



Australian Government

PUAFIR607A Apply electrical/electronic knowledge to fire investigations

Revision Number: 3

PUAFIR607A Apply electrical/electronic knowledge to fire investigations

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 inspect and assess a fire scene to determine whether the origin and possible cause of fire is related to the presence of electrical installations and appliances, in accordance with agency procedures.

It includes identifying sources of evidence, collecting and documenting that evidence in preparation for analysis, and developing findings and conclusions.

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

Application of the Unit

Application of this unit applies to fire investigators who are required to assess a fire scene and to identify whether the presence of an electrical circuit, equipment or appliance may have contributed to the cause of fire.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

PUAFIR605A Determine origin and cause of mobile property fire (Fire sector specific)

PUAFIR609A Collect, record and coordinate the analysis of physical evidence (Fire sector specific)

And either

PUAFIR603A Determine origin and cause of wildfire (Fire sector specific)

OR

PUAFIR604A Determine origin and cause of structure fire (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 Required Skills and Knowledge and/or the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Coordinate fire investigation	1.1 Roles and responsibilities of multi-agency and support personnel involved in fire investigation are confirmed 1.2 Cooperation with multi-agency personnel in the conduct of the investigation consistent with designated roles and responsibilities for the fire investigation is achieved 1.3 Information required for the fire investigation from multi-agency personnel is identified, sought and received 1.4 Protective clothing and equipment are used 1.5 Occupational health and safety (OHS) procedures appropriate to the incident are followed
2. Identify, assess and collect circuitry components and appliances	2.1 External and internal survey of fire scene is conducted to identify and assess electrical circuitry, electrical equipment and appliances 2.2 Relevance of electrical circuitry, electrical equipment and appliances to fire cause is assessed and established 2.3 Arrangements are made for the attendance of a specialist electrical fire investigator, or government or private specialist investigators, where it is believed that electrical systems, components or appliances may have contributed to the fire 2.4 Local expertise is sourced, where required 2.5 Interviews are conducted 2.6 Circuitry plans/layouts are sourced 2.7 Areas or items of evidential value relevant to the investigation at the fire scene are identified and preserved 2.8 Evidence is recorded and collected at the fire scene and relevant observations are documented 2.9 Electrical circuitry components, equipment and appliances of evidential value are protected
3. Arrange for tests on electrical evidence collected	3.1 Advice is received from the specialist fire investigator (electrical), or government or private specialist investigator, as to the tests required of evidence relating to electrical systems or appliances 3.2 Arrangements are made for laboratory and specialist testing and assessment of electrical items of evidential value
4. Interpret and record findings	4.1 Circuitry components on site plans are documented to support evidence and conclusions 4.2 Basic circuit diagrams and electrical plans relating to

- building, components and equipment are interpreted
- 4.3 Report providing expert opinion concerning the potential of electrical circuitry or equipment failure to contribute to the cause of fire is obtained
 - 4.4 Expert findings relating to potential electrical circuit component or appliance contributions to ignition are considered in conjunction with other observations and evidence from the fire
 - 4.5 Product recall and material safety data sheet databases are researched, as appropriate
 - 4.6 Recommendations are forwarded to appropriate authorities/ stakeholders, as required
 - 4.7 Findings are interpreted and recorded according to required practice and agency policy

Required Skills and Knowledge

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

Required Skills

- analyse expert findings
- apply methods, techniques and equipment for handling and storing evidence
- apply principles of investigation based on scientific method
- identify potential ignition sources and process of elimination
- package, label and store evidence for transport
- preserve and avoid damage or contamination of evidence
- research product information such as price, product recall, manufacturers' information
- undertake an external and internal assessment of scene
- use information technology to access and enter internal and external information and data
- use visual and electric recording equipment

Required Knowledge

- agreed protocols, agency procedures, legal, regulatory or organisational stated procedures and requirements for the investigation of incidents involving fire
- basic circuit diagrams and electrical plans relating to electric components and equipment
- laboratory or specialist testing sequence of electrical items
- OHS legislation and its application
- operation of electrical/electronic equipment and appliances
- procedures for conducting excessive heat stress tests on electrical equipment and appliances
- relevant Australian Standards and international standards relating to electrical installations and appliances
- rules of evidence

Evidence Guide

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

Assessment must confirm the ability to:

- methodically examine fire scenes in which electrical installations may have a potential relationship
- demonstrate knowledge of basic electrical circuitry
- apply relevant laws, legislation, codes of practice and relevant standards to fire investigation
- document findings identifying components of electrical equipment (prior to and post fire) and relationships (or not) to any possible electrical causes of ignition to a fire scene.

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 or in a simulated workplace environment.

Specific resources for assessment

Access is required to:

- various electrical circuitry, electrical equipment and appliances
- fire scene or simulation
- electrical circuitry, electrical equipment and appliances damaged by electrical faults which resulted in fire
- legislation, policy, procedures and protocols relating to gathering and managing evidence
- case studies and workplace scenarios to capture the range of offences 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 • Industry peak bodies • Insurance investigators, assessors and construction companies (to 'make safe' properties) • Other statutory authorities • Police investigators
<i>Support personnel</i> may include:	• Government and private forensic chemists • Insurance investigators and assessors • Local knowledge • Statutory bodies
<i>Fire scene</i> may include:	• Cable insulation • Circuit and component failure • Circuit mapping • Components • Evidence electrical tracking • Flame propagation in hazardous locations • Operation of protective devices • Wire overheating
<i>Electrical circuitry</i> includes:	• Design • Installations • Overload protection • Power supply • Resistance • Short circuit/fault currents • Voltage – current – kilowatts in different appliances
<i>Electrical equipment and appliances</i> may include:	• Electronics • Fans • Heaters • Installed wiring • Kitchen appliances such as toaster, electric kettle, microwave • Lights and fittings • Motors and switch gear • Socket outlets and switch gear

<i>Electrical circuitry components, equipment and appliances of evidential value</i> must be protected from:	• Contamination • Damage • Destruction • Spoliation • Unauthorised removal
---	--

Unit Sector(s)

Not applicable.