



Australian Government

Assessment Requirements for RIIMCU502E Implement the gas management plan

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.

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:

- implement gas management plans on at least two occasions, including:
 - conducting investigations and preparing reports
 - conducting audit and review processes
 - completing site document control requirements
 - implementing procedures for relocation, operation and maintenance of drilling rigs and gas drainage infrastructure.

During the above, the candidate must:

- locate and apply relevant legislation, documentation, policies and procedures and confirm work activity is compliant
- apply procedures and techniques for implementing gas management plans, including:
 - operating hand held monitoring equipment
 - collecting, collating and evaluating gas management data
 - accessing, evaluating and applying data from monitoring systems and equipment
 - applying risk management processes and techniques
 - accessing and analysing gas information related to the mine
 - interpreting and applying mathematical and scientific theorems/laws related to gas
- work with others to implement the gas management plan 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 and implementing gas management training requirements, programs, systems and procedures
 - identifying the relevant information and scope of the work necessary to meet required outcomes.

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 implement gas management plans
- key procedures and documentation required to implement gas management plans
- principles of ventilation management, including mine and goaf ventilation systems
- methods of mine ventilation and their applications and limitations, including:
 - exhaust/force
 - antitropical
 - homotropical
 - flank returns
 - ascensional/decensional
 - bleeder
 - Z/U/Y systems
- methods of panel gas management and their applications and limitations, including:
 - homotropical and antitropical, including in conjunction with use of goaf bleed and back return
 - auxiliary fans
 - coursed ventilation (narrow side/wide side)
 - machine mounted scrubber systems
 - compressed air venturis
 - bleeders
- methods of gas drainage, including:
 - applications and limitations against mine design, mine and panel ventilation systems, systems of mining and current and future mine development
 - coal characteristics and coal seam gradients on mine gas management plans
 - mining techniques and impact of mine and panel design on gas management
 - gas drainage on airborne contaminant generation during mining
- techniques for applying geological data and identifying impact of differing geological features and conditions on gas management and outburst, including:
 - faults
 - dykes
 - intrusions
 - strata deformities
- impacts of intersecting and intersected holes and hole design components and factors relating to gas management plans, including:
 - types of mine gases, including:
 - characteristics under varying circumstances
 - sources
 - physiological effects

- methods of detection
- types of mine fires and possible impacts on gas management
- types of mine explosions, including ignition sources and possible impacts on gas management
- causes of pressure changes and impacts on gas management
- sources of heat and humidity and factors which may impact mine gas management
- effects of re-circulation
- outburst control methods
- underground water management techniques
- inertisation techniques
- types, characteristics, applications, limitations of equipment, monitoring systems and techniques, including:
 - mine fans
 - gas control devices, including:
 - design criteria and specifications
 - distribution/placement criteria
 - de-gassing methods of control, including:
 - brattice
 - auxiliary fans
 - compressed air venturis
 - sails
 - hurdles
 - bleeders
 - fixed gas monitoring systems
 - portable monitoring equipment
 - computer-based systems for mine gas analysis
 - gas surveys types, frequency and method for conducting, including:
 - pressure
 - quantity
 - temperature
 - gas
 - ventilation survey types, frequency and method for conducting, including:
 - pressure
 - temperature
 - gas
 - alarms and trigger points and levels
 - mine and goaf ventilation systems, including the following ventilation devices:
 - stoppings
 - overcasts
 - regulators

- preparation seals
- ventilation doors
- bulk heads
- goaf seals
- final seals
- pressure chambers
- air locks
- sling psychrometers, anemometers and velometers
- techniques for recording and reporting monitoring system data
- ventilation theory, including:
 - gas laws, including Charles's law and Boyle's law
 - natural ventilation
 - Coward's triangle
 - Graham's ratio
 - Ellicott Diagram
 - gas make
 - Trickett's ratio
 - leakage
 - psychrometry and heat
 - CO and CO₂ ratios
 - Kirchoff's laws
- techniques for identifying individual training needs
- techniques for auditing and reviewing gas management systems and processes
- 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
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	

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
		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.

Links

Companion Volume Implementation Guide is found on VETNet -

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