



Australian Government

PUAFIR605A Determine origin and cause of mobile property fire

Release 3

PUAFIR605A Determine origin and cause of mobile property fire

Modification History

Release	TP Version	Comments
3	PUA12 V2.1	Editorial changes.
2	PUA12 V2	Layout adjusted. No changes to content
1	PUA00 V8.1	Primary release on TGA

Unit Descriptor

This unit covers the competency required to manage, inspect and assess a mobile property fire to determine the origin and the cause.

It includes identifying, collecting, preserving and securing evidence relevant to the investigation; conducting a thorough analysis of evidence; and making an informed cause determination.

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

Application of the Unit

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

The unit focuses on the skills and knowledge required to develop and apply a systematic approach to fire investigation in a mobile property context.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

PUALAW001B Protect and preserve incident scene (Fire sector specific)

PUALAW002B Conduct initial investigation at incident scene (Fire sector specific)

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. Coordinate mobile fire investigation	1.1 Roles and responsibilities of multi-agency and support personnel involved in a mobile property fire investigation are confirmed 1.2 Cooperation with multi-agency personnel in the conduct of the investigation consistent with designated roles and responsibilities is achieved 1.3 Information required by a fire investigator from multi-agency personnel is identified, sought and received 1.4 Protective clothing and equipment are used in accordance with agency procedures 1.5 Occupational health and safety (OHS) procedures appropriate to the incident are followed
2. Secure fire scene and preserve evidence	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 2.3 Procedures to monitor and log access to a fire scene are established and applied 2.4 Strategies for locating, collecting and processing evidence are implemented 2.5 Methods of preservation of evidence at a fire scene are implemented 2.6 Scene is protected from unnecessary damage, destruction or contamination
3. Conduct scene investigation	3.1 External and internal survey of scene is conducted to identify hazards and action is taken to mitigate risk 3.2 Scene is reviewed to determine areas of interest and to record observation which may have a bearing on origin, cause or development of the fire 3.3 Burn patterns and effects of fire suppression are identified and assessed 3.4 Areas or items of evidence that have a potential bearing on origin, cause or development of the fire are identified 3.5 Effects of construction and other factors on fire development and spread are identified 3.6 Nature, combustibility and reactivity of materials involved in fire cause are identified and indicators of fire spread, in conjunction with other sources of evidence, are confirmed

- 3.7 Effects of environmental conditions are assessed
 - 3.8 Effects of topographical conditions are assessed
 - 3.9 **Witness** information is obtained in accordance with the rules of evidence and agency requirements
 - 3.10 Significance of evidence observed is assessed and prioritised for further review
 - 3.11 **Origin and cause determination** options are assessed
 - 3.12 Evidence to indicate or exclude a particular cause of fire is assessed
 - 3.13 Area/likely point of origin and possible causes of fire are determined
- 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 techniques** are applied eliminating contamination and loss of evidence
 - 4.3 Best available samples and items including control samples are collected
 - 4.4 Continuity of collected exhibits is maintained
 - 4.5 Evidence from a fire scene is analysed and processed using a range of **recording and technological media**
 - 4.6 Product recall and material safety data sheet databases are researched, as appropriate
 - 4.7 Findings are reported and documented according to required practice and agency policy
 - 4.8 Evidence is secured for subsequent action
 - 4.9 Investigation report is completed and forwarded to appropriate authorities/stakeholders

Required Skills and Knowledge

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

Required Skills

- apply methods and techniques to identify, document, collect, handle, transport and store evidence
- apply scientific method to mobile property investigation
- assess and investigate a scene externally and internally
- clearly articulate and justify findings
- collect and handle exhibits and items of interest
- conduct witness interviews
- identify potential hazards
- identify potential ignition sources and follow processes for elimination of cause
- interpret fire indicators
- interpret fire scene
- maintain scene security log
- manage fire scene examination
- package and preserve evidence to avoid damage (spoliation) or contamination
- present evidence
- present findings
- record information appropriately and accurately
- record scene and photographs
- take notes to support the recording of information
- take photographs with written explanations
- take videos with narrative and explanations
- write reports

Required Knowledge

- common causes of fire (accidental, chemical, electrical, incendiary, natural, negligence, mechanical)
- local/state/territory court requirements for investigations and recording of findings
- methods, techniques and equipment for handling and storing evidence to preserve and avoid damage or contamination
- OHS legislation and its application
- packaging, labelling and storing evidence for transport
- potential ignition sources, their identification and process of elimination
- principles of investigation based on scientific method
- relevant Australian Standards and international standards
- rules of evidence
- safety precautions required for mobile fire investigations

Evidence Guide

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

Assessment must confirm the ability to:

- apply safe work practices at a fire scene
- collect and maximise the potential evidentiary value of physical evidence
- identify area/point of origin and possible cause of fire
- apply evidence and forensic scientific principles to assess possible area/point of origin and causes.

Consistency in performance

Competency should be demonstrated over time and across a range of workplace and/or simulated situations.

Context of and specific resources for assessment

Context of assessment

Competency should be assessed in the workplace and in a simulated workplace environment.

Specific resources for assessment

Access is required to:

- legislation, policy, procedures and protocols relating to gathering and managing evidence
- case studies and workplace scenarios to capture the range of causes likely to occur for which evidence needs to be gathered and managed.

Guidance information for assessment

Assessment methods suitable for valid and reliable assessment of this unit may include a combination of:

- case studies
- demonstration
- observation
- questioning
- scenarios
- authenticated evidence from the workplace.

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.

<i>Agencies</i> may include:	• Coroner • Electrical authorities • Forensic scientists • Gas authorities • Insurance investigators and assessors • Other statutory authorities • Peak bodies
<i>Support personnel</i> may include:	• Government and private forensic chemists • Insurance investigators and assessors and construction companies • Statutory bodies • Technical specialists
<i>Mobile property fire incidents</i> may include:	• Aircraft • Caravan and campervan fires • Farm machinery • Marine craft • Motor vehicle fires • Trains/trams • Truck and bus fires
<i>Causes of fire</i> may include:	• Chemical reaction • Electrical wiring • Engine fire • Fuel line and systems • Fuel types/mixtures • Incendiary devices (commercial, manufactured devices for other purposes, home-made, industrial, military) • Mechanical failure/damage • Transmission fire
<i>Witnesses</i> may include:	• Emergency services personnel • Members of statutory agencies • Members of the public • Owners/occupants
<i>Origin and cause determination</i> must include:	• Analysing • Identification of origin • Interpretation • Processing

	• Vehicle indicators: • accidental • arcing • arson • friction • heating from conduction, convection and radiation • impact damage • incipient • manufacturing faults • melt rates • overload • oxidation of metal • paint work • radial • repair faults • spring compression • vapour explosion
<i>Sampling equipment and resources</i> may include:	• Accelerant detecting canine • Field-based sampling devices e.g. photo ionisation detectors
<i>Appropriate collection techniques</i> may include:	• Mobile property relocation to workshop for further analysis (car carriers, marine salvage, low loaders) • Preservation of evidence • Search techniques • Security of environment
<i>Recording and technological media</i> may include:	• Audio • Computers • Log books • Note taking • Photography (digital, multimedia, closed circuit television [CCTV], other media images) • Sketches • Video

Unit Sector(s)

Not applicable.