



Australian Government

Department of Education, Employment and Workplace Relations

PRMPFES46A Decommission gaseous agent containers and actuation devices

Release: 1

PRMPFES46A Decommission gaseous agent containers and actuation devices

Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit of competency specifies the outcomes required for fire system technicians to decommission gaseous agent containers and actuation devices.

All work in this area must be completed in accordance with relevant legislative, industry, finalised design documentation, installation drawing, customer and organisational requirements, and comply with policies and procedures relating to ozone depleting substances (ODS), synthetic greenhouse gases (SGG) and occupational health and safety (OHS).

Note: Service technicians are **not** permitted to undertake any installation, replacement, maintenance and repair functions that are **restricted** to licensed trades or occupations (subject to relevant state and territory regulations).

Application of the Unit

Application of the unit

This unit of competency supports one or more extinguishing agent handling licences prescribed under the *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

Employability Skills Information

Not Applicable

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

- | | |
|--|--|
| <p>1 Interpret and comply with legal and industry requirements relating to decommissioning gaseous agent containers and actuation devices.</p> | <p>1.1 Apply knowledge and understanding of legislative requirements, including relevant state and territory building codes, to work procedures and clarify where necessary with relevant persons.</p> <p>1.2 Apply knowledge and understanding of legislative and industry requirements in regard to ODS and SGG emissions, to decommission gaseous agent containers and actuation devices.</p> <p>1.3 Identify potential and actual breaches of legislative and industry requirements and take action according to organisational requirements and ODS, SGG and OHS policies and procedures.</p> |
| <p>2 Prepare to decommission gaseous agent containers and actuation devices.</p> | <p>2.1 Organise necessary work permits prior to entering customer premises.</p> <p>2.2 Review decommissioning guidelines for system with relevant persons to satisfy customer requirements, manufacturer specifications, and legislative and industry requirements.</p> <p>2.3 Adhere to safety procedures according to organisational, customer and manufacturer requirements.</p> <p>2.4 Identify potential risks and hazards.</p> <p>2.5 Identify, select and check required tools, equipment and materials, and use safely and efficiently.</p> <p>2.6 Identify system components and materials.</p> <p>2.7 Check access to system is according to decommissioning guidelines and minimises disruption to customer or property.</p> |
| <p>3 Decommission gaseous agent containers and actuation devices.</p> | <p>3.1 Decommission gaseous agent containers and actuation devices according to decommissioning guidelines; organisational, customer, legislative and industry requirements; and manufacturer specifications.</p> <p>3.2 Confirm all interface actuation control devices are isolated and appropriate signage, documentation and lock-off are in place.</p> |

ELEMENT**PERFORMANCE CRITERIA**

- 3.3 Disconnect manual, electrical and mechanical **actuation control devices**.
- 3.4 Disconnect pneumatic **actuation control devices**, pilot and slave tubes and fittings.
- 3.5 Connect transport caps on actuation outlets, plugs and locking devices.
- 3.6 Disconnect container bank manifold connection components.
- 3.7 Connect transport caps on valve outlets.
- 3.8 Organise removal and transportation of gaseous agent containers to storage or reclaim facility in accordance with **legislative requirements** and **OHS policies and procedures**.
- 3.9 Complete **documentation** and decommissioning sign-off requirements with relevant persons.
- 3.10 Leave decommissioning site clean and tidy with materials disposed of or recycled in accordance with state or territory legislative and industry requirements.

Required Skills and Knowledge**REQUIRED SKILLS AND KNOWLEDGE**

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

Required skills:

- read and interpret decommissioning guidelines
- identify hazards in the work area in preparation for decommissioning operations
- select and safely use tools, equipment and materials appropriate to a specific task
- isolate interface actuation control devices
- disconnect manual, mechanical, pneumatic and electrical actuation control devices
- connect transport caps, plugs and locking devices
- disconnect gaseous agent container bank manifold and components
- organise safe transport of gaseous agent containers to storage or reclamation facility
- convert basic units of measurement and pressure
- use appropriate workplace housekeeping procedures and remove any debris caused by decommissioning operations in the work area
- plan and organise work in order to estimate time to complete activities and prioritise tasks
- report and record information neatly and legibly when completing documentation
- use effective customer service skills and relate to people from a range of social, cultural and ethnic backgrounds and with a range of physical and mental abilities

- apply language, literacy and numeracy skills to:
 - communicate with others in a clear and concise manner in verbal, non-verbal and written modes
 - read, understand and comply with work instructions and specifications
 - read, understand and record measurements.

Required knowledge:

- key features of legislation, regulations and codes applicable to fire protection equipment decommissioning procedures
- purpose of the Building Code of Australia (BCA)
- implications of **not** applying legislative requirements to job functions
- action to take when a breach of OHS, ODS and SGG or other policies occurs
- intent of Australian standards, particularly AS 1851 in relation to decommissioning gaseous agent containers and actuation devices
- awareness of on-site work permit requirements
- appropriate tools, equipment and materials selection for decommissioning procedures
- types and purposes of relevant hardware items
- operation of discharge valve assembly and manifold connection components
- types and operation of actuation control devices and activating mechanisms
- records and documentation required to decommission gaseous agent containers and actuation devices
- types of electrical safeguards used to protect persons and property
- maintenance requirements for relevant hand and power tools
- safety requirements for using tools, equipment and materials
- methods of converting basic units of measurement and pressure
- relevant federal, state or territory legislation that affects organisational operations, including:
 - anti-discrimination and diversity
 - equal employment opportunity
 - industrial relations.

KEY COMPETENCIES

The seven key competencies represent generic skills considered necessary for effective participation by an individual in the workplace.

Performance level 1 - at this level the candidate is required to undertake tasks effectively.

Performance level 2 - at this level the candidate is required to manage tasks.

Performance level 3 - at this level the candidate is required to use concepts for evaluating and reshaping tasks.

Key competency	Example of application	Performance level
How are ideas and information communicated?	Discuss and confirm customer requirements in a clearly structured and defined manner and complete administrative documentation accurately and clearly.	2
How can information be	Gather information from a number of	2

Key competency	Example of application	Performance level
collected, analysed and organised?	sources, including regulatory, manufacturer and organisational sources, ensuring all work falls within service technician's scope of responsibility.	
How are activities planned and organised?	Plan decommissioning activities with regard to assembling appropriate tools and organising work schedules to suit customer and organisational requirements.	2
How is teamwork used?	Apply consultative and collaborative approaches through support and assistance provided to customers and work groups.	1
How are mathematical ideas and techniques used?	Apply mathematical techniques to decommissioning activities and reporting requirements while adhering to designated work schedules.	1
How are problem-solving skills applied?	Identify and apply problem-solving and systematic techniques throughout decommissioning activities while considering ambiguous information received from information sources, potential risks and due processes to be followed when unusual problems are encountered.	2
How is the use of technology applied?	Demonstrate sound technical knowledge of features of equipment and accuracy throughout decommissioning activities while being able to use, organise, record and present information using technology.	2

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- Competency in this unit underpins competency in other aspects of the candidate's role in managing work

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

tasks.

- This unit could be assessed on its own or in combination with other units of competency relevant to the job function.
- A person who demonstrates competency in this unit must be able to provide evidence of:
 - locating, interpreting and applying relevant information, standards and specifications
 - complying with site safety plan, OHS regulations and ODS and SGG regulations (where required) and state and territory legislation applicable to workplace operations
 - complying with organisational policies and procedures, including quality requirements
 - communicating and working effectively and safely with others
 - in a minimum of two different settings:
 - identifying risk reduction measures
 - identifying system components and materials
 - identifying, selecting and using tools, equipment and materials to perform decommissioning procedures on installed gaseous agent containers and actuation devices
 - identifying potential risks and hazards
 - reviewing decommissioning guidelines with relevant person(s)
 - adhering to safety procedures during decommissioning procedures
 - decommissioning installed gaseous agent containers and actuation devices using decommissioning guidelines
 - creating appropriate records and documentation
 - completing workplace housekeeping requirements.

Specific resources for assessment

- Resource implications for assessment include access to:
 - actual or simulated work environment and installed gaseous agent containers and actuation devices
 - decommissioning guidelines and procedures
 - assessment documentation, including training and assessment record books
 - all necessary tools, specialist equipment, materials and spare parts

Context of assessment

- relevant manuals and other documentation, including Australian standards.
- Where applicable, physical resources should include equipment modified for people with disabilities.
- Access must be provided to appropriate learning and/or assessment support when required.
- Assessment processes and techniques must be culturally appropriate, and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.
- For valid and reliable assessment of this unit, competency should be demonstrated over a period of time and be observed by the assessor (or assessment team working together to conduct the assessment).
- Competency is to be demonstrated in a range of situations, reflecting the practical requirements of the workplace which may include customer and workplace interruptions and involvement in related activities normally experienced in the workplace.
- Assessment of competency over the full range of performance criteria may be made through practical demonstrations in the workshop environment. Consideration should be given to assessing consistency of outcome over an appropriate period of time.
- Candidates should also be given the opportunity to practise and undertake self-assessment of performance before requesting formal assessment.
- All safety requirements must be adhered to during all practical activities.
- Oral questioning or a written assessment may be used to assess underpinning knowledge. (In assessment situations, where the candidate is offered a preference between oral questioning and written assessment, questions are to be identical.)
- Assessment of evidence should establish the candidate's ability to perform the job to the standard required in the workplace.
- Supplementary evidence may be obtained from relevant authenticated correspondence or reports from supervisors or team leaders that demonstrates an understanding of the requirements for decommissioning installed gaseous agent containers and actuation devices.
- Candidate should be encouraged to compile a portfolio of examples of completed documentation

relevant to the candidate's organisation. One accurate example of each completed document is suggested as sufficient to infer competency and ability to transfer appropriate skills to each document type when required in the workplace. (Oral questioning may contribute as evidence of this ability.)

- Information derived from enterprise policies and practices must be treated as commercial-in-confidence.
- In all cases where practical assessment is used it will be combined with targeted questioning to assess the underpinning knowledge.
- Questioning will be undertaken in such a manner as is appropriate to the oracy, language and literacy levels of the candidate and any cultural issues that may affect responses to the questions. It will reflect requirements of the unit of competency and the work being performed.
- Where assessment is for the purpose of recognition (RCC or RPL), the evidence provided will need to be authenticated and show that it represents current competency demonstrated over a period of time.
- Performance and assessment of this unit must be carried out within the relevant requirements of the following legislative and industry framework:
 - building Acts, regulations and codes
 - Australian and international standards identified as relevant to the required maintenance procedure
 - environmental regulations
 - manufacturer specifications
 - organisational requirements, including policies and procedures relating to ODS, SGG and OHS
 - OHS legislation, codes and regulations
 - ODS and SGG legislation, codes and regulations.

Range Statement

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. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Legislative requirements may include:

- relevant current Australian and international standards, such as AS 4214, NFPA 12 and NFPA 12A
- relevant federal, state and territory building Acts, regulations and codes, such as *Ozone Protection and Synthetic Greenhouse Gas Management Act 1989*
- Building Code of Australia (BCA)
- building surveyor requirements
- OHS legislation, codes and regulations
- dangerous goods regulations
- licensing arrangements
- environmental regulations, including ODS and SGG codes and regulations
- other relevant legislation relating to fire protection equipment, including international, shipping and marine codes
- Australian petroleum industry requirements.

Work procedures may include:

- instructions from colleagues, supervisors and managers
- specific customer requirements
- assignment instructions
- equipment manufacturer requirements
- reporting and documentation requirements
- ODS, SGG and OHS requirements
- personal protective equipment (PPE) requirements.

Relevant persons may include:

- team leaders
- supervisors
- managers
- colleagues
- customers.

ODS and SGG materials are listed using the format: Product name (other names); use. Check the latest amendments to the *Ozone Protection and Synthetic Greenhouse Gas Management Act* for the current list of ODS and SGG extinguishing agents which may include:

- **Blitz III** (HCFC Blend D); used in flooding systems
- **CFC 11** (trichlorofluoromethane, CCl₃F); may be found as a propellant in some powder fire extinguishers (this product is banned in Australia)
- **FC-2-1-8** (CEA-308, CF₃CF₂CF₃); used in flooding systems
- **FC-3-1-10** (CEA-410, C₄F₁₀); used in flooding systems
- **FC-5-1-14** (CEA-614, C₆F₁₄); used as a streaming agent
- **FE-227** (heptafluoropropane, HFC-227ea); used as a total flooding extinguishing agent - is a replacement for

Halon 1301

- **FE-25** (pentafluoroethane, HFC-125); used in inerting and explosion suppression applications and retro-fit to existing Halon 1301 systems
- **FE-36** (hexafluoropropane, HFC-236fa); used in portable fire extinguishers - is a replacement for Halon 1211 and Halon 1301
- **FE-13** (trifluoromethane, HFC-23); used as a total flooding agent
- **FE-241** (chlorotetrafluoroethane, HCFC-124); used as a total flooding agent for non-occupied spaces and as a streaming agent
- **FM100®** (HBFC-22B1); used in portable fire extinguishers
- **FM200®** (heptafluoropropane, HFC-227ea); used in chemical storage areas, clean rooms, communications facilities, laboratories, museums, robotics and emergency power facilities
- **Halotron** (HCFC Blend B); used as a total flooding agent and streaming agent
- **Halon 1211** (BCF); used as a streaming agent - requires a special permit in Australia
- **Halon 1301** (BTM); used as a total flooding agent - requires a special permit in Australia
- **Halon 2402 (dibromotetrafluoroethane, C₂Br₂F₄)**; limited use in military systems - requires a special permit in Australia
- **HCFC 22 (chlorodifluoromethane, CHClF₂)**; used as a propellant in some powder fire extinguishers (this product is banned in Australia)
- **HFC 134a** (unsymmetric tetrafluoroethane, CH₂FCF₃); used as a propellant in some powder fire extinguishers
- **NAF-S-III** (HCFC Blend A); used as a total flooding agent - is a replacement for Halon 1301
- **NAF-P-III** (HCFC Blend C); used as a streaming agent - is a replacement for Halon 1211
- **NAF-P-IV** (HCFC Blend E); used as a streaming agent
- **SF6** (sulfurhexafluoride, SF₆); used as an inerting agent for sealed high voltage switchgear.

Potential and actual breaches could be identified by:

- direct observation
- workplace quality assurance teams.

Organisational requirements may include:

- legal and organisational policies and guidelines
- personnel practices and guidelines outlining work roles, responsibilities and delegations
- legislation relevant to the decommissioning operation
- OHS policies, procedures and programs

OHS policies and procedures may include:

- procedures and work instructions to prevent the emission of ODS and SGG in the workplace
- documentation and information systems and processes
- use of electronic job scheduling and communication devices.
- employer and employee rights and responsibilities
- the OHS hierarchy of control
- assessing the work site for hazards and risks prior to preparing it for the work procedure
- displaying signs and using barriers in work area
- hazard and risk identification and reporting
- risk assessment and control measures
- incident and accident investigation
- OHS audits and safety inspections
- safe operating procedures and instructions, including:
 - working safely around electrical wiring, cables and overhead powerlines
 - working safely around tools and equipment
 - working safely on ladders and raised platforms
 - risk and hazard recognition
 - emergency procedures
 - awareness of electrical hazards
 - following confined spaces procedures
 - using PPE, including:
 - safety glasses or goggles
 - safety boots or shoes
 - hard hats
 - earmuffs or plugs
 - appropriate gloves and overalls
 - sunhats
 - dust masks
- equipment maintenance and use
- use and storage of hazardous substances
- first aid.

Work permits may include permits to:

- enter a work site
- enter a restricted area within a work site
- enter a work site at specific times
- ensure that specific OHS requirements are met

- before entering a work site.
- Decommissioning guidelines** may include:
- gaseous agent containers e.g. location, size, number, marking, charge quantity, label, orientation and mounting
 - electrical system
 - inhibit switch
 - lock-off valve
 - manifolds and valves, including:
 - joints and fastenings
 - discharge indicators
 - check valves
 - directional valves
 - pressure reduction devices
 - manual release devices
 - nozzles
 - pneumatic equipment
 - release mechanisms, including:
 - location
 - connections
 - actuating pressure lines
 - mechanical release
 - remarks
 - system configuration
 - warning signs and notices.
- Customer requirements** may include:
- providing routine services
 - providing non-routine or urgent services
 - confirming or varying decommissioning instructions
 - sighting work permits
 - sign-in and sign-out procedures for entry to or exit from premises
 - written or verbal confirmation of services provided and future services, such as maintenance.
- Safety procedures** may include:
- confirmed acceptable floor loading
 - job safety analysis (JSA) performed for decommissioning, in particular, manual handling tasks.
- Hazards** may include:
- ergonomic, such as incorrect manual handling methods
 - environmental, such as improper use of ODS and SGG, hazardous materials and other chemicals

- environmental, such as ODS and SGG emissions, that could be caused by:
 - transporting, storing and manually handling containers containing ODS and SGG agents
 - removing gaseous agent container valve assembly, manifold connection components and actuation mechanisms
 - conducting interface tests during decommissioning procedures between container activating mechanisms and control and indicating equipment (CIE) and fire alarm system
- obstructive, such as blocked access to emergency entry or exit points
- hazards associated with electrical or mechanical faults
- any source of potential harm
- any situation with a potential to cause loss
- equipment in a work site
- people in a work site
- work methods, plans and procedures.
- transport caps and safety devices.
- hand tools, including:
 - hammers
 - pliers
 - screwdrivers
 - spanners
- power tools, including battery drills
- manual handling aids, including:
 - hand trucks
 - hooks
 - lifting magnets
 - lifting straps
 - suction grips
 - trolleys
 - wheelbarrows
- fire equipment spare parts, including:
 - anti-tamper seals
 - hoses
 - labels
 - nozzles
 - pressure indicators

Tools, equipment and materials may include:

- seals
 - service tags
 - valves
 - non-licensed mechanical handling aids, including:
 - cranes
 - hoists
 - manually operated forklifts and pallet trucks.
- System components and materials** may include:
- actuation control devices (pneumatic, electrical, mechanical and manual operation)
 - agent discharge nozzles
 - agent distribution pipework and hose networks
 - gaseous agent container bank manifold connections
 - gaseous agent container discharge valves
 - control equipment
 - detection devices
 - gaseous agent containers (tanks and cylinders)
 - flexible discharge hose and fittings, including hose check valve connected between container valve and fixed pipework manifold arrangement
 - pilot and slave tubes
 - fittings between container valves.
- Actuation control devices** (also known as actuators) may include:
- **electrical** operation: signal generated from CIE panel as part of a fire alarm detection system
 - **pneumatic** operation: from fire detector (typically heat)
 - **mechanical** operation: via signal from Local Control Station or fire detector
 - **manual** operation: by direct push lever or pull cable system.
- Documentation** may include:
- corrective action reports
 - customer recommendation forms
 - equipment recommendation forms
 - expense claims
 - job cards
 - maintenance record system
 - manufacturer system documentation
 - product documentation
 - service agreements
 - test results and test reports.

Unit Sector(s)

Sector

Fire Protection Equipment

Competency field

Competency field

Asset Maintenance