



Smoke Management Policy

Management of smoke resulting from prescribed burning of vegetation

This is a statement of policy intent endorsed by the South Australian Country Fire Service. It is not enforceable at law.

Introduction

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”^{1,2}. In South Australia prescribed burning is also known as ‘burning off’. For the purpose of this policy this definition includes broadacre, windrow stubble, stubble dump and pile burning, as well as native vegetation.

Prescribed burning is an important tool for bushfire risk reduction and land management in South Australia and the production of smoke is an unavoidable and a natural process from all vegetation fire. However, smoke from prescribed burning may cause harm to surrounding smoke sensitive sites.

Smoke sensitive areas are defined for the purposes of this policy as any site or location that may experience adverse impacts from smoke exposure, including:

- affects the health of individuals,
- damage to crops,
- reduced visibility with the potential to cause unsafe vehicle movement, and
- cause general nuisance.

The initial focus area of this Policy is the management of the risk of smoke taint on grapevines. This is supported through the facilitation of communication between stakeholders to effectively manage stubble around vineyard growth and harvest stages. This Policy will be reviewed on a needs basis in consultation with stakeholders to encompass the range of smoke sensitive sites to reflect the unique requirements of industries.

Risk Reduction

Public and private land managers have statutory obligations to inhibit the outbreak, spread and threat of bushfire. Prescribed burning is an important tool in the management of these obligations and widely used for a range of purposes such as pasture and crop management, ecological

¹ <https://www.afac.com.au/docs/default-source/doctrine/bushfire-terminology.pdf>

² <https://knowledge.aidr.org.au/glossary/>



management, forest management, habitat protection and hazard reduction for life and property protection. Prescribed burning, also known in South Australia as burning off, is undertaken in accordance with statutory and best practice frameworks, including the permit to burn issuing process under the *Fire and Emergency Services Act 2005 (SA)* (FES Act) and the South Australian Country Fire Service 'Broad Acre Burning Code of Practice'. The intent of these frameworks is to support the safe and controlled application of fire in the landscape by landholders and managers.

This Policy provides additional guidance for the reduction of likelihood and severity of adverse effects of smoke from prescribed burning on sensitive areas.

Weather Conditions and Forecasts

The issuing of a permit to burn under the provisions of the FES Act supports the management of burning in weather conditions suitable for the effective control of a burn. However, additional considerations may be required for effective smoke management. Conditions such as fuel moisture levels should be considered to reduce production of smoke, forecast wind direction should be favourable as to carry smoke away from sensitive areas, and conditions such as a surface temperature inversion should be avoided to prevent smoke becoming trapped close to the ground. Supporting Guidelines will provide additional information on weather conditions appropriate for effective smoke management.

Impacts of Smoke from Burning Vegetation on Sensitive Areas

Smoke has a range of effects on human and animal health, visibility, and economic impacts. Areas and sites that may be sensitive to smoke include, but are not limited to, educational, health and aged care facilities, vineyards, residential areas, scenic areas, roads and airports.

Sensitivity to smoke generated by vegetation fires takes a number of forms, including:

- Health risk to the community from smoke exposure may aggravate respiratory conditions and cause eye irritations. Sites where health risks from smoke may be of concern include residential areas, aged care, hospitals, childcare facilities and schools.
- Safety risks may result from the reduction of visibility impacting on use of roads, airports and railways.
- Economic impacts may result from the inability to use sites (eg. tourist attractions, outdoor entertainment or recreation venues) or damage wine grapes from smoke taint.

Legislative Framework

Public and private land managers have statutory obligations under the FES Act to take reasonable steps to inhibit the outbreak, spread and threat of fire.

The basis for issuing permits to burn during the Fire Danger Season under the FES Act is confined to the management of bushfire risk.

Prescribed burning may also be subject to air quality controls in areas where local government

regulations have been linked to the *Environment Protection (Air Quality) Policy 2016 (SA)* within the *Environment Protection Act 1993 (SA)*.

Policy

The objective of this Policy is to reduce the risk of adverse impacts of smoke on the community and economic activities. With careful planning and effective engagement, prescribed burning can be undertaken alongside community and industry activities by applying the following principles:

- Acting in **good faith** to avoid or reduce the impact of smoke on the economic and community activities in the area where the burn is conducted.
- Utilising **best available information** to conduct burning under forecast favourable weather conditions that encourage the dispersion of smoke and wind directions do not carry smoke to sensitive sites. For further guidance refer to the appropriate guidelines.
- Encouraging **communication** between stakeholders to consider and plan to avoid or manage impacts of burning on sensitive sites.
- Supporting the **continuous improvement** of guidance and processes to facilitate access to and understanding of the impact of smoke on economic and community activities reflecting current research and community practice.

Implementation Practices

When planning a prescribed burn the following implementation practices should be considered.

1. All parties undertaking prescribed burning are asked to adhere to the principles of this Policy to minimise the adverse impacts of smoke on sensitive sites. When planning a prescribed burn the appropriate supporting guidelines should also be consulted prior to undertaking prescribed burning.
2. Areas sensitive to smoke, as defined in this policy and supporting guidelines, should be identified in the appropriate burn plans.
3. Where practical, alternative fuel management strategies (e.g. slashing, selective shrub removal, construction of radiation barriers, chipping, mulching and composting etc) should be considered where a high risk of adverse smoke impacts is likely.
4. Burning prescriptions appropriate for the time of day, fuel moisture content, forecast wind speed and direction should be applied to reduce the risk of bushfire smoke impacts on smoke sensitive areas.
5. To reduce the risk of bushfire smoke impacts on smoke sensitive areas forecast atmospheric stability should be included within operational burn plans.
6. To avoid excessive smoke generation, fuel moisture content should be considered in line with the appropriate guidelines.
7. Where safe to do so, lighting techniques and patterns that reduce the smouldering phase of combustion should be used to reduce the occurrence of smouldering.

Smoke Taint and Grapevines

Smoke exposure during sensitive growing periods could negatively impact the quality of grapes used in wine production resulting in significant economic impact. Ongoing research outcomes will

inform updates to the policy and smoke management guidance.

To reduce the threat of smoke affecting unharvested grapevine crops and identify risk periods, a formalised communication protocol has been established (facilitated by the Department of Primary Industries and Regions South Australia) where the status of harvested and unharvested grapevine crops is regularly shared.

This will enable landholders to consider knowledge of unharvested grapes when determining whether to undertake a prescribed burn (or burn off).

It is therefore recommended that to reduce the risk of unharvested grapevine crops being potentially affected by smoke generated from prescribed burning (or burn offs):

- A regularly updated status of unharvested grapevine crops is made available.
- Any broadacre burning is conducted at appropriate times (and when inversion conditions are not forecast) as specified in the supporting guidelines in grain growing districts.
- Before any burning is carried out, best available forecasting is utilised to verify that prevailing winds that will not carry the smoke towards nearby unharvested grapevines.

For recommended communication protocols please refer to the supporting guidelines.

Supporting Guidelines

Given the initial focus area of this Policy is the management of the risk of smoke taint on grapevines, it is presently supported by the following Guideline document produced by agreement between the relevant stakeholders to define appropriate operating procedures and conditions for the effective management of smoke appropriate for the protection of wine grape production.

These documents are listed below:

- Broadacre burn-off smoke management guideline, published by the Department of Primary Industries and Regions.

Authorisation

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Authorised by: Chief Officer, South Australian Country Fire Service

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