Australian Government

Department of Education, Employment and Workplace Relations

RTD3711A Prepare and use explosives

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This competency standard covers the process of safely carrying out explosive procedures including preparation, mixing, detonation and clean up in the field. It requires the ability to use explosives, dispose of surplus, defective or unwanted detonators or explosives, accurately complete usage and disposal reports, correctly and uniformly mix explosives components and apply the regulations relating to explosives use according to enterprise requirements. Preparing and using explosives requires a knowledge of fire precautions and prevention procedures, appropriate explosives mixing procedures, the calculation of explosives quantities, blast measurements, explosives preparation, placement, firing and post-firing procedures, regulations relating to the use of explosives in the enterprise, related environmental issues and risks to livestock.

Application of the Unit

Not applicable.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Not applicable.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Prepare for blasting	1.1 Permits/**licences** are obtained and approved warning signs installed and prominently displayed according to legislative requirements.
	1.2 Property manager and relevant controlling authorities are notified of blasting plans and timing as required by legislation.
	1.3 The area where the charges are to be used is cleared of stones and other potential missiles.
	1.4 The blast site is cleared and made safe prior to charges being placed.
	1.5 All explosive products are placed at the required safety distance from any identified **hazards.**
	1.6 Appropriate holes are drilled/dug to place the charge(s) in line with blasting plans.
	1.7 Drilling/digging equipment is removed to the prescribed safe distance in accordance with Australian Standards, Acts and Regulations.
	1.8 Neighbours and members of the public likely to be concerned or disturbed by shock effects are advised of the blasting program.
2 Prepare explosives	2.1 Quantities of explosives components required are calculated to match the application and prevailing conditions.
	2.2 Required explosives are assembled on site, or an explosives mix (of homogenous composition) is calculated precisely to ensure minimum residual mix to be destroyed, and is prepared in accordance with defined requirements.
	2.3 Required fusing and detonating components are assembled to match the established explosive requirements in preparation for blasting.

3 Place charges	3.1 Explosives elements are placed in holes or packed using safe working **procedures** and methods and in accordance with Australian Standards, Acts and Regulations.
	3.2 All holes are stemmed and tamped prior to the attachment of the firing system to maximise safety to all personnel and the efficiency of the blasting.
	3.3 Electrical firing circuits or fire fuses are checked for continuity and/or earthing as required.
	3.4 All extraneous materials are cleared from the site to safe distances in accordance with enterprise standards.
	3.5 Routine re-checks of the site and surrounds are performed to ensure that no non-essential personnel are endangered.
	3.6 Blasting mats or other **control devices** are placed as appropriate according to the blasting plan.
	3.7 Blast area is guarded according to legislative requirements and enterprise practices.
4 Fire charges	4.1 Prescribed warning notification procedures are carried out in accordance with enterprise and industry standards.
	4.2 The blasting site is re-checked to ensure correct placement of explosives and ensure that all safety procedures have been implemented according to supervisor or shot firer's instructions.
	4.3 Warning signals including audible and visual signals are issued to ensure that the site is clear.
	4.4 Firing procedures are initiated through manual or electric firing systems.
5 Conduct post-firing procedures	5.1 Charges are counted as they fire or are inspected safely post blasting to ensure that misfires are readily identified prior to all clear signals being given.
	5.2 Misfire procedures are implemented after prescribed timing and/or practice drills conducted using water jets or additional charges in accordance

with Australian Standards, Acts and Regulations.

5.3 Site checks are carried out to ensure that the site is safe and the all-clear signal is given in line with industry practice and legislative requirements.

5.4 **Surplus, unserviceable and defective explosives** and detonators are destroyed or discarded or stored in line with prescribed procedures and in consideration of the environmental impact.

5.5 Accurate records are completed and kept in line with enterprise and legislative requirements.

Required Skills and Knowledge

Not applicable.

Evidence Guide

What evidence is required to demonstrate competence for this standard as a whole?

Competence in preparing and using explosives requires evidence that explosives procedures - including preparation, mixing, and detonation and clean up in the field - have been safely carried out according to enterprise guidelines and industry best practice. The skills and knowledge required to prepare and use explosives must be **transferable** to a range of work environments and contexts. For example, this could include different explosives, procedures, locations and local conditions.

What specific knowledge is needed to achieve the performance criteria?

Knowledge and understanding are essential to apply this standard in the workplace, to transfer the skills to other contexts and to deal with unplanned events. The knowledge requirements for this unit are listed below:

Fire precautions and prevention procedures.

Appropriate explosives mixing procedures.

The calculation of explosives quantities.

Blast measurements.

Explosives preparation, placement, firing and post firing procedures.

The regulations relating to explosives use in the enterprise.

Relevant standards issued by Standards Association of Australia.

Related environmental issues and risks to livestock (including poisoning).

What specific skills are needed to achieve the performance criteria?

To achieve the performance criteria, some complementary skills are required. These skills include the ability to:

Use explosives safely and effectively according to enterprise requirements.

Dispose of surplus, defective or unwanted detonators or explosives safely.

Accurately complete usage and disposal reports.

Correctly and uniformly mix explosives components.

Apply the regulations relating to explosives use according to enterprise requirements.

What processes should be applied to this competency standard?

There are a number of processes that are learnt throughout work and life, which are required in all jobs. They are fundamental processes and generally transferable to other work functions. Some of these are covered by the **key competencies**, although others may be added. The questions below highlight how these processes are applied in this competency standard. Following each question a number in brackets indicates the level to which the key competency needs to be demonstrated where 0 = not required, 1 = perform the process, 2 = perform and administer the process and 3 = perform, administer and design the process.

1. How can **communication of ideas and information** (**2**) be applied?	Communicating with all personnel with regard to timing and blasting intentions.
2. How can **information be collected**, **analysed and organised** (**2**)?	In the organisation or preparation for, conduct of blasting and post firing procedures.
3. How are **activities planned and organised** (**2**)?	According to enterprise practices and procedures.
4. How can **team work** (**2**) be applied?	Maximise the safety of all personnel involved by ensuring the safest possible usage of explosives.
5. How can the use of **mathematical ideas and techniques** (**2**) be applied?	Measuring and/or estimating quantities.
6. How can **problem-solving skills** (**2**) be applied?	Through identifying potential hazards in the planning and preparation work.
7. How can the **use of technology** (**2**) be applied?	Electrical firing, communicating and calculating with staff, neighbours etc.

Are there other competency standards that could be assessed with this one?

This competency standard could be assessed on its own or in combination with other competencies relevant to the job function.

For information about **assessing this competency standard for consistent performance** and **where and how it may be assessed**, refer to the Assessment Guidelines for this Training Package.

Range Statement

Range of Variables

The Range of Variables defines the different contexts, work environments and parameters governing the performance of this competency standard. The variables chosen in training and assessment will need to reflect local industry and regional contexts

Who is **permitted** to use explosives?	Only licensed persons.
Which **licence** is required for electrical detonation?	Varies according to state legislation.
What **hazards** to electrical firing may be included?	Thunderstorms, both high and low voltage power transmission, electric fencing, conductive earths, radio and TV transmitters, mobile phones, two way radios, electrostatic hazards and other stray currents.
Under which **procedures** can explosives be used?	Only under the approved procedures prescribed in relevant standards issued by the Standards Association of Australia.
In which situation might **control devices** not be required?	Blasting mats or other control devices may not be required in a field situation.
How should **surplus**, **unserviceable or defective explosives** or components be destroyed?	Through detonating, burning or dissolving in water.
Where would **precautions and methods** relating to use of explosives be found?	AS 2187, Part 2 1993 which includes operations prior to charging, charging, preparation for firing, firing, misfires and preparation of primers.
In what form should **ammonium nitrate** be?	Porous prill.
What items may be used for **mixing**?	Items may include but are not restricted to plastic buckets, bottles and scoops.
For what purpose should a **colouring agent** be used?	To differentiate mixed explosive from unmixed ingredients and to aid in the determination of uniformity of the mix.
How should **excess mix** be stored?	It must be packed and labelled in accordance with current state legislation.
For what purpose are **colouring agents** used?	To gauge uniformity visually.

Which **explosives** may be included in those for disposal?	Those considered surplus or unsafe for transport, storage or use.

For more information on contexts, environment and variables for training and assessment refer to the Sector Booklet.

Unit Sector(s)

Not applicable.