



Australian Government

PUAFIR013 Supervise incendiary operations during aerial ignition

Release: 1

PUAFIR013 Supervise incendiary operations during aerial ignition

Modification History

Release 1.0 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. It includes planning aerial ignition operation, supervising preparation of personnel, equipment and consumables, preparing for flight, conducting aerial ignition operation, collecting information relating to operation, reacting to changed conditions and emergencies and concluding aerial ignition operation.

The unit is applicable to a supervisor responsible for conducting aerial ignition from a fixed wing or rotary wing aircraft or using remotely piloted aircraft who is undertaking the ignition to an approved burn or incident action plan. Authorisation to perform this role is subject to organisational policies and procedures.

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

PUAFIR303 Suppress wildfire

PUAFIR005 Observe fire from an aircraft

Competency Field

Fire

Unit Sector

Fire

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

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

1 Plan aerial ignition operation

- 1.1** Approved burn plan or incident action plan is used to identify burn location, objectives, control lines and burn prescription or defined burn conditions
- 1.2** Hazards and risks are identified during planning to ensure safety of flight, firefighting resources, neighbours and environmental values
- 1.3** Factors affecting burn prescription or defined burn are determined including terrain, fuel loads, types and distribution in the burn area and forecast weather conditions
- 1.4** Factors affecting 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 burn manager or incident operations officer
- 1.6** Time of day and weather conditions for aerial ignition are determined in conjunction with burn manager or incident 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** Aerial ignition operation arrangements are reviewed against burn plan or incident action plan and variations are checked with burn manager or incident 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 ignition operations are identified and implemented
 - 2.3 Resource requirements for personnel, equipment, aircraft and fuel for aerial ignition are identified and organised
 - 2.4 Consumable requirements are calculated and obtained
 - 2.5 Confirmation is obtained that ignition equipment has been checked and tested prior to flight in accordance with the manufacturers' and organisational operating manual
 - 2.6 Satellite navigation equipment used to locate burn area and implement lighting pattern is checked for correct programming and operability prior to flight
 - 2.7 Personal protection clothing and safety equipment is checked and worn prior to flight
- 3 Prepare for flight**
 - 3.1 Principles of Team Resource Management (TRM) are established and maintained
 - 3.2 Briefings on aircraft safety including aircraft emergency procedures is received from pilot
 - 3.3 Briefings on burn or incident operations management including chain of command, communication arrangements, burn objectives, planned ignition sequence and forecast weather is received from burn manager or incident operations officer
 - 3.4 Briefings on aerial ignition operations including response procedures for emergency situations involving ignition equipment is delivered to pilot and air crew
 - 3.5 Aircraft communications equipment is tested pre-flight for correct frequencies and functionality
 - 3.6 Flight following protocols are established and maintained
- 4 Conduct aerial ignition operation**
 - 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** Preliminary fly over is conducted to identify hazards and confirm area is clear of personnel and equipment
 - 4.4** Weather conditions, smoke and fire behaviour are monitored
 - 4.5** Approval to commence operations is obtained from burn manager or incident operations officer
 - 4.6** Communication with pilot and ignition equipment operator is maintained to ensure ignition commences and concludes in accordance with lighting plan
- 5 Collect information relating to operation**
 - 5.1** Observations of fire behaviour resulting from aerial ignition are recorded
 - 5.2** Data on aerial ignition mission is collected, recorded and communicated to appropriate personnel
- 6 React to changed conditions and emergencies**
 - 6.1** Observed changes in operational conditions are communicated to fire ground supervisor and burn manager or incident operations officer
 - 6.2** Adjustments to ignition rate and sequence including altering aerial ignition lines, airspeed, rate of ignition and ceasing ignition are made to achieve burn objectives
 - 6.3** Observed hazards that pose a risk to people, property, assets or the environment are reported to fire ground supervisor and burn manager or incident operations officer
 - 6.4** Response to emergencies involving aircraft or ignition operations is undertaken in accordance with aircraft and organisational procedures
- 7 Conclude aerial ignition operation**
 - 7.1** Isolation or shutdown of ignition equipment is confirmed in accordance with manufacturers' guidelines prior to departure of aircraft from burn site
 - 7.2** Fire ground supervisor and burn manager or incident operations officer are provided with situation reports prior to departure of aircraft from burn site
 - 7.3** After action review is conducted with aerial ignition operation personnel
 - 7.4** Details of aerial ignition operation are recorded

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 unit replaces and is not equivalent to PUAFIR519 Supervise incendiary operations during aerial ignition

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=3eca5672-6d5a-410b-8942-810d0ba05bbf>

Assessment Requirements for PUAFIR013 Supervise incendiary operations during aerial ignition

Modification History

Release 1.0 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 plan or incident action plan
- communicating clearly with pilot, aerial ignition equipment operator and ground operational personnel
- confirming correct pre-flight testing and operating procedures have been completed
- ensuring safety of firefighting resources, public, neighbours and environmental values
- establishing, implementing and monitoring flight following procedures
- estimating time required to complete aerial ignition operations including departure times and flight duration
- following flight route on map and/or using satellite navigation technology and confirming location through identification of ground features
- following organisational operating procedures
- identifying ignition patterns, lighting sequences and flight lines to achieve burn objectives
- interpreting fire behaviour observed from the air
- maintaining an appropriate airspeed and commencing and ceasing ignition to ensure rate of ignition (drop rate) will achieve burn objectives
- modifying ignition rates and sequence, and making operational adjustments including
 - altering aerial ignition lines
 - altering rate of ignition i.e. drop rate
 - altering the airspeed
 - ceasing ignition
- observing changes in operational conditions
- providing clear directions to pilot and aerial ignition equipment operator
- receiving briefing on aerial ignition operations including response procedures recording activities in a written log of activities
- 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 requirements within the aircraft and with ground supervisor relating to ignition lines, maintenance of an appropriate airspeed, when to commence and cease ignition and appropriate rates of ignition
- consumables including aerial incendiaries, ethylene glycol, gelling agent or unleaded petrol
- content of burn plan or incident action plan and of burn prescriptions or conditions
- fire behaviour for burns including fire intensity, flame height and rate of spread and spotting
- 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
- hazards and risks to flight and firefighting operations
- how to brief pilots and other personnel involved in aerial ignition operations including burn prescription and Team Resource Management (TRM) principles
- ignition equipment such as manually operated ignition equipment or automated ignition equipment
- ignition patterns including contour lighting, grid, line, ridge and spot lighting
- lighting sequence taking into account fuel structure, slope, time of day, wind speed and direction, temperature, humidity and sun angle
- observed changes in operational conditions including changes in weather and smoke direction, increase in flame height and fire intensity and the effects of smoke and shading on fire ground
- organisational and aircraft operator procedures, where appropriate, for handling storage and transport of ignition equipment and operating ignition equipment including
 - stop and/or start procedures
 - response procedures for emergency situations involving the operation of ignition equipment including actions to take for ignited ignition equipment on aircraft electrical system fault and ignition placement outside of the control line
- potential contingency arrangements for changes in weather and smoke direction, increase in flame height and fire intensity and changes in fire behaviour from effects of smoke and shading on fire ground
- property and assets in or near burn area including urban interface areas, commercial land, cultural sites or historical buildings, utilities, camps or recreational areas, plantations, research plots or reference areas identified in a burn plan and/or on an operational map
- protocols for briefings and debriefings
- risks to firefighters, public, neighbours and environmental values
- role and responsibility of incendiary operations supervisor including organisational requirements for the role in evolving fire situations
- safety of personnel and public including those involved with burn implementation in the burn area or in adjacent areas and vulnerable communities that may be impacted by smoke
- selection of aircraft for aerial ignition taking into account aircraft performance

- weather and contingency planning for changes in the weather
- when and how to make adjustments to planned ignition patterns including consideration of line and spot spacing, line orientation and burning time remaining.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in operational situations or in simulated operational training situations that reflect workplace conditions.

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.

Resources for assessment must include access to

- a range of relevant exercises, case studies and/or other simulations
- appropriate materials, equipment, tools and personal protective clothing and equipment currently used in industry including
 - an aircraft operator and pilot endorsed by CASA and approved by state or territory organisation to conduct aerial ignition
 - an aircraft with capacity to hold ignition equipment
 - authorisation to light burn
 - authorised personnel and/or aerial ignition equipment operator
 - fire suppression crew
 - ignition equipment and consumables
 - plan for aerial ignition of prescribed burn or burning out operations 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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