



Australian Government

RIIUND501D Implement the ventilation management plan

Release: 2

RIIUND501D Implement the ventilation management plan

Modification History

Release	Comment
1	This unit replaces RIIUND501A Implement the ventilation 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 ventilation management plan in Coal and Metalliferous 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

Metalliferous mining

Elements and Performance Criteria

1. Plan and prepare to implement the ventilation management plan	1.1 Access, interpret and apply ventilation management documentation and ensure the work activity is compliant 1.2 Access, interpret and clarify the ventilation management plan 1.3 Identify, and communicate to all involved, roles and responsibilities as specified in the ventilation management plan 1.4 Identify, forecast, obtain and allocate/schedule resources required for the implementation of the ventilation management plan 1.5 Identify training needs
2. Implement the ventilation management	2.1 Identify and interpret the impact of changes to the ventilation system on the mine atmosphere

plan	2.2 Implement standards and procedures for the installation and operation of monitoring systems and equipment 2.3 Incorporate ventilation control devices into the ventilation system 2.4 Implement standards and procedures for inspection, monitoring, recording and reporting on mine ventilation 2.5 Implement standards and procedures for the collection and analysis of ventilation data 2.6 Process, record and report monitoring system data 2.7 Implement the ventilation management training plan 2.8 Interpret and compare measured data with relevant legislative requirements and the ventilation management plan and action requirements 2.9 Implement water management procedures 2.10 Respond to alarms raised 2.11 Implement emergency and evacuation procedures
3. Implement the maintenance of and changes to the mine ventilation system	3.1 Implement inspections, repair and maintenance activities 3.2 Implement the system of recording, reporting and reviewing maintenance requirements and activities 3.3 Implement changes to the mine ventilation systems 3.4 Encourage, receive, review and, where appropriate, implement suggestions and recommendations for changes to ventilation management procedures
4. Audit the effectiveness of the ventilation management plan	4.1 Audit ventilation specifications for compliance with legislative requirements and the ventilation management plan 4.2 Audit ventilation control devices for compliance with legislative requirements and the ventilation management plan 4.3 Audit monitoring systems operations for compliance with relevant legislative requirements and the ventilation management plan 4.4 Audit effectiveness of alarm responses and trigger levels 4.5 Audit recording systems for compliance with the ventilation management plan 4.6 Audit ventilation system maintenance standards and procedures for compliance with the ventilation management plan 4.7 Audit emergency and evacuation plans for compliance with the mine safety management system 4.8 Audit the ventilation management training plan for currency, relevance and compliance with the ventilation 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

RIIUND501A Implement the ventilation 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 RIIUND501D Implement the ventilation management plan

Modification History

Release	Comment
1	This unit replaces RIIUND501A Implement the ventilation 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 requirements, procedures and techniques for the safe, effective and efficient implementation of the ventilation management plan including:
 - performing routine operational mathematical calculations (quantity, pressure, prediction)
 - interpreting and applying design criteria for ventilation systems and devices
 - interpreting computer spreadsheets and ventilation modelling/simulations
 - conducting enquiries/investigations and preparing reports
 - accessing, interpreting and applying data from monitoring systems and equipment
 - implementing the ventilation management training plan
 - applying risk management processes and techniques
 - implementing emergency response and evacuation procedures
- demonstrates completion of the implementation of the ventilation management plan that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including:
 - operating hand held monitoring equipment
 - accessing and analysing ventilation information
 - measuring air quality and quantity
 - collecting, collating and interpreting ventilation data
 - auditing components of the ventilation management plan

Knowledge Evidence

The candidate must demonstrate knowledge in implementing the ventilation management plan through:

- methods of mine ventilation and their applications/limitations including:
 - exhaust/force
 - antitropical
 - homotropical
 - flank returns
 - ascensional/descensional
 - bleeder
 - Z/U/Y systems
 - other combinations
- methods of panel ventilation and their applications/limitations including:
 - homotropical and antitropical auxiliary fans
 - coursed ventilation (narrow side/wide side)
 - machine mounted scrubber systems
 - compressed air venturis and bleeders
- impact of mine and panel design on ventilation
- mine roadways and shafts and their impact on mine ventilation
- impact of material characteristics and seam gradients on mine ventilation design
- impacts on ventilation system of gas drainage, spontaneous combustion, outburst and windblast
- mine gases; types and characteristics, sources, physiological effects and methods of detection
- dust, fumes 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; types, ignition sources, possible effects on the ventilation circuits and prevention/control/mitigation methods
- pressure changes; causes, impacts on the ventilation system, and responses (to include the causes and effects of natural ventilation and re-circulation)
- heat/humidity; sources and factors which may impact on mine ventilation and personnel
- mine fans including:
 - ventilation control devices; 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 ventilation monitoring systems types, uses and limitations
- basic computer-based systems used for mine ventilation monitoring and analysis
- ventilation surveys; the types, frequency and method for conducting
- ventilation theory including:

- psychrometry and heat
- gas laws including Charles and Boyle
- natural ventilation pressures
- air quality measurement
- control device leakage
- duct leakage
- regulator
- equivalent office calculation and Kirchoff's laws

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 is best assessed in the context of this sector's work environment;
- where personal safety or environmental damage are limiting factors, assessment may occur in a simulated 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; 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>