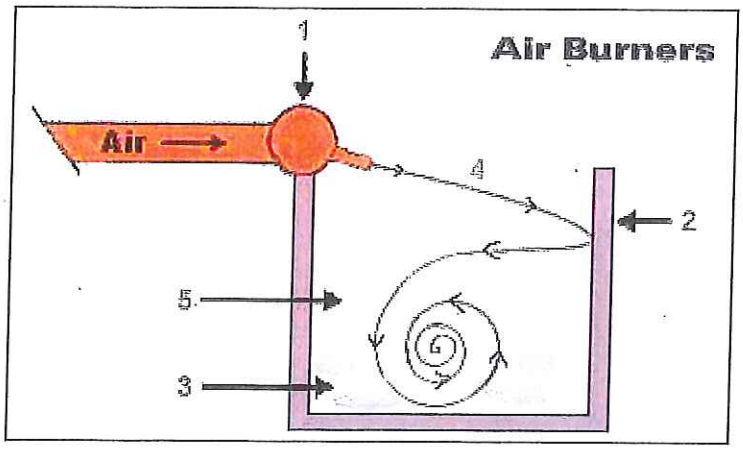
T-350 Trench Burner

PRINCIPLE OF AIR CURTAIN INCINERATION

The operating principle of the *air curtain* within an incineration device lies in the introduction of controlled high velocity air across the upper portion of the combustion chamber in which clean wood waste is loaded. The powerful curtain of air created in this process traps unburned particles under the curtain in the high temperature zone where temperatures can reach 1,832° F (1,000° C). The increased combustion time and turbulence results in a reburn and more complete combustion of the loaded waste. The escaping particulates are reduced to near their base elements. The resulting emissions from a properly operating air curtain burner will have an opacity rate below 10 percent during most steady state operations.

For proper operation, the air curtain machine has to be designed to provide a curtain of air over the fire that has a mass flow and velocity that are in balance with the potential mass flow and velocity of the burning wood waste. If the curtain velocity is too high the box or trench can become over pressurized and over agitated. The higher pressure will lift the curtain and cause it to become ineffective. The over agitation will cause embers and ash to be blown out of the box or pit past the ineffective curtain. If the mass flow of the curtain is too low then the unburned particles (smoke) will penetrate the curtain on the high velocity of the hot gasses being generated from the burning wood.



1. Air curtain machine manifold and nozzles directing high velocity air flow into refractory lined box or earthen trench.

1. Earthen wall as used with the T-Series machines.

2. Material to be burned.

3. Initial air flow forms a high velocity "curtain" over fire.

4. Continued air flow over-oxygenates fire keeping temperatures high. Higher temperatures provide cleaner burn and more complete burn.