

**Unit EF6: Apply vegetation ignition techniques**

**Element 1.1: Prepare ignition devices and ancillary equipment for use at vegetation fires**

**Element 1.2: Apply ignition devices following specified firing plans**

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**About this unit:**

This unit deals with the competence required by individuals who are involved in managing vegetation fires in rural areas, either in fire suppression or prescribed burning operations.

It has been developed so that it can be applied to any area of vegetation: forest, shrub, grass or peat.

This unit is for people who are required to use hand operated ignition equipment for burning vegetation fuels. It is for situations where: the ignition operation is simple, the level of risk, complexity and fire behaviour is low and the operator is under direct supervision.

It is aimed at those who work in fire services, farming, forestry, game management, conservation, range land and recreation management who have a role managing vegetation fires, either on a full or part-time basis.

**To achieve it you must show that you are able to:**

- Prepare and use ignition devices to light up vegetation at burning operations
- Follow organisational fire procedures
- Operate safely on the fireground
- Support others operating on the fireground
- React appropriately, within organisational procedures, to a fire incident.

<b>Key words and phrases:</b>	For you to fully understand the content of the unit, and the activities it describes, it is important that you are able to understand the terms used within the unit. The definitions at the back of this unit should help you with this.
Anchor point	An advantageous location, usually a barrier to fire spread, where fireline construction can start. Used to minimise the chance of being flanked by the fire while the fireline is being constructed
Backburning	A fire ignited along the inner edge of a control line to consume the fuel in the path of a wildfire
Backfiring	A fire ignited along the inner edge of a control line to consume the fuel in the path of a wildfire and/or change the direction of force of the fire's convection column
Burning out	Igniting a fire inside a control line to widen it or consume fuel between the edge of the fire and the control line
Control line (fire line)	A natural or constructed barrier, or treated fire edge, used in fire suppression and prescribed burning to limit the spread of the fire.
Driptorch	A hand held canister of flammable fuel fitted with a fuel spout, fuel flow control device, wick and a burner. The fuel used is generally a mixture of diesel and petrol. It is used for lighting fires for backburning and prescribed burning
Fire Environment	The complex of surrounding conditions, influences, and modifying forces of topography, fuel, and weather that determine fire behaviour and impacts.
Fire Behaviour	The manner in which fuel ignites, flame develops, and fire spreads and exhibits other related phenomena as determined by the interaction of fuels, weather, and topography.
Fuel Moisture Content	Water content of a fuel expressed as a percentage of the oven-dry weight of the fuel.
Fuel load	The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel, usually expressed as oven-dry weight.
Fuel type	The type, quantity, arrangement, distribution & moisture content of the vegetation. Can be: ground (peat, roots), surface (plant litter, grass, shrubs,) or aerial (trees) fuels
Ignition patterns	The manner in which a prescribed burn, backfire, or burnout is lit to achieve a particular fire behaviour. Common ignition patterns used: backing, flanking, point, strip, and strip head fire
Prescribed burning	The planned application of fire under prescribed environmental conditions and within defined boundaries, to achieve a resource management objective. Note: This term has replaced the earlier term "Controlled Burning".

### Element 1.1:

## Prepare ignition devices and ancillary equipment for use at vegetation fires

### What you must be able to do:

- 1 Carry out daily maintenance, fuelling and pre-start checks as per manufacturers recommendations
- 2 Select and prepare ignition device appropriate to fuel condition
- 3 Load and secure ignition devices and fuel safely onto transport

- 4 Maintain the safety and security of equipment and supplies
- 5 Prepare and check personal protective equipment
- 6 Maintain safety and health of self and others throughout
- 7 Manage materials in accordance with relevant legal, organisational and environmental requirements.

**This element covers:**

A Ignition devices:

- (i) Gas torch
- (ii) Drip torch
- (iii) Diesel burner

B Preparing and maintaining ignition devices using:

- (i) Hand tools
- (ii) Other maintenance tools

C In the following situations:

- (i) A workshop
- (ii) In the field / on operations

D Personal Protective Equipment

- (i) Helmet/Face shield/Goggles
- (ii) Fire resistant clothing
- (iii) Gloves
- (iv) Heat resistant boots
- (v) Drinking water

**What you must know and understand**

- a. Suppliers and manufacturers instructions for the safe use of equipment, materials and products
- b. The ratios of fuels that can safely be mixed
- c. The requirements and methods for the safe transport of fuels

**What you must be able to do:**

- 1 Assess the fire environment logically and predict local fire behaviour
- 2 Confirm instructions provided in a briefing
- 3 Apply ignition device following specified firing plan
- 4 Observe fire behaviour on ignition and report variations from plan
- 5 Take appropriate action when fire behaviour is unsafe and/or is likely to become unsafe
- 6 Observe and report changes in weather conditions and fire behaviour
- 7 Communicate and work with fire control crews, within briefings and organisational procedures, during ignition operations
- 8 Extinguish ignition device safely

**This element covers:**

- A Ignition devices:
- (i) Gas torch
  - (ii) Drip torch
  - (iii) Diesel burner
- B Fuel condition:
- (i) Fuel moisture
  - (ii) Fuel type
  - (iii) Fuel load
- C The use of burning in fire management operations:
- (i) Parallel and Indirect attack
  - (ii) Containment (burning out)

**What you must know and understand**

- a. The fire environment factors that influence ignition and fire behaviour
- b. How to use different ignition patterns to influence fire behaviour and achieve the objectives of the firing plan, within organisational procedures

- c. The influence of smoke on the safety and health of self, team members and the general public
- d. The capabilities and limitations of ignition devices used individually and in combination, with other ignition devices, hand tools, pumps and aircraft as part of a fire control team
- e. The role of lookouts, the importance of being aware of the fire situation and being able to communicate with team members and your supervisor at all times. Knowing where your escape routes are, as well as when to use them and how long it will take to reach your designated safety zones

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