



Australian Government

PUAFIR519 Supervise incendiary operations during aerial ignition

Release: 1

PUAFIR519 Supervise incendiary operations during aerial ignition

Modification History

Release 1. This is the first release of this unit of competency in the Public Safety Training Package.

Application

This unit of competency involves the skills and knowledge required to supervise incendiary operations during aerial ignition of a prescribed burn or fire suppression operations.

Aerial ignition is conducted using an approved burn or incident action plan, including a map of the area to be burned and a prescription specifying the conditions under which the ignition is to be conducted. Aerial ignition is conducted from either a fixed wing or rotary wing aircraft, where the pilot is responsible for flying the aircraft and the Incendiary Operations Supervisor is responsible for managing incendiary operations. Aerial ignition may also be conducted using remotely piloted aircraft. Authorisation to perform this role is subject to organisational policies and procedures.

The unit is applicable to personnel who will perform as an Incendiary Operations Supervisor for a prescribed burn or fire suppression operation.

The fire sector is those sections of government departments, statutory authorities or organisations that have responsibility under jurisdictional arrangements for the delivery of firefighting and fire management services.

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

Pre-requisite Unit

It is essential that the prerequisite units listed below are obtained prior to the issuance of this unit to individuals within the fire sector or the units contributing to the attainment of a fire qualification.

PUAOPE020 Lead a crew

PUAOPE016 Manage a multi-team sector

PUAFIR303 Suppress wildfire

PUAOPE015 Conduct briefings and debriefings

PUAFIR209 Work safely around aircraft

PUAOPE013 Operate communications systems and equipment

PUAFIR315 Navigate from an aircraft

PUAFIR401 Obtain incident intelligence

PUAFIR408 Plan aircraft operations

Competency Field

Fire

Unit Sector

Fire

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Plan incendiary operations mission

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Approved burn plan or incident action plan is used to identify burn location, objectives, control lines and burn prescription
- 1.2** Hazards and risks are identified during planning to ensure safety of flight, firefighting operations, safety of neighbours and environmental values
- 1.3** Factors affecting burn prescription are determined including terrain, fuel loads, types and distribution in the burn area and forecast weather conditions
- 1.4** Factors affecting the aerial ignition are determined, including operating height and incendiary drift
- 1.5** Ignition pattern, lighting sequence and aerial ignition lines for planned burn are confirmed with operations officer
- 1.6** Time of day and weather conditions for aerial ignition are determined in conjunction with burn incident manager and/or the operations officer
- 1.7** Time required to complete aerial ignition is estimated and departure time and flight duration is calculated
- 1.8** Alternative aircraft landing locations are identified
- 1.9** Incendiary operational mission arrangements are reviewed against burn plan or incident action plan and

- variations are checked with burn incident manager and/or the operations officer
- 2 Supervise preparation of personnel, equipment and consumables**
- 2.1** Safe work practices are implemented around aircraft
- 2.2** Organisational procedures for aerial incendiary operations are identified and implemented
- 2.3** Resource requirements for personnel, equipment, aircraft and fuel for aerial ignition are identified and organised
- 2.4** Incendiary equipment consumables are calculated and obtained
- 2.5** Incendiary equipment is checked and tested prior to flight, in accordance with manufacturers' operational manual
- 2.6** Satellite navigation equipment used to locate the burn area and implement the lighting pattern is checked for correct programming and operability prior to flight
- 2.7** Personal protection and safety equipment is inspected and tested prior to flight
- 3 Prepare for flight**
- 3.1** Principles of crew resources management are established and maintained
- 3.2** Briefing on aircraft safety including aircraft emergency procedures from the pilot is received
- 3.3** Briefing on burn or incident operations management including chain of command and communication arrangements, burn objectives, planned ignition sequence and forecast weather is received from burn incident manager and/or the operations officer
- 3.4** Briefing on incendiary operations including response procedures for emergency situations involving incendiary equipment is delivered to pilot and flight crew
- 3.5** Aircraft communication equipment is tested pre-flight for correct frequencies and functionality
- 3.6** Flight following protocols are established and are

		maintained
4	Conduct the incendiary operations mission	4.1 Pilot is directed to burn site, flight route is followed on map, burn site is identified and reconnaissance is carried out to establish key ground features and hazards
		4.2 Contact is made with fire ground supervisor to confirm communication arrangements and intended strategy and tactics
		4.3 A test ignition is conducted from the air to ensure fire will burn according to prescription
		4.4 Preliminary fly over is conducted to identify hazards and confirm area is clear of personnel and equipment
		4.5 Approval to commence operations is obtained from burn incident manager and/or the operations officer
		4.6 Weather conditions, smoke and fire behaviour are monitored
		4.7 Communication with pilot and aerial incendiary operator is maintained to ensure burn prescription is achieved
5	Collect information	5.1 Observations of fire behaviour resulting from aerial ignition are recorded, in accordance with organisational procedures
		5.2 Data on aerial ignition mission is collected, recorded and communicated, in accordance with organisational procedures
6	React to changed conditions and emergencies	6.1 Observed changes in operational conditions are communicated to fire ground personnel and to burn incident manager and/or the operations officer
		6.2 Ignition problems are changed to achieve burn prescription as ground conditions change from weather, fuel and/or topography
		6.3 Observed hazards that may pose a risk to people, property, assets or the environment are reported to fire ground personnel and burn incident manager and/or the operations officer
		6.4 Response to emergencies involving aircraft or incendiary operations is undertaken, in accordance with aircraft and organisational procedures

7 Conclude incendiary operations

- 7.1** Incendiary equipment is isolated or shut down, in accordance with organisational procedures and manufacturers' guidelines, prior to departure of aircraft from burn site
- 7.2** Ground personnel and burn incident manager and/or the operations officer are provided with situation reports prior to departure of aircraft from burn site
- 7.3** Servicing and storage of incendiary equipment and unused consumables is supervised, in accordance with organisational procedures, with any faults referred to relevant personnel for attention
- 7.4** An after action review is conducted with personnel involved in the incendiary operation
- 7.5** Details of incendiary operation are recorded, in accordance with organisational procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This is a new unit.

Links

PUA Training Package Companion Volume Implementation Guide is found in VETNet - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=3eca5672-6d5a-410b-8942-810d0ba05bbf>

Assessment Requirements for PUAFIR519 Supervise incendiary operations during aerial ignition

Modification History

Release 1. This is the first release of this unit of competency in the Public Safety Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes

- adhering to burn prescription, modification of ignition rates and sequence
- adhering to organisational operating procedures
- communicating clearly with authorised personnel including pilot, aerial incendiary operator and on ground operational personnel
- confirming correct pre-flight testing and operating procedures have been completed
- delivering briefings, including incendiary details, using SMEACS (Situation, Mission, Execution, Administration, Communication and Safety)
- ensuring safety of people, property, assets and the environment
- establishing, implementing and monitoring of flight following procedures
- estimating time required to complete aerial ignition operations including departure times and flight duration
- identifying ignition patterns, lighting sequences and flight lines to achieve burn prescriptions
- maintaining a written log of activities including supporting information
- making operational adjustments including
 - altering aerial ignition lines
 - altering the airspeed
 - altering the rate of ignition (drop rate)
 - ceasing ignition
- observing changes in operational conditions
- performing aerial navigation using satellite navigation technology and or ground features,
- providing clear directions to pilot
- undertaking actions in response to an aircraft emergency or equipment malfunction
- using organisationally approved safe work practices around aircraft and incendiary equipment

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of

- aircraft and fire ground communications
- communication with pilot and aerial authorised personnel including establishment and maintenance of agreed aerial ignition lines, maintenance of an appropriate airspeed, when to commence and cease ignition and appropriate rate of ignition (drop rate)
- content of burn prescriptions
- crew resource management principles
- environmental and ecological risks including rare and endangered flora and fauna, soil, water quality and/or supply
- fire behaviour including rate of spread, flame height, fire development, shape and spread, spotting, escapes from burn area, changes due to unexpected weather changes, smoke impact and rate and direction of fire spread
- ground features including flight hazards, control lines, helipads or landing strips, escape routes and refuges for ground crews, staging areas and designated locations for managing burn or fire and assets
- ignition patterns including contour lighting, grid, line and spot
- incendiary equipment consumables including aerial incendiary capsules and consumables and gelling agent and unleaded petrol
- incendiary equipment including manually operated incendiary equipment, automated incendiary equipment and helitorch (aerial drip torch)
- lighting sequence including fuel hazard, slope, time of day, wind speed and direction, temperature, humidity and sun angle
- observed changes in operational conditions including changes in weather, changes in smoke direction, increase in flame height and fire intensity and changes in fire behaviour from effects of smoke and shading on fire ground
- organisational procedures including
 - operating and emergency procedures for ignition equipment
 - procedures for handling, storage and transport of incendiary equipment
 - response procedures for emergency situations involving the operation of incendiary equipment
- operation of incendiary equipment
- operations procedures including stop and/or start procedures for incendiary equipment and emergency procedures for incendiary equipment
- potential changes to operational conditions
- property and assets in or near the burn area including urban interface areas, property and assets, commercial land, cultural sites or historical buildings, utilities, camps or recreational areas and plantations, research plots or reference areas
- protocols and processes for briefing and debriefing
- response procedures involving operation of incendiary equipment including ignited incendiary equipment on aircraft, electrical system fault and incendiary placement outside of the control line
- role and responsibility of Incendiary Operations Supervisor including organisational requirements for role in evolving situations
- safety of personnel including those managing an aircraft, involved with burn implementation, permanently or temporarily in the burn area, in areas adjacent to the burn area or impacted by

- smoke such as vulnerable communities
- selection of aircraft for aerial ignition
- types of property and assets
- when and how to implement operational adjustments

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in industry approved simulated workplace operational situations that reflect workplace conditions.

Resources for assessment must include access to

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, equipment, tools and personal protective clothing and equipment currently used in industry including
 - aircraft landing strip, fuel and support personnel
 - aircraft operator and pilot endorsed by CASA and approved by State/Territory organisation to conduct aerial ignition
 - aircraft with capacity to hold incendiary equipment
 - authorisation to light burn
 - authorised personnel and/or aerial incendiary operator
 - fire suppression crew
 - incendiary equipment and consumables
 - plan for aerial ignition of prescribed burn or back burn including a map
 - weather forecast
- applicable documentation including organisational procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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