



Australian Government

Department of Education, Employment and Workplace Relations

RIIRAI602A Establish and maintain mine mechanical plant, services and infrastructure systems

Release: 1

RIIRAI602A Establish and maintain mine mechanical plant, services and infrastructure systems

Modification History

Not applicable.

Unit Descriptor

This unit covers the establishing and maintaining of mine mechanical plant, services and infrastructure systems in the coal mining industry. It includes: designing and/or selection of specifications for the system; establishing the installation, testing and commissioning systems and procedures; establishing the operational parameters and maintenance requirements for plant, equipment or services; installing, commissioning and testing the mine mechanical plant, services and infrastructure systems; and implementing the mine mechanical plant, services and infrastructure.

Application of the Unit

This unit is appropriate for those working in a management role or as a technical specialist, within:

- Coal 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.
---	--

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Design/selection specifications for the system	1.1. Access, interpret and apply compliance documentation relevant to establishing and maintaining mine mechanical plant, services and infrastructure systems 1.2. Establish design/selection specifications for the mine mechanical plant, services and infrastructure systems from a comprehensive analysis of operating requirements 1.3. Identify design/selection options from an analysis of all relevant technical, operational and financial information, interface with existing plant where appropriate, including hazard identification and risk analysis 1.4. Select the preferred plant, equipment and services options on the basis of performance against specification requirements
2. Establish installation, testing and commissioning systems and procedures	2.1. Assess the hazards, analyse and evaluate risks associated with the installation of plant, equipment and services in accordance with site procedures 2.2. Establish procedures for installing, testing and commissioning plant, equipment and services 2.3. Plan and prepare for integration of new and existing systems and procedures to achieve optimum performance 2.4. Identify resources required for the implementation of mine mechanical plant, services and infrastructure systems 2.5. Determine training needs
3. Establish operational parameters and maintenance requirements for plant, equipment or services	3.1. Incorporate the operational parameters and operational /maintenance risk assessment for plant, equipment and services into site documentation in accordance with site and legislative requirements 3.2. Establish maintenance plan for plant, equipment and services from site and legislative requirements and incorporate

	into existing maintenance system 3.3. Incorporate recording and reporting requirements of new plant, equipment and services information into existing site documentation
4. Install, commission and test mine mechanical plant, services and infrastructure systems	4.1. Conduct a risk assessment for the installation, commissioning and testing of mechanical plant, services and infrastructure systems 4.2. Install mechanical plant, services and infrastructure systems 4.3. Commission and test equipment compliance in accordance with design specifications and site requirements 4.4. Respond to non-compliance or other discrepancies/deficiencies revealed by commissioning and testing
5. Implement mine mechanical plant, services and infrastructure	5.1. Identify and interpret the legislative and site requirements related to the implementation of mine mechanical plant, services and infrastructure systems 5.2. Forecast, obtain and allocate/schedule resources required for the implementation of mine mechanical plant, services and infrastructure systems 5.3. Identify, clarify and communicate to all personnel roles and responsibilities, related to the implementation of mine mechanical plant, services and infrastructure systems 5.4. Implement mine mechanical plant, services and infrastructure systems training program 5.5. Consult with relevant stakeholders and implement changes to mine mechanical plant, services and infrastructure systems and implementation procedures

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 establish and maintain mine mechanical plant, services and infrastructure systems:

- apply legislative, organisation and site requirements and procedures
- access, interpret and apply:
 - technical information
 - site / legislative requirements
 - records and reports
 - briefings and handover details
- apply the principles of mine design
- apply hazard identification and risk management processes
- apply work planning and coordination procedures
- apply training needs analysis
- interpret and apply manufacturers' instructions

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 establish and maintain mine mechanical plant, services and infrastructure systems:

- legislative and site-specific requirements for mine plant, services and infrastructure
- emergency response and disaster planning processes and techniques
- audit review process and techniques
- mine operating procedures for mine plant, services and infrastructure
- mine design relating to mine plant, services and infrastructure
- energy sources, including protection and reticulation systems for electrical, hydraulic, compressed air, diesel
- safety design features of mine services and infrastructure
- a basic knowledge of computer based systems related to the monitoring and operation of mine plant, services and infrastructure
- training programs
- fire fighting systems
- safety design features for maintenance of mine plant, services and infrastructure
- stores systems
- specifications for fixed plant and infrastructure

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 establishing and maintain of mine mechanical plant, services and infrastructure systems • implementation of procedures and techniques for the safe, effective and efficient completion of the establishing and maintenance of mine mechanical plant, services and infrastructure systems • the identification of the relevant information and scope of the work required to meet the required outcomes • the identification of viable program options and the selection of programs that best meet the required outcomes • working with others to establish and maintain mine mechanical plant, services and infrastructure systems • consistent and timely establishing and maintenance of mine mechanical plant, services and infrastructure 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. • 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 to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular worksites may differ due to site circumstances. • 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 • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes • identification of the relevant information and scope of the work required • identification of viable options and the selection of options that best meet the required outcomes • consistently achieving the required outcomes • first hand testimonial and documentary evidence of the candidate's: • working with others to establish and maintain mine mechanical plant, services

	and infrastructure systems • consistent and timely gaining of approval of mine mechanical plant, services and infrastructure systems • provision of clear, timely required support and advice on the implementation of mine mechanical plant, services and infrastructure 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 and procedures
- manufacturer's guidelines and specifications
- Australian standards
- code of practice
- Employment and workplace relations legislation
- Equal Employment Opportunity and Disability Discrimination legislation

Plant may include:

- Wheeled transport may include:
 - rubber tyred man transport
 - multipurpose vehicles
 - load haul dump
 - forklifts
 - front end loader
 - skid steer loader and grader
- Rail transport may include:
 - locomotives (electric / diesel)
 - rail mounted personnel carriers
 - rolling stock
 - drift haulage systems
- Track vehicles may be fixed or mobile and may include:
 - shearer carriers
 - personnel carriers
 - chock recovery vehicles (mules)
 - mine dozer
- Shaft winding systems, e.g. product, personnel and material and may include:
 - head gear
 - cages and skips
 - winding apparatus and communications
 - control system

	• discharge and loading facilities • counter balances • Conveyor system may include: • conveyor belts • drive heads • tail ends transfer points • surge bins • inter seam bins • fabricated bins • Product slurry pumping may include: • batching stations • dewatering systems • watering reticulation pumping stations • Production equipment may include: • shearer • armoured face conveyor • pantech • chocks • stage loader • face drill rigs • shuttle cars • ram cars • ratio feeders • breaker line support • roof bolters (mobile and hand held) • rib bolters • road header • continuous miners • in-seam miners • high wall miners • loaders • shotfiring • hydraulic mining
Mine services may include:	• water • wastewater • compressed air • fire fighting • gas drainage • fuel • electrical reticulation

	• waste disposal • condition monitoring • phones • radios
Infrastructure refers to fixed plant and equipment which may include:	• fabrication and construction areas • servicing areas • re-fuelling points • workshops and equipment • equipment storage areas • bathrooms • water treatment plant • buildings and structures e.g. bins, silos, crushers, feeders • storage facilities • coal preparation plant • cranes • sewerage treatment plant • emergency facilities (equipment) • testing equipment • stockpile and coal load out. • conveyor systems • pipelines • compressors • haulage winches • process treatment plant • air conditioning • pumps and stations • ventilation fans • winders • battery charging stations • generators • gas plant
Site documentation and training policy may include:	• legislative requirements • management plans and procedures
Hazard is defined as:	• a source of potential harm or a situation with a potential to cause
Risk is defined as:	• the chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood
Maintenance is to restore or keep	• inspecting and testing plant and equipment

at the level that it was originally designed to, by:	• monitoring plant and equipment • servicing equipment • repairing equipment • overhauling equipment
--	--

Unit Sector(s)

Resources and Infrastructure

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.