



**Australian Government**

# **RIIMCU601E Establish and maintain spontaneous combustion management systems**

**Release: 1**

# RIIMCU601E Establish and maintain spontaneous combustion management systems

## 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 establish and maintain spontaneous combustion management systems in coal mining, including design, development, audit and review processes and procedures.

It applies to those working in management roles. They generally perform complex, non-routine tasks involving strategic and planning activities and are responsible for establishing and maintaining operational systems and plans.

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 establish and maintain spontaneous combustion management system | 1.1 Access, interpret and apply spontaneous combustion management documentation<br>1.2 Identify causes and hazards of spontaneous combustion<br>1.3 Identify and clarify coal seam characteristics which affect likelihood of spontaneous combustion<br>1.4 Identify and clarify the effects of changes in the mine atmosphere on the risks of spontaneous combustion<br>1.5 Identify the impact of mine design and ventilation on the risks of spontaneous combustion |

| ELEMENT                                                                       | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                               | <p>1.6 Identify spontaneous combustion risks associated with the planned and unplanned coal accumulation</p> <p>1.7 Identify spontaneous combustion risks associated with transport of coal</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2. Identify and clarify spontaneous combustion control systems and procedures | <p>2.1 Identify and evaluate method, purpose and procedures for installation and use of mine monitoring systems, with respect to spontaneous combustion</p> <p>2.2 Identify and evaluate the method, purpose and procedures for mine design and ventilation systems, with respect to spontaneous combustion</p> <p>2.3 Identify and evaluate the methods and purposes of natural and induced inertisation in the goaf and waste workings, with respect to spontaneous combustion</p> <p>2.4 Identify and clarify the scope and impact of gas management on spontaneous combustion</p> <p>2.5 Identify and clarify seal design requirements in terms of geological structures, construction, location and use of materials for minimising spontaneous combustion risks</p> |
| 3. Design and develop spontaneous combustion management system                | <p>3.1 Identify, clarify and apply the principles of mine design with respect to spontaneous combustion</p> <p>3.2 Review effectiveness of mine design process in terms of minimising spontaneous combustion risks and amend processes as required</p> <p>3.3 Incorporate ventilation systems and controls for minimising spontaneous combustion risks</p> <p>3.4 Evaluate inertisation options applicable to the mine and incorporate into development of the system</p> <p>3.5 Incorporate mine monitoring systems for minimising spontaneous combustion risks into the management system</p> <p>3.6 Develop and incorporate control methods for mitigating the effect of spontaneous combustion occurrence into contingency plans</p>                                  |
| 4. Establish spontaneous combustion management system                         | <p>4.1 Establish spontaneous combustion management objectives, processes, descriptions, responsibilities and review procedures according to site requirements</p> <p>4.2 Identify, develop and establish hazard control procedures according to site requirements</p> <p>4.3 Develop and establish spontaneous combustion management monitoring system installation, operation and maintenance procedures according to site requirements</p> <p>4.4 Develop and establish ventilation control device installation, operation and maintenance procedures according to site requirements</p> <p>4.5 Develop and establish inertisation procedures according to site requirements</p>                                                                                        |

| ELEMENT                                                                   | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                           | <p>4.6 Develop and establish spontaneous combustion system information recording and reporting procedures according to site requirements</p> <p>4.7 Establish and review trigger levels and responses to minimise the hazards of spontaneous combustion according to site requirements</p> <p>4.8 Identify training needs and confirm training plan is established according to site requirements</p> <p>4.9 Develop and establish audit, review and updating procedures according to site requirements</p>                                                                                                                                                                                  |
| 5. Plan and prepare to implement spontaneous combustion management system | <p>5.1 Identify, interpret and confirm the legislative and site requirements</p> <p>5.2 Identify, clarify and communicate roles and responsibilities to all personnel according to spontaneous combustion management plan</p> <p>5.3 Identify, forecast, obtain and allocate/schedule resources required to implement spontaneous combustion management plan</p> <p>5.4 Review the spontaneous combustion management implementation procedures and implement changes as required</p>                                                                                                                                                                                                         |
| 6. Audit and review spontaneous combustion management system              | <p>6.1 Audit the operation of spontaneous combustion monitoring systems according to legislative and site requirements</p> <p>6.2 Audit mine ventilation control devices according to site requirements</p> <p>6.3 Audit recording and reporting systems according to site requirements</p> <p>6.4 Audit the maintenance program and procedures according to site requirements</p> <p>6.5 Audit spontaneous combustion training program according to site requirements</p> <p>6.6 Identify and respond to instances of non-compliance or other discrepancies/deficiencies revealed by audit</p> <p>6.7 Maintain records, reports and policy documentation according to site requirements</p> |

## 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 | <ul style="list-style-type: none"> <li>Conveys information and requirements clearly and listens actively</li> </ul>                                                       |
| Reading            | <ul style="list-style-type: none"> <li>Identifies and interprets relevant information from workplace procedures, documentation and legislation</li> </ul>                 |
| Writing            | <ul style="list-style-type: none"> <li>Prepares specific information that complies with a range of requirements, using sector-specific vocabulary, grammatical</li> </ul> |

| SKILL | DESCRIPTION                |
|-------|----------------------------|
|       | structures and conventions |

## Unit Mapping Information

Supersedes and is equivalent to RIIMCU601D Establish and maintain 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 RIIMCU601E Establish and maintain spontaneous combustion management systems

## Modification History

| Release   | Comments                                                                                                 |
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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:

- establish and maintain spontaneous combustion management systems on at least two occasions, including:
  - establishing and incorporating spontaneous combustion management objectives, processes, descriptions, responsibilities and review procedures
  - identifying viable options and selecting spontaneous combustion management techniques that best meet required outcomes
  - identifying training needs relating to spontaneous combustion risk minimisation and confirming training plans are established according to site requirements.

During the above, the candidate must:

- locate and apply relevant legislation, documentation, policies and procedures and confirm work activity is compliant
- implement procedures and techniques for establishing and maintaining spontaneous combustion management systems, including accessing, interpreting and applying:
  - technical information
  - legislative and site requirements
  - records and reports
  - briefings and handover details
  - principles of mine design
  - methods to assess the risks and consequences of spontaneous combustion
- work effectively with others to establish and maintain spontaneous combustion management systems, including:
  - communicating clearly and concisely with others to plan and coordinate work, receive and clarify work instructions and convey work progress.
  - identifying the relevant information and scope of the work necessary to meet required outcomes

- developing procedures appropriate to mine operations for management of spontaneous combustion.

## 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 establish and maintain spontaneous combustion management systems
- key procedures and documentation required to establish and maintain spontaneous combustion management systems
- principles of mine design relating to spontaneous combustion, including techniques for:
  - identifying the effects of coal seam characteristics on spontaneous combustion
  - identifying and reviewing inertisation principles and techniques
  - evaluating geological data
  - evaluating strata control
  - evaluating underground water management
  - evaluating seal design and sealing procedures
- spontaneous combustion management requirements, including techniques for:
  - identifying and managing causes and effects of spontaneous combustion
  - identifying and monitoring spontaneous combustion indicators and ratios
  - implementing methods of control of spontaneous combustion
  - auditing and reviewing spontaneous combustion management systems
- principles of ventilation management, including:
  - mine gases and gas management
  - mine ventilation systems
- key external agencies
- principles, processes and techniques for emergency response, evacuation and disaster planning
- techniques for identifying training needs and plans
- 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:
  - 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, 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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