



Australian Government

RIIMCU602E Establish and maintain gas management systems

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to establish and maintain gas management systems in coal mining, including design, development, audit and review processes and procedures.

It applies to those working in management roles or technical specialist roles. They generally perform complex, non-routine tasks involving strategic and planning activities and are responsible for establishing and maintaining operational systems and plans.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Unit Sector

Coal mining (underground)

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare to establish and maintain gas management system	1.1 Access, interpret and apply gas management documentation 1.2 Identify, evaluate and clarify coal seam characteristics and mine conditions that contribute to flammable or irrespirable atmospheres or outbursts 1.3 Identify, analyse and evaluate hazards and risks relating to gas emissions and outbursts 1.4 Identify, analyse and evaluate requirements for ventilation in relation to the types and amounts of gas emissions 1.5 Identify, analyse and evaluate gas hazards caused by disruption to the ventilation system and the impact on mine atmosphere

ELEMENT	PERFORMANCE CRITERIA
	1.6 Identify, analyse and evaluate impacts of fire, ignition, outburst and explosion on gas hazards 1.7 Identify training needs and confirm training plan is established according to site requirements
2. Identify, analyse and evaluate gas control options and measures	2.1 Identify, analyse and evaluate gas control options and management methods 2.2 Identify, analyse and evaluate methods, purposes and uses of gas monitoring systems
3. Design and develop gas management systems	3.1 Establish gas management systems according to site requirements 3.2 Establish surface infrastructure that minimise risk of induced hazards relating to potential gas emissions according to site requirements 3.3 Incorporate gas monitoring systems for minimising potential gas hazards according to site requirements 3.4 Incorporate ventilation systems and controls for minimising risk of gas leakages according to site requirements 3.5 Incorporate contingency systems for mitigating gas risks and hazards according to site requirements
4. Establish gas management system	4.1 Establish gas management system objectives, descriptions and responsibilities and incorporate into the management system according to site requirements 4.2 Identify, develop and establish hazard control procedures associated with gas management according to site requirements 4.3 Establish gas management monitoring system installation, operation and maintenance procedures according to site requirements 4.4 Establish gas control device installation, operation and maintenance procedures according to site requirements 4.5 Establish gas management system information recording and reporting procedures according to site requirements 4.6 Determine and review action levels and responses for minimising gas hazards according to site requirements 4.7 Establish gas emergency and evacuation procedures according to site requirements 4.8 Develop and establish, audit, review and update procedures according to site requirements
5. Plan and prepare to implement gas management system	5.1 Identify, clarify and communicate to all personnel roles and responsibilities according to gas management system 5.2 Identify, forecast, obtain and allocate/schedule resources required for implementation of the gas management system 5.3 Review gas management system implementation procedures and implement changes as required
6. Audit and review	6.1 Audit mine gas monitoring systems operations according to site

ELEMENT	PERFORMANCE CRITERIA
gas management system	requirements 6.2 Audit mine gas control devices according to site requirements 6.3 Audit recording systems according to site requirements 6.4 Audit the maintenance program and procedures according to site requirements 6.5 Audit gas management training program according to site requirements 6.6 Establish procedures for response to instances of non-compliance or other discrepancies/deficiencies revealed by audit 6.7 Identify and respond to instances of non-compliance or other discrepancies/deficiencies revealed by audit 6.8 Maintain records, reports and policy documentation according to site requirements 6.9 Identify and evaluate future gas management requirements and incorporate into planning procedures according to gas management system

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Oral communication	Conveys information and requirements clearly and listens actively
Reading	Identifies and interprets relevant information from workplace procedures, documentation and legislation
Writing	Prepares specific information that complies with a range of requirements, using sector-specific vocabulary, grammatical structures and conventions

Unit Mapping Information

Supersedes and is equivalent to RIIMCU602D Establish and maintain the gas management plan.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIMCU602E Establish and maintain gas management systems

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- establish and maintain gas management systems on at least two occasions, including:
 - establishing gas management system objectives, descriptions and responsibilities
 - identifying viable options and selecting the gas management system elements that best meet required outcomes
 - establishing gas training requirements, programs, systems and procedures
 - conducting enquiries/investigations and preparing reports.

During the above, the candidate must:

- locate and apply relevant legislation, documentation, policies and procedures
- implement procedures and techniques for establishing and maintaining gas management systems, including:
 - applying risk management processes and techniques
 - collecting, collating and evaluating gas data
 - accessing, evaluating and applying data from monitoring systems and equipment
 - performing gas planning mathematical calculations
 - interpreting computer spreadsheets and gas modelling/simulations
 - accessing, evaluating and applying design criteria for gas management
 - interpreting and applying mathematical and scientific theorems/laws relating to gas management
 - accessing and analysing archival and historical gas information related to the mine
- work effectively with others to establish and maintain gas management systems in a manner that meets required outcomes, including:
 - communicating clearly and concisely with others to receive and clarify work instructions and convey work progress

- identifying the relevant information and scope of the work necessary to meet required outcomes
- establishing technical procedures relating to gas management.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- key legislation required to establish and maintain gas management systems
- key procedures and documentation required to establish and maintain gas management systems
- principles of ventilation management, including mine and goaf ventilation systems
- methods of mine ventilation and their applications and limitations
- methods of panel gas management and their applications and limitations
- impacts of mining techniques and mine and panel design on gas management
- impacts of coal characteristics and coal seam gradients on mine gas systems
- principles and components of gas management systems, including:
 - effects of re-circulation
 - gas management drilling techniques
 - gas control options and management methods, including gas drainage
 - geological data
 - mathematical and scientific theorems/laws relating to gas management
 - audit and review processes and techniques
- equipment, monitoring systems and techniques used in gas management, including:
 - computer modelling and simulation techniques
 - computer-based systems for mine gas analysis
 - uses and calculations of specific gas emissions
 - gas surveys types, frequency and methods
 - processes for determining alarms and trigger points/levels
- techniques for identifying individual training needs and reviewing gas management training plans
- processes and techniques for auditing and reviewing gas management systems
- principles, processes and techniques for emergency response, evacuation and disaster planning
- techniques for leading and coordinating work activities with others.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - gas management plan
- be conducted in a safe environment; and,

- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations (RTOs) 2015/Australian Quality Training Framework mandatory requirements for assessors current at the time of assessment and any relevant licensing and certification requirements. This includes:

- vocational competencies at least to the level being delivered and assessed
- current industry skills directly relevant to the training and assessment being provided
- current knowledge and skills in vocational training and learning that informs their training and assessment
- formal relevant qualifications in training and assessment
- having knowledge of and/or experience using the latest techniques and processes
- possessing the required level of RII training product knowledge
- having an understanding and knowledge of legislation and regulations relevant to the industry and to employment and workplaces
- demonstrating the performance evidence, and knowledge evidence outlined in this unit of competency, and
- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure	1	1 year
	2	2 years

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 years
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in-line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

*** While a unit of competency does not have an AQF level, where a unit is being delivered outside of a qualification the first numeric character in the unit code should be considered as the AQF indicator level for assessment purposes.

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