



Australian Government

PUAFIR604 Determine origin and cause of structure fire

Release: 1

PUAFIR604 Determine origin and cause of structure fire

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 manage the inspection and assessment of a structure fire to determine origin and cause. The unit focuses developing and applying a systematic approach to fire investigation in a structured environment.

It includes originating structure fire investigations, securing fire scenes and preserving evidence. It also includes the evaluation and examination of fire debris, identifying and recovering evidence relevant to a fire investigation, packaging items of evidence for examination and conducting a thorough analysis of fire behaviour, development and travel as well as gathering evidence to establish fire cause.

Application of this unit is relevant to fire investigators who are required to determine the origin and cause of a structure fires.

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.

PUAFIR302 Suppress urban fire

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 structure fire investigation

2 Secure fire scene and preserve evidence

3 Conduct scene investigation

PERFORMANCE CRITERIA

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

- 1.1** Cooperation with a range of agencies/organisations personnel in the conduct of the investigation is consistent with organisational procedures and designated roles and responsibilities for a structure fire investigation
- 1.2** Information required by fire investigator from a range of agencies/organisations personnel is identified, sought and recorded
- 1.3** Personal protective clothing and equipment is used, in accordance with organisational procedures
- 2.1** Legal obligations of fire scene 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 fire scene are identified and applied, as required
- 2.4** Strategies for locating, collecting and processing evidence are implemented, in accordance with organisational procedures
- 2.5** Methods of preservation of evidence at a fire scene are implemented
- 2.6** Scene is protected from unnecessary damage, spoliation, destruction or contamination
- 3.1** Investigation activities are coordinated with Incident Controller, in accordance with organisational procedures, when active fire management activities are still occurring
- 3.2** External and internal survey of scene is conducted to identify hazards and action is taken to mitigate risks

- 3.3 Scene is examined, externally and internally, to determine areas of interest and to record observations which may have a bearing on the origin, cause or development of a structure fire
- 3.4 Areas or items of evidence that have a potential bearing on the origin, cause or development of a structure fire are identified
- 3.5 Effects of building construction and other factors relevant to fire development and spread are identified
- 3.6 Nature and reactivity of materials involved in fire cause are identified
- 3.7 Site indicators of fire spread with other sources of evidence are examined
- 3.8 Witness information is obtained and recorded, in accordance with organisational procedures and rules of evidence
- 3.9 Burn patterns and effects of fire suppression are identified and assessed
- 3.10 Area or likely point of origin and possible cause of structure fire are determined, in accordance with organisational procedures
- 3.11 Origin and cause determination theories are assessed and tested, in accordance with organisational procedures
- 4 **Collect and analyse evidence from a fire scene**
 - 4.1 Appropriate sampling areas and items are identified using required sampling equipment and resources
 - 4.2 Appropriate collection and packaging techniques are adopted, in accordance with organisational procedures
 - 4.3 Potential for destruction, spoliation and contamination of evidence is eliminated, in accordance with organisational procedures
 - 4.4 Integrity and continuity of collected exhibits is maintained, in accordance with organisational procedures
 - 4.5 Evidence from fire scene is analysed and processed using a range of recording and digital multimedia

- 4.6 Fire origin and cause determination theories are developed and assessed
- 4.7 Witness accounts are reviewed against theories, in accordance with organisational procedures
- 4.8 Fire origin and cause are determined
- 4.9 Findings are reported and documented, in accordance with organisational procedures
- 4.10 Evidence is secured for subsequent action, in accordance with organisational procedures
- 4.11 Investigation report is completed and forwarded to relevant authorities and stakeholders, 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.

- origin and cause determination must include
- burn patterns - v/patterns, inverted v/patterns, hour glass and circular shaped patterns
 - identification of ignition sources
 - scene interpretation and processing

Unit Mapping Information

This unit replaces and is equivalent to PUAFIR604A Determine origin and cause of structure fire.

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 PUAFIR604 Determine origin and cause of structure fire

Modification History

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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

- applying collection techniques including the preservation of evidence, search techniques and security of environment
- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) organisational requirements
- assessing and investigating fire scenes externally and internally
- collecting and analysing evidence from fire scenes
- coordinating and conducting fire scene investigations
- identifying area and point of origin and possible cause of fire utilising evidence and forensic scientific principles
- identifying burn patterns and burn pattern formation
- implementing collection techniques
- interpreting fire indicators scene
- interpreting scene
- managing fire scene investigation cases
- securing fire scene and preserving evidence
- taking fire scene notes, using digital multimedia accompanied with written explanations and narratives
- using sampling equipment
- utilising equipment to collect, handle and store exhibits and items of interest
- writing reports related to origin and cause of structure fire

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

- agencies and organisations involved in a structure fire investigation
- burn patterns and how burn patterns are formed, including plume, ventilation, hot gas layer, full room involvement and suppression general patterns

- causal factors of burn patterns
- class of buildings
- classes of fire
- collection techniques including preservation of evidence, search techniques and security of environment
- common types of human behaviour associated with an incident
- equipment and resources used for sampling
- fatal fire and crime scene management
- internal survey of scene procedures
- organisational documentation, policies and procedures
- organisational requirements for producing reports
- origin and cause determination
- product recall and Safety Data Sheets (SDSs)
- roles and responsibilities of personnel
- rules of evidence including identification, collection, continuity and admissibility
- scene security including legal obligations and scene preservation
- 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
 - organisational policies, procedures and protocols related to the gathering and management of evidence in structural fire scene investigations
- applicable documentation including organisational procedures, industry standards, regulations, codes of practice and operation manuals.

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