



Australian Government

RIIMCU404D Apply and monitor the gas drainage management plan

Release: 2

RIIMCU404D Apply and monitor the gas drainage management plan

Modification History

Release	Comment
1	This unit replaces RIIMCU404A Apply and monitor the gas drainage 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 apply and monitor the gas drainage management plan in Coal Mining.

This unit is appropriate for those working in supervisory or technical specialist 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 application and monitoring of the gas drainage management plan	1.1 Access, interpret and apply gas drainage management plan documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 1.3 Identify, clarify and communicate roles and responsibilities 1.4 Identify, obtain and allocate resources required for the application of the gas drainage management plan 1.5 Identify individual training needs and prepare training plans 1.6 Encourage, receive, review and, where appropriate, implement suggestions and recommendations for changes to gas drainage management procedures
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2. Apply the gas drainage management procedures	2.1 Identify and interpret the impact of changes of gas make, composition, concentration of gas on the mine atmosphere 2.2 Identify and apply hazard control procedures associated with gas drainage 2.3 Apply gas monitoring system installation, operation and maintenance procedures 2.4 Apply drainage service extension and recovery procedures 2.5 Apply gas drainage system maintenance requirement procedures 2.6 Apply procedures incorporating methods and practices to minimise potential damage to the gas drainage system 2.7 Apply and monitor action levels established to minimise the hazards of gas drainage 2.8 Apply gas drainage system information recording and reporting procedures 2.9 Contribute to systems audit and review requirements 2.10 Implement training plans
3. Apply gas drainage management system maintenance procedures	3.1 Carry out inspections, repair and maintenance activities, 3.2 Record, report and review maintenance activities

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

RIIMCU404A Apply and monitor the gas drainage 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 RIIMCU404D Apply and monitor the gas drainage management plan

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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 requirements, procedures and techniques for the safe, effective and efficient completion of gas drainage management plan application and monitoring including:
 - operating hand held monitoring equipment
 - accessing, interpreting and applying relevant gas drainage data
 - interpreting geological reports
 - conducting audit and review processes and techniques
 - accessing, interpreting and applying
 - technical information related to gas drainage
 - geological reports
- briefings and handover details
 - identifying training needs, and preparing and implementing training plans
 - assessing the risks and consequences of gas drainage
- works effectively with others to plan, prepare and conduct the application and monitoring of the gas drainage management plan that meets all of the required outcomes including:
 - organising work activities to meet all task requirements
 - communicating clearly and concisely with others to receive and clarify work instructions
 - complying with written and verbal reporting requirements and procedures

- resolving coordination requirements throughout work activities
- demonstrates completion of applying and monitoring the gas drainage management plan that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - application of gas drainage procedures such as;
 - gas drainage drilling program
 - gas or geological anomaly detection
 - mine atmosphere monitoring
 - stimulation techniques
 - goaf walls
 - reporting requirements
 - auditing
 - ventilation systems and usage
 - mine plan
 - action plans
 - systems of mining
 - response plans
 - emergency procedures
 - individual and group responsibilities
 - training and education procedures
 - application of gas drainage monitoring such as:
 - continuous monitoring
 - leakage monitoring (laser beam technology)
 - portable (hand held)
 - monitoring
 - collection of bag samples
 - pipeflow and pressure measurements
 - gas chromatography
 - ventilation measurements from relevant areas
 - applying gas drainage management training to:
 - mine workers
 - tradesperson
 - permanent employees
 - contractors
 - mine officials
 - other special requirements

Knowledge Evidence

The candidate must demonstrate knowledge of applying and monitoring the gas drainage management plan through:

- accessing, interpreting and applying legislative, organization and site requirements and procedures for:
 - gas drainage drilling,
 - gas drainage installation,
 - ventilation requirements,
 - return airways gas levels,
 - intake airway gas accumulated levels,
 - gas control and distribution,
 - environmental monitoring and management,
 - local government and mine site inspection and reporting
- the methods of gas drainage and their applications/limitations against the mine design, mine and panel ventilation systems, systems of mining current and future mine development
- the impact of gas drainage on mining techniques, mine and panel design and production output
- the impact of the strata geology, strata control systems and coal seam characteristics on the gas drainage management plan, including:
 - coal seam gradient,
 - moisture content,
 - friability,
 - the porous features of the coal seam,
 - stresses and intrusions
- mining monitoring procedures
- identifying drilling options and related equipment and techniques, including:
 - impacts of intersecting holes and hole design
- components/factors to be considered in the gas drainage management plan including:
 - the effects of the type and quantity of gas in the coal seam
 - the impacts of accumulation of coal dust after gas drainage has been completed
 - pressure changes: causes, the impacts on the ventilation system, and the effects on gas drainage
 - heat/humidity: the sources and factors which may impact on gas drainage and personnel
 - underground water management principles and systems
- using equipment, monitoring systems and techniques including:
 - mine fans: fan laws, fan types, performance characteristics, configurations, applications and limitations in association with the gas drainage management plan
 - mine and goaf ventilation systems, and ventilation 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 drainage monitoring systems: types, characteristics, uses and limitations

- portable monitoring equipment for gas drainage purposes: types, characteristics, uses and limitations
- gas drainage surveys: the types, frequency and method for conducting including pressure/quantity/temperature and gas
- using gas drainage computer modeling and simulation techniques: functions, capabilities, advantages, and limitations for mine environment analysis
- applying ventilation theory, including:
 - gas laws including Charles and Boyle
 - natural ventilation pressures
 - gas make
 - leakage
 - Kirchoff's laws
- identifying hazard management processes and techniques
- identifying processes and techniques for determining alarms and trigger points/levels
- identifying and applying 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
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		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

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