



Australian Government

DEFSU010B Locate, treat and manage water in a survival situation

Release: 2

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Modification History

Release	TP Version	Comments
2	DEF12V2	Layout adjusted. No changes to content.
1	DEF12V1	Primary release.

Unit Descriptor

This unit covers the competency required to locate, treat (for human consumption) and manage, water in a survival situation.

This unit also includes extracting water directly through evaporation, transpiration and desalination; filtering techniques; and treating foul water to render it potable.

Of equal importance to optimising the input of water, is minimising the expenditure of water. Individuals will need to protect and ration their water assets and to implement measures to minimise water loss in order to enhance their chances of survival.

Application of the Unit

As agreed in the creation of this Training Package, applications for units transferred from the PUA00 Public Safety Training Package will be developed as part of continuous improvement plans, and taking into account the change in Unit of Competency format as detailed in templates for Streamlined Training Packages.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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. Locate and extract water	<p>1.1 Water is discovered through recognising and investigating the <i>indicators</i> of and <i>likely locations of water</i></p> <p>1.2 Water is acquired using <i>collection methods</i> during periods of rain and high atmospheric water content</p> <p>1.3 Water is extracted from the ground through <i>evaporation</i></p> <p>1.4 Water is extracted from vegetation using transpiration</p>
2. Prepare water for consumption	<p>2.1 Water is filtered using improvised <i>filtration methods</i> to clarify content and remove debris and large contaminants</p> <p>2.2 <i>Unpotable water</i> is made potable using <i>improvised desalinator system</i></p> <p>2.3 Water is confirmed as potable through <i>testing procedures</i></p>
3. Manage water resources	<p>3.1 Water is stored using <i>improvised storage receptacles</i></p> <p>3.2 <i>Water loss reduction management techniques</i> are implemented to minimise loss of water</p> <p>3.3 Water is rationed strictly in accordance with minimum daily requirements as per the survival situation</p>

Required Skills and Knowledge

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

Required Skills

- assemble basic improvised equipment
- extreme care in handling critical survival items (e.g. transpirator bags)

Required Knowledge

- desalinator construction:
 - drum
 - condensing tube
 - collecting device
 - connections of the following to each other
 - cooling options for the condensing device
- desalinator non-compliant liquids (e.g. radiator fluid)
- fire safety
- transpirator non-compliant vegetation (e.g. leadwood)

Evidence Guide

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

Assessment must confirm the ability to extract water through:

- evaporation - a minimum of 20 millilitres of water in 24 hours through the use of a desert still
- transpiration - a minimum of 200 millilitres of water in solar day using a plastic (transpirator) bag (0.6 m x 0.4 m)
- desalination - a minimum of five litres of potable water in 24 hours using the following:
 - a 10 litre metal drum
 - plastic (transpirator) bag (0.6 m x 0.4 m)
 - pipe section (10-20 cm) (e.g. empty drinking can/bottle, clean radiator hose, hollowed tree limb)

The desalinator is to provide the only source of water for a minimum of two days unless safety/health reasons require additional supplementation.

Consistency in performance

Competency must be demonstrated once in the evaporation and transpiration of water.

Competency must be demonstrated in the desalination and management of water, and minimisation of water loss, over a minimum of two days.

Context of and specific resources for assessment

Context of assessment

Competency must be assessed in a simulated workplace environment.

While a person can demonstrate the technical ability to locate and treat water, the aspect of longer-term survival i.e. management of water (including care of the desalinator), is crucial; consequently it is strongly recommended that holistic assessment be conducted with other associated survival units.

Assessment under simulated survival conditions should include:

- food restrictions (food should be restricted to half the recommended daily caloric intake)
- the absence of normal living conditions and amenities such as showers, beds and bedding (warmth to be provided by fire), kitchens etc. with the attendant levels of personal discomfort and fatigue

- a significant period of time - the recommendation is four days.

Specific resources for assessment

Access to a suitable assessment area and improvised desalinator kits.

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.

<p><i>Indicators of water</i> may include:</p>	<ul style="list-style-type: none"> • Animal indicators: <ul style="list-style-type: none"> • animal pads • birds • insects • Geographic indicators: <ul style="list-style-type: none"> • creek lines • lay of land • Vegetable indicators: <ul style="list-style-type: none"> • stands of melaleuca • reeds and comparatively lush areas
<p><i>Likely locations of water</i> may include:</p>	<ul style="list-style-type: none"> • Between 1-2 sand dune (adjacent to coast) • Between the stems of some plants • Deep areas and outside corners of a river bed • Inside cracks in rocks and stone formations • Unusually rich/lush vegetation in area
<p><i>Water collection methods</i> may include:</p>	<ul style="list-style-type: none"> • Digging a pit to the water table • Laying out plastic sheeting to catch moisture/rain • Lowering an improvised sponge into a crack • Soaking dew off damp grass using clothing
<p><i>Evaporation</i> may include:</p>	<ul style="list-style-type: none"> • Using a desert still
<p><i>Filtration methods</i> may include:</p>	<ul style="list-style-type: none"> • Charcoal filtration • Doubled trouser legs, sleeves or socks • Sand filtration
<p><i>Unpotable water</i> may include:</p>	<ul style="list-style-type: none"> • Sea/estuarine water • Stagnant/fouled water (e.g. dead animal, faeces) • Urine
<p><i>Improvised desalinator system</i> includes:</p>	<ul style="list-style-type: none"> • Boiler (e.g. drum) • Collector (e.g. bag) • Condenser (e.g. tube/pipe)
<p><i>Testing procedures</i> may include:</p>	<ul style="list-style-type: none"> • Smell • Effect on sensitive skin (e.g. lips) • Effect upon 'rolling' in mouth • Effect upon consumption of a sip • Effect upon consumption of a draught

<i>Improvised storage receptacles</i> may include:	<ul style="list-style-type: none"> • Condom • Plastic bag • Plastic sheet and hole in ground
<i>Water loss reduction management techniques</i> may include:	<ul style="list-style-type: none"> • Keeping cool enough whether resting or working to avoid perspiration • Loosening clothing and enabling air flow but avoiding sunburn • Minimal talking • Minimising physical effort during heat of the day and maximising physical effort during cool of night • No smoking • Optimising cooling effect of shelter (e.g. through opening to breezes) • Rule of thumb: no eating if there is no water • Slow and deliberate nasal breathing

Unit Sector(s)

Not applicable.