

STATE FIRE MANAGEMENT COUNCIL

Position Paper

Management of Smoke arising from Prescribed Burning of Vegetation

INTRODUCTION

Prevention, control and extinguishment of bushfires is a statutory obligation of firefighting authorities and land managers in Tasmania. To meet this obligation, prescribed burning of vegetation is often employed. Prescribed burning is,

the controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity, and rate of spread required to attain planned resource management objectives. It is undertaken in specified environmental conditions. Prescribed burning is also referred to as planned burning; hazard reduction burning; controlled burning; prescription fire; fuel reduction burning; planned fire and prescription burning (AFAC 2024).

An unavoidable product of bushfires and prescribed burning is smoke. Bushfire and prescribed burning smoke can adversely affect air quality and visibility and create safety risks. Exposure to bushfire and prescribed burning smoke can adversely impact fire, land management and emergency service workers, including volunteers, and all personnel, members of the public, and natural values. Prescribed burning enables for greater levels of preparation to occur compared to bushfire. However, the fact that fire is involved means that exposure to smoke from prescribed burns can still occur.

Managing smoke from prescribed burning of vegetation is the statutory responsibility of firefighting authorities and land managers. To achieve this, competing fire management objectives, air quality obligations, and community health requirements are balanced. Achieving a balance is a complex and difficult undertaking. This position paper aims to provide guidance to fire authorities and land managers, both public and private, to achieve this balance. Technical information associated with this paper is available (see references, www.fire.tas.gov.au and www.sfmc.tas.gov.au). This information is aimed at educating the public about fire safety and preparedness through education, information and awareness.

Purpose

The *SFMC Position Paper: Management of Smoke arising from Prescribed Burning of Vegetation*, is intended to assist firefighting authorities and land managers to progress a consistent approach to the development of policies, procedures and other risk control measures aimed at proactively mitigating risks posed by smoke from prescribed burning of vegetation.

This Position Paper should be read in conjunction with the AFAC Council endorsed AFAC guideline Managing Bushfire Smoke Exposure (AFAC 2024).

Scope

Prescribed burning in practice can result in situations where exposure to smoke is unavoidable. Fire authorities and land managers have an obligation to ensure that, as far as reasonably practicable, the risks posed by smoke from prescribed burning of vegetation are mitigated.

This Position Paper is relevant to vegetation fire management work in Tasmania regarding prescribed burning of vegetation. It provides an evidence-based approach that informs risk assessment and aims to guide development of operational and organisational policy and procedures relevant to a fire management agency. It includes a range of measures that may be used to mitigate the risks posed by smoke from prescribed burning of vegetation. This includes risks to the public and/or natural values.

This Position Paper is about management of smoke arising from prescribed burning of vegetation. It is not about worker exposure to smoke arising from prescribed burning or bushfires. For more information on this, see AFAC (2024).

Audience

This document is intended for personnel who are responsible within their organisation for fire management work in Tasmania. The document provides a basis from which doctrine for prescribed burning of vegetation smoke related risk-mitigation training, practice, procedures and policies can be developed. An organisations workplace health and safety doctrine, specific legal authority, local and environmental conditions, and operational arrangements, should be referred to.

This document may be of interest to the Tasmanian community as an educational resource about the approach to proactively mitigate risks imposed by smoke from prescribed burning of vegetation in Tasmania.

Key terms

In this document, the following terms are used and are as per AFAC 2024.

Bushfire: Unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires both with and without a suppression objective.

Bushfire smoke: Airborne products of combustion from a bushfire or a prescribed burn.

Prescribed burning: the controlled application of fire under specified environmental conditions to a predetermined area and at the time, intensity, and rate of spread required to attain planned resource management objectives. It is undertaken in specified environmental conditions. Prescribed burning is also referred to as planned burning; hazard reduction burning; controlled burning; prescription fire; fuel reduction burning; planned fire and prescription burning.

SFMC POSITION

The State Fire Management Council's position on management of smoke arising from prescribed burning of vegetation is that:

Person's lighting fires for the management of vegetation fuels must act responsibly in ensuring the protection of human and environmental values and minimising any adverse or undue effects of the smoke arising from that burning.

The State Fire Management Council advocates that:

1. Smoke arising from both bushfires and prescribed burning must be recognised as inevitable and natural components of the Tasmanian environment,
2. Low intensity prescribed burning be recognised as the most cost-effective tool available to those managing vegetation fuel loads,
3. In appropriate vegetation and fuel types, prescribed burning is an efficient, ecologically sound, and economically suitable method of reducing fuel loads over large areas,
4. Cooperative interaction between the Tasmania Fire Service, the Tasmania Parks and Wildlife Service, Sustainable Timber Tasmania, the Bureau of Meteorology, the Environment Protection Authority Tasmania (Department of Natural Resources and Environment Tasmania), and appropriate special interest groups should be developed and encouraged to disseminate information on the effects on quality of life of smoke emanating from prescribed burning,
5. Smoke from prescribed burning should be managed to minimise affecting population centres and other sensitive areas by a combination of strategies including, but not limited to:
 - Scheduling burning in periods in which meteorological conditions will assist in the dispersion of smoke,
 - modifying burn prescriptions to minimise smouldering of partly consumed fuels,
 - separating burns in time and space when and where possible,
 - notifying residents and local council in affected areas about planned prescribed burns and potential impacts,
 - advising those with respiratory issues to take necessary precautions and asking them to be in contact to be alerted about the planned prescribed burn and to check for updates,
 - utilisation of decision support and predictive modelling tools developed and supported by evidence-based science and a risk management approach

PLANNING

6. Smoke sensitive locations or areas (e.g. residential, schools, scenic areas, retirement villages and hospitals, agricultural etc.) should be identified in fire management plans and/or operational burn plans.
7. Fire management plans should identify strategies to minimise the risk of adverse smoke impacts in smoke sensitive areas.
8. Alternatives to burning (e.g. slashing, selective shrub removal, construction of radiation barriers, chipping, mulching and composting etc.) should be considered as fuel management and hazard/risk management strategies where a high risk of adverse smoke impacts is likely.
9. Operational burn plans should incorporate appropriate prescriptions for fuel moisture content, wind speed and direction and atmospheric stability to reduce the risk of smoke effects on sensitive locations or areas.

TRAINING AND EDUCATION

10. Smoke management principles, policies and procedures, inclusive of a risk-management approach, should be in accordance with acceptable standards and incorporated within fire management training delivered by Sustainable Timber Tasmania, the Tasmania Parks and Wildlife Service, and the Tasmania Fire Service.

PERMITS AND NOTICES

11. Fire Permit Officers should consider the likelihood of adverse smoke effects on sensitive locations or areas arising from fires lit under permit and specify appropriate conditions in the permit.
12. Fire Permit Officers should make smoke management guidelines available with each permit issued.
13. When issued for burning in or near identified smoke sensitive locations or areas fire permits should detail wind directions which minimise nuisance
14. To avoid excessive smoke generation, fire permits should detail fuel moisture content parameters where this can be controlled (e.g. heap burning).

MANAGEMENT OF BUSHFIRE SUPPRESSION OPERATIONS

15. Incident Action Planning should give due consideration to the smoke management aspects of public safety including:
 - Management of special areas at high risk of adverse health impacts from high level smoke exposure (e.g. aged care facilities, hospitals, schools etc)

- Public safety management and service disruption in smoke affected transport corridors (e.g. airports, freeways, major roads, railways etc)
 - Safety and operational implications of smoke for other, concurrent firefighting operations, particularly those involving aircraft.
16. Smoke management should be included in the list of topics that are to be routinely covered during fire debriefs.

MANAGEMENT OF PRESCRIBED BURNING OPERATIONS

17. Fire control and safety requirements should not be compromised in accommodating smoke dispersal objectives.
18. Favourable weather conditions which provide for good smoke dispersal should be strategically utilised when conducting large scale burning operations.
19. The potential impact of smoke mitigation measures should be communicated to the public where necessary.
20. Wherever it is safe and practical to do so, burning should not be undertaken when:
- The likelihood of prolonged poor dispersion conditions is high;
 - The likelihood of smoke adversely affecting smoke sensitive location or area is high,
 - The likelihood of smoke adversely affecting significant community events is high, and
 - Co-ordinated Smoke Management System prescriptions or prescriptions via other evidence-based science risk management smoke decision support tools, are not likely to be met.

OPERATIONAL TECHNIQUES

21. Where safe to do so, lighting techniques and patterns that reduce the smouldering phase of combustion and minimise the burning of material during times of the day where atmospheric dispersion is poor should be used.
22. Where practical and safe to do so (e.g. small scale burns along road edges or property boundaries, and pile burns) aggressive mop-up procedures (e.g. maximum use of water and the breaking up or dousing of large fuel masses such as logs and stumps) should be applied so as to minimise the smouldering phase of combustion.
23. The use of backing fires (i.e. fires burning down slope and/or against the prevailing wind direction) is encouraged as an operational technique to maximise combustion and minimise smoke emissions.

24. Any person undertaking burning operations should whenever possible:

- take advantage of weather conditions which optimise smoke dispersion without compromising other fire management objectives,
- be aware of appropriate smoke impact mitigation strategies and tactics and the location of any nearby smoke sensitive areas,
- avoid the burning of noxious smoke producing debris (e.g. tyres, dumped rubbish etc.),
- avoid the burning of rubbish piles and backyard clippings.
- communicate with relevant stakeholders (e.g. inform neighbouring properties who may potentially be impacted by smoke)

REFERENCES

Australasian Fire and Emergency Service Authorities Council [AFAC] (2024)
Managing Bushfire Smoke Exposure (AFAC Publication No. 3062), AFAC,
Melbourne, Australia.

FURTHER READING: LEGISLATION AND POLICIES

Environmental Management and Pollution Control Act 1994 (TAS).

Environment Protection Policy (Air Quality) 2004 (TAS).

Tasmanian Air Quality Programs. Includes key legislation, which gives an overview of legislation and other smoke management activities.

- The above are available online from the Tasmania Environment Protection Authority website, <https://epa.tas.gov.au/environment/air/air-quality-legislation/tasmanian-air-quality-programs> (sourced 13/2/2025)

Backyard Burning. Includes answers to questions about the rules for backyard burning in Tasmania. Available online from the Tasmania Environment Protection Authority website, <https://epa.tas.gov.au/environment/air/backyard-burning> (sourced 13/2/2025)

Management of smoke from planned burning. Includes information about the Coordinated Smoke Management Strategy, near real-time air quality data for Tasmania, complaints about smoke from planned burning, and small-scale 'waste-removal' burning. Available online from the Tasmania Environment Protection

Authority website, <https://epa.tas.gov.au/environment/air/planned-burning#Small-scale'waste-removal'burning> (sourced 13/2/2025).

Fire Service Act 1979 (TAS). Available online from the Tasmanian Legislation website, <https://www.legislation.tas.gov.au> (sourced 13/2/2025).

Fuel Reduction Burning Smoke. Includes information about smoke and the Fuel Reduction Program. Available online from the Tasmania Fire Service website at <https://www.fire.tas.gov.au/Show?pagelD=colFuelReductionSmoke> (sourced 13/2/2025).

What's burning now. Includes information about all planned burns being conducted for the current burning season where information has been provided to the Tasmania Fire Service. Available online from the Tasmania Fire Service website at <https://www.fire.tas.gov.au/Show?pagelD=colWhatsBurningNow> (sourced 13/2/2025).

TasALERT. Includes information about current fires in Tasmania. Available online at <https://alert.tas.gov.au/?view=both> (sourced 13/2/2025).

Forest Practices Code 2020 (note Section F3 Minimisation of smoke, noise and dust). Available online from the Forest Practices Authority website https://fpa.tas.gov.au/planning/forest_practices_code (sourced 13/2/2025).

REVIEW

Review of this position paper shall be 5 years unless deemed otherwise by the SFMC.

Document Development History

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Distribution

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