



Australian Government

Department of Education, Employment and Workplace Relations

RIIOGD304A Apply effective coal seam gas control practices

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the application of effective coal seam gas control practices in the drilling industry. It includes planning and preparing for operations, applying coal seam gas control strategies, coordinating coal seam gas control crew activities, operating and monitoring coal seam gas control equipment and processes, and applying coal seam gas kill procedures.

Application of the Unit

This unit is appropriate for those working in operational roles in coal-seam methane gas drilling operations, at worksites within:

- Coal mines
- Drilling

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 for operations	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain, confirm and apply work instructions for the allocated task 1.3. Resolve coordination requirements with others at the site prior to commencing and during work activities
2. Apply coal seam gas control strategies	2.1. Apply approved methods to control identified hazards associated with coal seam gas control under varying working conditions 2.2. Recognise and respond to early warning signs of kicks and coal seam gas going under-balanced while drilling 2.3. Recognise kick indicators and apply kick detection methods and responses during coal seam gas control operations 2.4. Operate equipment to minimise swabbing and surging 2.5. Apply tripping methods in accordance with operating requirements 2.6. Apply relevant components of industry requirements and government regulations related to coal seam gas control and influx prevention during operations 2.7. Prepare records and reports according to requirements
3. Coordinate coal seam gas control crew activities	3.1. Inform assistants of their roles and responsibilities in a coal seam gas control situation and monitor their application 3.2. Communicate operational activities and information to other crew during coal seam gas control operations 3.3. Conduct coal seam gas control drills and exercises to ensure crew readiness for emergency situations
4. Operate and monitor coal seam gas control equipment and processes	4.1. Verify availability and set up of coal seam gas control equipment 4.2. Inspect coal seam gas control equipment for safety and fitness-for-purpose and

	rectify and/or report faults and malfunctions 4.3. Install, test and operate coal seam gas control equipment to manufacturer's and operational requirements 4.4. Monitor, read and interpret measuring and testing equipment and devices to ensure planned, safe, effective coal seam gas control 4.5. Assist in installation, maintenance and replacement of equipment
5. Apply coal seam gas kill procedures	5.1. Confirm coal seam gas control procedures and activities with crew members 5.2. Apply operational instructions 5.3. Apply coal seam gas control working practices 5.4. Apply coal seam gas kill methods according to requirements 5.5. Carry out emergency shutdown procedures 5.6. Communicate incident information to other crew members

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 in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following, as required to apply effective coal seam gas control practices:

- apply legislative, organisation and site requirements and procedures
- work in a team
- take measurements
- make calculations and estimations relevant to activities
- interpret gauges
- apply kick warning signs and indicators detection procedures
- interpret work instructions and procedures
- supervise drill assistant
- conduct and evaluate drills and exercises
- use hand and power tools

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to apply effective coal seam gas control practices:

- the principles and practices of coal seam gas control
- coal seam gas control procedures and their application
- risks and their controls related to coal seam gas control
- kill principles and methods
- effects of hydrostatic pressure when drilling through gas bearing formations
- sources of ignition and their dangers and controls
- function, installation, operation, maintenance and use of coal seam gas control and auxiliary equipment
- causes, effects and response to equipment failures
- drilling parameters and their interpretation
- purpose, operation and interpretation of measuring and testing devices
- kick detection warnings and indications and the responses to them
- purpose, type and conduct of coal seam gas control emergency drills and exercises
- causes and effects of swabbing and surging
- pressure concepts and effects
- communication methods and protocols during coal seam gas control operations
- influx parameters

- tripping requirements and techniques
- emergency shutdown methods
- type, format and implementation of coal seam gas control documents

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 effective coal seam gas control practices • implementation of requirements, procedures and techniques for the safe, effective and efficient application of effective coal seam gas control practices • working with others to undertake and complete effective coal seam gas control practices that meet all of the required outcomes • consistent timely application of effective coal seam gas control practices that safely, effectively and efficiently meets the required outcomes
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. • 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. • Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site

	circumstances. • 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 • consistently achieving the required outcomes • first hand testimonial evidence of the candidate's: • working with others to undertake and complete effective coal seam gas control practices
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 • code of practice • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Work instructions may come from briefings, handovers, plans and work orders and may be written or verbal, formal or informal and may include:	• nature and scope of tasks • specifications • quality of finished works • achievement targets • operational conditions • obtaining of permits required • site layout • out of bounds areas • worksite inspection requirements • lighting conditions • plant or equipment defects • hazards and potential hazards • coordination requirements or issues • contamination control requirements • environmental control requirements • barricade and signage requirements
Coordination requirements may include:	• drill team • other equipment operators • maintenance personnel • supervisors • worksite personnel
Hazards may include:	• blow out gas to surface • ignition of gas • toxic gases • pressurised coal seam gas system

Working conditions may include:	• night time operations • day time operations • hot climates • cold climates • snow • wet weather conditions • high wind
Early warning signs may be:	• rate of penetration trends • trends shown in torque/drag
Kick indicators may include:	• flow from coal seam gas (pump off) • increase in flow from coal seam gas (pumps on) • pit volume gain
Swabbing and surging may be affected by:	• coal seam gas and pipe geometry • coal seam gas depth • fluid characteristics • coal seam gas conditions and formation properties • tool pulling and running speeds • BHA configuration
Records and reports may include:	• specifications • operator's instructions • drilling program • technical information • daily pre-tour checklist • daily pre-drilling checklist • AP RP 53 • tour sheet • tour reports and drilling logs • kill sheet • incident report form • drilling line record sheet • shut-in procedures • equipment damage report
Communications may include:	• 2-way radio • hand signals • telephone • public address system • written work instructions
Drills and exercises may include:	• pit drill • trip drill

	• abandonment drill • evacuation
Coal seam gas control equipment may include:	• mud system • diverters • auxiliary equipment • pressure measuring devices • gas detection equipment and devices • diverters
Monitoring, reading and interpreting may apply to:	• drilling fluid gain or loss • drilling parameters • pressure gauges • mud balance values • pump stroke counters • gas readings • amount of fluid added to coal seam gas • kick warnings and indicators • circulation rate
Coal seam gas control procedures and activities may include:	• time of coal seam gas shut-in • initial shut-in pressures • stage of kill • type of kill procedure employed • status of coal seam gas control equipment • flow path for coal seam gas control method • agreed procedures
Operational instructions may include:	• type of kill procedure to use • type of shut-in procedure to use • action to be taken in the event of approaching MAASP • monitoring pit levels
Working practices may include:	• confirmation of shut-in • monitoring of shut-in pressures • monitoring of accumulator pressures • correct SPM to be maintained during kill • monitoring pump efficiency • individual operation • team operation • use of personal protective equipment • consideration of H₂S and other toxic substances • consideration of flammables and ignition sources

	• maintaining continuous communication • reacting to on-site emergencies
Coal seam gas kill methods may include:	• bringing pump up to kill speed • maintaining constant bottom coal seam gas pressure • shutting down the kill operation while maintaining a constant bottom coal seam gas pressure • controlling the influx using the Driller's Method

Unit Sector(s)

Drilling (Oil and Gas)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.