LANCS93L

# Assist with vegetation fire suppression Legacy

## Overview

This standard is about assisting with vegetation fire suppression, where nation-specific government guidelines allow for this. It is aimed at those who work in forestry, farming, game and wildlife management or environmental conservation.

To meet this standard you will be able to:

- use fire suppression tools in the required manner to suppress vegetation fire
- follow instructions and your organisation's fire procedures
- operate safely on the fireground and support others
- take the required action in the event of an incident or emergency

When carrying out vegetation fire suppression you should be trained, and hold the current certification where required, in accordance with nation-specific legislation.

You must also comply with the current legal requirements and codes of practice relevant to the nation in which the activity takes place.

When present, the Fire and Rescue Service for your area is in charge and legally responsible for all fire suppression activities on the fireground. You must follow their instructions and your own organisation's safe working procedures.

## Performance criteria

*You must be able to:*

1. maintain the health and safety of yourself and others at all times, when as-sisting with vegetation fire suppression, in accordance with the relevant health and safety legislation and codes of practice
2. wear suitable clothing and personal protective equipment (PPE) that pro-vides the required level of protection for the task
3. confirm your appointed role, objectives and level of responsibility and the person you should report to
4. identify hazards and assess the risks likely to be found on the fireground
5. prepare the tools and equipment used for vegetation fire suppression so that they are in a safe working condition, ready for use
6. assess the fire situation on arrival at the fireground, and communicate the key fire information to the Fire and Rescue Service (FRS), when present, and to other relevant people
7. follow instructions to control the vegetation fire using the required tools, equipment and tactics during different phases of wildfire suppression
8. use tools and equipment safely and effectively to suppress vegetation fire
9. identify and use a safe anchor point to commence fire suppression activities
10. continuously assess, report and take the relevant action to minimise the risk to yourself and others
11. monitor and report any variation in the prevailing weather conditions or fire behaviour, including intensity and direction
12. provide access for the Fire and Rescue Service (FRS) and other agencies
13. maintain effective communications with others throughout the vegetation fire suppression activities
14. follow safe systems of work, LACES and the chain of command at all times
15. provide information on the effectiveness of the vegetation fire suppression operation
16. follow the required procedures in the event of an incident or emergency
17. return and secure fire suppression resources in their correct location and re-port any defects or deficiencies

## Knowledge and understanding

*You need to know and understand:*

1. the health and safety requirements associated with vegetation fire suppres-sion, including the relevant health and safety legislation and codes of prac-tice
2. the potential impact of a wildfire, and fire suppression activities, on the natu-ral environment, including air and water quality, sensitive habitats, plant spe-cies, game, wildlife, natural capital as well as property and infrastructure
3. the hazards and risks associated with controlling vegetation fires including risks to yourself, others, the environment and wildlife
4. the importance of the initial and ongoing identification of hazards and as-sessment of risks and the action to take
5. the suitable fire-resistant clothing and personal protective equipment (PPE) required for use by those involved in vegetation fire suppression
6. the fire plans, fire maps, symbols, organisation working practices and rele-vant codes of practice
7. how to use maps to give and receive accurate grid references, estimate dis-tances and identify features
8. your role, objectives and responsibilities in assisting with vegetation fire sup-pression and that of others, who you report to and why it is important to fol-low instructions through a chain of command, such as the Incident Com-mand System (ICS) or Incident Management System (IMS)
9. the role of the Fire and Rescue Service (FRS) and how to identify and com-municate with the incident commander
10. the lines and methods of communication and reporting during a vegetation fire
11. the elements (heat, fuel, oxygen) that are required to sustain fire and the methods of heat transfer that can cause a vegetation fire to spread
12. the different types of vegetation fires, their characteristics, and how they propagate and interact with the environment, fuels and weather
13. how the weather, fuel condition and arrangement and terrain, can affect the spread, intensity and severity of vegetation fires and how changes in the weather can affect wildfires
14. how to use fuels, wind, slope and aspect, included in the Wildfire Prediction System (WiPS), to predict changes in fire behaviour, including intensity and direction
15. the importance of selecting and using a safe anchor point prior to commencing

fire suppression activities

16. the vegetation fire suppression techniques and when to use them
17. the tools and equipment used, the capabilities and limitations of each when used on different types of vegetation fire, and the importance of preparation and maintenance
18. the different types of pumps and how to operate them safely and effectively
19. the different ways of supplying water to a vegetation fire, including water shuttles and water relays
20. the role of heavy plant and aircraft in suppressing vegetation fires
21. the purpose and value of firebreaks, fuel breaks and control lines
22. the relevant tools, equipment and tactics to be used during different phases of wildfire suppression
23. the two main vegetation fire suppression strategies: direct and indirect attack
24. how to control the different types of fires including: heather or shrub fire, grass fire, lop and top fire, forest fire and peat fire
25. the importance of following the LACES safety system
26. the required action to take in the event of an incident or emergency and what key information should be collected and reported to those in control
27. the importance of maintaining fire suppression resources appropriate to the risk

## Scope/range

**Continuously assess:**

- the size of the fire
- wind direction and speed
- vegetation condition and arrangement
- people/assets threatened
- rate of spread at the head of the fire
- flame height
- escape routes
- water sources
- weather conditions
- topography
- for any other problems

## Glossary

- Anchor Point: An advantageous location, usually a barrier to fire spread, from which to begin constructing a control line.
- Containment - When a control line has been established around the perimeter of the fire and stopped further growth.
- Control line - An inclusive term for all constructed or natural barriers and treated fire edges used to control a fire.
- Control measure - Mitigation actions that can be taken to reduce the potential of exposure to an identified hazard.
- Controlling - Improving and securing control lines to the degree that there is no foreseeable chance of the fire escaping.
- Direct attack - An offensive fire suppression tactic that involves an attack being made at or near the fire's edge.
- Fire behaviour – The reaction of a fire to the influences of fuel, weather, and topography. Different types of fire include: smouldering, creeping, running, torching, spotting and crowning.
- Firebreak - Gaps in vegetation, which may be natural or man-made features. These include heavily grazed areas or mown tracks and rides.
- Fire danger - A general term used to express an assessment of both the fixed and variable factors of the fire environment, which determine the ease of ignition, rate of spread, difficulty of control, and impact. Fire danger is often expressed as an index.
- Fire danger rating system (Index) - A quantitative indicator of fire danger, expressed either in a relative sense or as an absolute measure. Fire danger indexes are often used to guide fire management activities.
- Fire hazard - Any situation, process, material or condition that can cause a wildfire or that can provide a ready fuel supply to augment the spread or intensity of a wildfire, all of which pose a threat to life, property or the environment.
- Fire intensity – The rate at which a fire releases energy in the form of heat at a given location and at a specific point in time, expressed as kilowatts per metre (kW/m) or kilojoules per meter per second (kJ/m/s).
- Fire risk - The probability of a wildfire occurring and its potential impact on a

particular location at a particular time. Wildfire risk is calculated using the following equation: Fire risk = probability of occurrence x potential impact.

- Fire severity - A qualitative assessment of the level of heat generated by a fire/burn and the resulting impact on a fuel.
- Fire type – There are three different schemes for classifying fire type:
    1. Classification of a fire or section of fire according to the fuel level within which it occurs. For example, aerial, crown, understory, surface and ground fires.
    2. Classification of a section of fire according to its position along the fire perimeter. For example, head, tail and flank fires.
    3. Classification of a fire or section of fire according to the visual characteristics it displays. For example, smouldering, creeping, backing, running, torching, spotting, crowning, fire whirl, convection driven fire etc
- Fire weather – Weather conditions that influence fire ignition, behaviour, and suppression.
- Fireline intensity - The rate of energy release per unit length of fire front, described in kW/m.
- Flank fire - A fire spreading or predicted to spread parallel (approximately at a right angle) to the prevailing wind direction or a slope.
- Flanking attack - A method of fire suppression which involves attacking a wildfire along the flank or both flanks simultaneously or successively.
- Flanks - The parts of a fire's perimeter that are roughly parallel to the main direction of spread.
- Fuel - Any material that can support combustion within a wildfire environment. Fuel is usually measured in tonnes per hectare.
- Fuel break - Gaps in vegetation where litter and organic materials are removed to expose mineral soil.  These may include rivers, roads or control lines created with hand tools or machinery.
- Fuel hazard - A fuel complex defined by kind, arrangement, volume, condition, and location that presents a threat of ignition and resistance to control.
- Fuels – The classification of fuels according to their height relative to the ground

surface. There are five general fuel layers: • Aerial fuels • Elevated fuels • Near surface fuels • Surface fuels • Ground fuels

- Hazard - Anything which has the potential to cause harm.
- Head - The most rapidly spreading portion of a fire's perimeter, usually to the leeward or up slope.
- Heel or tail - The rearmost part of a wildfire/forest fire, it is normally out of alignment with wind and slope, and consequently will usually demonstrate less fire activity than the head fire because it usually has less support from wind or slope.
- Indirect attack - Any suppression methods implemented away from the fire edge.
- JESIP - Joint Emergency Service Interoperability Programme
- Knockdown - The initial suppression work aimed at reducing the fire's intensity and slowing or stopping fire spread. Implies that the foreseeable danger of the wildfire has been significantly reduced.
- LACES – An essential safety protocol which should be implemented at wildfire incidents to address risks and hazards. LACES is an acronym for: L = Lookouts, A = Awareness (or Anchor Point), C = Communication, E = Escape route and plan, S = Safe area
- Landscape - The physical appearance of the land comprising of the features of the terrain, the indigenous vegetation and the human impact caused by variations in land use.
- Likelihood - An assessment of the probability of an identified hazard resulting in a loss (normally expressed as a number 1 to 5, low to high).
- Methods of heat transfer – The process by which heat is imparted from one body or object to another. In wildfires and forest fires, heat energy is transmitted from burning to unburned fuels by: Convection, Radiation and Conduction.
- Mop up and patrol – Activity that commences after the fire has been controlled and involves extinguishing the burning area until there is no possibility of re-ignition. Patrolling the perimeter of the fire will help to ensure that the fire will not escape outside of the control lines. A fire can be called "out" after the completion of this phase.
- Observer - An individual occupying an observation tower/point or completing a patrol

of a designated area who is tasked with detecting and reporting wildfires.

- Pinch attack - The tactic of attacking a wildfire by working along the flanks either simultaneously or successively from an anchor point and endeavouring to connect the two lines at the head.
- Risk - The probability (likelihood) that the harm from a hazard will be realised together with the level of resultant loss, damage or injury.
- Risk assessment - The process of establishing information regarding acceptable levels of risk and actual levels of risk posed to an individual, group, society or the environment. The process involves the identification of risk, an assessment of the likelihood of an event occurring and an assessment of the severity of the impact if it does occur.
- Risk rating - The result of multiplying the likelihood by the severity to reach a value for risk. This is then expressed as either a numeric value or simply, low, medium or high.
- Severity - An assessment of the possible outcome of an identified hazard (normally expressed as a number 1 to 5, low to high).
- Topography – The description and study of the shape and features of the land surface.
- Wildfire – Any uncontrolled vegetation fire which requires a decision or action regarding suppression. Wildfires are commonly classified according to size and/or impact upon suppression resources.
- Wildfire management plan - A site-specific plan developed to address the risk of wildfire and set out measures that will reduce or mitigate the risk and/or consequences of a wildfire. Ideally this is produced following a wildfire risk assessment.
- Wildfire management zones - The aim of wildfire management zones is to protect health and safety and important assets and infrastructure. They can provide a useful framework to help managers identify and prioritise wildfire prevention measures across a site, based on the level of wildfire risk. Wildfire management zones comprise spatial zoning of wildfire prevention measures based on proportionality. Zone A is the Asset Zone where infrastructure must be protected from fire, Zone B is the buffer zone, where increased fuel management is carried out to protect Zones A

and D. Zone C is an area of low wildfire risk where normal land management activities can be carried out. Zone D is a fire exclusion zone, where operations such as prescribed burning or suppression fires should not be permitted.

- Wildfire Prediction System (WiPS) - A recognised system for anticipating and predicting the likely behaviour of a wildfire. It is based on the consideration of wind, slope and aspect combined with fuel.
- Wildfire prevention - A collective term for all proactive activities that are implemented with the aim of reducing the occurrence, severity and spread of wildfires.
- Wildfire prevention measures - Activities directed at reducing the incidence of fires, including public education, law enforcement, personal contact, and reduction of fuel hazards (fuels management).
- Wildfire prevention plan - A scheme or programme of activities that is formulated in order to prevent wildfire incidents.
- Wildfire response plan - An area specific plan developed to set out the response required to a wildfire incident. WRPs should include information that would prove useful for Fire and Rescue Services, such as location of infrastructure, access routes, water sources, specialist equipment, contact details and site maps.
- Wildfire risk assessment - A tool for identifying fire hazards and evaluating fire risk. The process involves the identification of risk, an assessment of the likelihood of an event occurring and an assessment of the severity of the impact if it does occur.

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