



Australian Government

Department of Education, Employment and Workplace Relations

RIIBHD501A Manage blast hole drilling operations

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers managing blast hole drilling operations in resources and infrastructure industries. It includes preparation for, planning for and the implementation, monitoring and adjusting of blast hole drilling operations.

Application of the Unit

This unit is appropriate for those working in management or technical specialist roles, within:

- Civil construction
- Coal mining
- Drilling
- Extractive industries
- Metalliferous 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 blast hole drilling operations	1.1. Access, interpret and apply compliance documentation relevant to managing blast hole drilling operations 1.2. Confirm the geological and survey data relevant to the planning and implementation of blast hole drilling operations 1.3. Access, interpret and clarify the blast design parameters relevant to the planning and implementation of the blast hole drilling operations
2. Plan the blast hole drilling program	2.1. Involve internal and external stakeholders in the planning process in a way that uses their contribution effectively and gains their support for the outcomes 2.2. Select and identify source of the equipment to be used for the safe, effective and efficient implementation of the blast hole drilling program 2.3. Develop and document the blast hole drilling program in accordance with the blast design parameters, the confirmed geological and survey data and relevant requirements and procedures 2.4. Identify and acquire the resource required for the implementation of the blast hole drilling 2.5. Identify and arrange any training required for personnel involved in the pit operations 2.6. Prepare and present the blast hole drilling program budget in accordance with requirements
3. Implement, monitor and adjust the blast hole drilling program	3.1. Issue and explain the blast hole drilling program to team members and others involved, for the safe, effective and efficient implementation of the program 3.2. Provide timely ongoing support and advise to those implementing the blast hole drilling program 3.3. Ensure that the blast pattern is correctly marked out in accordance with the blast design

	3.4. Ensure records and reports are maintained and issued in accordance with the pit development requirements and other relevant requirements 3.5. Monitor the blast hole drilling program and its performance against blast design parameters, the budget and other relevant requirements 3.6. Resolve anomalies in consultation with relevant stakeholders and issue appropriate instructions for adjustments to the plan and/or its implementation
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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 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 manage blast hole drilling operations:

- apply legislative, organisation and site requirements and procedures
- interpret and apply legislative and organisational requirements
- interpret and apply geological and survey data
- provide team leadership
- manage people and processes
- resolve conflict
- coordinate human, financial and physical resources
- choose appropriate operational techniques
- choose and assign appropriate plant and equipment
- develop, initiate and administer work plans
- interpret and apply operational performance data
- monitor and maintain drilling operations
- prepare operating budgets and forecast trends
- manage projects and tasks
- deliver and maintain products and services to required specifications
- manage drilling traffic
- evaluate new and used equipment using appropriate techniques
- control operating costs
- performance auditing of finance, energy, safety, environment, quality assurance, human resources, legislative compliance and benchmarking
- gain statutory/legal approvals
- prepare tender specifications
- negotiate and finalise contracts
- access and use appropriate technologies
- prepare and present management reports
- negotiate with internal/external customers, community and statutory/legal authorities
- read, analyse and update plans

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 manage blast hole drilling

operations:

- site risk, statutory compliance, health, safety, environmental, quality and communication requirements and procedures
- geological data
- survey data
- blasting parameters
- pit development options and procedures
- operational techniques required for execution of the plan
- plant and equipment capabilities
- work planning techniques
- team leadership techniques
- consultative and coaching techniques
- work monitoring methods
- recording and reporting systems
- drilling operations
- drilling products and services
- drilling plant and equipment
- team management
- organisational objectives
- resource monitoring
- surveying
- financial models
- fundamentals of contract law
- human resource management
- industrial awards/enterprise agreements
- planning processes
- risk management: principles, strategies and applications
- customer/client relations
- environmental management
- OHS
- computer applications
- negotiation techniques
- plan presentation

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 managing of blast hole drilling operations • implementation of procedures and techniques for the safe, effective and efficient management of blast hole drilling operations • 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 blast hole drilling options that best meet the required outcomes • working with others to undertake and complete blast hole drilling operations • consistent successful blast hole drilling operations
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. • 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. • Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular worksites may differ due to site circumstances. • 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 management of blast hole drilling operations • observed, documented and/or first hand testimonial evidence of the candidate's: • implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the 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 blast hole drilling options that best meet the required outcomes • consistently achieving the required outcomes • first hand testimonial and documentary evidence of the candidate's: • working with others to undertake and complete blast hole drilling operations • provision of clear and timely required

	support and advice on the conducting of blast hole drilling operations
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, organisation 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
Geological data may include:	• rock (or other resource) types and characteristics • faults and joints
Survey data may include:	• site and neighbouring land form • site and neighbouring boundaries and structures • site and neighbouring roads and other infrastructure • approved limits of extraction • title details
Blast hole drilling may include:	• auger • solid flight • rotary air • down hole hammer • rotary air blast • top hole hammer
Blast design parameters would be included in the blast design and may include:	• blast hole pattern (including burden and spacing and orientation) • blast hole diameters • blast hole depth • blast hole incline
Internal and external stakeholders may include:	• site and off-site employees • contractors • equipment suppliers • geologists, surveyors and/or draughtspersons

	• regulatory authorities representatives • community representatives • site neighbours
Planning may include:	• flow-charts • Gantt charts • critical path networks
Selection and identification of the source of equipment may include:	• site geological factors • blasting parameters • production requirements • availability of organisation's equipment • availability of contractors equipment • evaluation of drilling methods • evaluation of economics and efficiency • comparative costs of various options, which may include: • ownership costs of drilling equipment • operating costs of drilling equipment • consumable cost of drilling • total unit costs of a drilling operation
Safety considerations may include:	• faults in mechanical, electrical, hydraulic or other equipment • hazards related to drilling (e.g. explosion, drilling into butts, misfires) • drill rod handling • power lines • chemicals • care in used rod disposal • contaminants • toxic materials and gases • heat stress • climatic exposure • human error • lack of training • poor site preparation • non-use safety gear • ground slippage and geology • noise and dust • face stability • loose fitting clothing • bull hose • voids management

	• drilling into butts and misfires
Resources may include:	• financial • labour • materials • services • plant and • equipment, which may include: • down-hole tools such as tri-cone, button or cross bits • drill rigs: • drifter - hydraulic or pneumatic • rotary top drive • ancillary equipment: • pumps • compressors • generators • grout mixing equipment • diesel engines • vehicles
Training may include:	• hazards and potential accidents • driller's personal safety equipment • accident investigation and reporting • location • personal behaviour • drilling operation • noise and dust • responsibility of key personnel • associated legislation and regulations

Unit Sector(s)

Blast Hole Drilling

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.