



Australian Government

Department of Education, Employment and Workplace Relations

RIIRAI610A Establish and maintain mechanical standard and engineering practices for transport and production equipment

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers establishing and maintaining mechanical standard and engineering practices for transport and production equipment in the coal mining industry. It includes: developing the transport and production systems; selecting equipment for the transport and production systems; establishing systems and procedures to install and commission equipment; establishing systems for the operation and maintenance of production and transport systems and equipment; and establishing systems for audit and review of production and transport systems and equipment.

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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Develop production and transport systems	1.1. Access, interpret and apply compliance documentation relevant to establishing and maintaining mechanical standard and engineering practices for transport and production equipment 1.2. Identify the requirements for, and purpose of, production and transport systems in accordance with the system of mining 1.3. Identify systems options from an analysis of all relevant technical, operational and financial information 1.4. Establish specification for the production and transport system from a comprehensive analysis of operating requirements 1.5. Select the preferred systems options on the basis of performance against specification requirements
2. Select equipment for production and transport systems	2.1. Identify the mechanical requirements for and purpose of transport and production equipment against systems requirements 2.2. Conduct a detailed scoping of the operational requirement and develop key selection criteria, including hazard identification and risk analysis 2.3. Establish specification for the required production and/or transport equipment 2.4. Select the preferred equipment solutions on the basis of performance against specification requirements
3. Establish systems and procedures to install and commission equipment	3.1. Establish systems to identify hazards and analyse and evaluate risks associated with the installation of production and transport systems and equipment 3.2. Plan and prepare for integration of new and existing mine production and transport systems and processes 3.3. Establish procedures for installing and commissioning production and transport systems and equipment 3.4. Establish systems and procedures, to satisfy identified production and transport

	systems training requirements
4. Establish systems for the operation and maintenance of production and transport systems and equipment	4.1. Establish operational procedures for production and transport systems and equipment and incorporate into site documentation 4.2. Establish maintenance procedures for production and transport systems and equipment from site and legislative requirements, and incorporate into site documentation 4.3. Establish procedures for reviewing and modifying work processes 4.4. Establish emergency response and evacuation plans and procedures in accordance with site requirements 4.5. Establish the system of recording and reporting production and transport equipment information
5. Establish systems for audit and review of production and transport systems and equipment	5.1. Establish mechanical procedures to audit and review equipment compliance in accordance with legislative and site requirements 5.2. Identify and assess future production and <i>transport systems</i> and equipment requirements, and incorporate into planning processes 5.3. Establish procedures to audit and review the currency and compliance of operation and maintenance relating to production and transport systems and equipment 5.4. Establish procedures for incorporating feedback into the audit/review system 5.5. Establish procedures to confirm the currency, relevance and compliance of the training program against identified requirements 5.6. Establish procedures for response to instances of non-compliance or other discrepancies/deficiencies revealed by audit 5.7. Establish procedures to audit emergency response and evacuation systems for compliance with site requirements

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 mechanical standard and engineering practices for transport and production equipment:

- apply legislative, organisation and site requirements and procedures
 - access, interpret and apply:
 - technical information
 - briefings and handover details
- apply the principles of mine design
- apply hazard identification and risk management processes
- apply work planning and coordination processes
- 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 mechanical standard and engineering practices for transport and production equipment:

- legislative requirements and instructions, including transport rules, maintenance schemes, standard operating procedures, training, testing on diesel vehicles, battery charging, underground fuel depots, conveyor belts
- mine operation procedures
- geological structures
- mine plans
- mine design relating to production and transport systems and equipment
- production and transport systems and equipment management requirements
- site environmental monitoring requirements
- risk management procedures
- production and transport systems and equipment legislative inspection requirements
- mine reporting procedures
- emergency response and evacuation planning processes and techniques
- audit review processes and techniques
- production and transport equipment and systems (types, uses, characteristics and limitations appropriate for safe operation at the mine site)
- energy sources, including electrical, hydraulic, pneumatic, diesel

- safety design features of production and transport systems
- standard operating procedures relating to production and transport equipment
- stores system
- specification design criteria, including noise, dust, lighting, ergonomics, remote control, physical clearance, confined space, visibility, seating vibration and machine equipment and personal protection
- training programs
- a basic knowledge of computer based systems relating to production and transport systems
- fire fighting 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 the establishing and maintaining of mechanical standard and engineering practices for transport and production equipment • implementation of procedures and techniques for the safe, effective and efficient completion of the establishing and maintenance of mechanical standard and engineering practices for transport and production equipment • 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 mechanical standard and engineering practices for transport and production equipment • consistent and timely completion of the establishing and maintenance of mechanical standard and engineering practices for transport and production equipment
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 mechanical standard and engineering practices for transport and production equipment • consistent and timely gaining of approval of mechanical standard and engineering practices for transport and production equipment • provision of clear, timely required support and advice on the implementation of mechanical standard and engineering practices for transport and production equipment
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
Transport systems include capacities for personnel, equipment/materials and product and may be:	• wheeled, which may include: • rubber tired man transport • multipurpose vehicles • load haul dump • forklifts • front end loader • skid steer loader and grader • railed, which may include: • locomotives (electric/diesel) • rail mounted personnel carriers • rolling stock • drift haulage systems • tracked, which may be fixed or mobile and may include: • shearer carriers • personnel carriers • chock recovery vehicles (mules) • mine dozer • skidded • conveyor systems, which may include: • conveyor belts • drive heads • tail ends transfer points • surge bins

	• inter seam bins • fabricated bins • product slurry pump systems, which may include: • batching stations • dewatering systems • watering reticulation pumping stations • shaft/drift winding, which may include product, personnel and material and may include: • head gear • cages and skips • winding apparatus and communications • control system • discharge and loading facilities • counter balances
Specifications may include:	• performance requirement • costs • dimensions • capacity • OHS requirements • training requirements • key selection criteria
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 • auger miners • loaders

	• shotfiring • hydraulic mining
Hazard is defined as:	• a source of potential harm or a situation with a potential to cause loss
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 may be divided into:	• predictive • preventive • breakdown
Site documentation and training policy may include:	• legislative requirements • management plans and procedures
Audit is defined as:	• a systematic examination against defined criteria to determine whether activities and related results conform to planned arrangement, and whether these arrangements are implemented effectively and are suitable to achieve the organisation's policy and objectives

Unit Sector(s)

Resources and Infrastructure

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.