Australian Government

Department of Education, Employment and Workplace Relations

PUASAR031A Undertake an urban search and rescue Category 2

Revision Number: 1

PUASAR031A Undertake an urban search and rescue Category 2

Modification History

Not applicable.

Unit Descriptor

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This unit covers the competency required to provide safe and effective rescue to an urban search and rescue (USAR) incident as a Category 2 technician who is a member of a USAR task force.

USAR is a specialised technical rescue capability for the location and rescue of entrapped people following a structural collapse.

This unit covers locating and removing trapped and often injured live casualties or deceased victims from partially or totally collapsed structures or environments and providing emergency medical care, where required.

The types of incidents that may require the skills and knowledge of a USAR Category 2 technician working as a member of a USAR task force include earthquake, terrorist incident, aircraft crash, disaster or major structural collapse.

The unit also includes the application of the specialist equipment and techniques used at a USAR incident and the ability to work as an effective member of a team.

Application of the Unit

Application of the Unit

This unit applies to the role of a USAR Category 2 technician performing this role as a member of a USAR task force.

This role is based on a national capability requirement to deploy competent personnel to any USAR incident.

There are three nationally agreed levels of capability, commencing with PUASAR023A Participate in an urban search and rescue Category 1.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability Skills

This unit contains employability skills.

Pre-requisite Unit/s

PUASAR023A Participate in an urban search and rescue Category 1

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. **Prepare and plan to respond to USAR incidents**	1.1 ***Personal documentation*** and ***personal kit*** are prepared appropriate to the nature of the incident and length of deployment 1.2 Operation and ***task information*** is ***sourced*** and analysed 1.3 Based on incident information received, appropriate ***rescue resources*** are identified, selected and checked to ensure they are ready for use 1.4 ***Personal protective equipment*** (***PPE***) ***and clothing*** is selected based on the nature of the incident and rescue resources to be used
2. **Mobilise as part of a task force**	2.1 Adequate communications are maintained with the task force reconnaissance team while en route to the incident site 2.2 Personal conduct is in accordance with applicable ***situational and cultural sensitivities*** and organisational requirements 2.3 ***Briefing*** from ***relevant personnel*** is received on arrival at the incident 2.4 Personal hygiene and safety is maintained while deployed in remote conditions

ELEMENT	PERFORMANCE CRITERIA
3. **Assess and work within USAR incidents**	3.1 ***Rescue scene reconnaissance*** is undertaken with other team members 3.2 Scene is ***managed*** to control access and to maintain a safe and effective operational environment 3.3 Initial site ***blitz*** is undertaken with other team members 3.4 Establishment of a ***base of operations*** is undertaken with other team members as appropriate to the nature of the incident and deployment 3.5 ***Communication*** is established with other relevant personnel 3.6 ***Appropriate marking systems*** are used 3.7 Personal wellbeing and fatigue management strategies are monitored 3.8 ***Allocated rescue***, ***logistics and communications tasks*** are undertaken by the operator as directed
4. **Determine location and condition of casualties**	4.1 ***Search techniques*** and ***equipment*** are used to locate trapped casualties under the surface, in ***voids and spaces***, and from heights 4.2 Nature of casualty entrapment is ascertained where possible 4.3 ***Primary survey*** of casualty is undertaken to determine injury type and severity

ELEMENT	PERFORMANCE CRITERIA
5. **Gain access to casualties**	5.1 Exclusion zone is established to provide a safe working environment 5.2 ***Stabilisation techniques*** are utilised to make the collapsed site safe 5.3 ***Techniques appropriate to the nature of the entrapment*** are used to access the casualty 5.4 Located casualties are ***treated*** in consultation with medical personnel in accordance with organisational policies 5.5 Rescue operations are conducted in a ***range of environments*** 5.6 Incident scene is constantly monitored for situational and environmental ***hazards***, and structural stability to prevent injury to self or others
6. **Remove casualties and victims**	6.1 Casualties and victims are removed using ***recognised techniques and equipment*** 6.2 Evidence of victim identity is collected and processed in accordance with jurisdictional disaster victim identification procedures 6.3 Appropriate actions are taken to preserve the incident scene where possible for evidentiary purposes

ELEMENT	PERFORMANCE CRITERIA
7. **Demobilise as part of a Task Force**	7.1 Equipment is ***recovered***, ***cleaned and serviced*** according to manufacturer's guidelines and organisational standards 7.2 Disestablishment of the base of operation is undertaken with other team members 7.3 Operational readiness is maintained to support redeployment of task force team and individual members, if required 7.4 Signs and symptoms of operational stress in self and others are reported to relevant personnel 7.5 Fatigue and operational stress of team members is monitored and action is taken to address identified issues 7.6 Operational ***debrief*** is attended and ***documentation*** is completed to organisational standards 7.7 Hygiene precautions are implemented in accordance with organisational requirements 7.8 ***Exposure records*** are completed

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required Skills

- apply casualty packaging techniques for confined spaces
- apply marking systems
- cut concrete, reinforcing bar, structural steel, timber and a range of non-structural components and contents
- operate equipment in accordance with organisational procedures
- take notes
- use air bags and other lifting equipment
- use concrete cutting, coring, breaching and lifting equipment
- use generators and lighting equipment safely and effectively
- use heavy duty cutting, breaking and lifting equipment
- use jacks and props
- use ropes, anchors and rigging systems
- use safe debris tunnelling techniques
- use safe manual handling techniques
- use shoring and cribbing techniques
- use structural collapse rescue equipment
- use visual and audible locating devices
- wear personal protective equipment in accordance with organisational requirements
- work within the responsible agency's command and control structure
- work in teams

Required Knowledge

- agency incident command and control systems
- casualty search techniques, strategies and considerations
- coronial and other legal documentation requirements
- disaster victim identification procedures
- engineering considerations for structural collapse
- equipment capabilities and limitations
- heavy lifting techniques
- improvised explosive devices
- medical considerations and casualty packaging for structural collapse casualties
- operational briefing and debriefing procedures
- organisational policies and procedures (such as relevant legislation; operational, corporate and strategic plans; operational performance standards; operational policies and procedures; organisational personnel and occupational health and safety practices and guidelines; organisational quality standards; organisation's approach to environmental management and sustainability)

REQUIRED SKILLS AND KNOWLEDGE

- principles of a dynamic risk assessment
- principles of structural collapse operations
- procedures for atmospheric monitoring
- relationship of local USAR teams with local rescue response and emergency management
- relevant legislation and standards
- relevant occupational health and safety (OH&S) principles and procedures
- risks associated with working in a confined space
- signs and symptoms of operational stress
- structural monitoring techniques
- types of construction and collapse

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.

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

Assessment must confirm the ability to:

- work autonomously and as part of a team
- maintain situational awareness and be alert to environmental and situational hazards including using acquired knowledge of collapse patterns in structures, be able to assess and evaluate potential risks and hazards and put in place strategies prior to them becoming a threat to the team working in the area
- safely use tunnelling techniques
- safely use shoring and cribbing techniques, and construct and safely assemble the required range of shoring and cribbing sets needed to allow teams to safely move in and around a collapsed or partially collapsed structure/zone
- safely use breaching, coring, cutting equipment
- extricate casualty minimising further injury to self or others
- apply safe work practices in a range of environments
- mobilise and participate in establishing a remote base of operations
- prioritise, package and handle patients in surface and confined space environments.

Consistency in performance

Competency should be demonstrated over time in a range of actual and/or simulated workplace environments.

EVIDENCE GUIDE

Context of and specific resources for assessment	**Context of assessment** Competency should be assessed in an industry-approved simulated and/or workplace environment where: • rescue techniques are applied throughout a 48 hour (minimum) continuous exercise to incorporate a minimum of three shift changes • designated roles as an active team member are performed within a task force structure and given scenarios • mobilisation and remote living procedures of a USAR task force are rehearsed. **Specific resources for assessment** Access is required to: • USAR incident or simulation of a USAR incident in a multi-agency response environment • equipment, personnel, facilities etc. appropriate to a USAR incident.
Method of assessment	In a public safety environment assessment is usually conducted via direct observation in a training environment or in the workplace via subject matter supervision and/or mentoring, which is typically recorded in a competency workbook. Assessment is completed using appropriately qualified assessors who select the most appropriate method of assessment. Assessment may occur in an operational environment or in an industry-approved simulated work environment. Forms of assessment that are typically used include: • direct observation • interviewing the candidate • journals and workplace documentation • third party reports from supervisors • written or oral questions.

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.

Personal documentation may include	Field Operations Guide Medical clearance for international travel Medication lists Passport and other travel documentation Passport photos Personal identification documentation Record of inoculations/vaccinations required for international travel
Personal kit may include	Suitable and sufficient personal clothing and personal/health items commensurate with the duration and nature of deployment
Task information may include	Cause of collapse Current situation Emergency evacuation procedures/point Environmental and other hazards Incident location Local cultural awareness Occupancy Other public safety organisations Safety and security, including potential hazards e.g. HAZMAT Special or unusual considerations Type and magnitude of incident Type and number of casualties/vehicles Type of collapse Type of structure Weather
Sources of information may include	Emergency Management Australia (EMA) Global Disaster Alert and Coordination System

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	(GDACS) Incident Controller Local emergency management authority (LEMA) Office of Coordination and Humanitarian Affairs (OCHA) Onsite operations coordination centre (OSOCC) Reception/Departure Centre (RDC) Reconnaissance team Relief web Situation reports Task Force Leader Team Leader United Nations Disaster Assessment Coordination (UNDAC) Virtual OSOCC
Rescue resources may include	Atmosphere monitoring equipment Canine search teams Concrete breaking and breaching equipment Cutting equipment for structural steel and reinforcing Earth moving equipment Electrical and Lighting Hand tools Heavy lifting equipment Medical equipment Shoring and building stabilisation Technical search equipment Vertical access equipment
Personal protective equipment and clothing must meet the Australian/New Zealand Standards (if applicable) and may include	Atmospheric monitoring equipment Boots Breathing apparatus/airlines Chaps Chemical splash suit/fully encapsulated gas-tight suits

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	Ear protection (plugs, and muffs)
	Eye protection (goggles, glasses)
	Gloves
	Hearing protection
	Helmet and helmet light
	Knee/elbow protection
	Masks and respirators
	Protective clothing
	Safety harnesses
	Surgical gloves
	Thermal clothing
	Torch
	Wet weather gear
	Whistle
Situational and cultural sensitivities may include	Diversity
	Ethnicity
	Gender
	INSARAG Guidelines
	Organisational code of conduct
	Political
	Religious
Briefings may include	Command structure and Communication Plan
	Incident Action Plan
	Intelligence regarding potential location of casualties within a collapsed structure
	Liaison with reconnaissance team
	Recording requirements, logistical arrangements
	Safety hazards (known and potential), escape routes, refuge areas
	Situation reports
Relevant personnel may include	Relevant local emergency management personnel

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Rescue scene reconnaissance may include	Assessment of need for additional resources (equipment and/or personnel)
	Assessment of situational and environmental hazards
	Building mapping and note taking
	Collecting relevant information about structural damage, physical characteristics, casualties, victims, hazards
	Dynamic risk assessment and implementation of appropriate control measures
	Establishing communication with local emergency management authority
	Implementing phases of a collapse rescue plan
	Isolating and eliminating utilities such as broken gas pipes, damaged electrical wiring, leaking water
	Relating knowledge of building and structure classifications to the incident scene
	Securing and preserving the scene
	Structural assessment and triage
	Surveying the incident scene
	Verifying validity of information
Managing the scene to control access may include	Determining cold, warm and hot zone
	Restricting access by non-task force personnel
	Sectorising site of structural collapse and defining boundaries
	Tag in and tag out procedures
Blitz may include	Commitment of task force resources to ensure incident scene is surveyed as effectively as possible to identify hazards and determine priorities in accordance with the rescue scene reconnaissance
Base of operations may include	Base of Operations Management
	Communications
	Equipment maintenance and repair area
	Food and water
	Medical care
	Potential locations

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	Safety and security considerations Sanitation and hygiene Search canine area Shelter for personnel and equipment Waste collection area
Communication may include	Information technology Internet access Marking systems Radio communications (VHF/UHF) Satellite/mobile phone Whistle/horn warning signals
Appropriate marking systems include	Cylume sticks Geographic area structure identification (sectorisation) INSARAG Guidelines and methodology Location identification within single structures Marking materials Map symbols Marking tape Personnel role identification Signage Structure assessment marking Team function identification Victim extrication marking Victim location marking
Allocated rescue, logistics and communications tasks may include	Communications tasks: • operate communications in support of the task force • maintain functionality of task force communications equipment Logistic tasks: • maintain task force cache • service repairs and maintenance • operate logistically in support of the task force, transport, maintaining base operations

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	Rescue tasks: • displacement of structural components to perform a rescue • rescuing entrapped persons from heights/depths/voids • rescuing lightly trapped casualties using equipment appropriate for task • undertaking technical search operations
Search techniques and equipment to locate trapped casualties may include	Primary surface search and rescue: • audible • line and hail search • physical void search • visual • Canine search team Technical search equipment: • acoustic/seismic location detectors • search cameras • thermal imaging camera
Voids and spaces may be	• In basements • In rooms that have not completely collapsed but where the entrance is blocked • In vehicles • Lift shafts • Sheltered parts of a building that may have avoided damage • Under stairs • Under a collapsed floor
Primary survey	Is a methodical process used to quickly identify immediate life threatening injuries and conditions that require intervention Should be completed promptly upon initial patient contact if no immediate life threatening injuries and conditions requiring intervention are found during the survey Should be completed as soon as possible if it is interrupted Should only be interrupted when: • life threatening condition is identified and immediate life saving interventions are initiated • scene conditions require that the patient be moved

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	immediately due to danger to first emergency care responders or the patient
Stabilisation techniques may include	Controlling entry and entry permits if appropriate Debris tunnelling Removing debris Safe havens Use of shoring and props
Techniques appropriate to the nature of the entrapment must include	HAZMAT detection and isolation Individually or as part of a team demonstrate s breaking and breaching: • concrete coring • penetrating below to a void space • penetrating laterally through a load bearing wall to a void space • penetrating overhead to a void space • dirty and clean breaches Cutting: • concrete • reinforcing bar • structural steel • timber • non-structural components and contents Equipment (shackles, slings, etc.) and expertise to support lifting the loads utilising local heavy equipment (e.g. cranes) Lifting and moving concrete slab Lifting equipment to move loads Individually or as part of a team demonstrate shoring - stabilising and supporting structural components with the use of: • cribbing and wedges • T shore, sloped floor shore, laced post shore, vertical/dead shore; raker/multiple raker shore • split sole shore • window/door shores • horizontal shores Constructing and utilising a vertical raising and lowering

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	system
Treating located casualties may include	• Assisting medical personnel with patient triage if required • First aid • Packaging and removal of casualties for handover to local authority • Primary/secondary survey • Respiratory protection, if required
Range of environments may include	Act of terrorism such as bombing Aircraft crash Any other structural collapse incident Enclosed and partially enclosed spaces Hazardous, unpredictable, subject to time pressure, chaotic and exposure of responders to risk by day or night Natural disaster such as flooding, cyclone, tsunami, earthquake, bushfire, landslide Operations in confined spaces and voids Urban debris (such as a rubble pile, concrete walls, floors, columns and beams; structural steel, reinforcing bars and timber)
Hazards may include	Adverse weather conditions • Dangerous goods and hazardous substances Below debris hazards, including: • flooding • oxygen deficient atmosphere • toxic environment • flammable environment • different levels of elevation • Biological hazards, including: • body fluids • decomposing bodies • untreated sewage • Irrespirable atmospheres • Overhead hazards, including: • falling debris • loose or unstable sections of structure

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	• power lines Structural instability due to: • events of nature such as earthquake, flood, landslide, wind • explosions • fire • inadequate construction Surface hazards, including: • climate • different types of surfaces • sharp and jagged objects • water pooling • dust and wind • noise and vibration • Utilities
Recognised techniques and equipment for removing casualties may include	Creation of exit route for technicians and packaged casualty Mechanical advantage hauling/lowering systems Stretcher packaging as appropriate: • rescue/spine board • stretchers appropriate for packaging in a range of situations Team stretcher handling
Recovering, cleaning and servicing equipment may include	Checking inventories Cleaning or disposing of contaminated clothing and equipment Conducting a general clean up of the rescue work areas Inspecting equipment for damage and serviceability Reviewing the possibility of donating equipment Safety and security issues
Debriefings may include	Assessing equipment function and suitability Identifying opportunities for improvement Identifying and reinforcing areas of positive work practices and systems Identifying welfare needs, and sourcing and

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	implementing solutions Reviewing tactics and techniques and identifying deficiencies and solutions
Documentation may include	• AIRS/coroner report Communication logs Equipment running and repair logs Incident reports • Injury register Memorandums of understanding Near miss forms Notes or sketches and other relevant information required for potential coronal or other legal proceedings • Operational debrief Site sectorisation plan
Exposure records may include	• Reporting form that documents any exposure that may result in a short- or long-term associated injury such as: • dangerous goods and hazardous substances, such as dust, vapours, fumes, radiation and chemical substances • heavy repetitive work over long periods of time • lifting heavy loads • noise • psycho-social hazards (e.g. critical incident stress)

Unit Sector(s)

Not applicable.