



Australian Government

PUAFIR603 Determine origin and cause of wildfire

Release: 1

PUAFIR603 Determine origin and cause of wildfire

Modification History

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

Application

This unit of competency involves the skills and knowledge required to undertake wildfire scene examination and assessment to determine the path, origin and cause of a wildfire based on fire behaviour, weather conditions, topography and fuel load. It focuses on developing and applying a systematic approach to fire investigation in a wildfire context and is applicable to wildfire fire investigators who are required to determine the origin and cause of a wildfire.

It includes coordinating wildfire investigations, securing fire scenes and preserving evidence, identifying and recovering evidence relevant to a wildfire investigation, packaging items of evidence for examination and conducting an analysis of evidence to identify the cause and origin of a wildfire.

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.

PUAFIR303 Suppress wildfire

PUALAW001 Protect and preserve incident scene

PUALAW002 Conduct initial investigation at incident scene

Competency Field

Fire

Unit Sector

Fire

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Coordinate wildfire investigation

2 Secure fire scene and preserve evidence

PERFORMANCE CRITERIA

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

- 1.1** Roles and responsibilities of agencies or organisations and support personnel involved in the wildfire investigation are confirmed
- 1.2** Cooperation of personnel from a range of agencies/organisations consistent with their designated roles and responsibilities for a wildfire investigation is achieved
- 1.3** Information required by fire investigator from personnel from other agencies or organisations is identified, sought and received
- 1.4** Activities of personnel involved in the wildfire investigation are coordinated, in accordance with organisational procedures, to enable an efficient and effective investigation
- 1.5** Personal protective clothing and equipment is used, in accordance with organisational procedures
- 1.6** Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) procedures appropriate to the wildfire incident are followed
- 2.1** Legal obligations of fire investigators are adhered to throughout the investigation
- 2.2** Methods of scene security prior to examination are implemented, in accordance with organisational procedures
- 2.3** Procedures to monitor and log access to a wildfire scene are identified and applied
- 2.4** Strategies for locating, collecting and evidence are implemented, in accordance with organisational procedures
- 2.5** Methods of preservation of evidence at a wildfire scene are implemented

- 2.6** Scene is protected from unnecessary damage, destruction or contamination
- 3 Conduct scene investigation**
- 3.1** Investigation activities are coordinated with Incident Controller, in accordance with organisational procedures, when active fire management operations are still occurring in relation to the incident
- 3.2** Fire incident information, data and records are collected and assessed, in accordance with organisational procedures
- 3.3** Witness information is obtained
- 3.4** Survey of scene is conducted to identify hazards and to preserve areas or items of evidential value
- 3.5** Effect of fuels, weather and topography on wildfire development and spread are identified
- 3.6** Effects of firefighting actions on fire scene and investigation are assessed
- 3.7** Fire scene is reviewed, in accordance with organisational procedures, to determine areas of interest and to record observation of factors which may have a bearing on the determination of the origin and cause or development of wildfire
- 3.8** Physical indicators related to path of fire or development of wildfire are identified, assessed and recorded
- 3.9** Indicators of damage or destruction of assets caused by wildfire are identified, in accordance with organisational procedures
- 3.10** Cause of fire, based on recognised cause categories, is determined by wildfire investigation
- 4 Identify and collect evidence to investigate a wildfire**
- 4.1** Control, comparison and residual samples are identified and extracted, in accordance with organisational procedures requirements
- 4.2** Samples are protected to avoid contamination and to ensure continuity of evidence
- 4.3** Samples are recorded, collected, packaged and secured, in accordance with organisational continuity of evidence protocols and procedures

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| | 4.4 | Procedures for capturing fire scene records are implemented |
| | 4.5 | Forensic and physical evidence is interpreted |
| | 4.6 | Organisational and legal reports are completed, in accordance with organisational procedures |
| 5 Analyse information to determine origin and cause of fire | 5.1 | Collected information and evidence is analysed and interpreted |
| | 5.2 | Fire origin and cause determination theories are developed and assessed using organisationally approved scientific methods, in accordance with organisational procedures |
| | 5.3 | Findings are reported and documented, in accordance with organisational procedures and policies |
| | 5.4 | Evidence is secured for subsequent action, in accordance with organisational procedures |
| | 5.5 | Wildfire investigation report is completed and forwarded to relevant authorities and stakeholders |

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.

- origin and cause determination must include
- burn indicators
 - advancing or head fire
 - backing or heel fire
 - lateral or flanking fire
 - angle and depth of char indicators
 - ash, cupping and curling indicators
 - damage differential indicators
 - die out pattern indicators

- foliage or leaf freeze indicators
- grass stem indicators
- identification of ignition sources
- protection indicators
- scene observation, interpretation and processing
- sooting and staining indicators
- transition zone
- v-pattern indicators
- wildfire behaviour including weather, fuel load and topography
- wildfire spread

Unit Mapping Information

This unit replaces and is equivalent to PUAFIR603A Determine origin and cause of wildfire.

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 PUAFIR603 Determine origin and cause of wildfire

Modification History

Release 1. This is the first release of this unit of competency in the PUA 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, performance criteria and range of conditions on at least one occasion and includes

- analysing information to determine origin and cause of fire
- applying Work, Health and Safety (WHS)/Occupational Health and safety (OHS) organisational requirements
- conducting a scene assessment and investigation
- coordinating wildfire investigations
- determining area and/or point of origin and suspected cause of fire
- identifying and collecting evidence to investigate a wildfire
- identifying potential ignition sources and following processes for elimination of cause
- implementing organisational procedures
- implementing organisationally approved scientific methods to wildfire investigations
- interpreting and analysing forensic data and physical evidence
- packaging, labelling and storing evidence for transport
- performing witness interviews and accurately recording information
- preserving evidence to avoid damage, spoliation or contamination
- recognising, documenting and preserving physical evidence
- recording information accurately
- securing fire scene and preserving evidence
- taking notes to support recording of information
- using organisationally approved methods and techniques to collect, handle and store evidence
- using organisationally approved systematic approach to examination of wildfire scenes
- utilising equipment to collect, handle and store evidence
- writing wildfire investigation reports

Knowledge Evidence

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

- collection of physical evidence including handling, packaging and recording of physical evidence as well as photographs, drawings and samples
- common causes of wildfires including camp fire, debris burning, electrical, equipment, incendiary, juvenile, lightning, machinery, miscellaneous, power lines, rail, smoking and vehicles
- deliberate fire lighting motives and methodology
- determinants of fire cause
- evidence preservation
- fatal fire and crime scene management
- fire behaviour
- fire scene examination
- how to distinguish between accidental, negligent, deliberate and natural cause of fire
- indicators of fire cause and fire spread
- legal definitions of interviews and statements
- legislation relevant to each state and territory including Fire Service Act, Coroners Act, Criminal Code and Evidence Act
- match of evidence to point of proof and offence provisions
- methods for recording documentary and witness evidence, and their application including note taking processes and procedures
- organisational documentation, policies and procedures
- organisational requirements for producing investigation reports
- origin and cause determination
- other organisations, agencies and support personnel
- principles of investigation based on organisationally approved scientific methods and use of operational procedures for conducting investigations
- principles of wildfire spread
- product recall and Safety Data Sheets (SDSs)
- roles, responsibilities and limits of authority of personnel and agencies/organisations at a wildfire investigation including the Incident Controller
- rules of evidence including identification, collection and preservation, continuity and admissibility
- scene preservation and security
- state and territory court requirements for investigations
- types of evidence collection including admissibility, collection and preservation, continuity and identification
- use and storage of fire scene records
- use of deductive evidence to determine point of origin
- Work, Health and Safety (WHS)/Occupational Health and safety (OHS) organisational requirements including risk mitigation

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 simulations
- relevant and appropriate materials, equipment, tools and personal protective clothing and equipment currently used in industry including
 - case studies and organisational/workplace scenarios to capture the range of wildfire scenes likely to be encountered and for which evidence needs to be gathered and managed
 - legislation, policy, procedures and protocols related to the gathering and managing of evidence
- applicable documentation including organisational procedures, industry standards, regulations, codes of practice and operation manuals.

Links

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