



Australian Government

Department of Education, Employment and Workplace Relations

RIIBLA601A Design surface blasts

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the designing of surface blasts in resources and infrastructure industries. It includes: identifying and documenting the design parameters; preparing the blast plans; and implementing, monitoring and adjusting blast plans.

Application of the Unit

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

- Civil construction
- Coal mining
- 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

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>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.</p>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Identify and document the design parameters	1.1. Access, interpret and apply <i>compliance documentation</i> relevant to the design and implementation of the blast plans 1.2. Identify <i>potential hazards</i> , assess the associated risks and relevant parameters to be applied in the blast design 1.3. Confirm the <i>geological and survey data</i> relevant to the design and implementation of the blast 1.4. Access, interpret and clarify the <i>blast requirements</i> relevant to the design and implementation of the blast 1.5. Identify <i>operational limitations</i> relevant to the design and implementation of the blast 1.6. Identify the available <i>explosives</i> and their characteristics relevant to the design and implementation of the blast 1.7. Identify the available <i>initiation options</i> and their characteristics relevant to the design and implementation of the blast
2. Prepare the blast plan	2.1. Apply the <i>blast design parameters</i> to prepare a safe, effective and efficient <i>blast plan</i> 2.2. Ensure that the blast plan meets all of the blast requirements and parameters 2.3. Prepare and present the blast plan budget in accordance with the organisation's requirements 2.4. Document the blast plan in accordance with relevant legislative and organisation's requirements and procedures
3. Implement, monitor and adjust blast plans	3.1. Issue and explain the blast plan to team members and others involved, for the safe, effective and efficient implementation of the plan 3.2. Provide timely ongoing support and advice to those implementing the blast plan 3.3. Ensure records and reports are maintained and issued in accordance with relevant legislative and organisational requirements 3.4. Monitor the results of the blast against blast

	<p>design requirements and parameters and the budget</p> <p>3.5. Resolve anomalies in consultation with relevant <i>stakeholders</i> and issue appropriate instructions for adjustments to future plans and/or their implementation</p>
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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 design surface blasts:

- apply legislative, organisation and site requirements and procedures
- interpret and apply legislative and organisational requirements
- interpret and apply geological and survey data
- apply blast design procedures and calculations
- provide team leadership
- choose appropriate operational techniques
- choose and assign appropriate plant and equipment
- apply procedures for developing, initiating and administering work plans
- interpret and apply operational performance data

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 design surface blasts:

- site risk, statutory compliance, health, safety, environmental, quality and communication requirements and procedures
- geological data
- survey data
- range of blasting parameters
- 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

Evidence Guide

<p>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.</p>	
<p>Overview of assessment</p>	
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for the designing of surface blasts • implementation of procedures and techniques for the safe, effective and efficient designing of surface blasts • the identification of the relevant information and scope of the work required to meet the required outcomes • the identification of viable program options and the selection of programs that best meet the required outcomes • working with others to undertake and complete surface blasts • consistent and timely completion of surface blast designs
<p>Context of and specific resources for assessment</p>	<ul style="list-style-type: none"> • 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

	<p>cultural diversity.</p> <ul style="list-style-type: none"> • 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.
<p>Method of assessment</p>	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • 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 • identification of viable options and the selection of options that best meet the required outcomes • consistently achieving the required outcomes • first hand testimonial and documentary evidence of the candidate's: <ul style="list-style-type: none"> • working with others to undertake and complete surface blasts • consistent and timely gaining of approval of surface blast designs • provision of clear, timely required support and advice on the implementation of

	surface blast designs
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

Range Statement

<p>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.</p>	
<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • 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
<p>Potential hazards may include:</p>	<ul style="list-style-type: none"> • dust and fumes • faulty explosives • ground conditions • high air and water pressures • high voltage electricity • radio frequencies and transmitters • EMF hazards (e.g. static electricity, lightning) • hot ground • the transmission of compression-tension elastic vibrations in both solids and gases • the generation and projection of elements, compounds and particulates from the site of explosion and related quantifiable damage • physical damage to the environment • damage to infrastructure • damage to fauna and flora • impact on human and domestic animal life and amenity • perceived and psychological-emotional disturbance • fluctuations and alterations of the hydrosphere
<p>Geological data may include:</p>	<ul style="list-style-type: none"> • rock (or other material) types and characteristics • faults and joints
<p>Survey data may include:</p>	<ul style="list-style-type: none"> • site and neighbouring land form • site and neighbouring boundaries and

	<ul style="list-style-type: none"> structures • site and neighbouring roads and other infrastructure • approved limits of extraction
Blast requirements may include:	<ul style="list-style-type: none"> • production volumes • heave • throw • fragmentation • maximum instantaneous charge • environmental constraints • development consent conditions • any site specific special requirements • worksite and/or pit plan
Operational limitations may include:	<ul style="list-style-type: none"> • available drilling equipment • historic data • economic
Explosives may include:	<ul style="list-style-type: none"> • high explosives (e.g. packaged and bulk high explosives) • low explosives (e.g. black powder) • deflagrating explosives (e.g. propellants used for secondary blasting) • detonators and detonator assemblies • detonating cords and accessories • fuses and igniter cords
Initiation options may include:	<ul style="list-style-type: none"> • electrical • non electrical • delay detonators • electronic delays
Blast design parameters may include those required to account for:	<ul style="list-style-type: none"> • legislative requirements and procedures • organisation's requirements and procedures • potential hazards • geological factors • survey data • blast requirements • operational limitations • available explosives • available initiation options
Blast plan may include:	<ul style="list-style-type: none"> • explosives to be used • initiation system to be used • initiation sequence to be used • decking requirements

	<ul style="list-style-type: none"> • stemming requirements • blast hole pattern (including burden and spacing and orientation) • blast hole diameters • blast hole depth • blast hole incline • sub-grade requirement
Stakeholders may include:	<ul style="list-style-type: none"> • site and off-site employees • contractors • equipment suppliers • geologists, surveyors and/or draughtspersons • regulatory authorities representatives • community representatives • site neighbours

Unit Sector(s)

Blasting

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.