

WILDFIRE FUELS MANAGEMENT AND SLASH DISPOSAL: *WHY SHOULD AIR CURTAIN BURNERS BE USED*

The Problem

Vegetation management, especially the removal of fuels (brush, dead trees and branches, etc.) in the wildland urban interface must be addressed seriously by public officials and homeowner associations to help protect dwellings from wildfires by creating and maintaining “defensible space” around buildings. On a broader base, fuels reduction programs also address the removal of natural fire fuels from the deep forests themselves and the building of fire breaks.

Resulting from (unfounded) concerns of environmentalists, many forest areas have been purposely left unattended over the last several decades during which time undergrowth has developed into “ladder fuels”, brush and small trees high enough to cause a fire to ignite the forest canopy. Wildfires in such “un-natural” environments then rapidly develop into the kind of devastating forest fires we continue to experience and have been experiencing in recent years in California, Washington, Montana, Colorado and other forest areas.

Natural wildfires used to occur frequently, never allowing the underbrush to grow so tall as to catch the tree tops on fire; the forest has survived for hundreds of years, even though the tree trunks were scorched time and again. Some trees even need naturally occurring fire for their seeds to germinate.

The Solution

The solution is forest fuels management, and the Federal Government is now allocating millions of dollars each year for corrective fuels reduction programs nationwide: the removal and disposal of the forest fuels.



Traditional “prescribed fires” are the closest method to natural wild-fires, and many foresters tend to favor this cost effective technique where safe and practical. As they have been, however, the cause for major devastating fires that have run out of control, such as the Cerro Grande Wildfire at Los Alamos in New Mexico a few years ago, more focus is placed on mechanized fuels reduction, primarily in the urban wildland intermix and other sensitive forest areas. The slash is first collected and then disposed.

Air Burners, LLC equipment is playing an ever increasing role as the preferred method for the disposal of the collected and accumulated slash and other wood waste from the fuels reduction efforts described above and related wood waste collection activities.

In the past, such slash was hauled away to landfills or chipped and scattered on the forest floor at quite considerable expense, not to mention the possible long-term detrimental environmental impact on the forest floor flora and fauna of that approach, if used excessively.

Landfills are scarce and very expensive and should be limited to waste streams for which there are no simple alternate disposal options.

Forest scientists have determined that there is a limit to the amount of wood chips a forest floor can safely absorb, before the ecosystem is adversely affected by “bio-concentration”. Unlike natural pine straw, man-made mulch does not allow sufficient aeration of the forest floor. This can cause problems, for example, with the trunks and root systems of trees and the forest floor’s ecosystem in general, upsetting overall forest health. Forest services therefore limit the amount of chips that can be deposited as a forest ground cover, and in many critical areas, that limit has been reached, thereby excluding chipping as a fuels disposal option in that section of the forest. Chips that reach a level higher than 3-4 inches tend to go septic at the bottom, resulting in the disturbance of the ecosystem below it, which can have

far reaching consequences for animal life in and on the ground and the general vegetation that constitutes the forest, trees and all else.

If fire breaks are built and the vegetation that needs be removed is mulched or "masticated", it must be observed that the mulch layer will conduct fire for quite some time until decomposed, and this method should never be employed close to fire season or where the fire danger is high.

Using forest slash as biomass fuel in co-generation plants that produce electricity is a noble approach and is certainly desirable, but almost always impractical and not cost effective in the overall scope of things. The required multiple grinding of the waste wood to exacting specifications to be accepted by the co-gen plants and the attendant transportation needs are very expensive, and unless offset by subsidies and tax credits, make the commercial viability doubtful in most cases.

Often not entered into the equation is the fact that once ground, the biomass (chips) can only be stored a limited time in the open until they naturally go sour or "septic" from internal decomposition. Because the chip piles or usually higher than a few feet, the added danger of spontaneous combustion from the oxygen starved decomposing chips toward the bottom of the pile where the weight pressure is greatest add to the biomass facility manager's concerns. These mulch piles or then typically hauled to a landfill at substantial cost, negating much of the "green" accomplishments of the enterprise.

Giving away chips as mulch and useful wood as firewood to the public for private use is equally praiseworthy, but has proven to be no solution on a larger scale. In most cases, the wood waste chipped at municipal landfills is of inferior quality and frequently pest-ridden and intermixed with tainted wood and other rubbish from curb-side pickup operations, and the resultant mulch is not very desirable to home owners, if not even unsafe. The accumulated mulch pile is usually



transferred into the landfill, before it goes septic or starts a mulch fire and the associated cost ignored by the landfill operator.

Burning the wood slash and debris (of course, before chipping or grinding!) is almost always the only plausible and affordable way out. Traditional pile burning ("open Burning") of the collected wood waste not only causes public health concerns from smoke and other emissions, but in many parts of the country it is severely limited, if not prohibited. The general public's perception of this method has recently sunken to the level of unacceptability.

This is where Air Burners, LLC air curtain burner machines come into play and this is where they shine. They combine the most cost efficient and practical disposal technique of naturally burning the wood debris with acceptable air quality performance (which is regulated by the EPA and local governments), fast throughput and a high degree of "fire safety" coupled with safe and simple equipment operation. Furthermore, their use in the forest environment helps protect the ecosystem by obviating excessive truck traffic related to slash hauling and does away with the operation of expensive chippers and grinders altogether. Volume reduction is close to 99%, and the resultant ashes are safe and can be applied to the land in the forest or be beneficially re-used as a soil amendment.

Air Burners, LLC systems are being or have been used specifically for forest fire mitigation projects focusing on forest fuels reduction and post-wildfire rehabilitation work in many States, such as California, Florida, Colorado, Montana, Idaho, Oregon, Arizona, New Mexico, Alaska, West Virginia, Minnesota, Utah, Texas and also in Canada, the United Kingdom and South Africa. Several Air Burners systems were actually funded entirely by USDA Western States Wildland-Urban Interface Grants and others were funded by the Bureau of Indian Affairs and the Department of Homeland Security.



Air Burners refractory walled fireboxes have a design life of at least 8 to 10 years, making them a prudent capital acquisition. Depending on the model, direct operating costs are under \$10.00 per hour based on 2008 Diesel fuel cost, and operation of the machines is simple and safe. Ancillary equipment for loading the fire boxes can range from excavators to dozers and even Bobcats, equipment that usually is on hand already with competent operators. Depending on the model chosen, Air Burners' fire boxes can be transported on tilt-bed trailers, low-boys, drop decks, etc., or the custom slide-axle trailers from Landoll that feature self-loading and unloading of all fireboxes.

All Air Burners, LLC air curtain burners are shipped completely assembled ready for immediate use. There is no need for set-up or tear down at all. The fireboxes are designed to be dragged on their skids and they have no bottoms, as they are placed directly onto the ground.

The cost range of the line of Air Burner's standard air curtain burners is \$30,000 to \$120,000, and all machines are manufactured in the USA by Air Burners, LLC in Palm City, Florida.

New products to be introduced in 2008 will include S-200 and S-100 Series fireboxes adapted so they can be loaded and unloaded by standard roll-off trucks, such as are manufactured by Galbreath Trucks and used throughout the US for many years. This will further simplify the deployment of fireboxes to the landings in the deep forest and the collection sites in the wildland-urban interface zone. One firebox could then also be easily shared by several communal entities and transported by equipment that is usually already available commercially in the area.

For more information, photos and videos, please, log on to www.airburners.com.

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