



Australian Government

Department of Education, Employment and Workplace Relations

RIIMEX502A Implement systems and methods of mining

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the implementing of systems and methods of mining in the metalliferous mining industry. It includes: planning and preparing for, implementing, auditing and reviewing the effectiveness of the design system.

Application of the Unit

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

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. Plan and prepare for design systems	1.1. Access, interpret and apply compliance documentation relevant to the implementing of systems and methods of mining 1.2. Access, interpret and clarify the design system documentation 1.3. Identify, clarify and communicate the roles and responsibilities, as specified in the design system 1.4. Communicate and clarify work group, individual responsibilities and tasks 1.5. Identify, forecast and record resources required for the implementation of the design system 1.6. Implement the program to satisfy identified design system training requirements 1.7. Identify and interpret the risks associated with unstable mining structures 1.8. Access and interpret safe operating procedures
2. Implement the design system	2.1. Communicate primary, secondary and other support systems in accordance with the design system 2.2. Implement and communicate mining sequences in accordance with the design system 2.3. Obtain and allocate resources in accordance with the design system 2.4. Implement the design system training requirement 2.5. Implement a maintenance program in accordance with the design system 2.6. Implement A monitoring system in accordance with the design system 2.7. Implement reporting and recording systems in accordance with the design system 2.8. Monitor implementation procedures to ensure compliance with the approved plan 2.9. Implement emergency and evacuation plan and procedures

<p>3. Audit and review the effectiveness of the design system</p>	<p>3.1. Audit <i>stable structure</i> controls for compliance with statutory and <i>design</i> system specifications</p> <p>3.2. Audit stable structure standards for compliance with statutory and site requirements</p> <p>3.3. Audit monitoring systems for compliance with statutory and design plan standards</p> <p>3.4. Audit recording and reporting systems for compliance with statutory and site requirements</p> <p>3.5. Audit system maintenance program and procedures for compliance with statutory and site requirements</p> <p>3.6. Audit the design training program for currency, relevance and compliance with the design plan</p> <p>3.7. Audit emergency and evacuation plan and procedures for compliance with site requirements</p>
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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 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 implement systems and methods of mining:

- apply legislative, organisation and site requirements and procedures
- apply exploration techniques
- apply mining constraints
- access, interpret and apply technical information relating to mine management
- access and analyse archival and historical mine management information related to the mine and failure mode of mine structures
- interpret and apply design criteria for mine management
- communicate effectively in the workplace
- apply [procedures for preparing operating procedures relating to mine management
- conduct and report on audits
- identify and evaluate geological and geotechnical information

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 implement systems and methods of mining:

- legislative and statutory requirements for mining structures including mine plans, ventilation, gas monitoring, strata support and safety management plans
- the systems of mining including tunnels, drifts, stone drivage, shaft sinking, pillar extraction, partial extraction, punch mining and fault drivage
- stress including mining induced stress, vertical and horizontal stress tectonics
- sedimentology including subsidence, water bearing strata, permeability of seam and strata, hydrology, physical property testing, caving characteristics, windblast, gas content and over and underlying strata
- systems of work including bord and pillar, place changing, rock casing, open stopping, outfill, auger mining, pillar extraction, partial extraction and punch mining
- mining structure failure modes
- development, administration and review of procedures that apply to the system
- exploration techniques
- geology and mine gas characteristics
- stable mining systems design and functionality
- mining engineering principles

- lithology
- ground support systems
- audit methodologies
- mine site historical information
- limitations and controls

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>Overview of assessment</p>	
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</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"> • knowledge of the requirements, procedures and instructions for the implementing of systems and methods of mining • implementation of procedures and techniques for the safe, effective and efficient implementation of systems and methods of mining • 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 systems and methods of mining that best meet the required outcomes • working with others to undertake and complete the implementation of systems and methods of mining • consistent successful implementation of systems and methods of mining
<p>Context of and specific resources for assessment</p>	<ul style="list-style-type: none"> • 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

	<p>required on the job.</p> <ul style="list-style-type: none"> • 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 the work 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.
<p>Method of assessment</p>	<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"> • written and/or oral assessment of the candidate's required knowledge to apply in undertaking of the implementation of systems and methods of mining • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • 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 to meet the required outcomes • identification of viable options and the selection of systems and methods of mining that best meet the required outcomes • consistently achieving the required outcomes • first hand testimonial and documentary evidence of the candidate's: <ul style="list-style-type: none"> • working with others to undertake and

	<p>complete the implementation of systems and methods of mining</p> <ul style="list-style-type: none">• provision of clear and timely required support and advice on the implementation of systems and methods of mining
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

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. 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.</p>	
<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • legislative, organisation and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • coded of practice • Employment and Workplace Relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
<p>Mine design is the process of engineering analysis applied to the systems and sequences involved in mining and may include:</p>	<ul style="list-style-type: none"> • in whole or in part footwall and hanging wall competency requirements relating to mine plant • mining induced stress • ventilation • tunnels • sequencing • drives • stone drivage • shaft sinking • pillar extraction • partial extraction • punch mining • modelling • ore grades • geology • fault management • fault drivage • roof and floor technical data • over and underlying strata • footwall and longwall subsidence • maintenance strategies and plans • legislative and statutory requirements
<p>Resources may include:</p>	<ul style="list-style-type: none"> • skilled personnel • rock mechanics underground mine supports and equipment

	<ul style="list-style-type: none"> • power water/gas drainage systems • budgetary requirements
Risk is defined as:	<ul style="list-style-type: none"> • the chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood
Standard operating procedures (SOP) are also known as:	<ul style="list-style-type: none"> • safe working procedures, safe operating procedures and standard working procedures
Mining systems may include:	<ul style="list-style-type: none"> • bord and pillar • rock casing • open stopping • overhead • underhand • outfill • glory hole • place changing • auger mining • pillar extraction and extraction • partial extraction • punch mining • systems of entry
Audit is:	<ul style="list-style-type: none"> • the validation process to ensure the system, procedures and processes meet the established objectives and are implemented
Stable structure controls may include:	<ul style="list-style-type: none"> • roadway size • pillar sizes • depth of cover and underlying/overlying strata • stress regimes • underground opening characteristics • water ingression • systems of mining • breaker line supports • direction of mining

Unit Sector(s)

Materials Extraction

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.