



Air Pollution Control District
San Luis Obispo County

Air Curtain Incinerators & Carbonizer Use, Benefits, and Permitting

23 Sep 2021 – SCC BCC

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OUTLINE

- Tree mortality
- What are ACIs & carbonizers?
- ACI permitting history
- CAPCOA summary of carbonizer permitting
- Conservation/kiln burn emission test proposal

Pacific Southwest Research Station

Research Topics Tree Mortality

Tree Mortality in California

Since 2010, an estimated 129 million trees have died in California's national forests due to conditions caused by climate change, unprecedented drought, bark beetle infestation and high tree densities. Most visible and immediately concerning are the high number of hazard trees in and around communities and campgrounds and along roads, trails and power lines.

**Pacific Southwest
Research Station**
800 Buchanan Street
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Shadow of the Giants National Recreation Trail: Fire then 100mph winds. Apr 2021



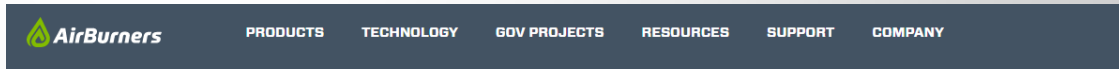
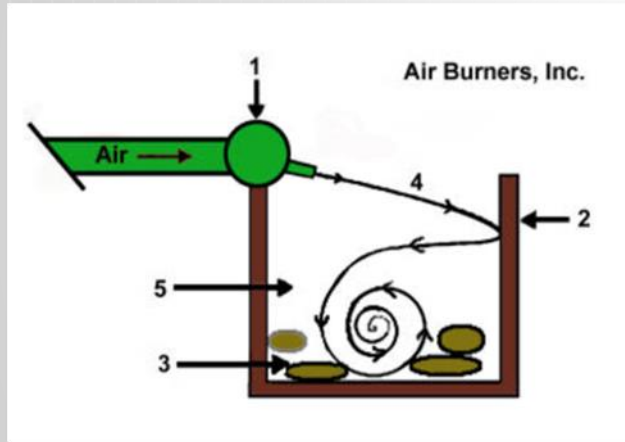
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Nelder Grove east of Oakhurst: Drought then 100mph winds. Apr 2021



Bark beetle tree mortality contributed Thomas and Woolsey Fires

AIR CURTAIN INCINERATORS

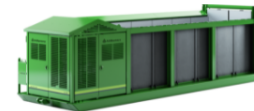


FireBox



FireBox 100 Series

We offer two choices in the 100 series, the S116 and S119. The 100 series machines are designed to fit into high cube shipping containers to ease transport around the world. These machines arrive fully assembled and tested, ready for immediate operation.



FireBox 200 Series

We offer two choices in the 200 series, the S220 and S223. They are the largest machines we can build for over-the-road travel without oversize load permits. They are shipped overseas on flat racks. These machines arrive fully assembled and tested, ready for immediate operation.



FireBox 300 Series

We offer two choices in the 300 series, the S327 and S330. They are the largest machines we can build to be shipped from the factory fully assembled. They are shipped overseas on flat racks. These machines will require over-size load permits to travel on most highways. They arrive fully assembled and tested, ready for immediate operation.

CARBONIZER



Augers and quenching system.

ACI

Mobility: Skid
Engine (hp): 49/49/75
Feedstock: Wood = waste
ThroughPut: 4/8/12 tons/hr
Biproduct: Ash
Emissions: Minimal smoke
Climate: < Black carbon
> CO₂

CARBONIZER

Track mounted
148
Wood = process ingredient
15 – 20 tons/hr (claimed)
Biochar – Stable, sequestered carbon
Minimal smoke
< Black carbon
< CO₂: Saves 15-20% of feedstock's carbon

ACI

CARBONIZER

Federal Title V Permit?

Yes; currently

No; not tested

Local Air Permitting?

Each Air District may have different permit approaches such as:

- Ag burn permit
- Engine permit
- Process permit
 - ACIs: Known criteria pollutant EFs
 - Carbonizer: Tigercat may source test soon

Placer County APCD – Presenting theoretical permitting options

ACI PERMITTING HISTORY

- ▶ EPA Title V Permit: CFR Title 40 Subpart
 - ▶ EEEE - Other Solid Waste Incineration Units (OSWI)
 - ▶ ACI exemptions: Rural Alaska & temporary disaster recovery
 - ▶ ACIs burning 100% clean wood waste, lumber, and yard wastes have these Title V permit requirements:
 - ▶ Opacity limits
 - ▶ Initial & annual Method 9 testing
 - ▶ Recordkeeping
 - ▶ Title V cumbersome for ACI use



ACI PERMITTING HISTORY – Cont.

▶ Title V Permitting Solutions

- ▶ EPA issued [Federal Register Notice 54187](#)
 - ▶ Proposed regulatory changes to OSWI
 - ▶ EPA's new interpretation: ACI's exclusively combusting 100% wood waste, clean lumber and/or yard waste are not considered solid waste incineration units under CAA Section 129(g)(1)
 - ▶ Therefore: This use of ACIs do not need a Title V permit unless:
 - ▶ Other Title V requirements are triggered
 - ▶ Court extended deadline for final OSWI rule to 31 Oct 2021
- ▶ CAPCOA has summarized potential ACI Title V permit exemption options if EPA proposal does not take effect

▶ Air District permitting still needed

CARBONIZER PERMITTING

▶ Tigercat

- ▶ Applied with EPA's OLEM for determination on non-applicability of Title V permitting for carbonizer
 - ▶ If: Use clean wood for biochar production
 - ▶ Then: Wood is "process ingredient," not solid waste
 - ▶ OSWI is not applicable
 - ▶ Other Title V requirements could be triggered
 - ▶ Air District permitting needed
 - ▶ Emission factors?



Proposal to Quantify Life Cycle GHG & Criteria Pollutant Reductions and Carbon Sequestration Potential from Low Emissions Agricultural Burn Techniques Relative to Traditional Open Burning



Center for
**Sustaining Agriculture
& Natural Resources**
WASHINGTON STATE UNIVERSITY



Significant smoke emissions are common with traditional bottom-lit pile/open burns.



Missoula Fire Lab's Combustion Chamber floor and sampling hood that will be used for this study's emissions testing in the laboratory.



Minimal smoke from top-lit conservation burn.



Example of a clean burn with "Ring of Fire" kiln.
Photo from Wilson Biochar Associates



Missoula Fire Lab and Sonoma Ecology Center will do field tests using a similar emissions test process (shown above: field testing at CALFIRE Alta Forestry & Fire Protection Station, CA).¹

Draft Proposal:
<https://drive.google.com/file/d/14i4z9PzARVGVdtdjl1RxzEvY2-5Pyu18/view>

Thank you



Questions?