



Australian Government

Department of Education, Employment and Workplace Relations

RIIMCU504A Implement the outburst management plan

Release: 1

RIIMCU504A Implement the outburst management plan

Modification History

Not applicable.

Unit Descriptor

This unit covers the implementation of outburst management plans in the coal industry. It includes planning and preparing the implementation of the outburst mining management plan, implementing the outburst mining management plan, and auditing and reviewing the effectiveness of the outburst mining management systems. 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 management or supervisory role 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. Plan and prepare the implementation of the outburst mining management plan	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Identify, clarify and communicate roles and responsibilities, as specified in the outburst mining management plan 1.3. Identify, forecast, obtain and allocate/schedule resources required for the implementation of the outburst mining management plan 1.4. Implement the program to satisfy identified outburst mining management training requirements 1.5. Encourage, receive, review and, where appropriate, implement suggestions and recommendations for changes to outburst mining management procedures
2. Implement the outburst mining management plan	2.1. Implement outburst drilling and sample collection operational procedures 2.2. Implement core sample analysis and reporting procedures 2.3. Implement geological and geotechnical hazard identification and response procedures 2.4. Implement actions and procedures required in response to gas threshold levels 2.5. Implement permit to mine procedures in accordance with the outburst mining management plan 2.6. Implement procedures to minimise potential damage caused by outburst 2.7. Implement outburst information recording and reporting procedures 2.8. Implement emergency and evacuation plans and procedures 2.9. Implement procedures for the recovery of services following outburst
3. Audit and review the effectiveness of the outburst mining management systems	3.1. Audit outburst drilling and analytical operational procedures for compliance with statutory and outburst mining management plan requirements 3.2. Audit monitoring systems operations for

	compliance with the outburst mining management plan 3.3.Audit geological and geotechnical identification, monitoring and response procedures for compliance with the outburst mining management plan 3.4.Audit recording systems for compliance with the outburst mining management plan 3.5.Audit procedures developed for the recovery of services following outburst for compliance with current statutory and outburst mining management plan requirements 3.6. Trial and audit emergency and evacuation plans and procedures for compliance with the management plan 3.7.Audit outburst training program for currency, relevance and compliance with the requirements of the outburst management plan 3.8. Respond promptly to instances of non-compliance and other discrepancies/deficiencies revealed by audit and modify the management plan as necessary 3.9. Identify evaluate and incorporate future outburst management requirements into the outburst mining management planning procedures as stipulated by the outburst mining management plan
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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 implement the outburst management plan:

- apply legislative, organisation and site requirements and procedures for outburst management plan implementation
- access, interpret and apply technical information
- access and interpret archival and historical outburst information related to the mine
- interpret and apply mathematical and scientific theorems/laws related to outburst
- perform outburst planning mathematical calculations
- access and interpret design criteria for outburst management systems and devices
- interpret computer spreadsheets and outburst modelling/simulations
- conduct enquiries/investigations and prepare reports
- communicate effectively in the workplace
- access and interpret data from monitoring systems and equipment
- operate hand held monitoring equipment
- interpret outburst training requirement

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 implement the outburst management plan:

- legislative and statutory requirements for mining structures, including plans, ventilation, gas monitoring, strata support and safety management plans
- mine planning and design
- the systems of mining, including tunnels, drifts, stone drivage, shaft sinking, pillar extraction, partial extraction, punch mining and fault drivage
- stress analysis, including mining induced stress and topography
- sedimentology, including subsidence, water bearing strata, permeability of seam and strata, hydrology, physical property testing, caving characteristics, windblast, outburst, gas content and over and underlying strata
- systems of work, including board and pillar, place changing, longwall, highwall, auger mining, pillar extension, partial extension and punch mining
- mining structure failure modes
- exploration techniques
- geology, lithology and strata gas characteristics
- mining and general engineering principles relevant to the behaviour of excavations

in rock

- ground support systems
- audit methodologies
- geotechnical engineering
- excavation engineering
- tunnel engineering and shaft sinking
- rock mechanics
- mine surveying
- mining of coal deposits
- thermodynamics
- the impact of differing geological features and conditions on outburst, including faults, dykes, intrusions and strata deformities
- mine gases; the types and their characteristics, sources, physiological effects and methods of detection
- de-gassing; methods of control, including brattice, auxiliary, compressed air venturis, sails, hurdles and bleeders
- fixed monitoring systems types, uses/limitations, design criteria, specifications and design processes
- portable monitoring equipment, types, uses/limitations
- the use of simulation techniques and applications relevant to outburst
- computer-based systems for outburst analysis
- outburst mining management plan development requirements and processes
- processes and techniques for determining alarms and trigger points/levels
- audit and review processes and techniques
- emergency response and disaster planning processes and techniques
- the effects of coal seam characteristics on outburst
- methods of control of outburst
- outburst indicators and ratios
- risk management procedures
- applicable mine rescue procedures
- roles and responsibilities in accordance with outburst mining management plan

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 implementing the outburst management plan • implementation of procedures and techniques for the safe, effective and efficient implementation of the outburst management plan • the identification of the relevant information and scope of the work required to meet the required outcomes • the identification of viable options and the selection of outburst management plan elements that best meet the required outcomes • working with others to undertake and complete the implementation of the outburst management plan • consistent successful implementation of the outburst management plan
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 to apply in undertaking of the implementation of the outburst management plan • 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 • identification of the relevant information and scope of the work required to meet the required outcomes • identification of viable options and the selection of outburst management plan elements that best meet the required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and

	complete the implementation of the outburst management plan • provision of clear and timely required support and advice on the implementation of the outburst management plan
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
- Australian standards
- Employment and workplace relations legislation
- Equal Employment Opportunity and Disability Discrimination legislation

Outburst mining management plan may include:

- procedures for mine atmosphere monitoring
- reporting requirements
- auditing
- ventilation systems and usage
- pre-drilling techniques
- initiation techniques
- mine plan
- action plans
- response plans
- emergency procedures
- individual group responsibilities
- training and education procedures

Geological and geotechnical information includes that related to, but is not limited to:

- subsidence
- roof and floor technical data
- gas content and composition
- over and underlying strata
- water bearing strata
- permeability of seam and strata
- physical properties
- caving characteristics
- outburst and stress waves
- faults
- intrusions
- deformities

Hazard is defined as: <i>a source of potential harm or a situation with a potential to cause loss</i> (definition from AS/NZS 4360:1999 Risk Management).	
Hazards may include:	• irrespirable atmosphere • noxious atmospheres • flammable or explosive mixtures • induced outburst
Actions (alarm or trigger) level is a generic term used to describe a level determined at the mine site at which action is initiated or a response made.	
Audit is defined as: a systematic examination against defined criteria to determine whether activities and related results conform to planned arrangement, and whether these arrangements are implemented effectively and are suitable to achieve the organisation's policy and objectives (AS/NZS 4804: 2001).	
Risk is defined as: <i>the chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood</i> (definition from AS/NZS 4360:1999 Risk Management).	
Principles of mine design include:	• recovery • reserve optimisation • mining direction • geological structures • ventilation • strata control • mining method • productivity • environmental considerations • access
Standard operating procedures (SOP) are also known as safe working procedures, safe operating procedures and standard working procedures.	
Geological and physical conditions of	• cutters

the seam and surrounding strata which may contribute to outburst potential may include:	• changing cleat • coal colour • free gas into atmosphere • mylonite
Mine site historical information may include:	• sedimentology aspects of the mine site relating to subsidence • outburst • gas content and composition • roof and floor technical data • over and underlying strata • water bearing strata • permeability of seam and strata • hydrology • physical property testing results • caving characteristics • ground stress behaviour
Mine atmosphere refers to all areas in the general mine ventilation district and beyond into waste working and goafs in the mine.	
Mine gases may include CO or methane in addition to normal atmosphere gases.	
Ventilation structures may include:	• stoppings • overcasts • regulators • preparation seals • fire doors • bulk heads • goaf seals • final seals • pressure chambers
Geological conditions may include:	• faults • dykes • intrusions and strata deformities • existing or induced stress or strain
Coal seam characteristics may include inherent factors such as:	• rank • petrology • moisture • particle size • seam gas

	- pyrites <i>Or depositional factors such as:</i> - seam thickness - multi seams - seam dip - depth of cover - cleat - friability - intrusions
Mine atmosphere monitoring may include:	- continuous monitoring - portable (hand held) monitoring - collection of bag samples - gas chromatography - ventilation measurements from all areas of the mine, including sealed areas and waste workings
Defects to mine structures may include:	- deterioration of materials - quality of construction - effects of surrounding strata - physical damage - water damage
Infrastructure includes:	- pipes - valves - hoses - pumps - drainage plant - flame arresters - power supply to bore holes - cleaning equipment - all other plant and equipment

Unit Sector(s)

Coal Mining (Underground)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.