



**Australian Government**

# **PUAFIR415 Supervise machinery use in wildfire operations**

**Release 2**

## PUAFIR415 Supervise machinery use in wildfire operations

### Modification History

Release	TP Version	Comments
2	PUA12 V2.1	Editorial changes.
1	PUA12 V2	New unit.

### Unit Descriptor

This unit covers the competency required to task and supervise the use of machinery to undertake a range of activities to support fireground operations, including control line construction and rehabilitation, reduction and removal of hazards, improvement of existing tracks and roads, creating access and egress to control lines, constructing helipads and assisting in blacking out.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

### Application of the Unit

This unit applies to personnel who supervise machine operators and are tasked, by the operations function of the Australasian Inter-service Incident Management System (AIIMS), to provide an essential interface between the machine operator and the command structure at incidents.

### Licensing/Regulatory Information

Not applicable.

### Pre-Requisites

PUAFIR303B Suppress wildfire

### 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 required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

## Elements and Performance Criteria

### ELEMENT

### PERFORMANCE CRITERIA

#### 1. Assess the work area

- 1.1 ***Risk assessment of the site*** is undertaken, and ***hazards*** and ***assets*** at risk are identified and inspected.
- 1.2 Trees to be pushed are identified, ***marked for attention***, ***options*** to avoid pushing trees are examined and permission to remove trees is obtained.
- 1.3 Terrain through which the tasks must be undertaken to achieve the incident objective is assessed.
- 1.4 Route selected for construction of the control line and removal or avoidance of hazards is assessed to determine the most appropriate path and ***type of machinery*** suitable for the activity.
- 1.5 Consultation and communication with land owners and managers is undertaken prior to machines entering the property, as appropriate.

#### 2. Brief and task machine operators

- 2.1 Personnel are briefed on the ***strategies*** and tactics to be implemented by the machine operators in accordance with the incident action plan.
- 2.2 Machine operators are tasked and briefed on work standards and ***safe work practices*** to be adhered to.
- 2.3 Reporting arrangements between machine operators, fire crew and supervisor are outlined.
- 2.4 Machine operators are checked to confirm that they are wearing the appropriate ***personal protective clothing and equipment***.
- 2.5 Appropriate ***communications equipment*** is provided and instructions for use given to machine operator.
- 2.6 Machine is inspected to ensure compliance with safety requirements.

- 2.7 Machine is selected to ensure compliance with work and/or contract requirements.
  - 2.8 Machine is checked for compliance with hygiene guidelines in respect to spread of disease and weeds, and remedial action is taken as required.
  - 2.9 **Anchor points**, escape routes and **safety zones** are established and communicated to personnel in the area.
- 3. Supervise the use of machinery**
- 3.1 **Machine safety requirements** are monitored.
  - 3.2 Near misses or accidents are reported.
  - 3.3 Communications with the machine operator, support crew and chain of command are maintained in accordance with communications plan.
  - 3.4 Location and **standard of construction of control line** is adapted to changes in fire behaviour and intensity.
  - 3.5 Fire spread and the location of the control line are monitored, taking into account changes in fuel, weather and topography.
  - 3.6 Progress of tasks delegated is continually monitored and regular reports are provided to appropriate supervisor.
  - 3.7 Performance of delegated tasks by machine operators is monitored in accordance with the relevant codes of practice and standard operating procedures.
  - 3.8 Fuel and maintenance requirements are monitored and requests are organised through appropriate chain of command.
  - 3.9 Minimisation of machine operations damage to agricultural, environmental, forestry, cultural and other community assets is ensured.
  - 3.10 Records of machine work hours are maintained and provided in accordance with agency guidelines.
- 4. Conduct mop-up and support patrol activities**
- 4.1 Machine operators are tasked and **mop-up activities** are carried out in accordance with organisational guidelines.
  - 4.2 Threats to the security of the perimeter or sector of the fire are identified and reported or acted upon.
  - 4.3 Rehabilitation of fire control lines no longer required is undertaken.
- 5. Recover and maintain equipment**
- 5.1 Requests for repairs or maintenance of machinery are communicated through the appropriate chain of command.

5.2 Damaged or missing equipment is recorded and/or reported in accordance with organisational procedures.

## Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

### Required Skills

- communicate effectively orally and in writing
- conduct briefings/provide instructions
- effectively and efficiently select routes for fire control line construction
- effectively cooperate with support vehicle personnel
- supervise personnel
- undertake mop-up activities

### Required Knowledge

- fire control line construction:
  - anchor points and safety zones
  - asset protection
  - capabilities of support vehicles
  - fire control line construction rates
  - fire control line construction standards
  - using one or more machines to construct control lines
  - construction guidelines
  - tandem operations
- protecting environmental, structural, infrastructure, cultural and agricultural assets
- role of machines in mopping up
- safety:
  - communications
  - machine safety requirements
  - mutual support
  - operator safety
  - organisational operating procedures (relevant to machine operations)
  - protective clothing
  - safe work practices
  - safety when working around trees
  - survival techniques when threatened by wildfire
  - welfare
- use of machines in wildfire operations:
  - arrangements regarding agency, private and contracted equipment
  - capabilities of supporting fire units
  - general servicing and maintenance requirements of machines
  - machine design and safety features
  - machine set up and capabilities

- marking of trees requiring attention
- role and responsibilities of machine supervisor
- organisational requirements for engagement of machines
- planning the availability of machines and operators
- transport of machines

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

### Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessment must confirm the ability to:

- supervise and communicate effectively
- assess hazards and risks in work area
- establish and maintain standards of work performed by machine operators
- monitor and report on the effectiveness of machinery operations in fire suppression activities
- monitor the application of safe work practices during fire suppression activities including control line construction and pushing trees
- maintain health and safety of self, other workers and people in the wildfire area
- monitor mop-up and patrol

### Consistency in performance

Competency should be demonstrated over time in a range of field-based environments.

### Context of and specific resources for assessment

#### Context of assessment

Competency should be assessed in an agency approved field-based environment.

#### Specific resources for assessment

Access is required to:

- wildfire or prescribed burn
- machinery

### Method of assessment

In a public safety environment assessment is usually conducted via direct observation in a training environment or in the workplace via subject matter supervision and/or mentoring, which is typically recorded in a competency workbook.

Assessment is completed using appropriately qualified assessors who select the most appropriate method of assessment.

Assessment may occur in an operational environment or in an agency-approved simulated work environment.

Forms of assessment that are typically used include:

- direct observation



- interviewing the candidate
- journals and workplace documentation
- third party reports from supervisors
- written or oral questions

## 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 in the Performance Criteria is detailed below.

<p><b><i>Risk assessment of the site</i></b> must include:</p>	<ul style="list-style-type: none"> <li>• fire behaviour</li> <li>• fuel type</li> <li>• terrain</li> <li>• weather conditions</li> </ul>
<p><b><i>Hazards</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• burns</li> <li>• disorientation</li> <li>• environmental</li> <li>• fatigue</li> <li>• heat-related illness (heat exhaustion and dehydration)</li> <li>• falling branches and trees</li> <li>• falling objects</li> <li>• lack of visibility</li> <li>• machines</li> <li>• manual handling</li> <li>• overhead hazards</li> <li>• beehives</li> <li>• powerlines</li> <li>• tree limbs</li> <li>• trees weakened by fire, rot or cracks</li> <li>• rolling objects</li> <li>• smoke inhalation</li> <li>• snake or insect bite</li> <li>• sprain or fracture</li> <li>• terrain and soil types</li> <li>• trips/falls</li> <li>• water bombing operation</li> <li>•</li> </ul>
<p><b><i>Assets</i></b> may include:</p>	<ul style="list-style-type: none"> <li>• area of rare or sensitive flora and fauna</li> <li>• buildings and other property</li> <li>• historic and cultural sites</li> <li>• plantation and other crops</li> <li>• public lands</li> <li>• utilities (power and telephone lines, rail lines, water supply structures, communications towers)</li> </ul>
<p><b><i>Marking for attention</i></b> may</p>	<ul style="list-style-type: none"> <li>• use of flagging tape</li> </ul>

include:	
<b>Options</b> may include:	<ul style="list-style-type: none"> <li>• changing the alignment of the control line</li> <li>• isolating hazards</li> </ul>
<b>Type of machinery</b> may include:	<ul style="list-style-type: none"> <li>• Bobcat (skid steer loader)</li> <li>• Brompton Rat</li> <li>• bulldozer</li> <li>• excavator</li> <li>• front-end loader</li> <li>• grader</li> <li>• scrub rollers</li> <li>• tractor with blade or plough</li> <li>• wheeled dozer</li> <li>• wheeled log skidder with blade</li> </ul>
<b>Strategies</b> may include:	<ul style="list-style-type: none"> <li>• defensive strategies</li> <li>• direct attack</li> <li>• indirect attack</li> <li>• parallel attack</li> </ul>
<b>Safe work practices</b> must include:	<ul style="list-style-type: none"> <li>• brakes being set and blade being lowered before personnel mount or dismount machine</li> <li>• cleaning up/repairing oil leaks on machine</li> <li>• operators cleaning out build up of leaves, grass and twigs from machines</li> <li>• personnel gaining the attention of the operator before approaching a machine</li> <li>• personnel never mounting or dismounting from a moving machine</li> <li>• personnel remaining outside of risk zone during machine operations to avoid possible injury</li> <li>• taking refuge with a machine when threatened by wildfire</li> <li>• trained operators</li> <li>• wearing of a seat belt</li> </ul>
<b>Personal protective clothing and equipment</b> must include:	<ul style="list-style-type: none"> <li>• dust mask</li> <li>• gloves</li> <li>• goggles</li> <li>• hearing protection</li> <li>• helmet</li> <li>• leather boots</li> <li>• overalls or long sleeve shirt and long trousers made of natural fibres</li> </ul>
<b>Communications equipment</b>	<ul style="list-style-type: none"> <li>• radio</li> </ul>

may include:	<ul style="list-style-type: none"> <li>• phone</li> <li>• satellite-navigation devices</li> </ul>
<b><i>Anchor points</i></b> may include:	<ul style="list-style-type: none"> <li>• bare ground</li> <li>• burnt out fire edge</li> <li>• road or track</li> <li>• site of a recent wildfire</li> </ul>
<b><i>Safety zones</i></b> may include:	<ul style="list-style-type: none"> <li>• bare ground</li> <li>• burnt areas</li> <li>• clearings</li> <li>• rivers</li> <li>• site of a recent wildfire or prescribed burn</li> <li>• static water bodies</li> </ul>
<b><i>Machine safety requirements</i></b> may include:	<ul style="list-style-type: none"> <li>• audible reversing alarm</li> <li>• fire blanket</li> <li>• fire extinguishers</li> <li>• lights</li> <li>• machine being in good operating order</li> <li>• operator protective systems (rops &amp; fops)</li> </ul>
<b><i>Standard of construction of control line</i></b> may include:	<ul style="list-style-type: none"> <li>• fire behaviour</li> <li>• fire control strategies chosen</li> <li>• fuel type and density</li> <li>• machine attachments</li> <li>• machine resources</li> <li>• machine type and configuration</li> <li>• obstacles</li> <li>• operator skill</li> <li>• spot overs</li> <li>• support resources</li> <li>• terrain</li> <li>• time of day</li> <li>• visibility</li> </ul>
<b><i>Mop-up activities</i></b> may include:	<ul style="list-style-type: none"> <li>• closing and rehabilitating fire control line no longer required</li> <li>• cutting through the duff or peat layer to mineral earth</li> <li>• moving large amounts of material as required by fire crews</li> <li>• providing access to hot spots</li> <li>• pushing logs that are on the fire edge into the fire</li> <li>• pushing or ripping stumps to increase efficiency of mop-up</li> <li>• pushing trees likely to threaten the control line</li> </ul>

	<ul style="list-style-type: none"><li>• reopening tracks or roads by clearing fallen debris and trees</li><li>• spreading out heaps of logs</li></ul>
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## Unit Sector(s)

Not applicable.