



Australian Government

RIIUND501E Implement the ventilation management plan

Release: 1

RIIUND501E Implement the ventilation management plan

Modification History

Release	Comments
Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 5.0.

Application

This unit describes the skills and knowledge required to implement ventilation management plans in coal and metalliferous mining, including implementing and reviewing ventilation specifications, ventilation control devices, monitoring systems and alarm responses.

This unit is appropriate for those working in supervisory or technical specialist roles. They generally monitor a broad range of operational activities in their area of responsibility and are responsible for monitoring a safe work environment.

Licensing, legislative and certification requirements that apply to this unit can vary between states, territories and industry sectors. Users must check requirements with relevant body before applying the unit.

Unit Sector

Coal mining

Metalliferous mining

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Plan and prepare to implement ventilation management plan	1.1 Access, interpret and implement ventilation management documentation and confirm work activity is compliant 1.2 Identify, and communicate roles and responsibilities to all personnel involved according to ventilation management plan 1.3 Identify, forecast, obtain and allocate/schedule resources required to implement ventilation management plan 1.4 Identify training needs for personnel involved according to ventilation management plan and within scope of own role
2. Implement	2.1 Identify and interpret impact of changes to ventilation system on

ELEMENT	PERFORMANCE CRITERIA
ventilation management plan	mine atmosphere 2.2 Implement standards and procedures for installation and operation of monitoring systems and equipment according to ventilation management plan 2.3 Incorporate ventilation control devices into ventilation system according to ventilation management plan 2.4 Implement standards and procedures for inspection, monitoring, recording and reporting on mine ventilation according to ventilation management plan 2.5 Implement standards and procedures for collection and analysis of ventilation data according to ventilation management plan 2.6 Process, record and report monitoring system data according to ventilation management plan and site requirements 2.7 Interpret and compare measured data with legislative requirements and ventilation management plan and action requirements 2.8 Respond to alarms raised according to ventilation management plan 2.9 Implement emergency and evacuation procedures according to ventilation management plan and site requirements
3. Implement maintenance of and changes to mine ventilation system	3.1 Implement inspections, repair and maintenance activities according to ventilation management plan 3.2 Implement system of recording, reporting and reviewing maintenance requirements and activities according to ventilation management plan 3.3 Implement changes to mine ventilation systems according to ventilation management plan and site requirements 3.4 Provide, review and implement recommendations for changes to ventilation management procedures as required
4. Audit ventilation management plan	4.1 Audit ventilation specifications according to legislative requirements and ventilation management plan 4.2 Audit ventilation control devices according to legislative requirements and ventilation management plan 4.3 Audit monitoring systems operations according to legislative requirements and ventilation management plan 4.4 Audit recording systems according to ventilation management plan 4.5 Audit ventilation system maintenance standards and procedures according to ventilation management plan 4.6 Audit emergency and evacuation plans according to mine safety management system

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Oral communication	Conveys information and requirements clearly and listens actively
Reading	Identifies and interprets relevant information from workplace procedures, documentation and legislation
Writing	Prepares specific information that complies with requirements, using sector-specific vocabulary, grammatical structures and conventions

Unit Mapping Information

Supersedes and is equivalent to RIIUND501D Implement the ventilation management plan.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for RIIUND501E Implement the ventilation management plan

Modification History

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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 ventilation management plans on at least two occasions, 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.

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 ventilation management plans, including:
 - performing routine operational mathematical calculations, including quantity, pressure, prediction calculations
 - 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
 - applying risk management processes and techniques
 - implementing emergency response and evacuation procedures.

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 ventilation management plans
- key procedures and documentation required to implement ventilation management plans
- methods of mine ventilation and their applications and limitations, including:
 - exhaust/force
 - antitropical
 - homotropical
 - flank returns
 - ascensional/descensional
 - bleeder
 - Z/U/Y systems
- principles, methods, applications and limitations of panel ventilation, including:
 - homotropical and antitropical auxiliary fans
 - coursed ventilation (narrow side/wide side)
 - machine mounted scrubber systems
 - compressed air venturis
 - 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
- types of mine gases, including:
 - characteristics under varying circumstances
 - sources
 - physiological effects
 - methods of detection
- types of airborne contaminants, including:
 - sources
 - physical and physiological effects
 - control and mitigation methods
- types of mine fires, including:
 - sources of ignition
 - possible effects on the ventilation circuit
 - prevention, control and mitigation methods
- types of mine explosions, including:
 - ignition sources
 - possible effects on the ventilation circuit
 - prevention, control and mitigation methods
- pressure change principles, including:
 - causes

- impacts on the ventilation system
- responses, including the causes and effects of natural ventilation and recirculation
- heat and humidity principles, including sources and factors which may impact ventilation and personnel
- principles mine fans, including:
 - fan laws
 - types
 - performance characteristics and configurations
 - applications and limitations
- types of ventilation control devices, including:
 - purposes
 - design criteria and specifications
 - distribution and placement criteria
 - applications and limitations
- de-gassing methods of control, including:
 - brattice
 - auxiliary fans
 - compressed air venturis
 - sails
 - hurdles
 - bleeders
- types, characteristics, uses and limitations of fixed ventilation monitoring systems
- basic computer-based systems used for mine ventilation monitoring and analysis
- types, frequency and method for conducting ventilation surveys
- general uses and applications of ventilation theory
- techniques for identifying individual training needs
- techniques for auditing and reviewing ventilation 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:
 - ventilation 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

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

*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.

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