the work required to meet the required outcomes • identification of viable options and the selection of methods for the establishment and maintenance of mine services systems that best meet the required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and

	complete the establishment and maintenance of mine services systems • provision of clear and timely support and advice on the establishment and maintenance of mine services systems
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

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.

Relevant compliance documentation may include:	• legislative, organisation and site requirements which may be contained in: • relevant legislation and regulations • relevant Australian standards • management plans • safety and health policy • relevant code of practice • manufacturer's instruction • standard/safe working procedures • industry guidelines • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Mine services systems may include:	• design • development • establishment • installation • operations • protection • maintenance • monitoring • recording • reporting process • communication systems including: • oral • phones/radios • electronic • microwave • telemetry
Mine services may include:	• power (air, gas, electricity, water, diesel, low energy source) • water, wastewater • fire fighting

	• gas drainage • fuel • waste disposal • condition monitoring • dust suppression and refrigeration • safety services including: • risk assessment process • fire fighting • First Aid • mines rescue
Specification may include:	• performance requirements • costs • dimensions • capacity • safety and health requirements • training requirements • key selection criteria
Reticulation may include:	• water management • pumping of solids • fluid reticulation and storage • material reticulation and storage (hydraulic, electric, water and compressed air)
Emergency response systems may include:	• refuge chamber • designated escape ways • evacuation procedures • alarm systems • guidance systems • emergency communication systems • self-aided escape apparatus • mines rescue capability
Protection systems may include:	• explosion barriers • electrical protection • compressed air protection • hydraulic protection • environment protection • falling and roll-over protection • mechanical protection • frictional ignition protection • guarding • personal protection

Site documentation may include:	• relevant legislative and legislative requirements • management plans and procedures • training policy
Recording and reporting systems may include:	• phones • radios • computer systems • verbal • written
Support systems may include:	• mine plan • signage • stores system • roadway • development drives and openings • maintenance • drilling (raise boring and bore hole) • emergency response systems

Unit Sector(s)

Underground Mining

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.