

Air Curtain Destructors

General Description

- ❖ Air curtain destructors are used to burn wood and wood slash harvested from operating areas to support fire mitigation efforts. A portion of the wood is mulched, offered to local residents for firewood, or sold to lumber mills. The remaining material is burned in the destructors.
- ❖ The design and operation of the destructors are intended to provide complete combustion of wood while minimizing emissions of smoke and particulate matter.
- ❖ Combustion is accomplished by first using a fire starter, followed by introducing high-velocity air that forms a "curtain" over the fire. Continued air flow over-oxygenates the fire, keeping combustion temperatures high and providing a cleaner, more complete burn.
- ❖ Two types of destructors are used at Los Alamos National Laboratory (the Laboratory) and each type is portable. The T-Series trench burner is powered by a 125-horsepower diesel engine, and is used in combination with an earthen pit or trench made to function as the firebox. The S-Series model is powered by a 76-horsepower diesel engine and uses a refractory walled enclosure as the firebox.
- ❖ The Laboratory is proposing fuel loading rate limits (32,000 tons wood/year) to reduce air emissions from its operations.

Applicable Requirements

- ❖ The air curtain destructors are regulated under a federal Environmental Protection Agency (EPA) New Source Performance Standard (NSPS). The applicable NSPS is "40 CFR Part 60, Subpart CCCC," which has standards for new commercial and industrial solid waste incineration units.
- ❖ Air curtain destructors that burn only wood and yard waste are exempt from most requirements under Subpart CCCC, which are primarily intended for other types of solid waste combustors.
- ❖ The air curtain destructors are also regulated under an open-burn permit issued by the New Mexico Environment Department (NMED).
- ❖ Emissions limits: Under the NSPS, opacity is limited to 10% during normal operation, and 35% during startup and within the first 30 minutes of operation.
- ❖ Operational requirements: Only wood and yard waste may be burned. Fuel loading rates for each unit shall not exceed more than 200 tons wood/day, or 30,000 tons wood/year (Laboratory proposed). Fuel loading rates for all three units combined shall not exceed 32,000 tons wood/year (Laboratory proposed).

Proposed Monitoring, Recordkeeping, and Reporting

- ❖ Monitoring: Conduct an annual opacity test on each unit.
- ❖ Recordkeeping: Maintain a daily log that shows location, unit identification, type and quantity of fire starter, date and times of burn, description and quantity of fuel, diesel fuel consumed, and meteorological conditions. Keep records of opacity tests and reports, and the occurrence and duration of any excess emissions from startup or shutdown activities, or from malfunction.
- ❖ Reporting: Report opacity test results every 12 months. Submit a semi-annual emissions report and monitoring report to the NMED.

Comparison of Air Curtain Destructors and LANL Emissions

