Australian Government

Assessment Requirements for AHCARB319 Use arborist climbing techniques

Release: 1

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Modification History

Release	Comments
Release 1	This version released with AHC Agriculture, Horticulture and Conservation and Land Management Training Package Version 5.0.

Performance Evidence

An individual demonstrating competency must satisfy all of the elements and performance criteria in this unit.

There must be evidence the individual has safely and efficiently climbed a tree of at least 18 metres in height and at least 10 metres in canopy spread using rope climbing equipment, without the aid of climbing spurs. The individual must have:

- reached at least five different designated outer extremities of the tree structure
- selected and performed a suitable, safe and efficient access method consistent with the tree structure and the designated working positions
- selected and used suitable, safe and efficient work positioning methods to reach each target, including the use of multiple lines, redirects and advanced climbing methods
- descended the tree safely and retrieved all climbing equipment.

The timeframe allowed to reach the designated targets must meet industry expectations for the size and shape of the tree being climbed.

There must be evidence the individual has safely and efficiently climbed to a height of 15 metres above the ground using climbing spurs in a tree to be removed. The tree must have at least five metres of clear trunk below the lowest branch. The individual must:

- ascend and descend a trunk by spur climbing the trunk without setting a line at the top
- transition around obstacles safely
- perform a self-arrest
- use branch walking techniques to access designated working positions
- descend the tree safely and retrieve all climbing equipment.

The timeframe allowed to reach the designated targets must meet industry expectations for the size and shape of the tree climbed.

There must also be evidence that the individual has:

- installed a throw line in a tree in a predetermined union representing a target of no larger than 600 mm in diameter and at least 20 metres above the throwing position within a timeframe of 15 minutes

- selected, checked and configured climbing equipment components to form safe and functional climbing systems appropriate for climbing tasks
- identified unsafe equipment, climbing system configuration and climbing techniques.

There must also be evidence that the individual has prepared to conduct climbing work, including:

- undertaken a job safety analysis (JSA) for the specific site and work activities and implemented control measures including:
  - confirmed availability of first aid and rescue personnel, equipment and procedures
  - conducted pre-operational and other safety checks, on ropes, harnesses, tools and equipment
  - selected and used personal protective equipment (PPE) and safety equipment
- performed a pre-climb inspection and identified climbing hazards and controlled risks, including:
  - correctly identified tree species
  - assessed tree for stability and tree defects
  - adjusted climbing plan and implemented control measures
- selected, prepared and fitted climbing equipment.

There must also be evidence that the individual has:

- selected an access system and method that is safe, efficient and suitable for the tree structure and work task
- installed climbing and access ropes to suitable tree anchor points within the tree structure, and used throwlines to install:
  - anchor points near the top of the tree
  - a stationary rope technique (SRT) canopy anchor
  - a SRT basal anchor
  - a moving rope technique (MRT) anchor point including the installation of a cambium saver
- safely ascended and descended tree, transitioned between points of attachment and used work positioning methods, including:
  - used MRT and trunk-walking, foot ascenders or footlocking
  - used SRT
  - installed a second point of attachment when in a working position
  - used multiple lines for climbing and tree operations for both MRT and SRT
  - used natural and artificial redirects
  - used climbing spurs for work positioning
- safely retrieving climbing equipment according to industry standards and manufacturer instructions
- tied, dressed, set and finished the following 19 climbing knots and hitches for rigging and climbing applications according to industry standards:
  - scaffold knot
  - double fisherman’s bend/prusik loop

  - girth hitch
  - prusik hitch (English prusik)
  - Blake's hitch
  - marlinspike hitch
  - clove hitch
  - double-overhand stopper knot
  - sheet bend
  - slippery sheet bend
  - bowline knot (with a tie-off or stopper knot)
  - running bowline knot
  - bowline on a bight
  - alpine butterfly
  - klemheist
  - figure-8 loop
  - munter hitch
  - Flemish bend
  - Zeppelin bend
- tied at least one of the following advanced climbing hitches:
  - Distel hitch
  - Valdôtain tresse (French prusik)
  - Schwabisch hitch
  - Knut
- communicated with work team during operations using agreed communication procedures.

All arborist tree climbing work is required to be performed according to preferred industry practices (as outlined in the Companion Volume).

Knowledge Evidence

An individual must be able to demonstrate the knowledge required to perform the tasks outlined in the elements and performance criteria of this unit. This includes knowledge of:

- preferred industry practices (as outlined in the Companion Volume) for arborist tree climbing work
- assessing and selecting methods for climbing trees and methods of tree access, including:
  - selecting a climb plan or work strategy to achieve a scope of works
  - selecting climbing systems that are safe, simple, efficient and ergonomic
  - identifying tree hazards and selecting low-risk work methods
- assessing work health, safety, site, environmental and traffic control measures, including:
  - completing JSAs for site-specific risks
  - purpose of first aid and rescue personnel, equipment and procedures
  - pre-operational and safety checks, on ropes, harnesses, tools and equipment

  - PPE used when climbing
- arborist climbing equipment, use and maintenance, including:
  - ropes and their materials, construction and characteristics
  - uses of climbing ropes and lanyards
  - types of climbing ropes
  - harnesses
  - triple locking carabiners and other connectors
  - climbing hardware, including ascenders, descenders, mechanical friction devices, false crotches and artificial redirects
  - climbing spurs and gaffs, their preparation and use for climbing trees
  - maintaining separation between spurs, rigging equipment and ropes
- purpose, function, selection, tying, dressing, setting and finishing of arborist knots used for climbing techniques
- safety when climbing trees, including:
  - safe working limits, ropes and equipment
  - defects in ropes, tools and equipment
  - controlled descent operations
  - controlled removal of access equipment
  - forces applied to anchor points during access and work positioning using MRT and SRT
  - forces applied at primary anchor points and at redirects
- hazards to avoid when climbing within the tree canopy, including:
  - power line safe approach distances and vegetation clearances
  - tree structural defects
  - animals or insects
  - hangers or suspended loads
  - deciding on low-risk access routes
- limits, advantages and disadvantages of friction hitches, including:
  - Blake’s hitch
  - Prusik hitch (English prusik)
  - klemheist
  - specialised variations, including Distel hitch, Valdôtain tresse (French prusik), Schwabisch hitch, Knut
- selecting appropriate knots suited for rigging or climbing applications and equipment, including:
  - loss of rope strength
  - appropriate knot for application
  - requirements for secondary knots and stopper knots
- arborist knots, including:
  - knot type and tying procedure
  - dressing

    - setting
    - finishing
- communications strategies used in arboriculture, including:
    - voice
    - hand
    - whistle signals
    - electronic communications
- assessing tree access routes, techniques and equipment and evaluating risk, including:
    - moving rope technique (MRT) and stationary rope technique (SRT)
    - use of climbing spikes of various lengths
    - transitions between points of attachment
    - natural and artificial redirects
    - use of multiple lines to access trees and tree parts
    - low-risk anchor points
- inspecting, cleaning, maintaining and storing climbing equipment.

Assessment Conditions

Assessment of the skills in this unit of competency must take place under the following conditions:

- physical conditions:
    - trees as stipulated in performance evidence
- resources, equipment and materials:
    - full arborists climbing kit
    - climbing spikes
    - communications equipment agreed by work crew
    - PPE
    - first aid and emergency response equipment
- specifications:
    - workplace and manufacturer instructions for safe operation, cleaning and storage of the equipment specified in the assessment conditions
    - preferred industry practices (as outlined in the Companion Volume) for arborist tree climbing work
- relationships:
    - work team.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards. In particular, assessors must have:

- arboriculture vocational competencies at least to the level being assessed
- current arboriculture industry skills directly relevant to the unit of competency being assessed.

Links

Companion Volumes, including Implementation Guides, are available at VETNet: - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=c6399549-9c62-4a5e-bf1a-524b2322cf72