



Australian Government

Department of Education, Employment and Workplace Relations

RIIMSM302A Plan small mine operations

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the planning of small mine operations in the metalliferous mining industry. It includes planning shaft locations to meet design criteria, designing and planning locations of ventilation shafts or drill holes, designing and planning mining workings, designing and planning materials handling processes and equipment, and developing a Mine Safety Management Plan. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Application of the Unit

This unit is appropriate for those working in an operational role at worksites 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 shaft location to meet design criteria	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Plan location of access shaft on a virgin claim to avoid potential ore-bearing ground 1.3. Design and plan shaft to minimise impact on the environment 1.4. Plan location of access shaft on a virgin claim to allow effective location, organisation and access to other mine facilities 1.5. Establish location of a second means of access (secondary shaft) to allow most effective exit from the mine in emergency situations 1.6. If claim is previously mined, inspect conditions of existing shafts to determine the most appropriate access and secondary shafts 1.7. Ensure that the access shaft is located in the appropriate place in relation to the planned mine ventilation system 1.8. Plan layout and configuration of surface facilities in relation to access and secondary shaft 1.9. Record shaft location on the mine plan
2. Design and plan location of ventilation shafts or drill holes	2.1. Plan the mining sequence throughout the life of the mine to determine the location of ventilation shafts or drill holes 2.2. Design and determine the location of ventilation shafts for any proposed secondary ventilation system to deliver fresh air to all active drives
3. Design and plan mine workings	3.1. Design mine workings to facilitate minerals discovery 3.2. Design and plan the drive pattern, opening size and development sequence to best extract minerals and for mine ground stability 3.3. Design mine layout to maximise production and movement of materials to the surface

	3.4.Determine room and pillar configuration and plot on the mine plan
4. Design and plan materials handling process and equipment	4.1.Design and plan the handling of waste material stored on the surface of the mine 4.2.Design and plan for the installation of hoisting systems and equipment to meet materials movement and compliance documentation 4.3.plan the system and method for the storage, transport and handling of hazardous materials and/or explosives
5. Develop the mine safety management plan	5.1.Develop the OHS policy for the mine's operations 5.2.Develop and document procedures and methods for the <i>factors covered by the mine safety management plan</i> 5.3.Design and develop document control documents and <i>log book</i> 5.4.Gain approval for the Mine Safety Management Plan from relevant authorities/agencies

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 of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following, as required to plan small mine operations:

- apply legislative, organisation and site requirements and procedures for the planning of small mine operations
- apply design and planning principles and methods
- apply operational safety requirements to mine planning
- maintain records
- design and document procedures
- design systems for environmental constraints
- design disposal systems for environmentally sensitive fluids and materials

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to plan small mine operations:

- geology associated with ore-bearing ground
- shaft design requirements and parameters
- mine layout principles and design parameters
- design criteria for planning mine operation
- materials handling and transport
- principles of ventilation and air flow
- hazardous materials handling
- surface installations and equipment
- pillar configuration/pillar design and layout
- assessment of mine ground conditions
- characteristics and properties of roofs
- hazards affecting pillar design and development
- hoisting systems, equipment and legislative requirements
- pillar extraction methods and safety requirements
- operational safety requirements
- emergency procedures
- environmental requirements
- mine safety management planning

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 planning small mine operations • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of planning small mine operations • working with others to undertake and complete the planning of small mine operations that meets all of the required outcomes • consistent timely completion of small mine operations planning that safely, effectively and efficiently meets the required outcomes
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. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the site circumstances. • 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. • 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 requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete the planning of small mine operations
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, organisational and site requirements and procedures • design criteria • manufacturer's guidelines and specifications • Australian standards • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Design criteria may include:	• safest possible design • lowest capital cost • lowest operating cost • most dependable design • most efficient design • most flexible design
Inspection of conditions may include:	• ground conditions at the bottom of the shaft • the presence of a shaft pillar • the amount of support required • proximity of workings in neighbouring claims • potential for slope of the land to allow surface water to flow into mine shafts
Surface facilities may include:	• temporary stockpiles • loading facilities • generator sets • compressors • work benches • hoisting equipment
Legislation may include Acts and Regulation dealing with:	• mining safety and health • mine inspection • OHS • explosives • environment
Factors covered by the Mine Safety Management Plan may	• document control • hazard management

typically include:	• risk assessment and control • emergency response • training • safe work procedures • maintenance • work environment • control of persons • fitness for work • accident and incident reporting
Log book is a record of day-to-day activities which may include:	• hazard identification and implemented controls • hazards reported and their rectification • daily routine inspections • pre-start equipment checks • training carried out (including inductions) • injuries/accidents • maintenance • contractors • mine environment

Unit Sector(s)

Metalliferous Mining (Small Mines)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.