



Australian Government

Department of Education, Employment and Workplace Relations

CUEFSH02B Operate an outdoor fireworks display

Revision Number: 1

CUEFSH02B Operate an outdoor fireworks display

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	<p>This unit outlines the skills and knowledge required to understand the operation of fireworks, handling procedures, the setting-up and operation of an outdoor fireworks display, and post-display requirements in order to ensure the safety and health of workers and other persons.</p> <p>All elements must be undertaken in accordance with the provisions of relevant State/Territory legislation and licensing requirements.</p> <p>Achievement of this unit does not automatically qualify a person to obtain a licence to operate in any Australian State or Territory.</p> <p>Those developing training to support this unit, and those seeking to assess competency in this unit, must undertake consultation with the relevant State/Territory licensing authority, and work within the requirements and guidelines set down by those authorities.</p> <p>This unit is closely based on work completed by the Queensland Department of Natural Resources and Mines.</p>
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Application of the Unit

Application of the unit	<p>Senior or experience production personnel apply the skills and knowledge outlined in this unit. They are responsible for identifying mandatory requirements and the hazards associated with a display, managing risk and emergency procedures as the leader of a work team, and communicating procedures and requirements to all persons involved in outdoor fireworks displays. This includes implementing the required systems of work established by a person contracting for a display under limited supervision and within legislative and organisational guidelines.</p> <p>This unit has linkages to other firework safety and health units, and combined assessment and/or training may be appropriate.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.
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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. Identify firing techniques for fireworks	1.1. Correctly identify the properties of fireworks , their function and use in a display 1.2. Recognise the appropriate mechanisms for initiation of fireworks at a display 1.3. Establish appropriate manual firing techniques for fireworks 1.4. Establish appropriate electric firing techniques for fireworks
2. Prepare for and implement, handling of fireworks	2.1. Correctly identify fireworks from physical features and markings 2.2. Identify and correctly follow procedures for purchasing fireworks in accordance with State/Territory regulatory requirements 2.3. Take account of the dangers and safety issues associated with the pre-preparation of fireworks off-site 2.4. Identify and follow correct procedures for the transport of fireworks in accordance with State/Territory regulatory requirements 2.5. Identify and follow correct procedures for the storage of fireworks in accordance with State/Territory regulatory requirements
3. Set up a fireworks display	3.1. Implement methods to determine the integrity of fireworks and their suitability for a site 3.2. Establish and maintain delineation and control measures for a site 3.3. Implement statutory and risk managed site safety measures 3.4. Set up, or supervise the set up of equipment in accordance with identified procedures 3.5. Monitor environmental factors to ensure safety
4. Operate fireworks at a display	4.1. Instigate immediate pre-display activities in relation to safety and health in accordance with State/Territory regulatory requirements 4.2. Initiate fireworks by various methods using safe techniques 4.3. Maintain control of the display through use of appropriate monitoring and supervision of others as required 4.4. Take appropriate action where problems are

ELEMENT	PERFORMANCE CRITERIA
	identified
5. Conduct post display activities	5.1. Clean up and return the display site to owner in original condition 5.2. Accurately complete required records

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- ability to identify and implement key aspects of planning documentation
- ability to apply organisational and legislative procedures and work instructions to a particular display
- capacity to use and maintain specific equipment
- supervise team members in all relevant activities
- continuously monitor the work environment, and evaluate the effectiveness of existing risk control measures
- apply additional risk control measures relevant to the situation
- provide support to colleagues using training and mentoring skills

Required knowledge

- relevant technical issues with fireworks and associated equipment that potentially affects their safe use
- knowledge of potential risk factors in the operation of a display including crowd and people behaviour, site specific factors (location, proximity to other hazards and sensitive sites), equipment and fireworks risks, environmental factors
- statutory requirements and current industry best practice

Evidence Guide

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 following evidence is critical to the judgement of competence in this unit:

- ability to identify faulty and non-permitted assured fireworks
- a capacity to select and use fuses and to manually initiate fireworks in a safe manner
- a capacity to select and use (test and ignite fireworks) with electric initiation equipment
- a capacity to select and use other display equipment including securing devices and mortar tubes
- application of procedures for all aspects of establishing a fireworks display including managing the site, the crowd, other persons, control of unwanted ignitions, environmental changes and lead a work team
- operation of a display in a safe manner by continuously assessing risks and implementing additional control measures when required
- completion of all post-display activities including returning site to owner, dealing with emergencies and malfunctions, completing record books and statutory notification where required.

Context of and specific resources for assessment

Significant health and safety issues impact on the delivery and assessment of skills in pyrotechnics. Assessment of these skills must therefore be undertaken in consultation with State/Territory licensing authorities. Assessors must be aware of and consult with authorities on matters regarding safety of personnel, safety of crowds and spectators, storage and transportation of pyrotechnic materials and weather conditions. Assessors may need to meet additional requirements if any are stipulated by State/Territory regulations.

The assessment context must provide for:

- practical demonstration of skills, including

EVIDENCE GUIDE	
	<p>equipment-based skills in a range of situations</p> <ul style="list-style-type: none"> • specific assessment requirements as identified by local licensing authorities.
Method of assessment	<p>Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:</p> <ul style="list-style-type: none"> • assessment in a training or workplace setting that provides for the conditions of performance described in the elements, performance criteria and range statement • written and oral questioning • active participation in group activities.
Guidance information for assessment	<p>Assessment of this unit requires access to:</p> <ul style="list-style-type: none"> • display planning documentation • a selection of fireworks and equipment (display site hardware) including examples of faulty, misfired, damaged fireworks and equipment and/or simulated/representations of these • a selection of electrical firing equipment • typical work procedures for a specific display (as would be presented by a contractor) • a suitable non-display site location (workshop etc) for practical demonstration and use of equipment including electrical firing equipment • a suitable display site • relevant display approvals from the administering authority • relevant legislative, administrative, specific technical material and prescribed forms and documents • actual or simulated malfunctions that cause abnormal clean up activities • personal record keeping book.

Range Statement

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.

Use and operation of ***fireworks*** must include consideration of:

- environmental effects and relevant control measures
- industry best practice
- physical and chemical properties of fireworks including:
 - composition
 - deflagration
 - detonation
 - reduction/oxidation reactions
 - the initiation 'fire triangle'
- the features and operations of different types of fireworks, their operations and classes (ground and aerial) and prohibited fireworks
- terminology including:
 - activation energy and rates of reaction
 - coloured smoke
 - fusing
 - glitter
 - ignition
 - noise compositions
 - priming
 - propagation
 - spark
 - strobe
- types of fireworks identified including:
 - aerial shells of varying sizes
 - barrages
 - boxes and cakes
 - comets
 - fountains
 - gerbs
 - lances and set pieces

RANGE STATEMENT	
	<ul style="list-style-type: none"> • mines • roman candles • smoke generators • waterfalls • wheels
<p><i>Appropriate</i> firing <i>mechanisms</i> and equipment must include consideration of:</p>	<ul style="list-style-type: none"> • additional safety requirements, equipment and control measures to prevent inadvertent ignition of fireworks unique to manual firing • electric matches, their hazards, attachment methods, safety procedures for use • electrical equipment (permitted and non-permitted), safety features, requirements and methods available to initiate fireworks electrically • electrical terminology, Ohm's Law and its application, induced current, equipment and conditions that induce current and associated risks • permitted and non-permitted techniques, specific requirements and equipment used for manual firing • safety controls, features, requirements, approvals, circuits, connections of electric firing equipment and the use of safety distances • safety issues with fuses including cutting • the safety advantages of electrical firing over manual methods • types of pyrotechnic fuses and initiation devices/methods including: <ul style="list-style-type: none"> • black match • chain fusing • igniter cords • quick match • sticky match • visco • use of electrical equipment, circuit preparation and testing and establishing the no fire current levels, fault finding and remedying
<p><i>Dangers and safety issues associated with pre-preparation of fireworks</i> off-site may relate</p>	<ul style="list-style-type: none"> • adapting transport requirements • chain fusing • interaction with other materials

RANGE STATEMENT	
to:	<ul style="list-style-type: none"> • pre-matching
<p><i>Procedures for handling, purchasing, storing and transporting fireworks</i> must include consideration of:</p>	<ul style="list-style-type: none"> • identification by UN number and marking, documentation, packaging and associated terminology as per the Australian Explosives Code • licensing, and procedural requirements in relation to sale, purchase, transport and storage • licensing, limitations and procedural requirements in relation to vehicles and equipment used for: <ul style="list-style-type: none"> • storage • transport • physical features • prohibited activities at storage areas
<p><i>Safety</i> matters to be addressed while setting up and operating a display include:</p>	<ul style="list-style-type: none"> • continuous assessment of hazards including: <ul style="list-style-type: none"> • crowd movement • intrusion • lightning • rain • storms • wind • other environmental changes • continuous assessment of parameters that require cessation of display • crowd control methods and techniques • design, securing, loading, use, non-permitted activities and limitations of mortars and their construction materials • establish of work team communication methods during display • immediate pre-commencement check procedures • implementation of control measures in relation to identified hazards above • implementation of personal protective equipment use • inspection and assessment of fireworks • limitations of personnel entry and activities on site while setting up, during and in post display periods • methods to cease unscheduled cessation of

RANGE STATEMENT	
	display <ul style="list-style-type: none"> • organisation of first-aid and firefighting resources • periods before, after and during the display when operator is responsible for site activities • permitted techniques for chain fusing • prevention of inadvertent uncontrolled ignition of fireworks
Post display <i>activities</i> include:	<ul style="list-style-type: none"> • assessment of risks on unexploded or malfunctioned fireworks and procedures implemented to eliminate and/or reduce risk • documenting log book with details of fireworks used, site conditions and effectiveness of control measures • log book documented with any emergencies or malfunctions • site clean up and return to owner • statutory notifications completed

Unit Sector(s)

Unit sector	
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Competency field

Competency field	Media and entertainment production - pyrotechnics
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Co-requisite units

Co-requisite units		

