

## What I Need to Know

- QFRS is committed to ensuring that environmental best practice is considered and applied, where possible, in all activities it undertakes. Both hazard reduction and wildfire suppression activities can have an adverse impact on the environment. Some routine day-to-day business may also have a negative environmental outcome.
- Brigades also need to be aware that many of the environmental issues that must be considered may also apply to the protection of cultural heritage sites.
- Some environmental issues that must be considered are:
  - the effects of fire regimes – fire intensity, frequency and seasonality – on flora and fauna, soils, water quality, etc;
  - the management of smoke to minimise the impact on the environment and human health;
  - the use of foams and herbicides near water courses or in circumstances that might conflict with land use; e.g. organic farming, conservation management plans;
  - weed spread through poor appliance and machinery hygiene as well as inappropriate fire regimes;
  - soil erosion resulting from the location and construction of fire trails as well as fires on steep slopes or prior to major rainfall events;
  - suppression strategies and tactics that might be more damaging to remnant or vulnerable vegetation than the particular fire being controlled;
  - burns that might require approval under environmental legislation; e.g. woody weed control and the *Vegetation Management Act*.

## How I do it

- Environmental issues should be considered in relation to all activities. This can include ensuring that vehicles are free of weeds when visiting properties and attending meetings.
- Hazard reduction activities should be planned with regard to the environmental issues outlined above and the management and treatment of associated risks. The attached checklists provide guidance.
- For wildfires, minimum impact suppression tactics should be considered at all incidents and incorporated into the Incident Action Plans where possible. Suitable expertise should also be included in Incident Management Teams, and rehabilitation plans may need to be developed for some major incidents and land tenures (see checklists).

## Reference Materials

Area Reference Manual - Business Rule: A1.2 – Hazard Reduction Programs

### USEFUL READING:

CFA, *Environmental Care Policy*

CFA, *Environment Strategy*

Williams et al. 2001 *Savanna Burning: Using and Understanding Fire in Northern Australia*, Tropical Savannas CRC, Darwin

**Legislation**

*Vegetation Management Act*

**USEFUL WEB SITES:**

[www.cfa.vic.gov.au/publications](http://www.cfa.vic.gov.au/publications)

[www.cfa.vic.gov.au/publications](http://www.cfa.vic.gov.au/publications)

[www.gu.edu.au/school/asc/fire2/home.html](http://www.gu.edu.au/school/asc/fire2/home.html)

[www.savanna.cdu.edu.au](http://www.savanna.cdu.edu.au)

## FOR THE CONDUCT OF A PRESCRIBED FIRE, BY AN EMERGENCY SERVICE AGENCY

<b>ITEM</b>	<b>TASK</b>	<b>LINK TO OTHER TASK</b>
1	Identify land manager	
2	Identify land manager environmental policy, priorities, resource mapping etc that relates to the target block.	Item 1 If Land Manager cannot be identified do not proceed
3	Identify any areas within the target area that need exclusion from the burn.	Item 2
4	Identify existing fire lines that will enclose the burn or save exclusion areas.	Item 2 Will save time and effort, and environmental disturbance.
5	Identify requirements for new fire lines which achieve aims, but do not traverse sensitive vegetation types, and minimise soil disturbance during construction; i.e. heavily side cut lines will cause maximum disturbance.	Item 2
6	Encourage land manager to minimise disturbance during construction and maintenance.	Item 14 will reduce rehabilitation time and costs.
7	Clarify aims of the burn, with the land manager.	
8	If the aims include vegetation stand destruction or unacceptable results for any known "rare and threatened" species, then withdraw from the project.	Item 2
9	If aims are acceptable, plan a lighting pattern and identify weather conditions that will achieve the aims, but avoid excessive intensity of the burn. Examples would include downhill, ridge-top and backing-fire patterns, and provide escape routes for fauna. A mosaic of burn and unburnt patches avoids any species level threat to fauna and flora.	
10	Choose weather conditions that will minimise smoke nuisance to residential areas or sensitive crops.	Eg Pineapples may flower out of season.
11	Time the run of the burn to allow smoke dispersal prior to the onset of inversion layers or sea-breeze capture of smoke columns.	
12	Have the landowner start the fire then conduct the operation to keep the fire within the target area, achieve the aims of the burn and maintain firefighter and public safety. Ensure use of resources is appropriate to the results. Be aware that different functional areas of incident management teams have differing environmental responsibilities during operations.	Landholder to obtain the permit for the fire if required, and therefore own the fire and consequences.
13	Mop-up edges to prevent escape.	
14	Survey results. Gain landholder agreement to conduct any rehabilitation required.	
15	Hand back the area to the land manager.	

## FOR CONDUCT A WILDFIRE RESPONSE BY AN EMERGENCY SERVICE AGENCY

<b>ITEM</b>	<b>TASK</b>	<b>LINK TO OTHER TASK</b>
1	Identify the land manager, if time permits.	
2	Identify the land manager's environmental priorities, along with the priorities for saving property.	
3	Land manager to identify existing constructed fire lines, which are suitably located and constructed to contain the fire safely. Use existing fire lines in preference to new construction.	Item 1 May save considerable time and effort in control line construction
4	Arrange reopening of safe, suitable lines. Destruction of erosion control devices should be avoided.	
5	If no existing control lines, obtain land manager advice on fallback to other lines or construction of new lines.	Items 1 and 2
6	Plan new lines to avoid traversing sensitive vegetation types or habitats, and to minimise soil erosion potential, but also to accord with landholder priorities for property protection, and safety of fire fighters and public. Property on adjacent lands may be threatened.	Item 2
7	Combat fire from control lines. Use of resources should be appropriate with the danger and the task.	
8	Conduct burnout of remaining areas. Grid light or backfiring in cooling conditions will minimise environmental effects. Continuous edge light of uphill fires will give the most severe result. Timing to avoid smoke nuisance to residential areas may be possible. Be aware that different functional areas of incident management teams have differing environmental responsibilities during operations.	
9	Mop up edges to achieve control and minimise escapes. Machinery, equipment and appliances should not be sent to other areas without cleaning, but the cleaning should take place in a controllable area, which the land manager monitors for weed, germination.	
10	Survey results. Gain landholder agreement to conduct any rehabilitation required, including erosion control structure re-establishment. Preservation of ignition area may be a priority for investigation.	
11	Hand back the area to the land manager.	
12	Debrief significant fires for any operational, care or environmental lessons.	

**CHECKLIST**

**FOR RESOURCE USE IN BUSHFIRE OPERATIONS**

<b>ITEM</b>	<b>DISCUSSION</b>
Water	Water is a natural resource that is scarce in some areas. It is often in domestic storage, and ongoing residence or stock supply may be affected by our operations. Natural water bodies may be affected by polluted runoff. This pollution may come from the materials being burnt or directly from operations.
Foam	Fire fighting foams are essentially wetting agents that change some of the character of water; e.g. lower surface tension, and will affect water quality of receiving water bodies.
Gelling agents.	Reasonably inert powder chemicals that cause temporary gelling and stickiness of water, so surfaces stay "wet" for periods. Generally low effect on natural resources, but it is a manufactured product that took energy to produce, so use economically.
Fire retardant	Commercial fertilizer or various proportions of ammonium and phosphorus. Will change growth status of most plants, may damage sensitive ones, and is expected to be persistent in water bodies. Land management agencies may not allow use in conservation areas. Corrosive to some equipment, and relatively high-cost, manufactured material.
Absorbent material	Used for cleanup of spills, particularly petrochemicals. Inert clay material before use but contaminated after. Ensure sweep-up and proper disposal of used material. Use according to cost. Generally cheaper than a water body cleanup.
Fuels and lubricants	Used in appliances, other vehicles, pumps, drip-torches. Polluting if spilled. Expensive if wasted. Use appropriately.
Other consumables	Variable pollution factor if spilled. The main environmental concern is to use them appropriately.
Electricity and other energy supplies	Natural resources are consumed to produce such products and some may produce pollutants during their consumption, hence economy of usage is the main environmental issue. The issue applies to facility and asset management and maintenance as well as field operations.