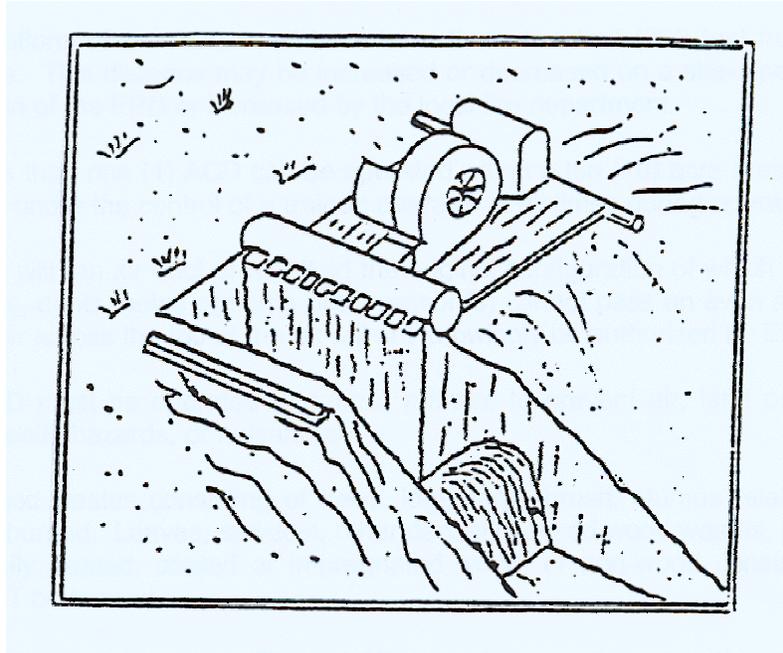


Air Curtain Destructor
Operating Guide and Procedures



Prepared by
The Mountain District-Atlanta Office
Environmental Protection Division

Air Curtain Destructor Operating Guide

The air curtain destructor (ACD) is a forced air pit incinerator, which may be operated at random locations for the purpose of the disposal of waste vegetative debris provided the following requirements are met:

1. All local ordinances and regulations regarding use of an air curtain destructor must be adhered to at all times. This includes checking with the responsible fire department and/or Georgia Forestry office to determine if a fire is authorized.
2. The locations of the ACD must be a least three hundred (300) feet from any occupied structure. This distance may be increased or decreased on a site- specific basis at the discretion of the EPD or increased by the local fire department.
3. No more than one (1) ACD can be operated within a ten (10) acre area at one time and must be under the control of a trained operator at all times during operation.
4. An ACD with an air duct or manifold the original configuration of which has been altered by bends, dents, holes or some other reason(s) cannot pass an even and non-turbulent flow of air across the top of the pit will not knowingly be authorized by EPD.
5. The ACD must be operated in such a manner to prevent air, land or water pollution, safety/health hazards, or nuisances.
6. Only wood wastes consisting of trees, logs, large brush, stumps relatively free of soil may be burned. Leaves, sawdust, other densely packed wood wastes, paper (any type), chemically treated, coated or impregnated wood, or non-wood construction materials CANNOT be burned.
7. Under no circumstances will an ACD operator use tires or other rubber products, plastics, heavy oils or asphalt base or impregnated materials to start or maintain an ACD operation.
8. The amount of dirt/soil on or in the material being burned must be minimized.
9. No smoke emissions exceeding forty (40) percent opacity may be produced during operation except for a reasonable period during ignition and charging of the pit.
10. When the pit is cleared of ash, airborne particulate is to be minimized by wetting or mixing the ashes with dirt.
11. No burning is authorized during the night nor on Sundays or holidays, except in unusual situations.
12. Prevailing winds during operation must be away from the major portion of residential population.
13. No burning when there is fog or rain, and usually for at least one (1) day following the passage of a cold front.
14. During an air pollution episode, such as an air pollution alert/warning/emergency declared by proper authorities, the ACD is not to be operated. An air pollution episode occurs when the air contaminant concentration in an areas is great enough to cause danger to public health.

Air Curtain Destructor Operating Procedures

1. Site Location and Preparation

Select a site which will likely have a low water table, can be easily excavated and will be no less than 300 feet from occupied structures.

2. Pit Preparation

Excavate the pit (Figure 2) using either a front-end loader or backhoe. The pit dimensions are 8 feet wide x 12-15 feet deep x 15-30 feet long (the length is dependent upon the length of the ACD manifold). In no case should the 8 feet width be exceeded. The pit must be excavated with at least three (3) vertical sides in soil capable of maintaining vertical walls of 15 feet depth without failure. Additional wall support may be necessary. Caution must be exercised to insure that walls are not undercut during excavations. If a front-end loader is used for the excavation, the end used for travel must be filled in with dirt beginning at the end of the manifold and filling up ramp.

3. Air Curtain Destructor (ACD) Set Up

Using a small berm of soil (1 to 1 ½ feet high) place the Manifold (Plenum and nozzles) such that the manifold is properly supported and the space between the Manifold and ground is sealed (Figures 1 & 2). Rotate the Manifold until the air curtain will be directed at an imaginary horizontal line 24 to 36 inches below the top of the opposite wall. Slide the skid containing the blower and motor into place and connect to Manifold.

4. Ignition Procedures (Refer to Figures 3, 4 and 5)

Load the pit half full with homogeneous mixture of trees, logs and large brush. Douse the wood with ½ gallon of fuel oil putting the majority of the fuel oil on the wood at the front center side of the pit. Ignite the wood at the same point. Allow sufficient time for the fire to take hold before introducing any air from the ACD. As the fire grows in intensity, gradually bring the blower up to optimum speed (generally between 1,100 and 1,400 RPM, depending on the size, type and make of the blower).

CAUTION: Do not use tires or highly volatile solvents such as mineral spirits, gasoline, etc. for ignition.

NOTE: Only wood wastes consisting of trees, logs, large brush and stumps relatively free of soil may be burned. Leaves, sawdust, other densely packed wood wastes, paper (any type), chemically treated, coated or impregnated wood CANNOT be burned.

5. Loading Procedure

Once the fire reaches full intensity, successive intermittent charging may begin.

The intervals between charges may be determined by observing the burning rate. Generally, if the fire is kept at its maximum intensity, it will keep one (1) man, operating a front-end loader or clamshell bucket busy constantly. The charges should be alternated between light and heavy material. The material should be charged toward the rear of the pit under the ACD manifold.

The pit should not be overloaded, that is, the material should not be piled up so high that it will protrude above the air curtain. Also, no materials should extend outside the boundaries of the pit and air curtain where sufficient air is not available from the nozzles.

6. Maintenance and Safety Requirements

Ash removal is required in order to maintain efficient and proper combustion. Ashes should not be allowed to build up in the pit to higher than 1/3 the pit depth or to the point where they begin to impede combustion and are blown out of the pit, whichever occurs first.

If spalling, “cave off”, of the pit walls occurs during operation, a new pit must be constructed and the existing pit filled with soil.

Any accumulation of water in the pit must be removed prior to operation.

For reasons of public safety, a fence or barrier surrounding the combustion pit is recommended.

A “stop guide” or restraint must be provided at the loading side of the pit in order to keep the loader from getting too close to the pit during the charging operation.

Figure 1 - Site Preparation

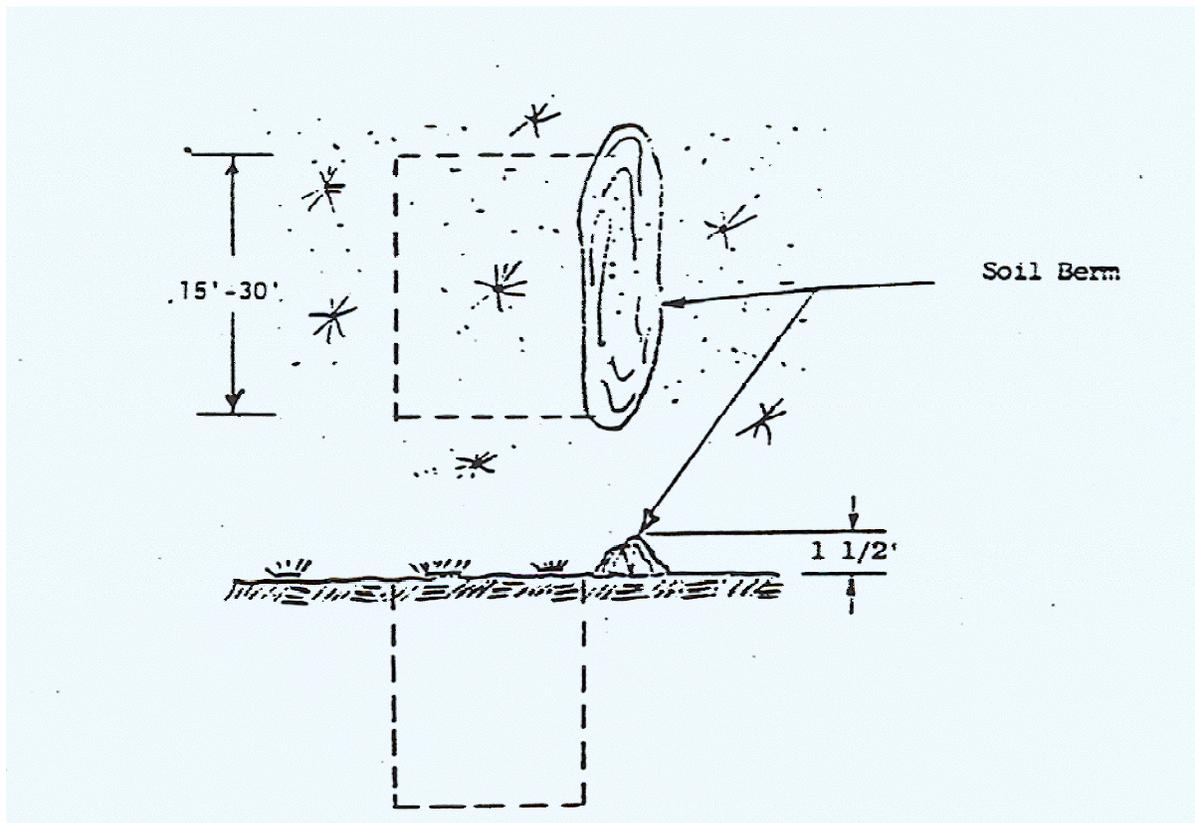


Figure 2 - Air Curtain Destructor (ACD) Set up

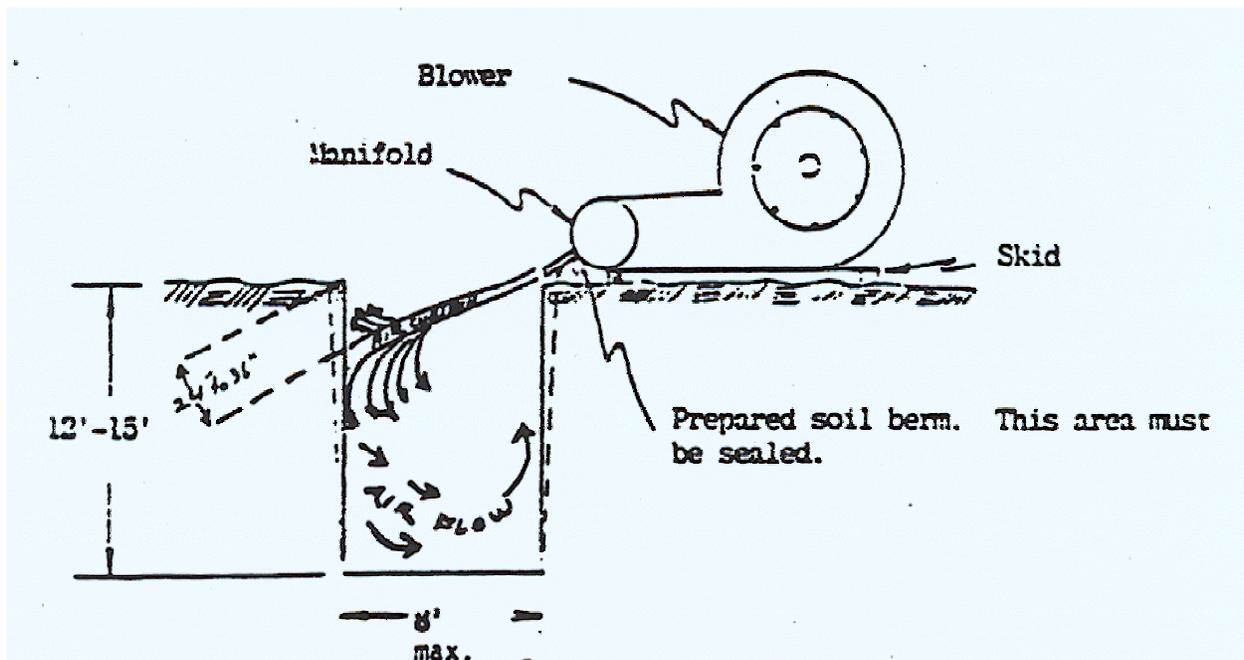


Figure 3 - Cross-section of Pit and ACD

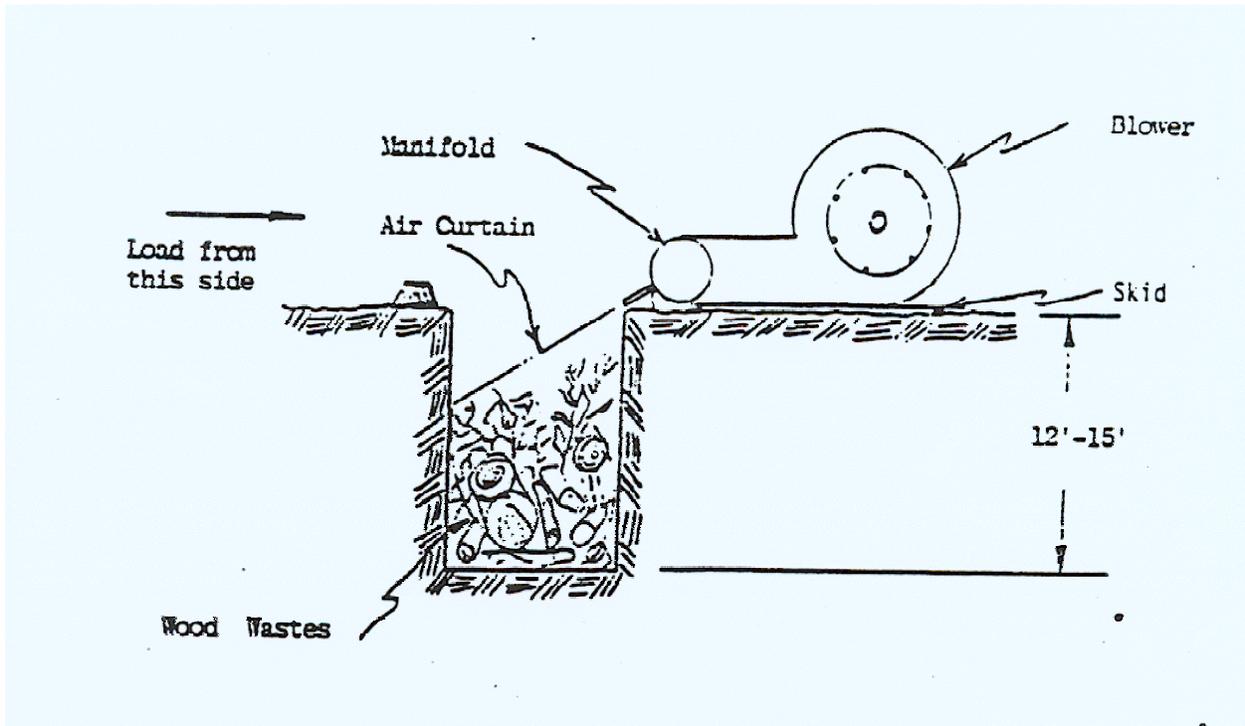


Figure 4 - Profile of Pit and ACD

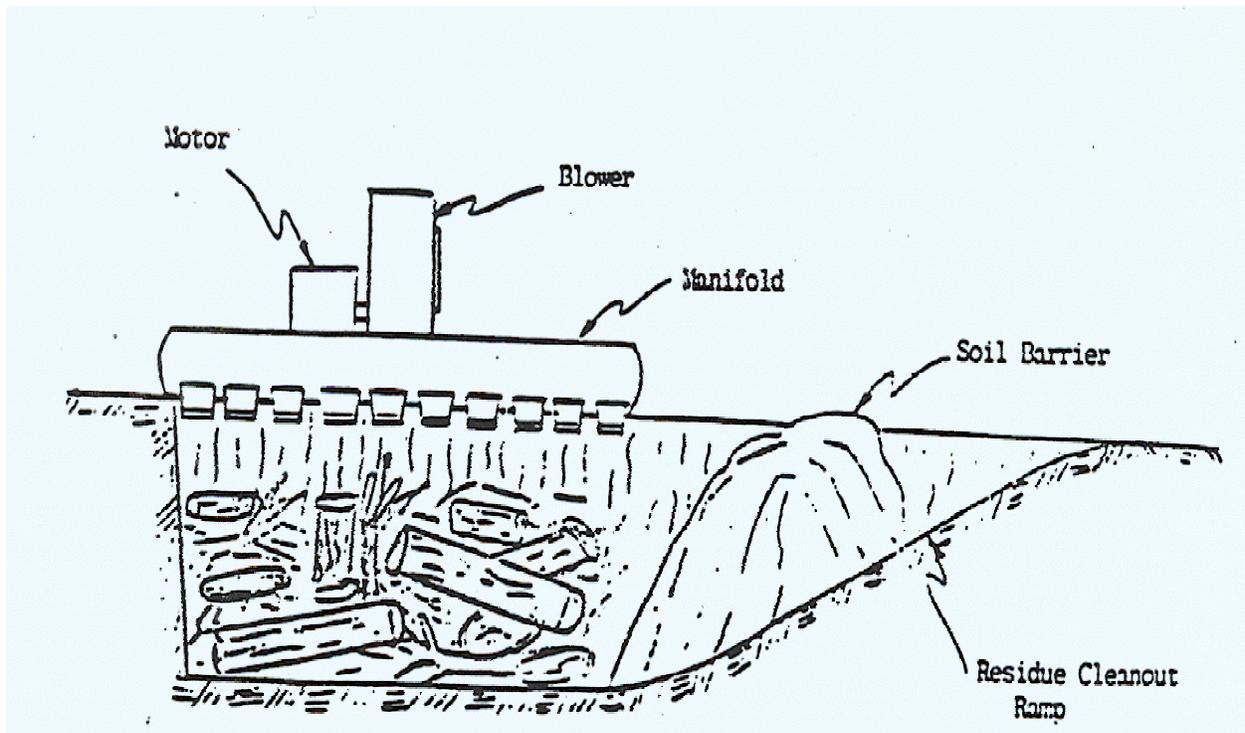


Figure 5 - Plan View of Pit and ACD

