



Australian Government

Department of Education, Employment and Workplace Relations

RIIMCU402A Apply spontaneous combustion management measures

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the application of spontaneous combustion management measures in the coal industry. It includes preparing for the identification and recognition of hazards, identifying and clarifying operational requirements and control measures, and implementing and contributing to spontaneous combustion management measures. 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.

Application of the Unit

This unit is appropriate for those working in a supervisory role or as a technical specialist, at worksites within:

- Coal mining

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for the identification and recognition of hazards	1.1. Identify the fundamentals of spontaneous combustion 1.2. Identify hazards related to mine gases and variations in barometric pressure 1.3. Identify the effects of mine ventilation structures and the potential to bring about spontaneous combustion 1.4. Identify and clarify physical spontaneous combustion indicators relevant to the work area 1.5. Identify and clarify gaseous spontaneous combustion indicators relevant to the work area. 1.6. Identify the range of causes of spontaneous combustion hazards related to the underground coal stowage and conveyor systems
2. Identify and clarify operational requirements and control measures	2.1. Access, interpret and apply compliance documentation relevant to the work activity 2.2. Identify methods and purposes of the mine atmosphere monitoring systems 2.3. Identify the methods and purposes of control measures for the elimination or minimisation of spontaneous combustion risks
3. Implement and contribute to spontaneous combustion management measures	3.1. Monitor and report on the spontaneous combustion status of the local work area 3.2. Minimise hazards associated with the stowage of coal through: inspections and monitoring; maintenance of high standards of housekeeping; timely reporting of situations requiring further actions 3.3. Identify and report errors or omissions in spontaneous combustion procedures

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following, as required to apply spontaneous combustion management measures:

- apply legislative, organisation and site requirements and procedures for the application of spontaneous combustion management measures
- access, interpret, apply:
 - general information on spontaneous combustion
 - site/legislative requirements with respect to spontaneous combustion
 - records and reports
- briefings and handover details
- plan and organise work
- recognise and report incidents and potential hazards associated with spontaneous combustion

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to apply spontaneous combustion management measures:

- spontaneous combustion causes and hazards
- spontaneous combustion management plan requirements
- mine ventilation structures
- mine gases
- geological data
- hazard assessment procedure
- mine operation procedures
- gas monitoring systems
- spontaneous combustion indicators
- general housekeeping and reporting measures with respect to spontaneous combustion

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following: • knowledge of the requirements, procedures and instructions for the application of spontaneous combustion management measures • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of the application of spontaneous combustion management measures • working with others to plan, prepare and conduct the application of spontaneous combustion management measures • evidence of the consistent successful application of spontaneous combustion management measures
Context of and specific resources for assessment	• This unit must be assessed in the context of the 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 workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the site circumstances. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of

	assessment should not be greater than those required on the job. • Customisation of assessment and delivery environment to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.
Method of assessment	This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods: • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete the application of spontaneous combustion management measures • provision of clear and timely instruction and supervision by the individual of those involved in the conduct of the application of spontaneous combustion management measures
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Relevant compliance documentation may include:	• legislative, organisational and site requirements and procedures • manufacturer's guidelines and specifications • management plans • OHS policy • Australian standards • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Hazards resulting from spontaneous combustion may include:	• production of noxious and irrespirable gases • fires • explosive mixtures
Mine gases may include seam gases or gases from other than mined seam such as:	• methane • carbon dioxide • hydrogen sulphide • normal atmospheric gases • carbon monoxide
Ventilation structures may include:	• stoppings • overcasts • regulators • preparation seals • fire doors • bulk heads • goaf seals • final seals • pressure chambers
Physical spontaneous combustion indicators may include:	• smoke • haze • sweating • smell • heat
Gaseous spontaneous combustion indicators may	• CO make • Graham's ratio

include increased production of carbon monoxide, hydrogen and hydrocarbons or the use of indicator ratios such as:	• other ratios as determined suitable
Coal stowage hazards may include:	• spillage coal • waste products
Mine atmosphere monitoring systems may include:	• continuous monitoring • portable (hand held) monitoring • collection of bag samples • gas chromatography • ventilation measurements • status monitoring, including: • physical indications of spontaneous combustion • gaseous indications of spontaneous combustion • changes in ventilation conditions • defective seals • damage to monitoring systems / equipment
Spontaneous combustion management plan may include procedures for:	• mine atmosphere monitoring • reporting requirements • auditing • ventilation systems and usage • inertisation techniques • mine plan • action plan • response plans • emergency procedures • individual group responsibilities • training and education procedures
Minimisation of risks may include:	• inspections and monitoring • maintenance of high standards of housekeeping • timely reporting of situation requiring further actions
Control measures for the elimination or minimisation of spontaneous combustion risks may include:	• grouting • digging-out • sealing • water infusion • inertisation

Unit Sector(s)

Coal Mining (Underground)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.