



Australian Government

RIIUND603D Manage, operate and maintain the mine ventilation system

Release: 2

RIIUND603D Manage, operate and maintain the mine ventilation system

Modification History

Release	Comment
1	This unit replaces RIIUND603A Manage, operate and maintain the mine ventilation system
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

manage, operate and maintain the mine ventilation system in Coal mining.

This unit is appropriate for those working in management 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

Elements and Performance Criteria

1. Identify, analyse and evaluate hazards and risks associated with the mine ventilation system	1.1 Access, interpret and apply ventilation management documentation and ensure the work activity is compliant 1.2 Identify, analyse and evaluate the sources, hazards and risks of gases and fumes 1.3 Identify and evaluate the likelihood and risks of spontaneous combustion 1.4 Identify, analyse and evaluate the hazards and risks of airborne and flammable dust 1.5 Identify, analyse and evaluate the potential for the impact of wind blast and outburst on the ventilation system 1.6 Identify, analyse and evaluate the impacts of fire, ignition and
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	explosion on the ventilation system 1.7 Identify, analyse and evaluate the potential for the impact of ventilation pressure differentials 1.8 Identify, analyse and evaluate the effect of changes in air temperature and humidity 1.9 Identify, analyse and evaluate the causes and effects of re-circulation 1.10 Identify, analyse and evaluate the impact associated with disruption to the ventilation system 1.11 Identify, analyse and evaluate the impacts of holing into previous workings
2. Identify, analyse and evaluate ventilation control options and measures	2.1 Identify, analyse and evaluate the types, applications and limitations of the ventilation control devices 2.2 Identify, analyse and evaluate the impact of mine design on ventilation system 2.3 Identify, analyse and evaluate the methods, purposes and limitations of mine monitoring systems and processes 2.4 Identify, analyse and evaluate inertisation techniques and applications 2.5 Identify, analyse and evaluate the impact of seam gas management on the ventilation system 2.6 Identify, analyse and evaluate the impact of water management on the ventilation system
3. Contribute to the development and maintenance of the mine ventilation management plan	3.1 Identify, analyse and confirm the objectives and criteria for safe and effective ventilation 3.2 Incorporate the principles and requirements of mine ventilation into the mine development plan 3.3 Identify, analyse and evaluate the requirements for mine fans and make appropriate selections 3.4 Evaluate and apply design criteria and specifications for ventilation networks and individual circuits 3.5 Evaluate ventilation control device options against requirements and select best option 3.6 Establish design criteria for ventilation and environmental monitoring systems and make appropriate selections 3.7 Prepare and incorporate procedures for the installation, establishment and operation of ventilation management systems 3.8 Develop a system for early warning for each identified hazard

	including action requirements for each event and incorporate 3.9 Formulate and implement maintenance program and procedures 3.10 Incorporate procedures for the audit, review and updating of the ventilation system 3.11 Identify ventilation training requirements and incorporate
4. Implement mine ventilation monitoring, recording and reporting systems	4.1 Implement procedures for monitoring, recording and reporting on the ventilation system 4.2 Implement procedures for the installation and operation of monitoring systems and equipment 4.3 Implement procedures for the collection and analysis of ventilation data 4.4 Process, record and report monitoring system data 4.5 Interpret measured data and compare with statutory requirements and the ventilation management plan and action requirements 4.6 Include the periodic review of alarm settings and alarms raised in the ventilation management plan and implement
5. Coordinate and control the maintenance of and changes to the mine ventilation system	5.1 Review, confirm and communicate the ventilation system maintenance program to responsible parties 5.2 Coordinate maintenance activities, including inspections, repair and maintenance 5.3 Implement the system of recording and reporting maintenance requirements and activities 5.4 Plan, control and implement changes to the ventilation system 5.5 Prepare and maintain mine ventilation plans
6. Audit and review the effectiveness of the mine ventilation system	6.1 Audit the effectiveness of the ventilation system 6.2 Ensure that ventilation control devices comply 6.3 Ensure that ventilation standards comply 6.4 Operate mine monitoring systems 6.5 Maintain ventilation recording systems accurately and process data 6.6 Implement and record ventilation system maintenance program and procedures 6.7 Communicate the content of the ventilation management plan to the workforce and ensure that it is understood 6.8 Review the ventilation system

	6.9 Ensure that the emergency plans are consistent with the ventilation management plan 6.10 Ensure that the ventilation standards remain appropriate 6.11 Ensure that the training of mine employees is current, relevant and is conducted 6.12 Identify, assess and incorporate future ventilation requirements into the ventilation planning procedures
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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

RIIUND603A Manage, operate and maintain the mine ventilation system

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 RIIUND603D Manage, operate and maintain the mine ventilation system

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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 management, operation and maintenance of the mine ventilation system including:
 - accessing and analysing archival and historical ventilation information
 - interpreting and applying mathematical and scientific theorems/laws related to ventilation
 - interpreting and applying design criteria for ventilation systems and devices
 - interpreting computer spreadsheets and ventilation modelling/simulations
 - analysing and reporting on ventilation training needs
- demonstrates completion of the management, operation and maintenance of the mine ventilation systems that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - identifying mine ventilation system hazards and risks
 - determining measures and control of risks to mine ventilation systems
 - developing a system for early warning for each identified hazard including action requirements for each event and incorporate
 - identifying, analysing and evaluating ventilation control options and measures
 - coordinating maintenance activities, including inspections, repair and maintenance
 - preparing and maintaining ventilation management plan and associated activity

- communicating the ventilation management plan to others, clarify intent and ensure compliance
- auditing and reviewing the effectiveness of the mine ventilation system
- accessing data from monitoring systems and equipment and conducting enquiries/investigations for noncompliance, discrepancies or deficiencies and preparing audit reports

Knowledge Evidence

The candidate must demonstrate knowledge in managing, operating and maintaining the mine ventilation system through:

- methods of mine ventilation and their applications/limitations
- methods of panel ventilation and their applications/limitations
- impact of mining techniques and mine and panel design on ventilation
- inertisation techniques and applications
- impact of differing geological features and conditions on ventilation including faults, dykes, intrusions and strata deformities
- impact of coal characteristics and coal seam gradients on mine ventilation design
- effects of ventilation on the spontaneous combustion risk
- mine gases; the types and their characteristics, sources, physiological effects and methods of detection
- dust and other particulate matter; the types, sources, physical and physiological effect, and control/mitigation methods
- mine fires; the types, sources of ignition, possible effects on the ventilation circuit and prevention/control/mitigation methods
- mine explosions; the types, ignition sources, possible effects on the ventilation circuits and prevention/control/mitigation methods
- pressure changes; causes, the impacts on the ventilation system, responses (to include the causes and effects of natural ventilation and re-circulation)
- heat, humidity; the sources and factors which may impact on mine ventilation and personnel
- mine roadways and shafts; their design parameters and impact on mine ventilation
- mine fans; fan laws, fan types, performance characteristics, configurations, applications and limitations
- 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
- ventilation networks and individual circuit design criteria, specifications and design processes
- fixed ventilation monitoring systems types, uses/limitations, design criteria, specifications and design processes
- portable monitoring equipment, types, uses/limitations, design criteria and specifications

- the use of computer modelling and simulation techniques and applications relevant to mine ventilation planning; their functions, capabilities, advantages and limitations

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.
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*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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