



Australian Government

RIIMCU408E Apply the spontaneous combustion management plan

Release: 1

RIIMCU408E Apply the spontaneous combustion 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 apply the spontaneous combustion management plans in underground coal mining. It includes applying mine atmosphere monitoring systems and procedures and spontaneous combustion control measures.

It applies to those working in supervisory roles. They generally perform 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 (underground)

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 apply spontaneous combustion management plan	1.1 Obtain, interpret, clarify and confirm work requirements 1.2 Access, interpret and apply spontaneous combustion management plan documentation and confirm work activity is compliant 1.3 Identify, clarify and communicate roles and responsibilities to personnel involved according to spontaneous combustion management plan 1.4 Identify and obtain resources required to apply spontaneous combustion plan 1.5 Identify training needs for personnel involved according to

ELEMENT	PERFORMANCE CRITERIA
	spontaneous combustion management plan and within scope of own role
2. Identify and explain fundamentals of spontaneous combustion hazards and risks	2.1 Identify fundamentals of spontaneous combustion 2.2 Identify and explain effects of mine gases and barometric variations in terms of spontaneous combustion risks 2.3 Identify and explain hazards associated with goaf and waste working atmosphere in terms of spontaneous combustion risks 2.4 Identify impact of ventilation and ventilation structures in terms of spontaneous combustion risks 2.5 Identify spontaneous combustion risks associated with coal stowage
3. Identify and explain the fundamentals of spontaneous combustion control systems and procedures	3.1 Identify principles of ventilation design and related procedures and their impact on spontaneous combustion management 3.2 Identify methods and purposes of natural and induced inertisation in goaf and waste workings in terms of spontaneous combustion risks 3.3 Identify method, purpose, operation and procedures for installation of mine atmosphere monitoring systems in terms of spontaneous combustion risks
4. Identify and apply resources to spontaneous combustion management plan	4.1 Identify, access, interpret and apply legislative and site requirements 4.2 Identify, interpret and apply procedures and own responsibilities according to spontaneous combustion management plan 4.3 Monitor actions of work group to confirm spontaneous combustion procedures are carried out according to spontaneous combustion plan 4.4 Identify situations where trigger levels are reached and apply response procedures to situations according to spontaneous combustion plan 4.5 Participate in development and review of spontaneous combustion management procedures according to spontaneous combustion plan and site requirements
5. Identify and respond to spontaneous combustion indicators	5.1 Identify, monitor and investigate spontaneous combustion indicators according to spontaneous combustion plan and site requirements 5.2 Respond to and report on indicators according to spontaneous combustion plan and site requirements
6. Apply mine atmosphere monitoring systems and procedures	6.1 Conduct mine atmosphere monitoring, interpret results and prepare and process reports according to site requirements 6.2 Identify and report defects to monitoring systems and, where appropriate affect repairs as required according to site requirements
7. Apply spontaneous combustion control measures	7.1 Identify, investigate and report changes in ventilation that may affect spontaneous combustion according to site requirements 7.2 Report incidents of connection to other workings and take action according to spontaneous combustion management plan and site

ELEMENT	PERFORMANCE CRITERIA
	requirements 7.3 Identify, rectify and report defects to ventilation structures and seals according to spontaneous combustion management plan and site requirements 7.4 Identify hazards associated with coal accumulations and transport systems and apply action according to spontaneous combustion management plan and site requirements 7.5 Apply spontaneous combustion emergency and evacuation procedures according to spontaneous combustion management plan and site requirements

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
Numeracy	Calculates resourcing requirements and performs mathematical calculations
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 RIIMCU408D Apply the spontaneous combustion 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 RIIMCU408E Apply the spontaneous combustion management plan

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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:

- apply spontaneous combustion management plans on at least two occasions, including:
 - applying spontaneous combustion management plan procedures, including:
 - mine atmosphere monitoring
 - reporting requirements
 - ventilation systems and usage
 - inertisation techniques
 - mine plan
 - action plans
 - response plans
 - emergency procedures
 - individual and group responsibilities
 - training needs analysis
 - applying mine atmosphere monitoring, including:
 - continuous monitoring
 - portable (hand held) monitoring
 - collection of bag samples
 - gas chromatography
 - ventilation measurements from all areas of the mine
 - waste workings
 - seal inspections
 - identifying spontaneous combustion indicators, including:
 - smoke
 - haze
 - sweating
 - smell

- heat
- production of carbon monoxide
- hydrogen
- carbon dioxide
- methane
- higher hydrocarbons
- using indicator ratios, including CO make and Graham's ratio.

During the above, the candidate must:

- locate and apply relevant legislation, documentation, policies and procedures and confirm work activity is compliant
- implement requirements, procedures and techniques for applying spontaneous combustion management plans, including:
 - accessing, interpreting, communicating and applying:
 - technical information
 - records and reports
 - briefing and handover details
 - planning and coordinating work
 - conducting mine atmosphere monitoring
 - conducting inspections related to spontaneous combustion
 - interpreting and recording data related to spontaneous combustion
 - interpreting and responding to spontaneous combustion indicators and ratios
 - identifying and investigating incidents and potential hazards associated with spontaneous combustion
 - applying spontaneous combustion control procedures or methods
- work effectively with others to apply spontaneous combustion management plans in a manner that meets 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 reporting requirements and procedures
 - determining coordination requirements throughout work activities.

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 apply spontaneous combustion management plans
- key procedures and documentation required to apply spontaneous combustion management plans, including those relating to:
 - applying risk assessment and management processes

- identifying and managing environmental issues, hazards and risks and identifying environmental monitoring systems
- fundamentals of spontaneous combustion, including:
 - causes and effects
 - indicators and trigger points, including:
 - smoke
 - haze
 - sweating
 - smell
 - heat
 - production of carbon monoxide
 - hydrogen
 - carbon dioxide
 - methane
 - higher hydrocarbons
 - methods of control
 - sealing procedures
 - relationships with mine systems, including:
 - mine designs and plans
 - mine gases
 - mine and goaf ventilation systems
- principles and techniques for mine atmosphere monitoring, including:
 - continuous monitoring
 - portable (hand held) monitoring
 - collection of bag samples
 - gas chromatography
 - ventilation measurements from all areas of the mine
 - waste workings
- techniques for identifying individual training needs
- principles and techniques for using indicator ratios, including CO make and Graham's ratio.
- impacts of coal seam characteristics and geological conditions on spontaneous combustion
- principles, processes and techniques for emergency responses, evacuations and disaster planning
- techniques for coordinating and communicating job activities with others.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - spontaneous combustion 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,	1	1 year

Industry sector	AQF indicator level***	Required assessor or industry subject matter expert experience
Extractive (Quarrying) and Civil Infrastructure	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure	3-6	3 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.	

*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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