

Best Smoke Management Practices

Colorado Wildland Fire Projects

Following is a list of what APCD staff believe are the most commonly used best management practices for smoke from a prescribed fire. It is no coincidence that the list has much in common with the permit applications and conditions we use; we try to encourage and/or require best practices.

The subset of practices that works best for a particular situation varies a lot. No burn needs to or even theoretically could incorporate every single option listed. Also, all the potential necessary or best practices cannot be foreseen on a list like this.

Use alternative fuel treatments that do not involve burning. Examples: .

Invasive/exotic species management intended to reduce total site productivity

Livestock grazing

Timber sale

Firewood removal or sale

Other mechanical treatment, especially ones that remove at least some biomass from the site

Plan ahead for smoke.

Plan ahead the actions to take that will minimize the likelihood of unacceptable smoke impacts. Consider the project's potential nighttime and daytime smoke impacts to surrounding smoke sensitive areas. Maps of projected smoke flow and receptors, and a written plan, can be useful.

Impacts in a relatively more populated area affect more people and are more difficult to mitigate via immediate public outreach if they are severe. Because of this, be more conservative with smoke management where population is dense.

In advance, create a contingency plan to implement if unacceptable smoke impacts do occur.

Address the project's potential smoke effects on road or other transportation safety.

Maintain access to a dozer or other heavy equipment and operator(s) that could be in use on-site quickly.

Share information.

Undertake public outreach a few months to a week in advance. Provide the name and number of a person that the public may call about the burn.

Provide an opportunity for public comment about how you plan to manage your smoke well in advance.

Notify the public at least 24 hours but no more than 120 hours before planned ignition. Include contact information.

Notify both state and local air quality agencies shortly before you light.

Provide feedback to the NWS about the spot weather forecast after each day's burning.

Share your smoke observations and other aspects of your smoke management widely among interested practitioners, so that all can learn from it.

Contribute information about your burn to air pollution source inventories.

Adhere to laws and regulations.

Do not burn during publicly announced air pollution emergencies or alerts in the area of the proposed burn, or when a voluntary or mandatory 'no burn day' or an 'ozone action alert day' is in effect for the area.

Adhere to the conditions of any applicable smoke permit(s).

In other ways also comply with state air pollution control requirements, and with any pertinent local laws, rules, regulations, or ordinances.

Burn during favorable meteorological conditions.

Build piles of a size that will burn down before dusk.

Consult in advance with the National Weather Service (NWS). Give NWS on-site weather observations for at least the three days before each day of ignition.

Include a dedicated incident meteorologist in the burn organization.

Burn only when ventilation is favorable, or (for piles) when it is snowing.

End ignition early in the day.

Redistribute emissions:

Constrain wind direction.

Burn each site at least as often as its historically typical fire return interval.

Use aerial ignition. (also may increase combustion efficiency)

Split up a day's work of burning piles in a way that only some are producing smoke at any one time.

Burn at one project on at most 2 days in any 7-day period, or limit additional burning to small areas per day.

Do not burn on Friday - Monday of a federal holiday weekend or any other time of high recreational use.

Limit the number of acres or piles burned in one day.

Reduce consumption of fuels and/or reduce total burn area.

Burn before logging debris or other activity fuel cures, with intent to leave it unburned for an indefinite duration.

Burn a mosaic.

Burn when fuel moisture of large-diameter logs duff is either so high that little will ignite, or so low that little will remain after flaming combustion.

Burn piles instead of broadcast burn. (also increases combustion efficiency)

Mop up. Do it early. (also increases combustion efficiency)

Increase combustion efficiency:

To burn some or all of the fuel, use an air curtain destructor.

Cover a pile in a way that protects a small part of it from snowfall or rain, for faster ignition.

To minimize included dirt, build piles with a mechanical rake or grapple no blade, or better yet, build them by hand.

Cure piles thoroughly before ignition.

Use a leaf blower to speed ignition and/or increase consumption of piles.

Chunk piles.

For broadcast, use only a backing fire ignition pattern.

Monitor smoke impacts:

Monitor test fires for indications of potential for unexpected smoke impacts. Shut down or otherwise change your plans as needed.

Undertake, document, and mitigate as needed in response to visual monitoring of smoke.

Supplement visual monitoring with particulate measuring instruments.

If unhealthful or excessive smoke impacts develop, do as much as is reasonably feasible to shut down the fire or otherwise curtail smoke production.

Suggestions for changes to this list or other feedback is welcome; [contact us](#).