



Australian Government

RIIMCU502D Implement the gas management plan

Release: 2

RIIMCU502D Implement the gas management plan

Modification History

Release	Comment
1	This unit replaces RIIMCU502A Implement the gas management plan
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Application

This unit describes a participant's skills and knowledge required to implement the gas management plan in Coal mining.

This unit is appropriate for those working in supervisory roles.

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.

Unit Sector

Coal mining (Underground)

Elements and Performance Criteria

1. Plan and prepare for the implementation of the gas management plan	1.1 Access, interpret and apply gas management plan implementation documentation, and ensure the work activity is compliant 1.2 Access, interpret and clarify the legislative and site requirements related to gas management systems 1.3 Access, interpret and clarify the gas management plan 1.4 Identify and communicate roles and responsibilities, as specified in the gas management plan to all involved persons 1.5 Identify, forecast, obtain and allocate/schedule resources required for the implementation of the gas management plan 1.6 Identify training needs 1.7 Review gas management procedures and, implement
---	---

	identified changes
2. Implement mine gas monitoring measures	2.1 Identify, measure and interpret the impact of changes in composition, the concentration of gas and gas make, and associated hazards on the mine atmosphere 2.2 Implement procedures for the installation, operation and maintenance of gas monitoring systems 2.3 Implement systems and procedures for the collection and analysis of gas samples 2.4 Record and report monitoring system data in accordance with the gas management plan 2.5 Investigate changes in mine atmosphere status and implement appropriate corrective action and 2.6 Record and process reports
3. Implement ventilation/gas control measures	3.1 Monitor mine factors and action in accordance with the gas management plan 3.2 Implement gas hazard control procedures associated with gas drainage, outburst mining conditions and the gas management plan 3.3 Identify and implement appropriate response procedures in situations where trigger levels are reached 3.4 Implement ventilation and gas monitoring systems and surveys to assess the status of the systems 3.5 Implement procedures covering the relocation, operation and maintenance of drilling rigs and gas drainage infrastructure according to site requirements 3.6 Implement systems to prevent and/or respond immediately to the intersection of current and other workings 3.7 Implement gas emergency and evacuation procedures in accordance with the Mine Safety Management System 3.8 Implement the gas management training plan
4. Audit gas management systems	4.1 Review the effectiveness of the gas management systems in accordance with the requirements of the gas management plan 4.2 Audit mine gas monitoring systems operations for compliance with legislative requirements and the gas management plan 4.3 Audit mine gas control devices for compliance with legislative and mine site requirements 4.4 Audit recording systems for compliance with the gas management plan 4.5 Audit the maintenance program and procedures for

	compliance with the gas management plan
	4.6 Audit gas emergency and evacuation procedures for compliance with the mine safety management system
	4.7 Audit the gas management training plan for currency, relevance and compliance with the gas management plan

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit. Further information is available in the Resources and Infrastructure Industry Training Package Companion Volume.

Unit Mapping Information

RIIMCU502A Implement the gas management plan

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for RIIMCU502D Implement the gas management plan

Modification History

Release	Comment
1	This unit replaces RIIMCU502A Implement the gas management plan
2	Required frequency and volume of evidence amended in Performance evidence. Substantial amendments made in Assessment Conditions field, including: references to Industry Sectors, assessor and subject matter expert experience requirements, how assessment should be conducted and what it should confirm.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- implements the procedures and techniques for the safe, effective and efficient implementation of the gas management plan 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 including archival and historical information
 - interpreting and applying mathematical and scientific theorems / laws related to gas
- works with others to undertake and complete the implementation of the gas management plan that meets all of the 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 the required outcomes
- demonstrates completion of implementing the gas management plan that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:

- conducting investigations and preparing reports
- conducting audit and review processes
- completing site document control requirements
- implementing procedures for the relocation, operation and maintenance of drilling rigs and gas drainage infrastructure

Knowledge Evidence

The candidate must demonstrate knowledge of implementing the gas management plan through:

- identifying the principles of ventilation management including mine and goaf ventilation systems
- methods of mine ventilation and their applications / limitations including:
 - exhaust / force, antitropal, homotropal, flank returns, ascensional / decensional, bleeder, Z/U/Y systems and other combinations
- methods of panel gas management and their applications / limitations including:
 - homotropal and antitropal (and in conjunction with these, the use of goaf bleed or back return), auxiliary fans, coursed ventilation (narrow side / wide side), machine mounted scrubber systems, compressed air venturis and bleeders
- methods of gas drainage including:
 - their applications / limitations against the 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 systems
 - mining techniques, and the impact of mine and panel design on gas management
 - gas drainage on dust generation during mining
- geological data and identifying the impact of differing geological features and conditions on gas management and outburst including:
 - faults, dykes, intrusions and strata deformities

impacts of intersecting and intersected holes and hole design components/factors to be considered in the gas management plan including:

- mine gases: the types and their characteristics, sources, physiological effects and methods of detection
- mine fires: the types and possible impacts on gas management
- mine explosions: the types, ignition sources and possible impacts on gas management
- pressure changes: causes and the impacts on gas management
- heat / humidity: the sources and factors which may impact on mine gas management
- effects of re-circulation
- methods of control of outburst
- underground water management techniques
- inertisation techniques

- equipment, monitoring systems and techniques including:
 - mine fans: fan types, applications and limitations
 - gas control devices: the types, purposes, design criteria and specifications, distribution / placement criteria and limitations
 - de-gassing: methods of control – including brattice, auxiliary fans, compressed air venturis, sails, hurdles and bleeders
 - fixed gas monitoring systems: types, uses and limitations
 - portable monitoring equipment: types, characteristics, uses and limitations
 - computer-based systems for mine gas analysis
 - determining alarms and trigger points / levels
- • ventilation theory including
 - gas laws including Charles and Boyle
 - natural ventilation
 - Coward's Triangle
 - Graham's Ratio
 - Ellicott Diagram
 - gas make
 - Trickett's Ratio
 - leakage
 - psychrometry and heat
 - CO/CO₂
 - Kirchoff's laws
 - emergency response and evacuation/disaster planning processes and techniques

Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed in compliance with relevant legislation/regulation and using policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed; and,
- assessment may be conducted in conjunction with the assessment of other Units of Competency; and,
- assessment must confirm consistent performance can be applied in a range of relevant workplace circumstances; and,
- assessors must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through the minimum years of current* work experience specified below in an Industry sector relevant to the outcomes of the unit; or,

- where the assessor does not meet experience requirements a co-assessment or partnership arrangement must exist between the qualified assessor and an Industry subject matter expert. The Industry subject matter expert should hold the unit being assessed (or an equivalent unit) and/or demonstrate equivalence of skills and knowledge at the unit level. An Industry technical expert must also demonstrate skills and knowledge from the minimum years of current work experience specified below in the Industry sector, including time spent in roles related to the unit being assessed; and,
- assessor and Industry subject matter expert requirements differ depending on the Australian Qualifications Framework Level (AQF) of the qualification being assessed and/or Industry Sector as follows:

Industry sector	AQF** Level	Required assessor or Industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Construction	1	1 Year
	2	2 Years
Drilling, Coal Mining and Extractive (Quarrying)	3-6	3 Years
Metalliferous Mining and Civil Construction	3-6	5 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.	

*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 frequent site assessments across various locations.

**Where a unit is being delivered outside of a Qualification the first numeric character in the Unit code should be considered to indicate the AQF level

Links

Companion Volume implementation guides are found in VETNet -

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