



Australian Government

Department of Education, Employment and Workplace Relations

RIIRAI606A Establish and maintain mine closure management systems

Release: 1

RIIRAI606A Establish and maintain mine closure management systems

Modification History

Not applicable.

Unit Descriptor

This unit covers establishing and maintaining mine closure management systems in the metalliferous mining industry. It includes: identifying and evaluate the criteria to establish mine closure management systems, the hazards and risks for mine closure, geological and geotechnical information for mine closure, mining engineering principles and practices; establishing the mine closure system; and auditing and reviewing the effectiveness of the mine closure system.

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. Identify and evaluate the criteria to establish mine closure management systems	1.1. Access, interpret and apply compliance documentation relevant to establishing and maintaining mine closure management systems 1.2. Identify, collect, access and interpret mine survey data, in accordance with statutory and site requirements 1.3. Access the mine environmental management system, and identify and interpret information related to mine closure 1.4. Identify, evaluate and record historical information relating to the mine site 1.5. Identify, assess and interpret all possible mining structure failure modes relevant to the mine site 1.6. Identify and record necessary resources required for mine closure
2. Identify and evaluate hazards and risks for mine closure	2.1. Identify existing and potential hazards and confirm identification in accordance with environmental legislation, code of practice and trends identified from the environmental management system 2.2. Analyse the risks associated with mine closure 2.3. Identify and assess the limitations and controls applying to mine closure
3. Identify and evaluate geological and geotechnical information for mine closure	3.1. Identify and evaluate geological structures 3.2. Identify and evaluate hydrogeological features 3.3. Identify and evaluate strata characteristics 3.4. Identify and evaluate rock types and ore body features and physical properties 3.5. Identify and evaluate stress regimes
4. Identify and evaluate mining engineering principles and practices	4.1. Identify and evaluate mining system types and methods 4.2. Identify stable mining structures and slope stability from engineering analysis 4.3. Identify and evaluate mining constraints impacting on the stable mining structure

	and slope stability 4.4. Identify and evaluate equipment requirements, appropriate for the mine closure
5. Establish the mine closure system	5.1. Design and establish the legislative, statutory, legal and site requirements on mine closure 5.2. Design and establish the mine environmental management system for mine closure 5.3. Design and establish the hazards and risk management systems for mine closure 5.4. Design and complete closure system documentation
6. Audit and review the effectiveness of the mine closure system	6.1. Audit the legislative, statutory, legal and site requirements on mine closure for compliance 6.2. Audit the mine environmental management system for mine closure for legal and site compliance 6.3. Audit the hazards and risk management systems for mine closure for compliance with site requirements 6.4. Audit monitoring systems for compliance with statutory and site standards 6.5. Audit recording systems for compliance with site requirements 6.6. Identify and assess future mine closure requirements and standards and incorporate into future planning procedures 6.7. Establish procedures for response to instances of non-compliance or other discrepancies/deficiencies revealed by audit

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 closure management systems:

- apply legislative, organisation and site requirements and procedures
- read, interpret, apply and communicate technical information, rules, procedures, regulations
- read, interpret and apply legislation
- access, interpret and apply technical information
- access, interpret and apply mine survey information
- access and analyse archival and historical information related to the mine
- develop and maintain risk management procedures and policies
- provide leadership and guidance for group activities
- apply effective communication techniques
- facilitate and document risk control planning
- apply records and document maintenance requirements
- apply procedures for monitoring and determining changes to process
- explain complex information to superiors/subordinates
- provide coaching and mentoring support
- adopt communications styles appropriate to listeners and situations, including selecting an appropriate time and place
- take a leading role in initiating action and making decisions
- listen actively, ask questions, clarify points and rephrase others' statements to check mutual understanding

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 closure management systems:

- accessing, evaluating and applying data from organisational systems
- action planning methods
- advanced negotiation skills
- advanced written and oral communication methods
- community safety control responsibilities
- environmental management
- geophysical control systems

- human resource management
- mine operating procedures
- organisational goals and objectives
- rehabilitation requirements and techniques
- reporting and recording procedures
- risk control and management systems
- safety and health rules, policies, procedures and regulations
- statutory and site rules, policies, procedures and regulations
- statutory/legal controls
- work procedure/instruction writing

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 maintenance of mine closure management systems • implementation of procedures and techniques for the safe, effective and efficient completion of the establishing and maintenance of mine closure management 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 closure management systems • consistent and timely establishing and maintenance of mine closure management 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 closure management systems • consistent and timely gaining of approval of

	mine closure management systems • provision of clear, timely required support and advice on the implementation of mine closure management 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
Historical information may include:	• caving characteristics • existence of previous workings within the ore body • fill characteristics • hanging wall and footwall technical data • hydrology • mass blasts • over and underlying and adjacent rock formations • permeability of rocks and faults • physical property testing results of rock types • pillar strengths and dimensions • Radon gas content • sedimentology aspects of the mine site relating to subsidence • sulphide dust explosions • underground fissures and water sources
Resources may include:	• people • buildings/facilities • finance • equipment • power/energy • technology
Hazard is:	• a source of potential harm or a situation with a potential to cause loss

Management must comply with statutory/legal requirements. These may include:	• environmental - noise/air/water • safety and health requirements • rehabilitation • quantities • zonings • boundaries • processes • royalties • explosives • dangerous goods • mineral resources or appropriate body • federal/state/local government • harbours and marine • port authority • title searches including: • land ownership • council • lease • by-laws • contamination • wildlife corridors • planning and development: • interpreting and communicating information • business/performance plans • location • tender specifications • communication liaison/public relations • resources • statutory/legal/organisational requirements and control • resource parameters • surveying • technical standards established by industry and/or enterprise • legal issues/processes • planning approvals
Management interaction/negotiation may be with, but is not limited to:	• community • contractors • customers • employees • operating managers • project managers

	• regulatory authorities • safety and health committees/representatives • stakeholders • federal/state/local government • suppliers • tenderers • trainers and training organisations
Risk is:	• the chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood
Geological and hydrogeological information may include:	• caving characteristics • direction and competency of faults or inliers • fill characteristics • hanging wall and footwall technical data • induced collapse • intrusions and deformities • over and underlying rock type • permeability of rocks and faults • physical properties • subsidence • sulphide content of ore • underground fissures and water sources
Stress may include:	• horizontal and vertical tectonic induced stress • mining induced stress
Mining systems may include:	• bord and pillar • cut and fill • sub-level mining • open stoping • panel stoping • bench stoping
Structure controls include to:	• competency of fill • competency of ground support • direction of mining • influences of stresses and depth • pillar sizes • production sequencing • size of mine opening • stress regimes and base characteristics • systems of mining • underground opening characteristics • water ingress

Mine design may include in whole or in part:	• drives and cross-cuts • fault drivage • fault management • footwall and longwall subsidence • geology • hanging wall and footwall competency requirements • haulages, inclines and declines • legislative and statutory requirements • mining induced stress • modelling • ore grades • over and underlying rock type • partial extraction • pillar extraction • return airways • rises and winzes • roof and floor technical data • sequencing • shaft sinking • shafts and adits • stone drivage • ventilation
Audit is 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
Monitoring of activities may include:	• review of written reports • performance appraisal • auditing procedures

Unit Sector(s)

Resources and Infrastructure

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.