



Australian Government

Department of Education, Employment and Workplace Relations

RIIMEX405A Apply and monitor systems and methods of surface coal mining

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers applying and monitoring the systems and methods of surface mining in coal mining operations. It includes: planning and preparing for monitoring the application of the mining system; monitoring and reporting mine development operation; monitoring waste management procedures; monitoring stockpile formation and reclaiming systems; and identifying and communicating hazards related to engineering maintenance procedures

Application of the Unit

This unit is appropriate for those working in supervisory or technical specialist roles at surface operations, 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. Plan and prepare for monitoring the application of the mining system	1.1. Access, interpret and apply compliance documentation relevant to mining systems and methods of surface coal mining 1.2. Access and interpret site risk management, OHS, environment, other appropriate systems and standard operating procedures 1.3. Identify and assess the risks associated with unstable mining structures
2. Monitor and report mine development operation	2.1. Monitor the application and communication of the approved mining system 2.2. Identify and assess mining constraints impacting on the maintenance of stable mining structure 2.3. Monitor, assess, rectify and report the method of mining 2.4. Assess and report strata spoil and dump failures and implement appropriate control measures 2.5. Identify and monitor the application of the mining sequences 2.6. Identify, assess and record failure mechanisms, including virgin and induced stress control methods and implement appropriate control measures 2.7. Identify and apply emergency response and evacuation plans and procedures and report 2.8. Monitor and report standard operating procedures 2.9. Contribute to systems audit and review requirements
3. Monitor waste management procedures	3.1. Identify and assess surface and groundwater information 3.2. Monitor the implementation of the drainage system 3.3. Monitor and report the measures taken to mitigate the impact of water and drainage issues
4. Monitor stockpile formation and reclaiming systems	4.1. Identify stockpile requirements 4.2. Monitor and report stockpile configuration 4.3. Identify and assess the stockpile operation to meet mine site requirements and

	implement appropriate control measures
5. Identify and communicate hazards related to engineering maintenance procedures	5.1. Identify and control hazards relating to the inspection, repair and engineering maintenance activities 5.2. Monitor, report and review engineering maintenance activities

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 apply and monitor systems and methods of surface mining in coal mining operations:

- apply legislative, organisation and site requirements and procedures
- access, interpret and apply technical information
- apply operations planning procedures
- access and analyse archival and historical strata management information related to the mine and failure mode of mine structures
- interpret and monitor the application of design criteria for strata management
- communicate effectively in the work place
- apply operational procedures relating to strata management
- conduct and report on audits and inspections
- 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 apply and monitor systems and methods of surface mining in coal mining operations:

- legislative and statutory requirements for mining structures , including mine plans, mining methods and safety management plans
- the systems of mining
- interpret visual signs of stress , including mining induced stress, adverse joining, fault orientation, spoil characteristics
- sedimentology , including subsidence, water bearing strata, permeability of seam and strata, hydrology, physical property testing, over and underlying strata
- mining systems of work
- stable structure control and maintenance of excavation
- geology, hydrogeological, strata and strata gas characteristics
- coal seam characteristics which may include rank, petrology, moisture, cleat, coal hardness, seam gas, friability, pyrites, depositional factors such as seam formation, seam thickness, multiple and rider seams, fault folding, seam dip and depth of cover
- basic mechanical, electrical and pressurised fluid safety
- mining engineering principles
- audit inspection, communication and reporting methodologies
- job safety analysis

- mine site historical information
- people management

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 applying and monitoring the systems and methods of surface coal mining • implementation of appropriate procedures and techniques for the safe, effective and efficient application and monitoring the systems and methods of surface coal mining • working with others to plan, prepare and conduct systems and methods of surface coal mining • provision of clear and timely instruction and supervision by the individual of those involved in surface coal mining • evidence of the consistent successful applying and monitoring of systems and methods of surface coal mining
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 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.
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 • consistently achieving the required outcomes • first hand testimonial evidence of the candidate's: • working with others to plan, prepare, apply and monitor the systems and methods of surface coal mining • provision of clear and timely instruction and supervision by the individual of those involved in the conduct of the systems and methods of surface coal mining
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.

Interpret is defined as:	the understanding needed by the person within their job role
Relevant compliance documentation may include:	- legislative, organisation and site requirements and procedures - manufacturer's guidelines and specifications - Australian standards - codes of practice - Employment and Workplace Relations legislation - Equal Employment Opportunity and Disability Discrimination legislation
Mining systems and methods may include:	- highwall mining - pre strip - inter burden removal - spoil pits - stockpiles, dumps and safety berms - development of coal pits, roads and ramps - the use of various mining equipment , including draglines, truck and shovel, excavators, bucketwheel, scraper, high wall miners, augers and drills - mining areas which contain heating - coal face protection from blasting - reclamation from spoil dumps - dragline benching - the sequences involved in the development of the mining process as specified in the mine design
Standard operating procedures (SOP's) are:	also known as safe working procedures, safe operating procedures and standard working procedures
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

Mining structures may include:	• excavations • high walls • low walls • benches • dumps • haul roads
Stable mining structure controls may include:	• roads • strength of coal and underlying/overlying strata • stress regimes • strata characteristics • water ingress • systems of mining • direction of mining
Stress includes, but is not limited to:	• horizontal and vertical tectonic induced stress • mining induced stress
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 policy and objectives
Hazard is defined as:	• a source of potential harm or a situation with a potential to cause loss

Unit Sector(s)

Materials Extraction

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.