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MANAGEMENT OF RESERVOIR CLEARING AND CLEANING DEBRIS.(U)
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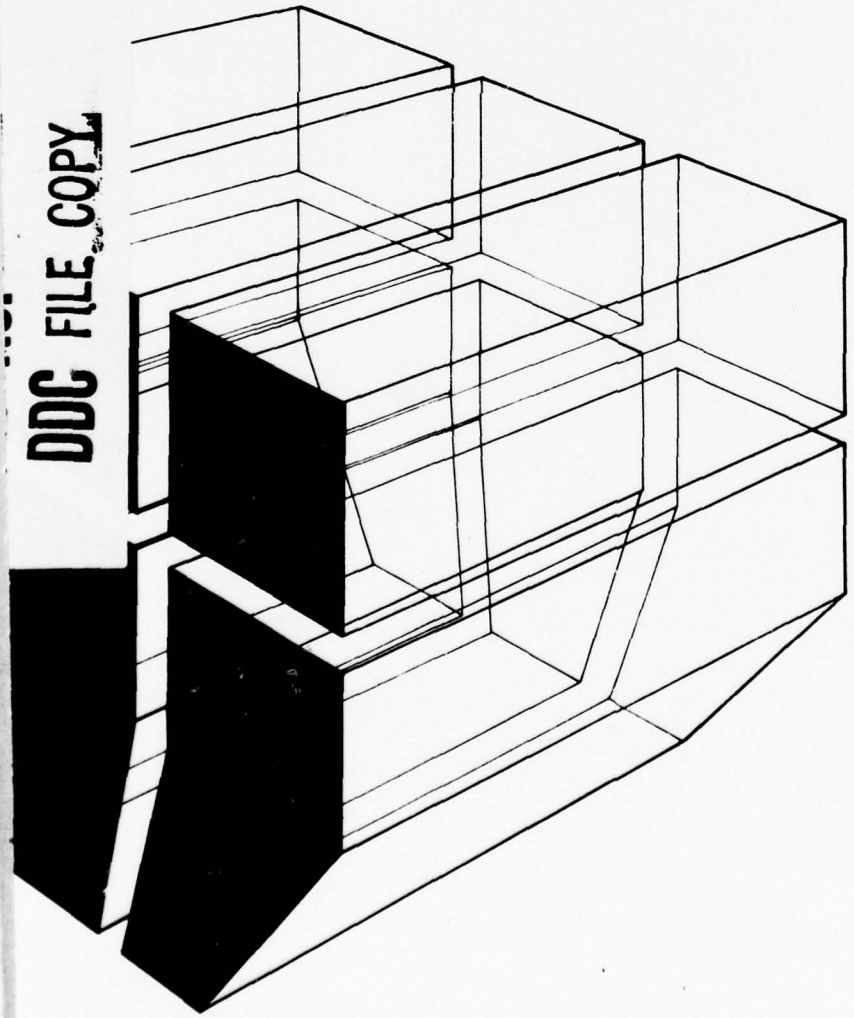
July 1978

MANAGEMENT OF RESERVOIR CLEARING AND CLEANING DEBRIS



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This report provides information on several methods or combinations of methods to dispose of wood debris from clearing and cleaning operations. The basic alternatives include but are not limited to selling, using, burying, and burning.

According to the results of the study, there is no universal disposal method that can be used economically at all dam sites to dispose of wood debris and be environmentally compatible. Each site must be considered →(over)

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individually, using social, economic, and physical factors to determine the most appropriate disposal method for the location.

Site-specific data obtained from interviews, site visits, questionnaires, and literature surveys were used to develop lists of factors deemed essential for evaluating methods to dispose of clearing and cleaning debris at dam projects. Corps of Engineers personnel can use these lists to evaluate their individual situations.

FOREWORD

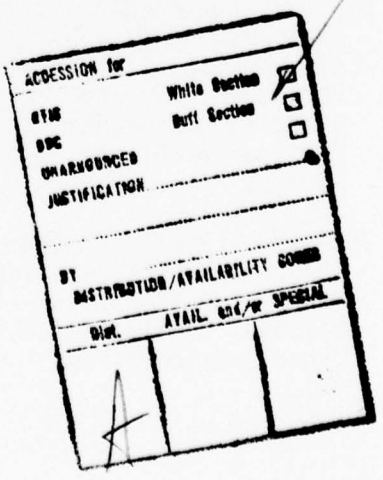
This study was performed for the Directorate of Civil Works, Office of the Chief of Engineers (OCE), under Program Title (Level II) "Environmental Impact," CWIS Work Unit 31055, "Disposal of Solid Wastes from Reservoir Clearing and Cleaning." The OCE Technical Monitor is Mr. John B. Bushman, DAEN-CWP-P; the Assistant Technical Monitor is Mr. John S. Robertson, DAEN-CWE-E.

The work was performed by the Environmental Division (EN), U.S. Army Construction Engineering Research Laboratory (CERL). CERL personnel directly involved in the study were S. E. Kloster, W. J. Mikucki, B. A. Donahue, J. P. Woodyard, S. A. Hathaway, and R. L. Baker.

Texas Tech University, Lubbock, TX, provided guidance and information on state environmental legislation related to reservoir clearing and cleaning debris disposal. University personnel directly involved in this investigation were Dr. Lloyd V. Urban, Dr. Bruce Kramer, Dr. George A. Whetstone, and Mr. Glenn D. West.

Several hundred Corps personnel at project sites and District and Division offices provided information for this study. Their time and assistance are greatly appreciated.

Dr. R. K. Jain is Chief of EN. COL J. E. Hays is Commander and Director of CERL, and Dr. L. R. Shaffer is Technical Director.



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MANAGEMENT OF RESERVOIR
CLEARING AND CLEANING DEBRIS

1 INTRODUCTION

Background

In 1970, the Corps of Engineers (COE) developed approximately 154,000 acres (61 600 hectares) of land for water impoundment projects.[1] Clearing operations were conducted on approximately 42,000 acres (16 800 hectares) of forested land and generated approximately 2.2 million tons (2 million metric tons) of wood debris.[2]

Projected estimates indicate that the COE will develop approximately 116,000 acres (46 400 hectares) of land for water impoundment projects in 1980.[3] An estimated 36,000 acres (14 400 hectares) of forested land will be cleared at these projects, generating about 2.4 million tons (2.2 million metric tons) of wood debris.[4]

The COE will clear *less* forested land in 1980 than in 1970 (6000 acres [2400 hectares]), but will have to dispose of *more* vegetative debris (0.2 million tons [0.18 million metric tons]), since the U.S. Forest Service has predicted that there will be more vegetation per unit area of forested land in 1980.[5]

In the past, contractors at COE dam projects used the least expensive method to dispose of wood debris generated by clearing operations. Recent environmental laws have made the disposal of clearing debris more difficult; it is no longer solely a matter of economics.

In 1974, a questionnaire was sent to 415 reservoir managers, project engineers, resource managers, and lockmasters in the 10 continental

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[1] *Solid Waste Management in Land Clearing and Logging Operations*, Appendix B, Table B-6 (U.S. Environmental Protection Agency, Office of Solid Waste Management Programs, October 1973).
[2] S. E. Kloster and W. J. Mikucki, *Disposal of Clearing Debris*, Interim Report N-16/ADA036675, Appendix A (U.S. Army Construction Engineering Research Laboratory [CERL], February 1977).
[3] *Solid Waste Management in Land Clearing and Logging Operations*, Table B-7.
[4] Kloster and Mikucki, Appendix A.
[5] *Solid Waste Management in Land Clearing and Logging Operations*, p 23.

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Divisions of the COE.* The results indicated that an estimated $1.8 million is spent annually on debris problems at COE impoundments: $1.4 million for removal operations, and $0.4 million for disposal operations.

Several respondents to the questionnaire were able to estimate the greatest amount of floating debris removed from their respective reservoirs during one year. One respondent estimated that 15,000 acre-feet (18.3 million m^3) of debris were removed in 1969; another estimated that 872 tons (791 metric tons) were removed in 1973. The highest estimated average annual removal and disposal cost for cleaning debris at an individual dam was $180,000. This clearly indicates that a great amount of time, equipment, and money must be invested to dispose of such vast quantities of debris in an acceptable manner.

Most reservoirs experience the greatest debris problems immediately after the clearing operations and filling of the reservoir; however, at several sites, the problem has either remained fairly constant or the amount of debris has increased. The major problems associated with wood debris at dam projects are: blocking of water flow at powerhouse intakes, obstructing navigation, damaging boats and propellers, and hindering the use of boat ramps and beaches at recreation areas.

Traditionally, COE impoundments have been in remote locations, and project managers have selected the least expensive method to dispose of the collected debris. However, many people now use the water bodies for recreational activities, and the population densities surrounding the once isolated bodies of water have increased substantially. As a result, COE personnel must now consider many complex and interacting factors when approving, selecting, or monitoring disposal operations at a particular dam site. To assist Corps personnel, a four-phase study was initiated in 1973 to develop overall managerial concepts for disposing of solid waste generated by clearing and cleaning operations at COE impoundments.

Objective

The objective of this study was to develop management concepts that would assist COE planning, design, construction, and operations personnel with the disposal of clearing and cleaning debris at COE water impoundments. This report provides the information necessary to evaluate the different methods for disposing of wood debris at a dam site.

*It should be noted that there was an 85 percent response (353 respondents) to the questionnaire, but only 10 percent of the respondents answered all the questions. It was judged that despite this insufficiency, a comparatively good data set was furnished. Response to the questions dealing with problem-identification variables was nearly unanimous.

Approach

Early in the study, literature surveys and telephone interviews revealed that there was a lack of site-specific data regarding cleaning operations at COE water impoundments. In 1974, a questionnaire was developed, tested, and mailed to the 10 continental COE Divisions for distribution to their project managers, resource managers, lockmasters, and project engineers for completion.

The respondents' replies to the questionnaire were used in preparing a tentative list of essential factors to be evaluated. Eight dam sites were visited to determine whether (1) any unnecessary factors were included in the list; (2) any essential factors were excluded from the list; (3) cleaning debris at a site had a consistent level of quality and/or quantity which might provide the basis for a universal disposal method; and (4) there is a universal economical method of debris removal and/or disposal that can be used at all or most impoundments. Later a final list of factors was prepared to assist COE personnel in selecting a disposal method. This list and other pertinent information was presented in CERL Interim Report E-77.[6]

Clearing contracts were reviewed for a number of dam sites in different physiographic regions of the United States. Research personnel visited several of the dam sites and talked with COE contract administrators and planning, construction, and operations personnel. They contacted major equipment dealers and manufacturers to discuss what equipment was available for cutting, removal, and disposal operations, and reviewed current literature regarding clearing operations.

From this information, a list of evaluation factors was prepared which will help in selecting clearing and disposal methods. Additional attention was given to such related items as comparing clearing and cleaning operations and contract specifications. In 1977 CERL published the results for this phase of the study in Interim Report N-16.[7]

State agencies were queried in 1977 to obtain information regarding state environmental legislation that would be pertinent to the disposal of clearing and cleaning debris at water impoundments. Additional information was obtained from published sources.

A summary of this information for each state of the contiguous United States is presented in the appendix of this report.

[6]S. E. Kloster and W. J. Mikucki, *Disposal of Cleaning Debris*, Interim Report E-77/ADA024751 (CERL, April 1976).
[7]S. E. Kloster and W. J. Mikucki, *Disposal of Clearing Debris*, Interim Report N-16/ADA036675 (CERL, February 1977).

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Scope

The study area was limited to the 10 COE Divisions located in the 48 contiguous United States. The unique socio-economic conditions and delicate physical environments that prevail in Hawaii and Alaska would exclude these regions from any general conclusions drawn from data collected in the contiguous United States.

This study was primarily concerned with the disposal of *wood debris* obtained from COE clearing and cleaning activities. While other types of material (i.e., plastic, metal, rubber, and glass) are found in the debris, the majority, by weight and volume, is wood.

Mode of Technology Transfer

An Engineer Circular referencing and based on this technical report is expected to be issued.

2 MANAGERIAL CONCEPTS REGARDING THE DISPOSAL OF CLEANING DEBRIS

Characteristics of Cleaning Debris

Most of the debris found at COE impoundments is some type of wood. The wood originates from a number of sources, which include but are not limited to the following:

1. Trees that were not cleared from areas that would be permanently inundated by the impoundment. The water kills the trees, they become rotten, and finally fall into the water.

2. Trees that line the banks of the impoundment or its tributaries. The banks are eroded by the actions of the water and the trees are washed into the water with the soil.

3. Natural debris deposited by the trees on the forest floor which is carried by high water into the tributaries or the impoundment. Sleet, hail storms, or heavy snows break off limbs or entire trees and deposit them on the forest floor; old and diseased trees die and fall to the ground. This debris and the accumulation of twigs and bark are washed into the impoundment.

4. Land clearing and logging operations may leave cull logs and slash which may be washed into the impoundment.

5. Wood debris and trash are thrown into the tributaries or the impoundment.

Items such as old tires, oil drums, signs, wood pallets, boards, railroad ties, refrigerators, automobiles, and plastic bottles have been found and removed from COE impoundments; however, natural wood debris, both floating and submerged, is the major problem at COE impoundments.

Almost two-thirds of the respondents to the 1974 questionnaire indicated that the majority of the debris accumulated at their impoundments in the spring, and that the debris most hindered normal operations during this time of year.

To the question "What is the frequency of floating debris removal during the year?", 106 respondents indicated that they performed a single operation, and 147 used several operations during a season; 31 performed removal operations for most or all of the year, and 69 did not reply.

Most of the cleaning debris consists of logs, large branches, and occasionally entire trees. The debris is in various states of decomposition due to frequent wetting and drying. Over a long period of time,

the wetting and drying process may "bleach" the wood. The bleached debris is characteristically white, dry, and brittle, and burns rapidly, producing almost no heat and relatively little ash. Mud and sand may be ground into the wood, and small clumps of grass and weeds may grow in pockets of earth on larger logs.

The size of the wood debris removed at COE impoundments varies from small twigs and pieces of bark to whole trees, including roots, branches, and boles 6 to 8 ft (1.8 to 2.4 m) in diameter and 80 to 100 ft (24.4 to 30.5 m) long.

Not all of the wood debris is rotted or badly bleached. Some of the logs appear to have come from logging areas and are of good quality. The better the quality of the wood, the more alternatives are available to dispose of it. Poor-quality wood has a limited number of possible uses and is difficult to process.

A major problem is determining the quality of wood that is in the water. There are usually many pieces of wood in various sizes and stages of decomposition. Sorting the wood piece by piece can be a time-consuming and expensive operation. Potential buyers are reluctant to bid on floating debris; if they do, the bid will be low. If possible, the user or buyer should be encouraged to sort out the wood that he/she can use.

COE personnel should not be used to sort out the wood unless there is a readily available market for the wood and the costs of the sorting operation are considered in the selling price, or the wood can be used in the project area, i.e., as firewood, to construct log booms, etc. Sometimes the sorting operation can be accomplished during the removal activities; for example, when debris has washed up on a beach, it can be sorted as it is picked up.

The main problems associated with determining a beneficial method for disposing of cleaning debris are that (1) it lacks uniform size, (2) the quality varies considerably, and (3) the quantity varies from year to year.

Collecting Operations

A number of methods can be used to collect wood debris. Log booms and other flotation devices can be used to prevent floating debris from reaching the upstream face of the dam or powerhouse, and to collect the debris. They usually are placed across the impoundment and anchored on each bank several hundred feet upstream from the dam. Occasionally one anchor is positioned further downstream so that the log boom is held at an angle toward one side of the reservoir. During periods of high water, floating debris will be forced to the downstream side of the log

boom by the moving water: as the pool level is dropped, the debris will be deposited on the bank, where it can be removed and disposed of properly.

At some locations log booms cannot be positioned across the entire impoundment because the water body may be too wide or it may stop navigation. In these situations, log booms can be positioned at an angle from one bank to the dam to protect the powerhouse or outflow tower intakes. Another alternative is to position the log boom along the wall of the dam at the intakes to keep the floating debris from entering. A sack boom secured to two boats can be used to remove the accumulated debris when necessary. In these situations the debris should be removed frequently to prevent it from becoming water-logged and sinking in front of the intakes.

Log booms can also be used near the headwaters of impoundments and on tributaries to prevent debris from entering the open waters of the impoundment. Log booms can be used to "capture" and hold floating debris in coves or inlets until it can be removed.

Nearly 60 percent of the respondents in the 1974 questionnaire indicated that the predominant wind direction influenced the movement of floating debris and debris accumulation. Shifts in wind direction may move debris away from a log boom that it has accumulated against and back into open water where it may be deposited elsewhere. Under such conditions, a second log boom should be positioned upstream behind the debris to prevent it from moving until it can be removed from the water.

Wind and wave action may move floating debris under a long log boom positioned across an impoundment. Where these conditions may occur, a second, smaller log boom should be positioned at the dam against the intakes to prevent the debris from entering. Debris must be removed frequently to prevent it from sinking or obstructing the water flow.

Log booms positioned across the impoundment several hundred feet upstream from the dam will also prevent boats from getting dangerously close to the structure.

It is possible to construct boat passages through log booms and still hold most of the floating debris. Such devices have been used successfully on several COE impoundments. Cables are used to link the logs and anchor the log boom to the lake floor (see Figure 1).

Piling can be driven into the lake floor upstream from the water intakes at a powerhouse and a wire fence attached to the piles. This will catch submerged and floating debris and prevent it from obstructing the water flow at the powerhouse. Two problems were observed at one project where this method was used. First, the fence was positioned from the banks, and since it did not extend into the center of the main

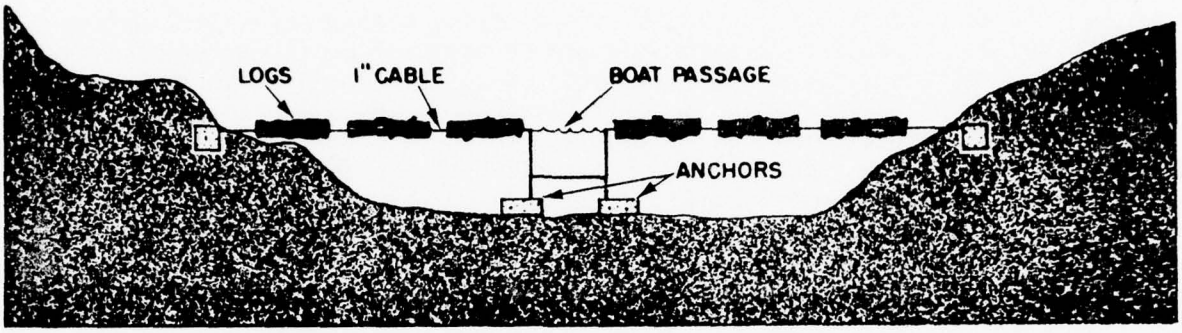

Figure 1. Log boom with boat passage.

watercourse to the intakes, most of the floating debris still reached the powerhouse. Second, it was difficult to remove the debris that was stopped by the fence since the removal equipment often got caught in the wire. If this method is used to collect floating debris, the position of the fence and the means of removing debris from around the fence should be given a great deal of consideration.

The research indicates that all of these debris collecting methods will work with various degrees of effectiveness; however, each site must be considered individually to determine which method is best for it. It is recommended that log booms or other similar devices be used to collect debris both when the impoundment is first being filled and during the first years of operation. The majority of the debris should float into the impoundment during the first year or two if there is adequate precipitation in the watershed and there are sufficient periods of high water.

Each year, both the effectiveness and the cost of maintaining a particular type of log boom should be examined and compared to other alternatives. For example, after a few years of operation, one tributary may be found to be the major source of floating debris in the impoundment. In this case, a log boom positioned at the mouth of the tributary might be more economical and effective than trying to maintain either a log boom across the impoundment upstream of the dam or log booms on several tributaries.

In some cases, it may be necessary to maintain a log boom or other devices for several years to collect an abundance of debris. If the amount of the debris increases and becomes a greater problem, the project manager may have to determine the source of the debris and take action to prevent it from reaching the impoundment. If necessary, legal action may have to be taken against an individual or company causing

the floating debris problem. The cost of eliminating debris that has been improperly disposed of by an individual or a company should not become the burden of the taxpayer, nor should the responsibility for proper disposal be passed on to the project manager or the COE. Project managers may need support and legal advice from the respective COE District and Division offices.

Removal Operations

Respondents to the 1974 questionnaire indicated that a barge and crane was the chief method used to remove floating debris at 67 COE impoundments, pool dropping was used at 57 impoundments, trash rakes were used at 42 impoundments, and sack booms were used at 6 impoundments. Thirty-six of the respondents did not answer the question, and 145 respondents described a variety of other methods used.

Cranes with clamshell buckets have been very satisfactory for removing floating and submerged debris. Truck-mounted cranes can also be used in disposal operations to pile the debris, charge pit incinerators, etc. They can work very well from the top of the dam to remove submerged debris restricting the water flow at intakes.

Barge-mounted cranes are less flexible, but are advantageous for reaching areas inaccessible by road. A good combination is to use a truck-mounted crane on a barge. This takes advantage of the good attributes of both truck-mounted and barge-mounted cranes.

One problem observed by the investigators was that one crane is often shared by a number of project managers or maintained and scheduled by the District office for all dams in the District; thus, it is not always available at a site when it is needed or can be used. This is particularly true of heavy cranes needed to raise large logs or trees that sink in front of water intakes and are covered with sediment. Large logs or trees may float into the area during flood conditions and sink before the COE dam personnel can move them out of the area. A light crane used to remove the normal-sized floating and submerged debris may not be able to raise the large-sized debris, particularly after sediment has accumulated on it. Consequently, the project manager must wait for the heavy crane to be available; sometimes this time must coincide with a low lake level or down period for the powerhouse and thus reduces the possibilities for scheduling. The District office may also be reluctant to schedule a heavy crane for use in a remote location because other dams could be using the crane during the transportation time required.

The investigation revealed that there was no easy solution to this dilemma that would satisfy everyone. One possible solution might be to periodically hire a contractor to remove the large submerged debris at the remote location as needed. Another alternative would be to hire a

contractor to remove debris at one or several locations, which would release the COE heavy crane for use at the remote location. The costs and effectiveness of these removal operations must be considered in terms of the benefits obtained. Each situation must be considered individually.

Pool dropping has proved to be a satisfactory method of beaching floating debris at some impoundments. It works best at impoundments where the project manager has some flexibility with the discharge schedule for lowering the pool after a high water period; he/she can wait until the debris is in the best position before lowering the water level. Some project managers use sack booms between two boats to position the debris before dropping the pool level. Others drop their pool levels after the wind and water have pushed the debris into certain areas.

Pool dropping will not always leave the debris beached in good locations for removal, particularly if the project manager must rely on wind and water action to move it. Debris may be deposited in the rip-rap on the dam, spillways, and other places where access to it is difficult. At several dams, project managers can let the prevailing wind blow the debris over parking lots, boat ramps, or other accessible areas before they drop the pool level. Such conditions greatly facilitate the removal operation.

Once the debris is deposited and safe access to the areas is possible, dam personnel should move the debris to a site above the high water level or dispose of it as soon as possible. This will prevent debris from accumulating in the impoundment when another high water period occurs.

Cranes, front-end loaders, trucks, barges, and other equipment can be used to move the debris from the collection area to the disposal site. It is often necessary for personnel to walk along rip-rap, beaches, etc., and pick up debris piece by piece for loading. This can be a time-consuming and expensive operation for COE personnel and should be avoided if possible.

At several locations, the public picked up wood debris for firewood at no cost to the COE. Such activities should be encouraged by the project manager to promote a beneficial use of the wood debris and to reduce or eliminate disposal costs at the impoundment.

Trash raking is time-consuming and expensive but often is the only means of collecting and removing the debris.

Sack booms can be used to skim the floating debris and pull it to an area where there is access to the water. Cranes, front-end loaders, etc., can be used to remove the debris from the water or after it is beached.

Flushing is used at several impoundments to remove and dispose of debris. Much of the debris is flushed downstream through the locks, spillway, gates, or trash racks. Flushing is economically ideal for a dam that can flush debris downstream, unless the water lost in the flushing action could be used for power generation; however, flushing the debris downstream increases its accumulation at the next dam, and thus passes on the removal and disposal expenses. The majority of the expense could subsequently be placed on one COE District responsible for the dams downstream. Also, the accumulation of debris released from upstream dams may hinder and eventually stop navigation, hydroelectric operations, and/or recreational activities. Detailed studies of individual waterways are necessary to ascertain the total effectiveness and costs of flushing operations.

A unique piece of equipment was developed by COE personnel for use at Millers Ferry (AL) Lock and Dam to remove floating debris from a COE impoundment; it is a modified front-end loader positioned in the bow of a boat. The front-end loader scoops the debris from the water and places it on an anchored barge. Once the barge is full, the boat moves the barge to a position adjacent to the disposal site where a truck-mounted crane piles up the debris. This piece of equipment facilitates the frequent removal of debris which accumulates at the powerhouse intakes. The quantity of debris during high water conditions is so great that it must be removed at least two or three times per week. These conditions occur throughout the spring and once or twice during the rest of the year when rainfall in the watershed is heavy.

Research indicates that there is no universal method of economically and effectively removing floating or submerged debris at all projects. At some sites where there is an abundance of debris, the project managers use one or more of the methods described above to collect and remove the debris from the impoundment.

During this study, research personnel viewed and were told about many features in the dam design or configuration that assisted in removing the debris from critical areas. They were also informed by dam personnel of design features that created problems associated with the floating debris.

Disposal Operations

There are several ways of categorizing the methods for disposing of cleaning debris; these include the following four basic methods:

1. Burying the debris
2. Burning the debris
3. Selling the debris
4. Using the debris.

Figure 2 summarizes the disposal methods at various levels of detail. Although Corps personnel have used all of these methods, responses to the questionnaire indicate that most project managers practice unconfined (open) burning.

To the question, "What is the chief method of disposal of floating debris?", 125 respondents indicated open burning, 41 circled sanitary landfill, 8 indicated trench or pit incineration, and 6 circled chipping. Thirty-five respondents did not answer the question, and 138 described other methods or combinations of methods.

Questionnaire responses indicated that chipping and burial in a sanitary landfill are the most expensive disposal methods.

The following list of factors can be used to evaluate disposal methods for wood debris removed from COE water impoundments. No system or method for weighting the factors was established, because the importance of individual factors will change from site to site.

A. Description of the dam, powerhouse, locks, etc.

1. Primary functions
2. Secondary functions
3. Water depth, rate of flow, etc.

B. General Physical Environment near the dam and in the watershed

1. Climate and extreme weather conditions
2. Type and depth of bedrock
3. Type and depth of soil
4. Area topography and local relief
5. Depth of water table
6. Amount of annual surface runoff
7. Low flow period of streams in the watershed
8. Normal high water period in the watershed

C. Debris

1. Sources

    a. From natural occurrences
    b. From man-made occurrences

2. Characteristics

    a. Type and quality of debris
    b. Quantity of debris
    c. Size of individual items of debris

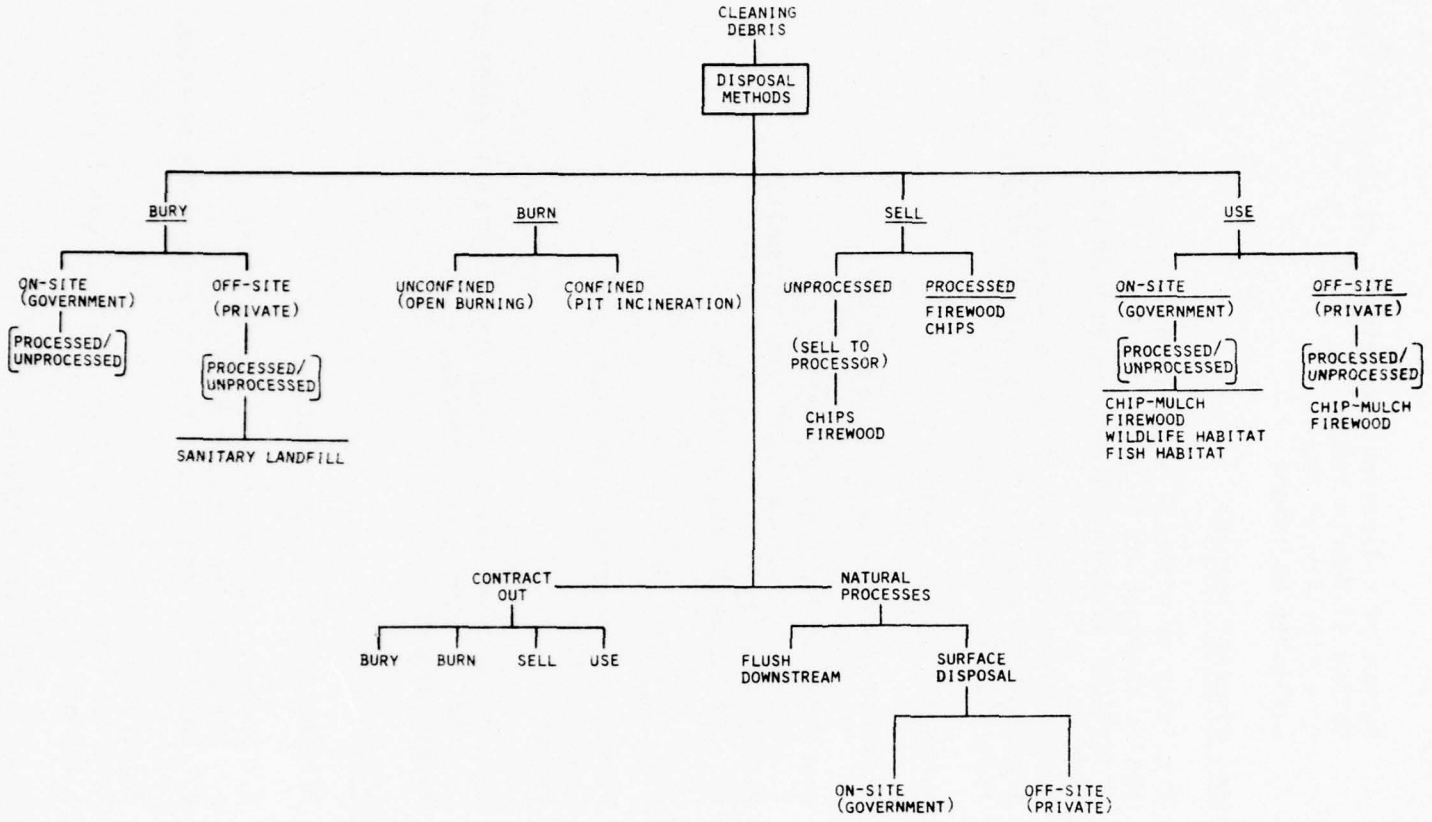

Figure 2. Diagram of alternatives for disposing of cleaning debris.

3. Location

    a. Method of collecting, containing, or trapping debris
    b. Method of debris removal
    c. Accessibility of debris
    d. Available equipment

D. Present disposal method

1. Proximity of disposal sites to populated areas, highways, etc.
2. Public response to disposal operations
3. Objections or problems associated with present operating procedures
4. Number of employees involved in removal and disposal operations
5. Frequency of removal and disposal operations
6. Accessibility to disposal sites

E. Environmental considerations

1. Present and potential problems with:

    a. Land and land-use compatibility
    b. Water, surface, and groundwater quality
    c. Air quality
    d. Noise, shock, and vibration

F. Economic considerations

1. Proximity to market or disposal area
2. Labor costs
3. Processing costs
4. Transportation costs
5. Comparison of market value of debris to total costs of processing, transporting, storage, etc.
6. Market demands

G. Legal considerations

1. Present and future conflicts with:

    a. Federal laws and regulating agencies
    b. State laws and regulating agencies
    c. Local laws and ordinances and regulating agencies

2. Required permits
3. Restrictions/variances--burn seasons, open burning, site inspection, etc.

H. Safety of workers and visitors

1. Main tourist season
2. Possible hazards to visitors and workers

Discussion of Disposal Operations

When selecting an appropriate method or alternative to dispose of cleaning debris, the project manager must consider several physical, social, and economic factors (see previous list). The primary consideration should be to select a disposal method that uses the wood beneficially and complies with new environmental laws and regulations; however, the project manager is also obligated to dispose of the wood debris as economically as possible.

On-site burial may be a satisfactory solution for disposing of cleaning debris at some COE impoundments. This method requires a fairly large area (to accommodate the accumulation of debris over a period of years), fairly deep soil, and a deep water table. Processing (chipping, trimming, etc.) may be desirable to increase the compactability of the debris. Wood should not be used as fill material because it will decompose and cause surface subsidence.

Off-site burial is a good solution to the debris disposal problem, if it is not too expensive; however, this method does provide problems. Commercial operators may not accept wood debris from cleaning operations because it will reduce the longevity of the landfill. The wood may have to be processed before being accepted at the landfill in order to facilitate handling and compacting. Processing for transporting, as well as transportation costs, will have to be considered when evaluating the economic feasibility of this disposal method.

Unconfined burning is one of the most widely used methods for disposing of cleaning debris at COE impoundments. The wood is piled in the open, allowed to dry, and burned. This is one of the most economical methods for disposing of cleaning debris.

In most areas of the United States, unconfined burning is one of the most restricted and regulated methods of debris disposal practiced by project managers; exceptions may occur, but this is because of unique local conditions. The project manager should periodically evaluate the local conditions to be sure that there is not a more economical or beneficial way to dispose of the debris. He/she should always check with regulating agencies before proceeding with an unconfined burning operation to be sure that no laws or regulations are being violated. In most states or regions, variances are available that permit unconfined burning under specified conditions when no other alternatives are feasible.

Confined burning (pit incineration) is considered one of the best methods to dispose of cleaning debris when there are space limitations, if there are no laws or regulations prohibiting it.

Although burning is not the most desirable disposal method since it totally eliminates a resource without providing benefit to man or

the environment, at some projects it may be the only alternative. In most cases, the equipment needed for a confined burning operation requires no more space than is needed for an unconfined burning operation.

Some regulating agencies require special permits for conducting confined burning operations, as well as on-site inspections of the burning operations by agency personnel.

Project personnel should try to use the cleaning debris beneficially. Most of the cleaning debris viewed by the investigators was of various sizes and in various stages of decomposition, both of which reduce its marketability. As the demand for wood products increases, a technology may be developed for processing and using a poorer quality of wood, thus creating a larger market for cleaning debris.

Selling the unprocessed cleaning debris is considered the best method of disposal, especially if the buyer removes the debris from the water at the collection point. By selling the unprocessed debris at the collection point, the project manager eliminates removal, transportation, processing, and disposal costs, and the selling price may defray some of the collection costs. If the project manager can sell only a portion of the wood debris, the costs may be somewhat reduced. At a few COE impoundments, a portion of the debris is marketable; sometimes several of the logs are large enough and of good enough quality to produce lumber. The purchase price may occasionally cover the cost of the paperwork necessary to sell the logs, and even a little more.

As new processes for using wood, agricultural wastes, etc., for fuel are developed, the market demand for cleaning debris may increase. Maybe in the distant future, as other fuels become more scarce and expensive, the demand for wood debris of this nature will be so great that such debris will never reach the impoundment. Individuals or companies may collect, process, and use it for fuel or other purposes. This would either eliminate or substantially reduce the problem of disposing of cleaning debris.

Selling processed cleaning debris should be avoided if possible. Project managers should not become involved in any processing unless the equipment and personnel are already available. Using part-time personnel for short-term processing operations may be satisfactory. Only short-term basic processing operations should be undertaken, i.e., cutting firewood or chipping. No long-term, complex processing operations, e.g., operating a sawmill to produce lumber, should be undertaken by COE personnel. The economic feasibility of any processing operation should be studied carefully by the project manager. Processing the wood debris for selling should be one of the last choices of disposal alternatives considered by the project manager.

If the market demand is great enough, the project manager should be able to find a contractor (buyer or user) who will take unprocessed debris, process it, and sell it at no expense to the Government. This is preferable to the COE undertaking any processing operations to sell the debris.

On-site use of the cleaning debris or use by other Government agencies is a good solution to the disposal problem. The best situation would be to use the debris with as little processing as possible--for example, weighting and sinking debris to create shelters for fish. Wood debris can also be piled and anchored above the high water level in some areas to create wildlife habitat. Project personnel should contact the regulating agencies before constructing wildlife habitats to determine whether such activities would violate any regulations concerning fire and/or disease.

In some cases, processing may be the only solution to making the debris useful. The costs for processing and transporting the wood should be compared with the benefits before beginning these activities. Wood chips can be used in most recreational areas for mulch around trees, as ground cover in playgrounds and over paths, and to cover exposed soil on slopes to reduce or prevent erosion.

If open fires are allowed, firewood should be made available to the users of recreational areas; this will prevent or reduce the destruction of live vegetation. Most cleaning debris can be used for firewood at recreational areas, which may be a good way for the project manager to dispose of cleaning debris. A small charge should be made for processed firewood, especially if there is a lack of firewood in the area. The fee should be large enough to inhibit the users from wasting the wood and to help pay some of the expense of supplying it.

Off-site use of the wood debris can be accomplished if project managers remove and pile the unprocessed wood debris in areas where the public has easy access to it. People can remove the wood they can use and reduce the amount of debris that COE personnel must dispose of.

COE personnel should avoid processing the debris for public use if possible. It may be necessary to process the debris to facilitate handling, transporting, and storing the wood in an area where the public can reach it. The costs should be evaluated and compared to the benefits before beginning these activities. If the public will remove and use all or most of the wood and eliminate the expense of the entire disposal operation, the cost of processing may be worthwhile. The project manager should remember to store the wood above the high water level so that it will not float back into the impoundment.

Project managers should always consider the possibility of *contracting out* the disposal operation. During some years, COE personnel may not be able with the equipment available to them to dispose of the large

amount of debris that floats into the impoundment. The COE may then have to contract out a portion or all of the disposal operation. Normally, if the cost for a contractor to dispose of the wood debris is less than the cost for the COE to dispose of it, the operation should be contracted out. An exception would be if awarding the contract during a time when it is economically feasible to do so would put the COE in a position later of having to depend on a contract to dispose of the debris at an exorbitant cost. In the future, as the demand for wood increases, the contractor may pay the COE for the wood.

Flushing the debris downstream shifts the costs and responsibility for disposing of the debris to another project manager and perhaps to another COE District. Several project managers responded, "flushing was the natural thing; the debris would float downstream if the dam wasn't there."

The study indicates that floating debris can cause problems with navigation, hydroelectric power generation, and recreational activities. Flushing can also deposit the debris into an impoundment where collection, removal, and disposal operations are more difficult due to different physical, social, and economic conditions, particularly environmental legislation and enforcement.

Current study findings indicate that the problem of debris in the waterway system should be handled as part of the whole system, not as an isolated segment. For this reason, a pilot study should be conducted on an entire system of a major waterway where floating debris is a problem at COE dams and impoundments. The study would determine the feasibility of establishing a coordinated flushing and disposal program for the entire waterway that would cross COE District and Division boundaries and would determine if such a program is more cost-effective and efficient than current methods. It would determine which dams, if any, should flush debris; the locations where conditions are unfavorable to disposing of debris; when other dams should collect, remove, and dispose of the debris; and which locations have the most favorable conditions for debris disposal. The study would also have to determine the effects of accumulating debris at selected disposal sites, the importance of specific tributary contributions to the debris problems of individual impoundments, etc.

On-site surface disposal is one of the most economical ways to dispose of wood debris. Most project managers are limited by the lack of suitable area on which to pile or spread the debris, and in some regions of the United States fire or plant disease laws and regulations may prohibit this method of disposal.

Some processing may be necessary to facilitate the handling and transporting of debris to the disposal site, but such activities should be minimized. Chipping may have to be used to reduce the volume of the

debris if the area is small and surface disposal is the only disposal method. The project manager should have the debris piled or spread above the high water level and should take appropriate measures to prevent the material from returning to the impoundment.

Off-site surface disposal is another disposal method available in some areas. Occasionally, for a fee, a local landowner will allow the COE to spread or pile the debris on his/her property. Normally, the disposal site will be an area that is unsuitable for any other use. Some landowners may require that the debris be processed, trimmed, or chipped to reduce its volume before disposal. Before using this disposal method, project personnel should check with the appropriate regulating agencies to be sure that their activities are not violating a law or ordinance.

Summary

A typical project manager is confronted by conflicting responsibilities. He/she must run the disposal operation as economically as possible, but is bound by Executive Orders, Army Regulations, and Federal Acts not to degrade the environment. He/she must choose a disposal method that will suit the physical, social, and economic needs of a specific impoundment.

The project manager's first consideration should be compliance with the law; with respect to environmental laws, cleaning debris appears to present a special situation. It was impossible to review all local (city, county, and regional) laws, rules, and regulations, but a review of state laws concerning the disposal of wood debris is presented in the appendix. There were no specific references regarding the disposal of wood debris removed from water impoundments; however, several laws and regulations were found concerning the disposal of logging and clearing debris. Consequently, project personnel should ask local regulating agencies about any questions regarding the disposal of cleaning debris.

The quality and quantity of cleaning debris is not consistent for one impoundment or for a group of impoundments. At most impoundments, debris quality is not suitable for lumber or paper, but some is suitable for firewood or mulch; however, sorting acceptable debris for processing would increase disposal costs considerably.

Most wood debris removed from water impoundments is in various stages of decomposition and will not chip well. It is difficult to find a market for the debris, because its quality and quantity vary greatly from year to year. As the demand for wood products increases, wood substitutes will be produced, or new technology to process lower-quality wood will be developed. If this occurs, the wood debris may become marketable. If shortages of raw materials occur in other segments of the economy, such as fuels, i.e., oil, coal, etc., wood debris may be used as a substitute.

Most COE impoundments are distant from potential markets, and processing and transporting costs are expected to increase in the future. Consequently, for wood debris to be profitable to a contractor, its market price would have to be high enough to offset these costs.

There is no universal way to economically collect, remove, and dispose of wood debris at COE water impoundments. When considering the four basic disposal methods, COE personnel must determine the most economically feasible, legal alternative.

The questionnaire results indicate that the most expensive methods of debris disposal are burial in a sanitary landfill and any method that includes the chipping process; however, when compared to the other alternatives, burial in a sanitary landfill or a disposal method that requires chipping may be the most economically feasible disposal method, depending on local conditions.

Each dam and water impoundment must either be analyzed separately or together with impoundments in the immediate area, since disposal methods for one impoundment in one physiographic region do not necessarily apply to impoundments in other regions. Sites may be grouped by similarities in physical environment, economic conditions, and/or legal considerations, rather than by COE Division or District boundaries. Preferably, dams and water impoundments should be grouped by watersheds to evaluate the effect of floating debris on the entire waterway system.

It was difficult to compare removal and disposal costs at different impoundments. For example, one project manager may consider a certain activity to be a part of the removal operation, while another manager may consider it a part of the disposal operation or of an entirely different operation.

Replies to the questionnaire indicate that more money is being spent on removal operations than on disposal operations because the majority of the respondents dispose of wood debris by unconfined burning. According to the questionnaire results, an estimated $1.4 million is spent annually on removal operations and an estimated $0.4 million is spent annually on debris disposal. If unconfined burning is prohibited by environmental laws, disposal costs can be expected to increase substantially.

In certain regions of the contiguous United States, it may be possible to reduce the amount of wood debris entering the impoundment by constructing log booms across the tributaries. This method will confine the debris to a smaller area and may make removal and disposal operations easier. In addition, it will reduce the amount of debris interfering with activities associated with the main impoundment. Log booms are now being used extensively throughout the Pacific Northwest and New England to control floating debris, and can perhaps be used more extensively at other locations.

The character and amount of debris, the physical environment, and the environmental, legal, and economic conditions that COE personnel must consider are dynamic and changing. Technology is also dynamic, since new equipment becomes available for disposal operations each year. All of these factors must be surveyed and evaluated periodically to maintain the most economical and viable disposal method.

3 MANAGERIAL CONCEPTS REGARDING THE DISPOSAL OF CLEARING DEBRIS

Characteristics of Clearing Debris

Two types of vegetation are considered in most clearing operations: brush and trees. Brush is usually defined as woody growth less than 2 in. (5.08 cm) in diameter, when measured 6 in. (15.24 cm) from the ground on the uphill side; it is less than 6 ft (1.83 m) high, when measured from the ground on the uphill side. Trees are normally considered to be woody growth not falling within the limits of brush as defined above.[8]

The United States Forest Service has divided the 48 contiguous United States into five general regions based on forest type.[9] Figure 3 shows these regions in relation to the states. (The plains states are included in the Rocky Mountain region for simplicity; vast tracts of forest vegetation do not exist, since most trees are found along streams.)

The forest regions are characterized by forest types. In the following discussion concerning the types of trees found in each region, it is assumed that future clearing in forest areas will be done on sites with characteristic forest types.

Northern Region

Both softwood and hardwood forests are found in this region. Northern hardwoods such as birch and maple predominate in New England and the northern Appalachians. These and other assorted hardwoods are dispersed throughout the lake states. Maine and upper New York have primarily coniferous forest.

Central Region

Regional growth is dominated by southern hardwoods. Oak-pine-poplar forests are found east of the Appalachians and oak-hickory forests are located to the west. The oak-pine-poplar forest area extends southwest from New Jersey to eastern Texas.

Southern Region

The South contains almost entirely pine forests although there is river bottom forest in central Louisiana, and some oak-pine in Mississippi.

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[8] *Clearing Guide Specifications - Civil Works Construction*, CE 1301 (Department of the Army, Corps of Engineers, Office of the Chief of Engineers, September 1969), p 2.

[9] *Atlas of American Agriculture* (U.S. Department of Agriculture [USDA], 1936).

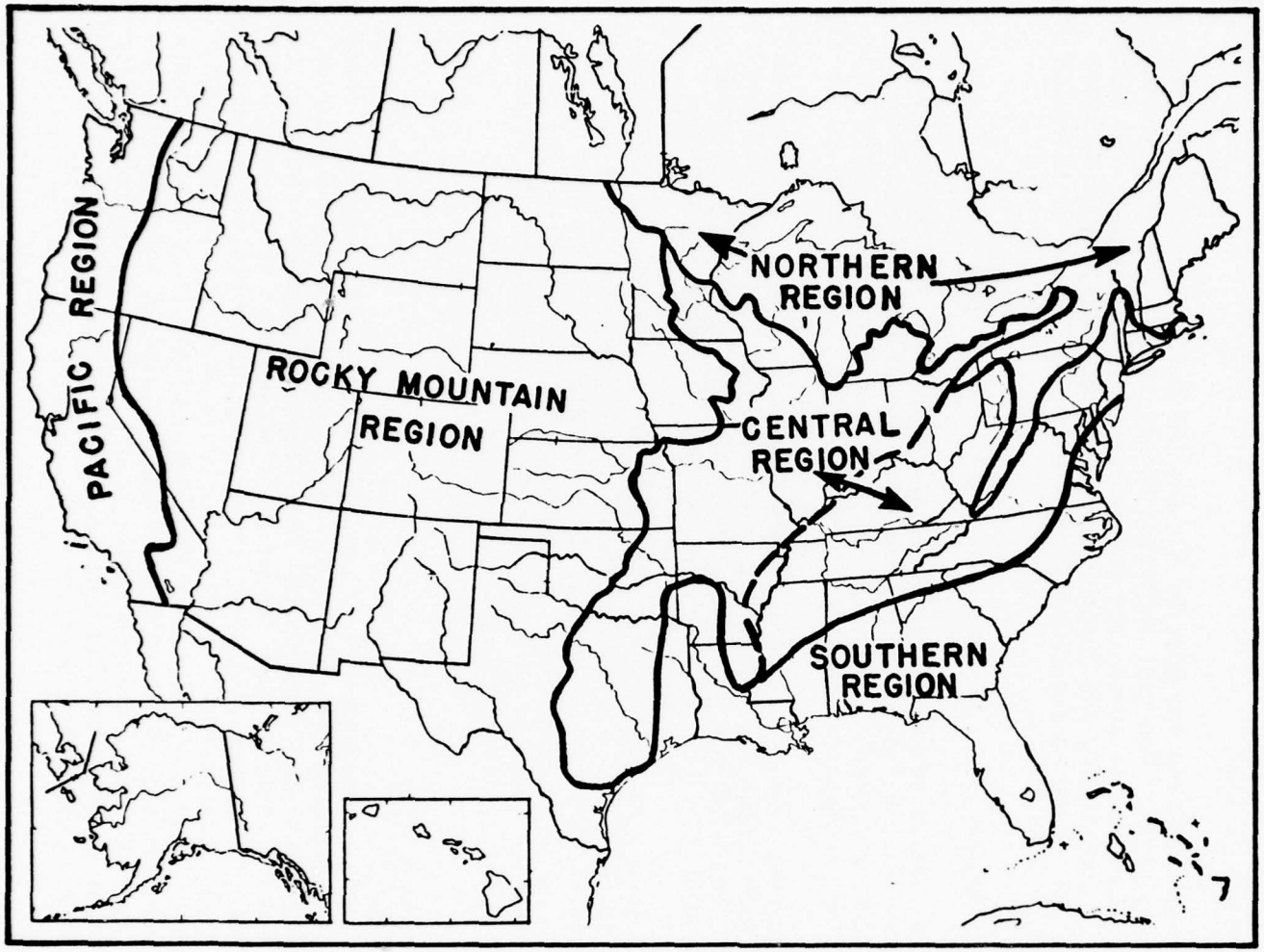

Figure 3. Regional forestation map.

Florida contains both of the above forest types, as well as some subtropical mangrove forests in the southern part of the state.

Rocky Mountain Region

Ponderosa pine and Douglas fir are the most prevalent Rocky Mountain foresting trees. The most important forest regions are in mountainous areas. Southern hardwoods are found along river valleys in the eastern plains. Douglas fir and juniper stands are generally found at lower elevations, while Ponderosa pine grows at elevations of up to 11,000 ft (3300 m).

Pacific Region

The varied species of this region inhabit the northern and eastern mountains. Ponderosa pine, Douglas fir, and Alder predominate in Washington and Oregon. Redwood and Douglas fir occupy Northern California, while chaparral vegetation grows in the southern area of the state.

Several tree species not commonly found in stands or groves, but which have a high value per unit volume include black walnut, black cherry, and white ash.[10] These trees have special uses and command a higher market price than most trees common to the forest regions.

A survey should be conducted to determine the type of vegetative cover in the project area. Methods for analyzing vegetative cover can be found in forestry textbooks. This information can be used to determine the best method(s) for cutting, removing, and disposing of the vegetation, as well as information necessary to evaluate the value and marketability of the trees.

Cutting Operations

There are several ways to cut vegetation at impoundments. These include but are not limited to the following: (1) *modified clearing* (topping)--the vegetation on the floodplain and adjacent slopes is cut at a specific height above ground level rather than at the base of the stem near the ground; (2) *complete clearing* (clear cutting)--vegetation is cut near the base of the stem, leaving a low stump in the ground; (3) *clear cutting and grubbing*--individual plants or groups of plants at a specific site in the project area are selected for complete removal by clear cutting and grubbing; and (4) *selective cutting*, which is similar to clear cutting, but leaves individual plants or groups of plants in specified areas of the site.

[10] G. A. Petrides, *A Field Guide to Trees and Shrubs* (Houghton Mifflin Co., 1972).

Several methods can be used to cut vegetation at impoundments. The two methods used most often are manual and mechanical (heavy equipment).

Manual

The manual method uses a group of workers on foot to cut the vegetation with hand tools. In the past, workers used axes and handsaws, which limited individual production; recently, however, worker production has been increased by the development and manufacture of lightweight power chain saws. The capital investment and operating costs associated with the use of lightweight power chain saws are more than offset by a worker's increased production.

Using the manual method with power chain saws has several advantages: (1) the operating costs and capital investment are small in comparison to those required for large pieces of mechanized equipment such as dozers; (2) wages for power chain saw operators are normally less than those for heavy equipment operators; and (3) a person equipped with a lightweight power chain saw can traverse many terrain features that are inaccessible to heavy equipment.

The one major disadvantage to the manual method is that the size and amount of cut vegetation that the workers can move is limited.

Mechanical (Heavy Equipment)

Several equipment manufacturers produce many pieces of heavy equipment and tools designed specifically for cutting and/or removing vegetation. These mechanical methods have been divided into three basic types: (1) uprooting, (2) shearing, and (3) chopping.

Uprooting the Vegetation

Many types of heavy equipment and tools can be used to uproot and move vegetation.

The standard crawler tractor, which has an ordinary straight or angled blade, can be used to clear land, but it is not efficient for this job. Heavy equipment manufacturers and users have proved that more land can be cleared if the crawler tractors are equipped with specialized land-clearing tools like rakes. Manufacturers have developed and manufactured several rakes which can grub the vegetation out of the soil, move it, and pile it.

Shearing the Vegetation

Two basic angle shearing blades are manufactured: one type has a stinger and straight cutting edge, and the other is "V"-shaped with a wedge-shaped splitter. Land clearing with a shear blade applies the

total horsepower of the crawler tractor to the cutting edge of the shear blade to cut all vegetative growth at ground level. A second operation is needed to remove the stump and roots.

Tree shears can also be used to cut trees. The hydraulic cutting action of the shear is limited by tree size and composition. Since tree shears cut vegetation at ground level, a second operation must be performed to remove stumps and roots, if necessary. Tree shears may also be attached to boats and barges for topping vegetation after the impoundment has been partially filled.

Chopping the Vegetation

Roller choppers can be used to cut and dispose of vegetation. As many as three units can be pulled by a single crawler tractor. The cutting blades, which are welded to the drum of the chopper, cut and fracture the vegetative growth. The drum of the chopper is normally filled with water to increase its weight. Several disc harrows can be used to chop vegetation. The tractor blade is used to bend the vegetation, and the disc blades cut and bury it.

Most of the heavy equipment and tools discussed in this section require a large capital investment, and the hourly operating costs can be considerable.

Removal Operations

Workers can move brush, vines, and small trees short distances, but it is not economically feasible for them to cut medium-sized and large trees into movable pieces. Horses and mules have been used to "twitch" logs out of the woods. This method does not disturb the forest litter as much as mechanical methods, thus avoiding conditions of erosion before the impoundment is filled.

One formerly used method of removing felled vegetation was to cut the vegetation during a low-water period and then let the flood waters float it downstream out of the area. A variation of this method is used today in certain areas where access to felled vegetation is limited. After the vegetation is cut, the impoundment is filled and the rising waters of the impoundment float the wood out of the area. This method works well in areas having steep slopes and large trees. One problem associated with this method is lack of control over the floating vegetation as the water rises. Log booms can be used to encircle it and move it to an area for disposal; however, some of it may float away and impede some beneficial uses of the impoundment.

Several types of heavy equipment and tools have been designed for handling and removing felled vegetation. Many models of rakes for

wheeled and tracked equipment can be used to move logs and brush. Several manufacturers produce wheeled equipment which is designed to skid logs out of the area.

In very steep and rugged terrain, where there is no access for any type of wheeled or tracked equipment, winches have been set up near accessible areas and long cables used to drag felled vegetation out of the cut area.

All the mechanical methods discussed above disturb the forest floor and can promote erosion. When selecting cutting and removal methods, four general factors must be considered: job specification, physical constraints, legal/environmental climate, and prevalent vegetation. Most contractors consider these factors for large-scale clearing contracts, and they are equally applicable to COE small-scale clearing activities.

Job specification has four elements: (1) completion date (time), (2) land use, (3) method of disposal, and (4) size of the project area. The physical factor includes three elements: soil, terrain, and climate. The legal-environmental factor covers the laws and regulations to improve environmental quality. The vegetation factor considers tree count (density), tree size, tree types, and vines and brush.

Data and experience are insufficient for determining how any of these factors will increase or decrease production and costs. Each project is different and cannot be compared directly with another.

Disposal Operations

COE personnel must dispose of brush and trees they have cut and removed from areas surrounding impoundments. Large-scale clearing and disposal activities at established or new impoundments are contracted out by the Corps.

When COE personnel or contractors clear vegetation from either established impoundments or new impoundments, the COE is responsible for insuring that applicable environmental laws and regulations are followed for all three operations: cutting, removal, and disposal.

The quality of the vegetation obtained from clearing activities normally makes it more acceptable for useful or beneficial purposes than debris obtained from cleaning activities.

Figure 4 summarizes the alternatives for disposing of clearing debris.

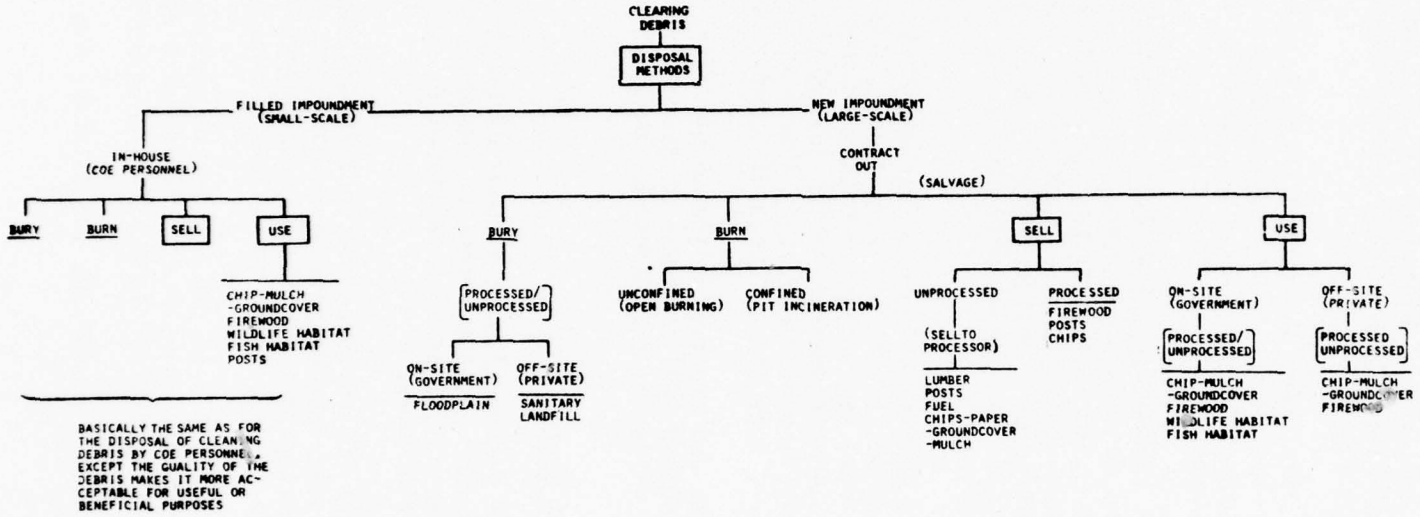

Figure 4. Diagram of alternatives for disposing of clearing debris.

Many factors must be considered when selecting the best method of disposing of cut vegetation at a particular site. Each site should be considered separately, since the conditions of each will vary. If possible, the cut vegetation should be used beneficially and not destroyed.

The following is a list of evaluation factors for contractors and COE personnel to use in selecting methods to dispose of cleared vegetation. No system or method for weighting the factors was established, since the importance of the individual factors varies by site.

A. Vegetation

1. Characteristics

   a. Type and quality of vegetation
   b. Quantity of vegetation (sites and total project area)
   c. Size of vegetation

2. Location

   a. Accessibility to clearing/disposal site
   b. End use of the cutting/disposal site

3. Clearing (felling method)

   a. State of felled vegetation
   b. Need for additional processing for disposal

B. General Physical Environment

1. Area topography and local relief (terrain)
2. Type and depth of soil
3. Type and depth of bedrock
4. Depth of water table
5. Climate and extreme weather conditions
6. Amount of annual surface runoff
7. Low and high flow periods of streams in the watershed

C. Public Opinion

1. Proximity of clearing/disposal sites to populated areas, highways, etc.
2. Accessibility to clearing/disposal site
3. Public response to disposal operations that have occurred in the area

   a. Open burning of leaves, trash, etc., by residents
   b. Public/private landfill operations
   c. Objections to disposal methods

D. Safety

1. Workers
2. Populace

E. Environmental Considerations

1. Potential problems with:

   a. Land and land-use compatibility
   b. Water, surface, and groundwater quality
   c. Air quality
   d. Noise, shock, and vibration

F. Legal Considerations

1. Potential conflicts with:

   a. Federal laws and regulating agencies
   b. State laws and regulating agencies
   c. Local laws and ordinances and regulating agencies

2. Permits issued by regulating agencies

3. Operating requirements

   a. Equipment and operating procedures
   b. Climatic and forest conditions

G. Economic Conditions

1. Labor costs
2. Processing costs
3. Transportation costs
4. Proximity to disposal sites
5. Market demands
6. Proximity to markets
7. Comparison of market value of wood to total costs for processing/ transporting to market

Discussion of Disposal Operations

The removal of standing timber at a dam site can be approached either as a clearing operation or a logging operation, depending on tree types, tree density, and tree sizes. The larger wood should be assumed to have some market value. Minimum acceptable tree diameter for

marketing is generally from 4 to 6 in. (10 to 15 cm),[11,12] although some user requirements are as high as 10 in. (25 cm).[13]

The larger wood, called stemwood or saw timber, can be marketed for fuelwood, lumber, pulpwood, or as a source of wood products. COE personnel and contractors must consider the market demand for the wood. For selling to be profitable, the price must include the processing and transportation costs. The value of the wood is reduced if the site is inaccessible to economical transportation. If there is not an adequate margin of profit, other disposal methods should be considered.

When selecting a disposal method, costs are an important factor. The disposal site should be located at or as close to the clearing site as possible to minimize transportation costs.

Frequently, the clearing operation will provide all the processing necessary for the disposal operation. The vegetation should not be processed unless it is absolutely necessary.

To eliminate or reduce later processing, it may be economically feasible for the COE or the contractor to use a more expensive clearing method that better prepares the vegetation for the selected method of disposal.

In almost all situations, one of the most economical methods of disposal is to pile (windrow) the cut vegetation and burn it in an unconfined manner; however, all the states restrict and regulate the use of confined and unconfined burning to dispose of wood debris. Most states require a permit and have operating requirements for conducting burning operations.

At some sites, burying unprocessed vegetation is the best means of disposal. The necessary equipment for excavating and burial activities may already be in the project area at the dam site.

Cutting activities are often conducted when weather conditions are unsuitable for work at the dam. In addition, the excavation can be done, the wood debris placed in the pit, and cover material moved over the debris.

Salvage operations must be done prior to disposal, i.e., burning or burying. The clearing contractor should be encouraged to use the

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[11] J. T. Bowes, and J. E. Barnard, *Land Clearing and Wood Use in Delaware*, USDA Forest Service Research Note NE-163 (USDA Forest Service), p 2.

[12] A. N. Foulger, and J. Harris, "Volume of Wood, Bark, and Needles after Clearcutting a Lodgepole Pine Stand," *Journal of Forestry* (February 1973), p 93.

[13] D. R. Gedney, and J. W. Henley, *Utilization Estimates for Western Softwoods--Trees, Logs and Residue*, Note PNW-158 (USDA Forest Service).

wood or make it available to others, rather than destroy it. All salvage contracts should be conducted and controlled by the clearing contractor rather than the COE, since the contractor will have a schedule to maintain.

Research has indicated that more vegetation could have been salvaged at several projects if there had been more time to complete clearing operations. Often, the award of the contract was impeded by bids being contested or other delays. When the contract was finally awarded there was not enough time for logging or other salvage activities.

In some areas of the United States, many valuable trees are located on sites being cleared for impoundments. If more time was provided for tree removal, contractors could (1) use the most efficient, economical, and effective method to dispose of the vegetation, not the fastest; (2) locate more markets for the vegetation; (3) supply a market's demand for wood over a longer period of time; and/or (4) find more users for the wood.

At some sites, an increase in clearing time may reverse the clearing contract procedure. Instead of the government paying to have sites cleared, contractors would pay the government for the clearing contract, because the sale of the marketable wood would more than compensate them for their expenses.

Contract Specifications

The COE contracts out most of the large-scale clearing and disposal operations conducted at impoundments. Poorly written contract specifications can cause confusion and misunderstandings. All clearing and disposal specifications and supplementary information must be written so that the contractor will understand (1) what the job requirements are, (2) what the job limits are, and (3) what is expected by the COE.

The COE can expect to pay more per unit area for land clearing and disposal operations if the contract specifications are not written clearly and concisely. If a contractor does not completely understand the job, he/she will understandably bid higher as a protection against losing money.

During the study, several salient items became evident that should be remembered when writing clearing and disposal contract specifications:

1. State terms clearly and concisely. Define terms that may lead to misunderstandings, e.g., "brush," "trees," "scattered trees," etc.

2. Specify the job requirements exactly. Use dimensions, examples, diagrams, etc., as illustrations.

3. Clearly define the end use of the land and the expected condition of the site when the clearing and disposal activities have been completed.

4. After considering all the factors that can affect the clearing activities and total time requirement, specify a realistic completion date (try to include enough time for logging and other salvage operations).

5. Avoid rigid specifications that may force the clearing contractor to use less efficient and effective clearing and disposal methods.

6. Write out the specifications for each required operation (e.g., clearing, removal, and disposal) with as few vague statements as possible, e.g., "as directed" or "with the approval of the contracting officer."

7. Contain the job requirements to necessary work.

8. When determining the disposal methods or requirements, be aware of the number of factors that can affect the operation. Always stress the fact that cleared vegetation should be used if possible.

9. Do not conduct logging or other salvage activities concurrently with clearing operations. Logging and salvage operations should be controlled by the clearing contractor, not COE personnel.

10. Supply the contractor with the following items:

a. Aerial photographs of the areas to be cleared of vegetation.

b. A general topographic map of the entire area.

c. Climatic data, including monthly means and extremes of temperature and precipitation.

d. A soils map for the project area which includes soil types and depth of bedrock.

e. A map which shows the depths of the water table in the project area.

f. A general road map which shows access routes to and throughout the area.

g. The results of vegetative surveys and the general physical conditions at the sites.

11. If the contractor is to store wood chips, cut vegetation, etc., for a long period of time, specify that they should be placed above the high water level of the adjacent streams and rivers.

12. Wood and other debris (drift) deposited in the project area should be disposed of before filling the impoundment. Drift material should be defined and covered by the clearing contract if no other provisions have been made to dispose of it.

13. Most clearing contracts stipulate that the clearing contractor is responsible for conducting clearing and disposal operations in compliance with Federal, state, and local environmental laws and regulations. Be sure that the contract refers to the applicable laws and notes the responsibility of the clearing contractor for obtaining permits and meeting the requirements of regulating agencies.

14. Often the public does not know that contractors are doing the construction work at a dam project, but rather think that all or most of the workers are COE employees. Thus, it is important to write contracts that stress the beneficial uses of the cleared material, and the proper procedures and techniques to avoid conflicts with environmental laws and regulations. Then COE personnel should constantly monitor the contractor's work to insure compliance with the contract specifications. The construction of the dam and all its associated activities is a COE project; therefore, if a contractor violates laws and regulations, it is the COE who is at fault in the eyes of the public.

Summary

Large-scale clearing and disposal operations are conducted at new or established water impoundments by contractors; however, COE personnel occasionally clear and dispose of vegetation at COE impoundments on a small scale.

In 1980, less forested land will be cleared for COE impoundments than in 1970, but more vegetative debris will have to be disposed of because the areas will have denser stands of vegetation.

The selection of a disposal method for cleared vegetation must be based on many complex and interacting factors, including new environmental laws and regulations. No universal method can be used at every site to dispose of cleared vegetation; each site must be evaluated individually.

Cleared vegetation is a resource that should be sold or used if possible. The type, size, quality, and quantity of the vegetation must be considered when trying to determine its marketability or use.

A vegetative survey should be conducted for sites in the project area that will be cleared. This should provide the COE with the information necessary to estimate the value of the marketable vegetation.

Clear cutting (complete cutting) is the major clearing method used at COE impoundments. Large-scale mechanical clearing operations normally can be conducted on the flat floodplains, but in most cases, these areas have been farmed previously and are relatively devoid of natural vegetation. The adjacent slopes may be steep, gullied, and contain boulders and rock outcrops which do not facilitate mechanical clearing activities. Manual clearing with lightweight power chain saws allows the operators to traverse rugged areas and still maintain a high production rate. Removal of the vegetation may be a problem if it cannot be disposed of at or near the cutting site.

The costs of manual clearing operations are competitive with mechanical clearing operations at most projects. However, neither the size of most projects nor the amount of most clearing contracts is large enough to support large-scale mechanical clearing activities.

At some dam sites, it might be advantageous to expand clearing operations to include additional areas that will be permanently inundated by the body of water. Such action could reduce the amount of floating debris that must be removed from the water and disposed of after the impoundment is filled. Driftwood present in the project area before the impoundment is filled should be included in the clearing contract if no other provisions have been made to dispose of it.

The time allowed for the contractor to complete the clearing and disposal operation at impoundment projects should include enough time to properly dispose of all wood that can be sold or used beneficially. Cleared wood having a high value per unit volume, which will support the additional costs of processing, handling, and transporting, should be removed from the site and not destroyed.

4 DISPOSAL EQUIPMENT

Chippers

Chipping does not dispose of wood debris but normally facilitates handling, storing, and disposal. Chipping equipment is available in a variety of sizes. Some chippers can produce wood chips suitable for making paper; others can produce chips for making lineboard and pressboard or chips for use as fuel. The poorest grade chips, comprised primarily of bark and grit particles, are suitable only for mulch.

Several firms in the United States manufacture chipping equipment; five were contacted for this research:

FMC Corporation
Sweeper Division
1201 E. Lexington
Pomona, CA 91766

Morbark Industries, Inc.
Winn, MI 48896

Nicholson Manufacturing Company
3670 East Marginal Way South
Seattle, WA 98134

Precision Chipper Corporation
P. O. Box 360, Route 3
Leeds, AL 35094

Vermeer Manufacturing Company
Pella, IA 50219

Table 1 presents pertinent information and unit prices obtained from these five manufacturers and additional sources. The estimated prices are believed to be representative, but regional fluctuations may occur. The 1975 estimated list price for the item is presented to illustrate how equipment costs have increased over a 2-year period. Operating costs were not considered, since they are dependent on several factors which fluctuate regionally.

Air Sources--Blowers (Open-Pit Incineration)

Several companies manufacture and install permanent and semipermanent (portable) closed incinerators. The costs of these systems depend on the quantity of waste to be handled, the type and maximum

Table 1

Chipping Equipment Characteristics

Company/Model	Manufacturer's Est. Price of Equipment[1] Jan. 1975	June 1977	Remarks
FMC 12	--	$ 6,700 (C)	Brush chipper
FMC 16	$ 6,400 (B)	$ 6,900 (C)	Brush chipper
Morbark 12 (Total Chiparvestor)	--	$ 34,950	Max. stem dia., 12 in. (30.5 cm)
Vermeer 671 (Log Chipper)	$ 35,000	$ 43,000	Max. log size, 4 ft (1.2 m) dia; 6 ft (1.8 m) long; capacity chipping slash, 7 tons (6.4 metric tons) per hour.[2]
Morbark 18 (Total Chiparvestor)	$ 49,500	--	Max. log dia., 18 in. (46 cm); averages 30-45 tons (27-41 metric tons) per hour.
Precision 58 (Tree Harvester)	--	$ 64,350	----
Vermeer 1081 (Log Chipper)	$ 84,000	$ 99,400	Max. log size 4 ft (1.2 m) dia., 10 ft (3.1 m) long.
Precision 75 (Tree Harvester)	--	$103,250	Max. stem dia., 22 in. (56 cm); 200 tons (181 metric tons) per day capacity; chip size adjustable 1/2 to 1 in. (1.3 to 2.5 cm)[2]
Precision 84 (Tree Harvester)	--	$115,250	----
Morbark 22 (Total Chiparvestor)	$104,000	$118,730	Max. stem dia., 22 in. (56 cm); 200 tons (181 metric tons) per day capacity; chip size adjustable 1/2 to 1 in. (1.3 to 2.5 cm); on site production of pulping chips; chips entire tree.[2]
Nicholson Ecolo Chipper (41" x 27")	$160,000	$177,000	Five models are available; capacities vary from 40 to 225 tons (36 to 204 metric tons) per hour; chips nearly everything.[2]
Nicholson Complete Tree Utilizer (22")	$175,000	$196,000	Max. log dia., 22 in. (56 cm); produces pulp quality chips; averages 65 to 70 tons (60 to 63 metric tons) per hour.
Nicholson "Logger" Utilizer (18")	$283,000	$379,000	Barks stems before chipping; 200 tons (181 metric tons) per day; can handle only tree stems, no tops or limbs.[2]

[1] Estimated price at the factory.
[2] T. Harrison, *Slash...Equipment and Methods for Treatment and Utilization*, ED&T Report 7120-7 (USDA Forest Service Equipment Development Center, April 1975).

size of the waste, and the location of equipment installation in relation to the manufacturer's plant. Many of these systems use secondary fuel to incinerate the debris.

The solid waste found at reservoirs is primarily wood, which can serve as its own disposal fuel. To minimize costs, debris should *not* be processed (chipped, shredded, etc.) before being burned. Open-pit incinerators provide relatively unlimited access for charging the pit, but the amount disposed of depends on the size and type of the waste material, the size and type of the equipment, and the number of personnel.

The air source (blower) equipment used in this operation does not guarantee compliance with pollution codes because it is not possible to specify or predict exactly what waste will be burned in the unit. It is also very difficult to reliably measure emissions from open-pit incinerators. Although several Federal agencies have tried to determine methods for measuring emissions from this type of unit, none of the methods have proven entirely satisfactory. Regulating authorities should be consulted before purchasing and operating open-pit incineration equipment, since state or local laws and regulations may prohibit its use or specify operating requirements.

Enclosures or Pits

A pit may be constructed above ground with special heat-resistant concrete having a minimum thickness of 6 in. (15.2 cm). Some pits are constructed of metal, refractory brick, concrete block, or other materials. The pits may be covered by a screen cage to contain any debris that might escape the air curtain and blow out of the pit. Most of these units are fairly permanent. Use of concrete, refractory brick, concrete block, etc., increases the initial capital investment, and their replacement and maintenance increases operating costs.

If the depth of the water table and the soil structure is satisfactory, the simplest and cheapest disposal procedure is to excavate a subsurface pit to confine the burning. The residue can be removed from the pit periodically, or the pit can be filled with dirt to dispose of the residue. Lining subsurface pits with metal railroad boxcars, concrete, and other materials will increase the capital investment and operating costs for the unit but may be necessary at some sites.

Charging Equipment

The type of equipment used to place debris in the pit depends on the type and location of the pit, and on location, size, and total volume of the debris. The following basic equipment is used at most sites for excavating and charging subsurface pits.

Cranes with clamshell buckets are considered the safest and most efficient pieces of equipment for charging pits at large-scale burning operations. One crane may be used to charge and clean several pits.

Front-end loaders can be used for charging and cleaning pits. They should charge subsurface pits from behind the plenum of the air source instead of from the open side to prevent equipment from falling into the pit and to prevent debris from being dumped onto the air source. The scoop-type loader works very well with driftwood. Units equipped with backhoes can be used to excavate subsurface pits.

Dozers can be used to charge subsurface pits. Dozer blades can be used to push debris into the pit from the open side. There is usually a great deal of dirt in the debris, which may produce smoke and will definitely reduce the lifespan of the pit. If the unit has a backhoe, it can be used to excavate the subsurface pit.

Continuous feed operations have been devised for charging subsurface pits. Conveyor belts have also been used, but these are usually constructed only for permanent operations.

Air Source--Blower

Several companies in the United States manufacture air sources for open-pit incinerators. The equipment from four representative companies has been considered in this report:

DriAll, Inc.
P. O. Box 309
Attica, IN 47918

W. A. Kutrieb, Inc.
1527 Beloit Ave.
Janesville, WI 53545

Trane Thermal Company
Brook Road
Conshohocken, PA 19428

The Camran Corporation
3040 W. Commodore Way
Seattle, WA 98199

Table 2 presents prices and pertinent information for the air sources manufactured and sold by these four companies. Many other manufacturers have only local or regional distribution, and their prices may be substantially lower than those presented in the table.

Table 2

Burning Equipment Characteristics

Company/Model	Manufacturer's Est. Price of Equipment[1] Jan. 1975	June 1977	Remarks
DriAll ACD-10	$ 3,383[2]	$ 5,384[2]	Skid-mount; cap. 2 to 3.5 tons (1.8 to 3.1 metric tons) per hour; 10 ft (3.1 m) plenum.
DriAll ACD-21	$ 5,640[2]	$ 7,856[2]	Skid-mount; cap. 3 to 7 tons (2.7 to 6.4 metric tons) per hour; 21 ft (6.4 m) plenum.
DriAll ACD-21	$ 6,848[2]	$ 8,813[2]	Wheel-mount; cap. 3 to 7 tons (2.7 to 6.4 metric tons) per hour; 21 ft (6.4 m) plenum.
DriAll ACD-42	--	$ 12,104[2]	Skid-mount; cap. 6 to 14 tons (5.4 to 12.7 metric tons) per hour; 42 ft (12.8 m) plenum.
DriAll ACD-42	$ 11,605[2]	$ 13,616[2]	Wheel-mount; cap. 6 to 14 tons (5.4 to 12.7 metric tons) per hour; 42 ft (12.8 m) plenum.
Trane Transportable 24	$ 17,800[2]	$ 20,350[2]	Skid-mount; cap. 5 to 15 tons (4.5 to 13.6 metric tons) per hour; 24 ft (7.3 m) plenum.
Trane Transportable 36	$ 25,200[2]	$ 28,800[2]	Skid-mount; cap. 8 to 25 tons (7.3 to 22.7 metric tons) per hour; 36 ft (11 m) plenum.
Kutrieb 120	$ 5,150[3]	$ 5,150[3]	Mounted on steel base; 12 ft (3.7 m) plenum.
Kutrieb 200	$ 6,960[3]	$ 6,960[3]	Mounted on steel base; 20 ft (6.1 m) plenum.
Kutrieb 300	$ 9,860[3]	$ 9,860[3]	Mounted on steel base; 30 ft (9.2 m) plenum.
Kutrieb 400	$ 12,870[3]	$ 12,870[3]	Mounted on steel base; 40 ft (12.2 m) plenum.
Camran ACCU[4]	$ 25,000[5]	--[6]	Trailer-mounted, includes precast refractory walled "pit," 20 ft (6 m) long; cap. 10 to 15 tons (9.1 to 13.6 metric tons) per hour.[5]

[1]Estimated price at the factory.
[2]Without power source, engine, or motor.
[3]Includes electric drive and controls.
[4]Air Curtain Combustion Unit (ACCU) is a mobile burning enclosure that uses air curtain principles; also available on skid-mount.
[5]R. T. Harrison, *Slash...Equipment and Methods for Treatment and Utilization*, ED&T Report 7120-7 (USDA Forest Service Equipment Development Center, April 1975), p 41.
[6]The Camran Corporation had not replied to the June 1977 inquiries by 6 January 1978.

Summary

Table 3 presents pertinent information about some of the equipment and methods of debris disposal discussed in this report. Although the information concerns only logging slash and some of the information is dated (e.g., costs), this summary may give the reader a broader overview of equipment and disposal methods.

In some areas of the United States, organized multiple use of equipment among several project managers would spread the initial cost (capital investment) over several projects; however, there might be scheduling problems if burn seasons within the area are limited. During some years, one or two projects might have more debris than is normal and not be able to complete disposal.

Table 3

Treating and Utilizing Logging Slash--1975

(From R. T. Harrison, *Slash...Equipment and Methods for Treatment and Utilization*, ED&T Report 7120-7 [USDA Forest Service Equipment Development Center, April 1975], p 3).

Equipment or Method	Slope limitation (%)	Size limitation Diameter (in)	Size limitation Length (ft)	Cost, including support equipment ($/ton)	Point-of-View Acceptability[1] Aesthetics	Watershed	Fire Mgt.	Timber Mgt.	Engineering	Suitable areas for treatment	Support equipment needed	Most Notable shortcomings	Most notable advantages
Tractor crushing	30	4 to 6	None	3.50	3	2	3	3	2	Not recommended	None	Very inefficient	None
Towed Rolling Choppers	20	4 to 8	None	6.80	3	3	2	3	4	Southeastern U.S.	Tractor, D6 or larger	Sensitive to rocks--blades break; treats only soft species	None
Morbark Chipar-vestor & Precision Tree Harvester	Limit of skidders	22	None	3.30 (chipping only) 10.00[2] (total)	1	2	1	1	3	Clear cuts	Truck-tractor, tractor, feller-buncher, & grapple skidders	Large initial investment; must be market for total chips	Very high quality treatment; provides "clean logging"
Nicholson Ecolo Chipper	Limit of skidders	24	None	?	1	2	1	2	3	Any, within size & slope limitations	Grapple skidder	Large initial investment	Very high quality treatment
Broadcast Burning	None	About 4[3]	None	4.10[4]	5	4	2	4	1	Any	Full fire protection	Incomplete treatment; soil damage; air pollution; high fire escape danger	Inexpensive in terms of area treated ($70/acre)
Pile Burning	30 (Limit of piling tractor)	About 6[3]	None	4.00[4]	4	3	2	3	1	Any, within size & slope limitations	Fire protection	Essentially same as broadcast burning	Simple and easy
DriAll Air Curtain Destructor	Limit of yarding method	96	Length of pit	5.70	1	2	2	2	2	Stable soil	Crane, backhoe	Only for large quantity of un-usable material	High quality job; longer burn season than pile burns
Comran Air Curtain Com-bustion Unit	Limit of yarding method	48	20	8.00	1	1	3	2	3	Any	Truck-tractor	Large initial expense; danger of spot fires	High quality job; longer burn season than pile burns; mobile, no pit needed
Exportation	Limit of yarding method	None	None	?	1	3	1	2	?	Any	Tractor, D6 or larger; stump splitters/removers	Disposal can be impractical	Can lead to utilization
Burying in Cells	30 (Limit of piling tractor)	None	None	3.80	2	4	1	5	1	Areas needing intensive cleanup	Tractors, D4 for piling & pushing; D8 for digging	Removes area from timber production	Hides slash from view

[1]Judgment values; 1 indicates highest degree of excellence; each larger number signifies lower ranking.
[2]Based on 75 ton/acre lodgepole pine; total slash reduction shown does not include road costs, loading, or hauling chips from site, and does not allow any credit for possible sale of chips.
[3]Depends on burning conditions.
[4]Based on 140 ton/acre old-growth Douglas-fir logging slash.

5 CLEARING VERSUS CLEANING

Discussions with COE personnel produced arguments for and against expanding clearing operations while the dam is being constructed. Research personnel were unable to establish a universal policy that would apply to all impoundments; however, some of the major evaluation factors to be considered are outlined in the paragraphs below.

Structural Considerations

Is the dam designed to pass (flush) the debris downstream, or will the dam trap the debris and necessitate frequent cleaning operations? Will the accumulation of the floating debris impede the functions of the dam?

Debris Considerations

How much vegetative debris can be expected to be washed down from the watershed? Will the amount of debris decrease, increase, or remain constant for a number of years? How much vegetation will be permanently inundated by the water body and will subsequently rot, fall into the water, and become floating debris to be removed in cleaning operations?

Disposal Considerations

Will there be many areas around the impoundment where the floating debris can be collected, removed, and disposed of economically? Would it be easier and less expensive to clear and dispose of the vegetation prior to filling the impoundment?

At most dam sites, it is easier to conduct clearing than cleaning operations. There are more possible sites for disposing of clearing debris in the floodplain than for cleaning debris after the impoundment has been filled.

Some states have laws and/or regulations that prohibit the burial of wood debris in a floodplain. Local regulating agencies should be consulted before beginning burial operations.

Other Considerations

At some sites, clear cutting can produce conditions that will promote large-scale erosion problems before the impoundment is filled.

If the area to be permanently inundated by the impoundment is cleared of vegetation, the costs of the clearing and disposal operations may produce an unfavorable cost/benefit ratio for the project; however, if the area is not cleared prior to filling the impoundment, the costs for removing the debris at a later time are passed on to the dam's operation and maintenance costs. The costs of clearing and cleaning operations are increasing constantly. COE personnel must consider whether it would be cheaper to clear the area of vegetation during construction or clean out the floating debris later. At many dam sites, some or most of the cleared vegetation can either be sold to help pay a portion of the costs, or can be used in a beneficial manner on or off the site. The quality and quantity of cleaning debris is normally such that it cannot be sold or used.

6 REVIEW OF STATE ENVIRONMENTAL LAWS CONCERNING CLEARING AND CLEANING OPERATIONS

Environmental laws are an important consideration when selecting a method to dispose of clearing and cleaning debris at a project site. Planning and design personnel, contract writers and monitors, and project managers should consider Federal, state, and local environmental laws and regulations as part of their job assignments for a particular dam project.

The appendix of this report summarizes current* state environmental laws and regulations that may pertain to the disposal of clearing and cleaning debris at dam projects and the associated activities.

Table 4 is a summary matrix of the state environmental laws: it provides useful reference to the contents of the state summary contained in the appendix.

A few states included in the appendix summaries have no COE projects located within their boundaries. The additional information is furnished for reference and comparison, since many rivers are state boundaries, and COE personnel may need to refer to the state environmental laws for more than one state.

The state summaries indicate that disposal operations may require no permits in some cases, but in others may require several permits from a number of agencies, depending on the types of disposal activities.

In some states, the law or regulation may not apply to a Federal agency, while it may apply to a contractor performing the same operation.

The summary matrix and the state summaries presented in the appendix should be used as a guide. Permit requirements, variance availability, and other restrictions on the different disposal methods can change on a case-by-case basis. Local, state, and Federal agencies should be contacted prior to planning any disposal operations at a dam project.

*State agencies were queried for current laws and regulations in the summer of 1977.

Table 4

Summary Matrix of State Environmental Laws

1 - No information found
2 - Not allowed
3 - Permit required
4 - Other restrictions

State	Unconfined Burning				Confined Burning				Burial of Debris				Selling Debris				Processing Debris				Transporting Debris				Use of Debris			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Alabama			X	X			X	X			X	X				X				X				X	X			
Arizona			X	X			X	X			X	X				X				X				X	X			
Arkansas			X	X			X	X			X	X				X			X	X				X	X			
California			X	X			X	X			X	X				X				X				X	X			
Colorado			X	X			X	X			X	X	X				X							X	X			
Connecticut			X	X			X	X			X	X	X				X							X	X			
Delaware			X	X			X				X	X				X			X					X	X			
Florida			X	X			X	X			X	X				X	X							X				X
Georgia			X	X			X				X	X				X			X	X			X	X			X	X
Idaho			X	X			X	X			X	X				X				X				X				X
Illinois			X	X			X	X			X	X				X				X				X				X
Indiana			X	X			X	X			X	X	X				X							X	X			
Iowa			X	X			X	X			X	X				X				X				X				X
Kansas			X	X			X	X			X	X				X				X				X				X
Kentucky			X	X			X	X			X	X	X							X				X	X			
Louisiana				X			X	X			X		X							X				X				X
Maine			X	X			X				X	X	X				X							X	X			
Maryland			X	X			X	X			X	X				X			X	X				X				X
Massachusetts			X	X			X	X			X	X	X							X				X	X			
Michigan			X	X			X	X			X	X	X				X							X	X			
Minnesota			X	X			X				X	X	X				X							X				X
Mississippi			X	X			X				X	X				X				X				X				X
Missouri			X	X			X	X			X	X	X				X					X			X			
Montana			X	X			X	X			X	X	X				X					X			X			

Table 4 (Cont)

1 - No information found
2 - Not allowed
3 - Permit required
4 - Other restrictions

State	Unconfined Burning				Confined Burning				Burial of Debris				Selling Debris				Processing Debris				Transporting Debris				Use of Debris			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Nebraska			X	X			X	X			X	X				X				X				X				X
Nevada			X	X			X	X			X	X			X	X			X					X				X
New Hampshire			X	X			X	X			X	X	X				X						X		X			
New Jersey			X	X			X	X			X	X	X				X							X	X			
New Mexico			X	X			X	X			X	X				X			X					X				X
New York			X	X			X	X			X	X	X				X					X			X			
North Carolina			X	X			X	X			X	X	X				X							X				X
North Dakota			X	X			X				X	X	X				X						X	X	X			
Ohio			X	X				X			X	X	X				X					X			X			
Oklahoma				X			X	X			X	X				X	X							X	X			
Oregon			X	X			X	X			X	X	X							X				X	X			
Pennsylvania			X	X			X	X			X	X				X				X				X				X
Rohde Island			X	X			X	X			X	X				X				X				X				X
South Carolina			X	X			X	X			X	X	X				X					X			X			
South Dakota			X	X			X	X			X	X				X	X							X	X			
Tennessee			X	X			X	X			X	X	X				X							X	X			
Texas			X	X			X	X			X	X				X			X					X	X			
Utah			X	X			X	X			X	X	X				X					X			X			
Vermont			X	X				X			X	X				X	X							X	X			
Virginia			X	X				X			X	X	X							X				X	X			
Washington			X	X			X	X			X	X				X				X				X				X
West Virginia			X	X			X	X			X	X				X				X				X				X
Wisconsin			X	X			X	X			X	X			X	X			X	X			X	X				X
Wyoming			X	X			X	X			X	X			X	X				X			X	X	X			

7 SUMMARY AND RECOMMENDATIONS

This report provides management concepts that will assist Corps of Engineers personnel with the disposal of clearing and cleaning debris at water impoundment projects. These management concepts encompass collection, removal, and disposal operations.

When selecting methods for disposing of clearing and cleaning debris, many site-specific elements must be considered. These elements relate to economics, physical factors, environmental considerations, and institutional constraints such as state environmental regulations. Information and guidance provided in the report will help the user select the optimum technique for considering the site-specific aspects of his/her project. State legislation summarized in the appendix provides necessary information related to institutional constraints.

It is recommended that this report be used as a guide for management personnel responsible for disposing of reservoir clearing and cleaning debris at Corps of Engineers projects. The information provided in Chapters 2 and 3 and the appendix of this report should provide the management information necessary for the project manager to select the best method to dispose of clearing or cleaning debris.

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APPENDIX

SUMMARY OF STATE LAWS AND REGULATIONS REGARDING THE DISPOSAL OF CLEARING AND CLEANING DEBRIS FOR THE 48 CONTIGUOUS UNITED STATES AS OF JUNE 1977

ALABAMA

I. AIR

The Department of Health, Division of Air Pollution Control (DAPC), and the Air Pollution Control Commission (APCC) are responsible for implementing the statutes and regulations that deal with the problem of air pollution. (22-310(6))* Representatives of the APCC may inspect any property, premises or place at which a source of an air contaminant is located or being constructed, installed or established. (22-310(9)) County and city-wide air pollution control programs may coexist with the APCC provided that they meet minimum standards and are approved by the APCC. (22-310(10)) The following types of open burning are allowed without a permit: a) fires to abate a fire hazard providing the fire hazard has been declared by the local fire department or district; b) fires for prevention or control of disease or pests; c) fires set for recognized agricultural, silvicultural, range and wildlife management practices; and d) fires for the burning of trees, brush, grass and other vegetable matter in the clearing and maintenance of right-of-way if such burning is done by an air curtain incinerator method properly constructed and maintained. (Reg. 3.1) The following types of open burning are allowed upon approval of the APCC: a) fires for the disposal of dangerous materials where there is no practical alternative method of disposal; and b) fires for the burning of trees, brush, grass and other vegetable matter through a method other than that of an air curtain incinerator. (Reg. 3.1) All other open fires that may be started must be specifically and expressly approved by the APCC. Incinerators must be so designed and operated as to prevent the emission of objectionable odors. (Reg. 3.2) No person may cause an emission from an incinerator of particulate matter which exceeds 0.20 pounds per hundred pounds of refuse charged for incinerators having a capacity less than 50 tons per day, or 0.10 pounds per hundred pounds of refuse charged for incinerators having a capacity greater than 50 tons per day. A "person" is defined to include federal agencies. (22-310(3)) The APCC does not allow pit or trench incinerators. No person may operate an incinerator which emits wood wastes particulate matter to exceed 0.40 pounds per hundred pounds of material charged. (Reg. 3.3) No person may discharge into the atmosphere from a single source an air contaminant of a

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*Legal code citations to Alabama statutes.

shade or density darker than No. 1 on the Ringelmann Chart or 20 percent opacity. (Reg. 4.1) No person may permit any materials to be handled, transported or stored without taking reasonable precautions to prevent particulate matter from becoming airborne. (Reg. 4.2) No person may permit the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate. (Reg. 4.2) The DAPC may declare an air pollution emergency at which time it may prohibit, restrict or condition any activity which may contribute to the emergency. (22-310(11))

ADDRESS: Air Pollution Control Commission
Division of Air Pollution Control
645 South McDonough Street
Montgomery, AL 36130
205/834-6770

2. SOLID WASTE

The Department of Public Health (DPH), Division of Solid Waste and Vector Control, is the agency responsible for implementing the state's solid waste management program. (22-346) No garbage, rubbish or hazardous wastes may be burned at any disposal site except in approved incinerators. (22-347) The open burning of rubbish is permitted only under sharply controlled circumstances where sanitary landfills are not feasible. (22-347) Trucks or other vehicles engaged in the business of hauling garbage must be so covered, secured and sealed that there will be no loss during haulage. (22-347) Hazardous wastes may not be handled or disposed of in the same site as ordinary wastes. They must be disposed of by special incinerators or other means determined by the local or state health department. (22-348) DPH regulations require that solid waste be disposed of by sanitary landfill, incinerator or other approved means. (Solid Waste Mgt. (SWM) Reg. 8) The DPH must approve both the plan for disposal and the site for disposal. (SWM Reg. 9) Open burning of solid waste at any sanitary landfill is prohibited. Sanitary landfills must be so planned and operated as to prevent the contamination of surface or groundwater. Hazardous waste may not be disposed of at such landfills without specific permission of the DPH. (SWM Reg. 10) Disposal of garbage and certain refuse by incineration or composting is approved when certain regulations set forth by the DPH have been met. (Alabama Standards for Disposal of Solid Waste)

ADDRESS: Department of Public Health
Division of Solid Waste and
Vector Control
State Office Building
501 Dexter Avenue
Montgomery, AL 36130
205/832-6728

3. WATER

The Water Improvement Commission (WIC) is the state agency responsible for implementing the state's water pollution program. (22-140(12d)) It has the general authority to issue permits and orders, adopt rules and regulations and establish water quality standards. (22-140) Any proposal for a major industrial waste discharge must be submitted to the WIC with a full discussion of the waste treatment system, characteristics of the discharge, and effects of the waste on the receiving waters. If the proposal is found to be satisfactory, a permit for the discharge may be granted, subject to the construction of treatment facilities and systems in accordance with plans and specifications approved by the WIC staff. Proposals for minor industrial waste discharges will be processed by the staff, with commitments made by the staff being subject to concurrence of the WIC. (Alabama Waste Discharge Permit Policies and Procedures)

ADDRESS: Water Improvement Commission
3815 Interstate Court
Montgomery, AL 36109
205/277-3630

4. STATE FORESTRY

The State Forestry Commission (SFC) is the state agency responsible for regulating, preventing and suppressing forest fires and for other forest management practices. (8-231(39)) The SFC may appoint local forest fire wardens whose primary duty is the prevention and suppression of forest fires. (8-203) Forest fire wardens have the authority to enter onto private land for the purpose of preventing the further spread of forest fires. (8-203) Any person who willfully or maliciously sets on fire any woods, brush, prairie, grass, grain, stubble or other inflammable vegetation on lands not owned by him may be found guilty of a misdemeanor and punished by a fine of not less than $10 nor more than $1,000 or sentenced to jail for a period of not less than 10 days nor more than 12 months. Any person who sets an open fire in an area placed by the SFC under an

organized forest fire protection district without first reporting to the local district the time, manner and place in which the burning is to occur is guilty of a misdemeanor. (8-204) Any person who sets fire to any woods, logs, brush, weeds, grass or clearing upon his own land must give adjacent landowners five days written notice of his intention to do so. (8-207) The SFC, with the approval of the governor, may declare a drought emergency condition in any county or counties. (8-231(32)) After such proclamation it is unlawful for any person to set fire to any forest, grass, woods, wildlands or marshes or to burn trash that may cause forest, grass or woods fires. (8-231(33)) Any person violating the proclamation is guilty of a misdemeanor and may be fined not less than $250 nor more than $500 and imprisoned for a period not exceeding 6 months. (8-231(34))

ADDRESS: State Forestry Commission
513 Madison Avenue
Montgomery, AL 36130
205/832-6587

5. NUISANCE

Public nuisances are broadly defined by statute. (22-75) The State Board of Health is authorized to enact regulations dealing with nuisances and is the primary statewide enforcing agency. (22-75) Public nuisances may also be abated by county boards of health. (22-76) All cities and towns have the general authority to maintain healthy and clean conditions within their municipal boundaries. (37-491) All municipalities may also update and enjoin all nuisances. (37-505-6)

6. MISCELLANEOUS

The Department of Agriculture is responsible for protecting all agricultural and horticultural interests of the state from insect pests and diseases. (2-456) In so doing, it may inspect any plant, plant products or other material that may be capable of disseminating or carrying insect pests or diseases. (2-456) The Department may also intercept and inspect all plant materials in transit in the state. (2-456) The Department may declare a quarantine against any place, nursery, county or counties within the state where a dangerous insect pest or disease is located. It is unlawful thereafter until such quarantine is removed for any person to move, sell or otherwise dispose of within the state any plant, plant product or other material included in such quarantine or coming from such quarantined area. (2-464) The Department of Agriculture, Division of Plant Industry,

has the authority to require treatment for any diseased plants or trees. (2-468)

ADDRESS: Department of Agriculture
Richard Beard Building
1445 Federal Dr.
Montgomery, AL 36107
205/832-6693

ARIZONA

1. AIR

The Department of Health Services (DHS), Division of Environmental Health Services, Bureau of Air Quality Control, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (36-1706)* In addition, extensive air pollution control authority is granted to each County Board of Supervisors; these may create air pollution control districts on a county-wide basis. (36-773, 774) Counties may enact rules and regulations dealing with the problem of air pollution. (36-779) In addition, they may require, prior to the installation, replacing or erecting of any machine, equipment, incinerator or other device which may cause or contribute to air pollution, the obtaining of a permit from the county air pollution control officer. (36-779.01, Reg. 9-3-1201) The DHS regulations generally prohibit the ignition or maintenance of any open, outdoor fire, meaning the combustion of any material outdoors that is not directed through a flue. (Reg. 9-3-107) The following exceptions are made to this general prohibition: 1) fires set or permitted by a public officer in the performance of an official duty for the purposes of weed abatement, the prevention of fire hazards or fire fighting instructions; 2) fires set or permitted by the State Entomologist or county agricultural agent for the purpose of disease and pest prevention; 3) fires set or permitted by the Federal government or any of its agencies for the purpose of watershed rehabilitation or control through vegetative manipulation; and 4) fires set for the disposal of dangerous materials for which there is no safe, alternative method of disposal. Permission for the setting of these fires must be in writing and copies must be transmitted to the DHS and to any county, district or regional control officer. (Reg. 9-3-107) The opacity of any plume or effluent of particulate emissions from stationary sources shall not be greater than that designated number 2 on the Ringelmann Chart. (Reg. 9-3-301) No person may permit the transportation of materials likely to give rise to airborne dust without taking reasonable precautions to prevent particulate matter from becoming airborne. No person may allow or permit the crushing, screening, handling or

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* Legal code citations to Arizona statutes.

conveying of materials likely to give rise to airborne dust without taking reasonable precautions to minimize the amount of particulate matter becoming airborne. (Reg. 9-3-302) No person may permit emissions from any type of incinerator of an apparent density, opacity or shade which exceeds 20% of the opacity scale. (Reg. 9-3-303) For multiple-chamber incinerators, controlled atmosphere incinerators, fume incinerators or other types, emissions may not exceed 0.1 grain per cubic foot based on dry flue gas at standard conditions, corrected to 12 percent carbon dioxide. For wood waste burners other than air curtain destructors, emissions discharged from the stack must not exceed 0.2 grains per cubic foot. For air curtain destructors, emissions discharged from the pit opening may not exceed 0.5 grains per dry cubic foot. Air curtain destructors may not be used within 500 feet of a dwelling. (Reg. 9-3-303) Wood waste burners and air curtain destructors are exempted from opacity and emission requirements: 1) for a period of not to exceed 60 minutes once each day for the purpose of building a new fire, and 2) for an upset of operations not to exceed 3 minutes in any 60 minute period. (Reg. 9-3-303) Local air pollution control districts and county air pollution control authorities have the same open burning restrictions as does the DHS. (36-789) The DHS may declare an air pollution alert or emergency at which time open burning and use of incinerators may be reduced or prohibited. (Reg. 9-3-210)

ADDRESS: Department of Health Services
Bureau of Air Quality Control
1740 West Adams Street
Phoenix, Arizona 85007
602/271-3389

2. SOLID WASTE

The DHS, Bureau of Sanitation, is the agency responsible for implementing the state's solid waste management program. (36-136) The DHS is authorized to prescribe regulations dealing with the disposal of all types of solid wastes. (36-136) The DHS has promulgated regulations dealing with disposal of refuse and other objectionable wastes, which would include reservoir clearing and cleaning debris. (Reg. 9-8-401 et. seq.) The owner of any premises is responsible for the sanitary condition thereof, and no person shall place, deposit or allow to be placed on his premises or on any public thoroughfare, any objectionable wastes. (Reg. 9-8-413) The DHS may inspect any premises, container, process or

vehicle used for collection, storage, transportation, disposal or reclamation of refuse. (Reg. 9-8-414) All refuse must be so stored as to minimize nuisance-type conditions. (Reg. 9-8-421) Vehicles used for the collection and transportation of refuse must be so loaded and moved that the contents will not fall, leak or spill therefrom. (Reg. 9-8-428) All refuse must be disposed of in a manner that will not create a nuisance or invite excessive vector problems. (Reg. 9-8-431) All sanitary landfills must receive approval from the DHS prior to the start of operations. All landfills must utilize a 6- to 12-inch daily cover to minimize health hazards. (Reg. 9-8-432) Landfills must be so located that seepage will not create a health hazard or cause pollution of any surface or groundwater. Adequate and proper surface drainage must be provided to prevent ponding or erosion. Burning of refuse at landfills is prohibited. Salvaging, if permitted, must be rigidly controlled. Where incineration is the method of disposal, plans and specifications must be submitted to the DHS and approval received prior to construction. Composting is an acceptable method of disposal provided that the DHS approves the plans and specifications prior to construction and operation. (Reg. 9-8-432)

ADDRESS: Department of Health Services
Bureau of Sanitation
1740 West Adams Street
Phoenix, Arizona 85007
602/271-5141

3. WATER

The DHS, Division of Environmental Health Services, Bureau of Water Quality, is the state agency responsible for implementing the water pollution program. (36-1852, 1853) There is also an Advisory Water Quality Control Council which issues rules and regulations pertaining to water pollution control. (36-1853) The DHS provides the staff to implement and administer Council programs. (36-1854, 1856) Any discharge from a point source is prohibited without a permit. (36-1858)

ADDRESS: Department of Health Services
Bureau of Water Quality
1740 West Adams Street
Phoenix, Arizona 85007
602/271-5453

4. STATE FORESTRY

The State Land Commissioner is the ex officio State Forester. (37-621) The State Forester has the authority to prevent and suppress wildfires on state or private lands located outside of incorporated municipalities. (37-623) The State Forester shall cooperate and coordinate with the State Fire Marshal in the administration of the state fire code in the prevention of fires on rural lands and wildlands. He also may enter into cooperative agreements with other agencies, departments and political subdivisions for prevention and suppression of wildfires. (37-23) Within each county there may be voluntary forest fire wardens who have the authority to enforce the state's forest fire laws. (11-572)

ADDRESS: Division of Forestry
Land Department
3650 S. Lake Mary Road
P. O. Box 387
Flagstaff, Arizona 86001
602/774-1425

5. NUISANCE

Public nuisances are specifically defined to include any condition which constitutes a breeding place for vectors, any condition involving organic or putrescible wastes which is a threat to the public health, or the pollution or contamination of any drinking water supply. (36-601) The DHS has the primary state-wide authority to enforce, investigate and abate all public nuisances. (36-601) City and county boards of health are also empowered to abate such nuisances. (36-602) The DHS has the general authority to investigate water, solid waste, land, and air pollution that rises to the level of a nuisance. (Reg. 9-8-432) The maintenance of a public nuisance is a criminal misdemeanor. (13-601)

6. MISCELLANEOUS

The Commission of Agriculture and Horticulture (CAH) has the authority to deal with crop pests and diseases and with all infested or infected plants. (3-103) The CAH may make and enforce all rules, regulations and orders necessary to carry out the above-mentioned purposes, including acting upon recommendations of the State Entomologist. (3-103) The State Entomologist is empowered and

directed to enter any premises, vehicle or other means of transportation suspected of containing, harboring or having present therein noxious weeds, crop pests or diseases. (3-113) All plants, soils and any other material found to be infested or infected are declared to be public nuisances and may be abated, suppressed, controlled or regulated. (3-202) The Entomologist may place a quarantine on infected and diseased plants, forbidding the removal or disturbing of those plants pending further action. (3-203) A statewide quarantine on a crop, pest or disease may be declared after notice and public hearing. (3-207) The sale or transportation of infested or infected plants is prohibited. (3-212)

ADDRESS: Commission of Agriculture and Horticulture
1688 W. Adams Street, Room 421
Phoenix, Arizona 85007
602/271-4373

ARKANSAS

1. AIR

The Department of Pollution Control and Ecology (DPCE), Division of Air Pollution Control, is the state agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (5-908)* A Commission on Pollution Control and Ecology is empowered to develop air pollution control programs, promulgate regulations, and grant specific variances. (82-1903, 82-1935, 82-1939) The DPCE, Division of Air Pollution Control, provides the staff for the Commission in air pollution control matters. The DPCE may require permits for the construction, installation or operation of any facility that will emit any air contaminants. (82-1935) It is unlawful to knowingly cause air pollution; to construct, install, use or operate any source capable of emitting air contaminants without obtaining a permit; or to violate any rule, regulation or order of the DPCE. These violations constitute misdemeanors. (82-1938) The state scheme for regulating air pollution preempts any local regulation. (82-1941) A person may permit visible emissions from existing equipment to exceed No. 2 on the Standard Smoke Chart, or an opacity which obscures vision to a degree equal to or greater than smoke of No. 2 density, for up to a total of 5 minutes in any 60-minute period, provided such emissions will not occur more than three times in any 24-hour period. For all new incinerators, emissions may not exceed a density equal to or darker than No. 1 on the Standard Smoke Chart. Emissions of a density greater than No. 1, but not exceeding No. 3, will be allowed for not more than five minutes in any consecutive 60-minute period, provided such emissions will not occur more than three times during any 24-hour period. The density or opacity of the air contaminant is measured at the point of its emission. The emission limitations do not apply during the start-up of a new fire in an incinerator used exclusively for the disposal of wood wastes. The visible emissions limitations do not apply to portable incinerators used for disposal of debris from demolition and land clearing operations. (Air Pollution Control Code Sec. 4) No person may permit the open burning of refuse, garbage, trade waste or other material, nor may he conduct a salvage operation by

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* Legal code citations to Arkansas statutes.

open burning. The following types of open burning are exempt from this prohibition: 1) open burning related to agricultural practices including land clearing, burning of stubble and other similar activities; 2) fires for the purposes of wildlife and forest management provided such fires are set where winds are blowing away from populated areas; 3) fires set or permitted by any public official or legislative body for the purpose of weed abatement or the prevention or elimination of a fire hazard; and 4) open burning of any material, not specifically prohibited or exempted in the regulations, for which there is no practical, safe or lawful means of disposal; before burning such material a permit must be obtained from the DPCE. (Air Pollution Control Code Sec. 5) During conditions of air pollution emergencies, all open burning in such areas must be discontinued. (Air Pollution Control Code Sec. 5) No person may permit the emission of particulate matter from any incinerator, installed after the effective date of the regulations, in excess of 0.2 grains of particulate matter per standard cubic foot of dry flue gas corrected to 12% carbon dioxide for incinerators with a refuse burning capacity of 200 pounds or more per hour. For smaller incinerators the applicable emission limitation is 0.3 grains of particulate matter per standard cubic foot of dry flue gas. (Air Pollution Control Code Sec. 6)

ADDRESS: Department of Pollution Control and Ecology
Division of Air Pollution Control
8001 National Drive
Little Rock, Arkansas 72209
501/371-1136

2. SOLID WASTE

The DPCE, Division of Solid Waste, is the agency responsible for implementing the state's solid waste management program. (82-2707) Under the direction of the Commission on Pollution Control and Ecology, it is given rule-making power and responsibility to require approval of plans and specifications for solid waste disposal facilities and sites. (82-2707) It is also authorized to issue permits dealing with solid waste disposal systems. (82-2707) It is unlawful to construct, install, modify, use or operate any solid waste processing or disposal facility or site without a permit from the DPCE. It is also unlawful to dispose of solid waste elsewhere than at permitted sites or facilities. It is unlawful to dump, deposit, throw or abandon any solid wastes upon property owned by another with-

out his written permission. It is unlawful to sort, collect, transport, process or dispose of solid waste contrary to the rules, regulations or orders of the DPCE in a manner likely to create a public nuisance or health hazard or likely to cause water or air pollution. (82-2710) The DPCE regulations provide that sanitary landfills, incineration, composting or other specifically approved disposal systems may be used to dispose of solid waste. (Solid Waste Disposal Code (SWDC) Sec. 4) Permit applications for all solid waste disposal facilities or sites must include specific hydrological, topographical, geographical and operational data. (SWDC Sec. 5) Cover material to be used must be of such character that it can be compacted to provide a tight seal. (SWDC Sec. 6) Sanitary landfills must be so operated and located as to avoid creating a public nuisance or hazard or to cause water or air pollution. Any discharge of effluent would require a water disposal permit from the DPCE. Landfill operations in areas having high groundwater tables are restricted to those which will maintain a safe vertical distance between the refuse and maximum water table elevation. All solid waste disposal sites must conform to applicable state laws and to county or municipal zoning laws and ordinances. (SWDC Sec. 6) A compacted layer of at least 6 inches of material must be used to cover all exposed solid wastes at the end of each working day. Daily cover depths must be continually maintained. All salvage operations must be conducted in a sanitary manner and must be confined to an area remote from the operating face of the fill. The regulations exempt incinerators having a capacity of less than 2,000 pounds per hour except for those which incinerate toxic or hazardous wastes. All covered incinerators must be approved by the DPCE and must provide for the adequate disposal of liquid waste. (SWDC Sec. 7) Incinerator facilities must be designed to provide for fugitive dust control. For composting operations, maps or aerial photographs indicating nearby land use and zoning within one-quarter mile must be included on the application. (SWDC Sec. 8) The storage of all solid wastes must be so practiced as to prevent the attraction, harborage or breeding of insects and/or rodents. (SWDC Sec. 11) Hazardous materials must be given special consideration while being stored prior to final disposal. All such wastes must be handled and stored in a manner approved by the DPCE. (SWDC Sec. 11) Solid wastes must be so transported as to prevent health hazards, safety hazards or nuisances. Collection and transportation of hazardous materials must be in

accordance with applicable state or Federal requirements. (SWDC Sec. 12)

ADDRESS: Department of Pollution Control and Ecology
Division of Solid Waste
8001 National Drive
Little Rock, Arkansas 72209
501/371-1701

3. WATER

The DPCE, Division of Water Pollution Control, is the agency responsible for implementing the state's water pollution program. (82-1904(12)) Either the Commission of Pollution Control and Ecology or the DPCE may adopt water quality standards, issue orders and permits, and require the approval of plans and specifications for all waste disposal systems. (82-1904) Promulgated water quality standards require that receiving waters have no distinctly visible solids, gum or foam of a persistent nature. (Reg. 2, Sec. 5) In addition, there shall be no distinctly visible increase in turbidity of receiving waters attributable to any waste discharge. (Reg. 2, Sec. 5) Permits are required for the construction or modification of any waste disposal system or for any facility which would discharge any waste into the waters of the state. (82-1908)

ADDRESS: Department of Pollution Control and Ecology
Water Pollution Control Division
8001 National Drive
Little Rock, Arkansas 72209
501/371-1701

4. STATE FORESTRY

The State Forestry Commission (SFC) has primary responsibility for the prevention and suppression of forest fires and the control of forest insects and diseases. (9-701) The SFC has taken no particular action in dealing with aspects of the forest fire or insect or disease situation.

ADDRESS: State Forestry Commission
P. O. Box 4523
Asher Station
Little Rock, Arkansas 72116
501/371-1315

5. NUISANCE

The State Board of Health is given the authority to examine, investigate

and abate all public nuisances. (82-112) All cities and towns may abate all nuisances within their jurisdiction or they may delegate that responsibility to the local board of health. (19-2303) The violation of any water pollution regulation or statutory provision is considered a public nuisance. (82-1908)

ADDRESS: State Board of Health
4815 W. Markham Street
Little Rock, Arkansas 72201
501/661-2111

6. MISCELLANEOUS

The State Plant Board is given the responsibility of controlling and eliminating insect pests and diseases from plants and plant products. (77-106) In order to carry out that responsibility, the Board may adopt rules and regulations including authority to inspect places, plants and plant products; investigate, control, eradicate and prevent the dissemination of insect pests or diseases; and supervise the treatment, cutting and destruction of plants or plant products which are infected or infested. (77-106) The transportation or distribution of any insect pest, plant disease or noxious weed is prohibited except under such safeguards as may be provided by the Plant Board. (77-110) If the Board finds that there is an infection or infestation in any part of the state, it may give notice thereof and specify the plant or plant products which are infected or infested and may otherwise regulate the movement, planting or use of such plant or plant products. (77-111) The Arkansas Game and Fish Commission has no regulations which apply directly to the clearing of debris from Corps' projects. However, the Commission often submits recommendations cooperatively with the U. S. Fish & Wildlife Service concerning placement and retention of debris for fish and wildlife purposes.

ADDRESS: State Plant Board
Department of Commerce
421 1/2 W. Capital Avenue
Little Rock, Arkansas 72201
501/371-1021

Arkansas Game and Fish Commission
2 Capital Mall
Little Rock, Arkansas 72201
501/371-1145

CALIFORNIA

1. AIR

The State Air Resources Board (ARB) shares the responsibility for implementing the statutes and regulations that deal with the problem of air pollution with county and regional Air Pollution Control Districts (APCD). (Health and Safety 39600 et. seq., 40000)* No person may discharge from any source whatsoever quantities of air contaminants that will cause injury, detriment, nuisance or annoyance to any considerable number of persons. (H & S 41700) There is also a general prohibition against a discharge into the atmosphere from any source whatsoever of any air contaminant that is as dark or darker in shade than that designated number 2 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to a degree equal to or greater than number 2 on the Ringelmann Chart. (H & S 41701) The opacity limitations are not applicable to certain types of nonagricultural burning; to agricultural burning for which a permit has been granted; to fires set by a public officer or permitted by such public officer for the improvement of a watershed, range or pasture; or for agricultural operations necessary for the growing of crops or the raising of fowl or animals. (H & S 41704) All APCD's are empowered to operate permit systems for all stationary sources of air contaminants. (H & S 42300) There is a general prohibition against open outdoor fires for the purpose of disposing or burning of tar, trees, wood wastes or other combustible or flammable solid or liquid wastes. (H & S 41800) The following exceptions are made to the general prohibition: a) fires set for the prevention of a fire hazard which cannot be abated in any other way; or b) disease or pest prevention when there is an immediate need for, and no reasonable alternative to, burning. To reduce fire hazard the APCD may, upon its own motion or in response to the request of any person, authorize the disposal by outdoor burning on the property on which it was grown of wood waste from trees, vines or bushes on property being developed for commercial or residential purposes, or of brush cuttings if in compliance with local ordinances. No such authorization may, however, be granted after January 1, 1980. (41803) Also, these variances may be granted only if the APCD finds that it is more desirable to dispose of such waste by burning than by other means. The APCD must have specified criteria for such disposal including provisions to limit the amount of smoke that is emitted.

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*Legal code citations to California statutes.

Authorization must be in the form of a permit issued by the APCD officer and must allow burning only on days during which agricultural burning is not prohibited by the ARB. (H & S 41804) The legislature found that open burning of high-volume wood wastes would prolong the life of sanitary landfills which are in short supply in the state. However, that benefit in and of itself is not considered to be sufficient to allow rampant open burning of wood wastes without reasonable regulations to prevent the creation of nuisances or the significant reduction of the quality of the ambient air. (H & S 41805) The limitations upon open burning do not apply to right-of-way clearing by any public entity or utility or for levee, reservoir and ditch maintenance. However, no such material may be burned if agricultural burning has been prohibited on that day and unless the material has been prepared by stacking, drying or other methods to promote combustion as specified by the local air pollution control officer. (H & S 41807) Open burning may be used to dispose of Russian thistle when authorized by the chief of a fire department or fire protection agency, or by the state forester. (41809) An APCB officer in a county with a population of six million or less may authorize, by permit, open outdoor fires for the purpose of disposing of agricultural wastes or wood wastes from trees, vines, bushes or other wood debris in a mechanized burner provided that no contaminant which is discharged into the atmosphere is darker in shade than that designated number 1 on the Ringelmann Chart. (41812) The ARB is given the authority to designate from meteorological data the days upon which agricultural burning may be prohibited within each air basin. (41855) This would indirectly control the types of nonagricultural open burning which are allowed. No burning may be conducted for the improvement of land for wildlife or game habitat until the person desiring to conduct such burning obtains from the Department of Fish and Game a written statement certifying that the burning is desirable and proper. Such statement must be filed with the APCD officer having jurisdiction. (H & S 41861) A proposed bill (SB 689) would authorize APCD's to issue open burning permits for nonindustrial wood waste at disposal sites located at elevations above 1500 feet mean sea level. In addition to the APCD permit, permits would also be required from the fire protection agency having jurisdiction over the area. Burning would only be permitted on days during which agricultural burning is not prohibited by the ARB. The ARB would be required to approve of the use of outdoor open fires at a designated disposal site if such operation would not prevent the achievement or maintenance

of ambient air quality standards. Site approval would be given for a minimum period of one year. Counties or cities seeking such approval from the ARB would be authorized to submit plans for the disposal of such nonindustrial wood wastes in the county through the use of outdoor open fires. The bill would also exempt from the Ringelmann number 2 requirement such authorized nonagricultural burning for the disposal of wastes or wood wastes in mechanized burners.

ADDRESS: Air Resources Board
1102 Q Street
P. O. Box 2815
Sacramento, CA 95812
916/322-6022

Department of Fish and Game
Resources Building
1416 - 9th Street
Sacramento, CA 95814
916/445-3535

2. SOLID WASTE

The Solid Waste Management Board (SWMB) is primarily responsible for preparing and implementing the state's solid waste management program. (Government Code 66770) Counties, also, have the responsibility of preparing solid waste management plans. (GC 66780) No person may establish sites for solid waste disposal, transfer stations, waste processing or resource recovery not in conformance with the county plan as approved by the Board. (GC 66784) The counties may impose operational and locational limitations upon any disposal site. (GC 66784) No person may establish a site for solid waste disposal without a finding by the county that the distance from the site to the nearest residential structure is in compliance with all of the state's minimum standards for solid waste management including the adequate control of noise, odor, traffic, litter and vectors. (GC 66784.1) The SWMB has been authorized to prepare guideline criteria and procedures dealing with the state's solid waste management program. (GC 66785) All persons operating existing solid waste facilities under an approved permit were required to file notice of operation with the appropriate enforcement agency by August 15, 1977. (GC 66796.30) The operation of a solid waste facility by any person except as authorized pursuant to a solid waste facility permit is prohibited. (GC 66796.30) The SWMB may, by regulation, exempt any type of facility from the requirement of obtaining a permit. (GC 66796.31) The owner, operator or occupant of any premise or other

property is responsible for the safe and sanitary storage of all solid waste. (Administrative Code 17311) The property owner must so store solid waste on his premises as not to promote the propagation or attraction of vectors or the creation of a nuisance. (AC 17312) Each operator of a disposal site must obtain written approval from the applicable enforcement agency having jurisdiction. (AC 17606) Each site must be in conformance with the county plan. (AC 17608) All applications for disposal sites must include sufficient information, including hydrological, geographical and topographical data. (AC 17616) At least six inches of suitable cover material must be placed over the compacted landfill waste at such a frequency that wastes are not left exposed longer than the following periods, depending upon the amount of material to be utilized:

Tonnage greater than 50 per day.	24 hours
Tonnage from 5 to 50 per day	48 hours
Tonnage from 1 to 5 per day	96 hours
Tonnage less than 1 per day	as determined by the Enforcement Agency

The operator must take such steps as may be required by the California Regional Water Quality Control Board to monitor, collect, treat and effectively dispose of all leachate. (AC 17704) No solid waste may be deposited in such a manner that it has direct contact with either surface or groundwater. (AC 17709) Any ponds used for holding liquid wastes or for leachate control shall be designed and operated to minimize the possibility of vector propagation. (AC 17715) If burning wastes are to be received, they must be deposited in a safe area. (AC 17741) A site shall not accept hazardous waste unless it has been previously approved for the particular waste in question. (AC 17742)

ADDRESS: Solid Waste Management Board
Room 1335, Resources Building
1416 9th Street
Sacramento, CA 95814
916/322-3330

3. WATER

The Water Resources Control Board (WRCB) is the agency primarily responsible on a statewide basis for implementing the statutes and regulations dealing with the problem of water pollution. (Water Code 13140-13171) In addition, regional water quality control boards have extensive regulatory authority over their watersheds. (WC 13240) Each regional board is required to propose a basic plan to deal

with the problem of water quality within its jurisdiction. (WC 13240) All discharges of wastes must be reported to the appropriate regional board. (WC 13260) The regional board may impose any requirement on such discharge consonant with the water quality standards for the receiving waters. (WC 13263) Regional boards have the authority to issue compliance orders to control discharges. (WC 13300, 13301) All discharges resulting from solid waste disposal in a sanitary landfill must result in the filing of a waste discharge report; moreover, a permit requiring a fee of up to $1,000 must be sought. (Reg. 2200) Each regional board must establish in its plans water quality objectives that will insure reasonable protection of beneficial uses and the prevention of nuisance. (WC 13241)

ADDRESS: Water Resources Control Board
P. O. Box 100
Sacramento, CA 95801
916/322-8353

4. STATE FORESTRY

The Department of Forestry (DOF) is the agency responsible for implementing the statutes and regulations dealing with overall forest management practices. (Public Resources 4003) The DOF has the authority to make and enforce such regulations as are necessary for the organization, maintenance, government and direction of the fire protective system for the prevention and suppression of forest fires. (PR 4111) Any county, city or district may adopt ordinances, rules or regulations to provide fire prevention restrictions that are necessary to meet local conditions of weather, vegetation or other fire hazards. They may be more restrictive than state statutes or regulations in order to meet local fire hazard conditions. (PR 4117) The burning of growing, dead or down vegetation is considered to be done for a public purpose if the DOF has determined that the burning of such vegetation is necessary for the prevention or suppression of forest fires. (PR 4118) Any uncontrolled fire burning on lands covered wholly or in part by timber, brush, grass or other flammable material is a public nuisance and a threat or menace to life and property. (PR 4170) The DOF or any established fire protection agency may summarily abate an uncontrolled fire as a public nuisance. (PR 4170.5) The DOF may establish standards upon which to base its determination of conditions that can create an unreasonable hazard to life or property from fire. (PR 4173) The DOF may, at the conclusion of a public hearing, declare that a public nuisance exists upon any private property and it may order the property

owner to abate such public nuisance. (PR 4176) If the property owner does not abate such nuisance within the time limit set, the DOF may abate the public nuisance, charging the cost to the property owner. (PR 4177) Upon the written petition of the owners of at least 50 percent of the land, including public land, within an area of not less than 10,000 acres in size upon which a fire hazard exists, the DOF may designate such area as a hazardous fire area. (PR 4252) No person may smoke, build a camp fire or set any other fire within a hazardous fire area. The DOF may promulgate such regulations dealing with the hazardous fire area as it deems necessary to protect life and property. (PR 4255) Whenever it is necessary, the DOF, with the consent of the owners of the land, may declare such land closed to entry by any person. (PR 4256) A person may not maintain, use or operate any rubbish dump outside of the exterior boundaries of any city unless he has a permit to do so issued by the DOF; the rubbish dump must be maintained, used or operated in strict accordance with the terms and conditions of the permit. (PR 4372) Rubbish dumps include any accumulation for the purpose of disposal of fallen timber, slash, limb wood, branches, brush, leaves, litter or other combustible or flammable material. They do not include slash from timber operations or the temporary piling of flammable materials which have accumulated from clearing while the construction or operation is in progress in conjunction with public works or other industrial projects where such accumulation is located wholly within the exterior limits of such projects. (PR 4371) The DOF may include in the permit terms that would enhance the prevention of uncontrolled fire from such rubbish dump. (PR 4373) The responsibility of obtaining the permit for rubbish dumps rests on the owner or operator. (PR 4373) A rubbish dump may not be maintained or operated without providing a clearance of flammables for a minimum distance of 150 feet from the periphery of the accumulation of the dump. (PR 4374) Any rubbish dump which is maintained or operated in violation of the statutes or regulations applicable thereto is a public nuisance. (PR 4375) A person shall not set fire to any forest, brush or other flammable material which is on any land that is not his own or under his legal control without the permission of the owner or lessee of the land. (PR 4421) A person shall not willfully or knowingly allow fire to burn uncontrolled on land which he owns or controls or allow it to escape to the land of persons other than the owner. (PR 4422) A person may not allow any fire kindled or attended by him to escape from his control or to spread to the land of another person. (PR 4422) A person shall not burn

any brush, stumps, logs, fallen timber, fallows, slash, grass-covered land, brush-covered land, forest-covered land, or other flammable material in any state- responsibility area receiving fire protection from the DOF or upon federal land unless he has a written permit from the DOF or the duly authorized representative thereof. (PR 4423) These restrictions apply to any areas included within Zone A, which is defined to include any county or portion of any county south of the Mount Diablo baseline except for counties specifically exempted in the statute. (PR 4423, 4413) Permits are also required for the rest of the state for burning between April 1 and December 1 of any year and at any other time when the DOF has declared by proclamation that an unusual fire hazard condition exists. (PR 4423) Burning under a permit or other uses of open fire, except within incorporated cities, may be suspended or otherwise prohibited by proclamation issued by the State Forester, by any county fire warden with the approval of the State Forester, or by any federal officers directing activities for the Bureau of Land Management, National Park Service or U.S. Forest Service. Such proclamation may be issued when, in the judgment of the issuing public official, the menace of destruction by fire to life, property, or natural resources has become critical due to weather or other reasonable causes. (PR 4423.1) Whenever the use of open fire or burning under permit has been suspended, the officer having jurisdiction may issue a restricted temporary burning permit in which the continuation of burning essential for reasons of public health, safety or welfare is allowed. (PR 4423.2) Outside the exterior boundaries of cities, every processor of forest products shall exercise due diligence in the disposal of flammable material incidental to such processing so that the material does not cause the spread or inception of uncontrolled fire. (PR 4437) Any waste flammable material produced incidental to the processing of forest products may be disposed of by means of fire in an enclosed device effective in preventing the spread of sparks and situated in an area clear of grass, grain, brush, slash, litter and snags for a distance of 100 feet provided it meets applicable state and local fire, safety, air quality and water quality standards. Such disposal must be in compliance with any DOF regulation. (PR 4438) A burning permit must be obtained for the use of the device. (PR 4423, 4438) Waste flammable material may be disposed of by means of open fire in any area cleared of grass, slash, litter and forest cover for a distance of 400 feet from the periphery of said fire and for any greater distance necessary to provide 100 feet in such cleared area around any lumber pile or structure. The disposal by fire in any cleared area is

the responsibility of the landowner and must be done only after obtaining a permit. (PR 4439) Waste flammable material may also be accumulated in a pile and disposed of by fire at a date not later than the following April 1 after the beginning of the accumulation. Such burning must be conducted at a time when weather and the condition of surrounding vegetation are favorable to preventing the spread of fire, and at all times during the duration of the accumulation the area surrounding such piles must be kept clear of all flammable vegetation, including trees, snags, slash and litter for a distance of 150 feet from the periphery of the piles of the waste material. A permit is required prior to the disposal by fire. (PR 4440) Any accumulation of waste material not authorized by statute or regulation is declared to be a public nuisance or misdemeanor and may be abated by the DOF. (PR 4441) A person may not burn any inflammable material in any incinerator unless the area within 10 feet of the exterior of the incinerator is maintained free and clear of all flammable material and vegetation, a screen constructed of nonflammable material of no greater than 1/4" mesh or metal gauze closes and covers each opening in the exterior of the incinerator, and an open burning permit has been obtained from the DOF. (PR 4446) The DOF may enter into a contract with the owner of any property whereby the burning of the brush, vegetation or structures which are situated upon such property may be accomplished for the purpose of preventing or suppressing forest fires or for watershed management, range improvement, or fish and wildlife habitat improvement. (PR 4475) Any person who owns or controls brush-covered land within a state-responsibility area may apply to the DOF for permission to burn the brush from such land. (PR 4492) The DOF may issue a brush burning permit which shall specify suggested precautions to be exercised prior to and during the burning. (PR 4494) Under the state Forest Practices Act, if the activity would constitute timber operations, including the cutting, removal or both of timber or other solid wood forest products together with the work incidental thereto, including such things as maintenance and construction of roads, firebreaks, stream crossings, skid trails, etc., a license would be required from the local District Board of Foresters. (PR 4527, 4571) Every owner of timber or timberland must control or eradicate insect pests or plant diseases on lands owned by him. (PR 4714) All insect pests or plant diseases which are harmful, detrimental, or injurious to timber are declared to be a public nuisance. The DOF may enter into agreements with private property owners to control and eradicate insects and plant diseases. (PR 4715) The DOF may determine that an area which is infested or infecte

constitutes a menace to the timber or timberlands of adjacent owners, may declare a zone of infestation or infection, and may go upon private or state lands within that zone and cause the infestation or infection to be eradicated or controlled. (PR 4716) If any debris is commercially processed, then the processing must come under the district forest management plans. (PR 4511 et. seq.)

ADDRESS: Department of Forestry
1416 9th Street
Sacramento, CA 95814
916/322-4898

5. NUISANCE

The State Board of Health has general nuisance abatement powers. (Health and Safety 203, 206) It also has subsidiary powers to abate any activities that will pollute waters used as a drinking water supply. (H & S 4457) Nuisances and public nuisances are very broadly defined by statute. (Civil Code 3479) City and county boards of health also have nuisance abatement authority. (H & S 41509) Specific authority is given state and local boards of health to abate contamination or pollution of the waters. (H & S 5410)

6. MISCELLANEOUS

The Department of Agriculture has responsibility to prevent the introduction and spread of injurious insect or animal pests, plant diseases and noxious weeds. (Agriculture 403) The Department may enter and make an inspection of any premises, conveyance or thing that may involve a plant pest or disease. (Agr. 5023) The Department is authorized to establish a quarantine on any particular area where there has been determined to be an infection or infestation affecting plant life. (Agr. 5301) The Department may establish, maintain and enforce quarantine and other regulations which it considers to be necessary to circumscribe, exterminate or prevent the spread of any pest or disease. (Agr. 5322) The maintenance by any person of a plant pest or disease constitutes a public nuisance. (Agr. 5402) If any of the activities involved in reservoir clearing and cleaning take place within five miles of the California coastline, then the requirements of the California Coastal Zone Conservation Commission would have to be met. These would include primarily a permit requirement for all activities plus an environmental impact statement type report. (Natural Resources 27000 et. seq.)

ADDRESS: Department of Agriculture
1220 N Street
Sacramento, CA 95814
916/322-2892

California Coastal Zone
Conservation Commission
1540 Market Street
San Francisco, CA 94101
415/557-3144

COLORADO

1. AIR

The Department of Health (DOH), Air Pollution Control Division, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (25-7-110)* There is also an Air Pollution Control Commission (APCC), which is the rule-making and permit-issuing agency. (25-7-105) No person may emit any air contaminants into the air through any chimney, stack or other conduit until an air contaminant emission notice has been filed with the DOH. (25-7-112) In addition, no person may construct or alter any facility or structure or install any machine, equipment or device which will constitute a new air contamination source without obtaining a permit from the DOH. (25-7-112) By statute, the APCC is required to adopt a regulatory program to control incineration and open burning in each portion of the state in which such control is necessary in order to prevent air pollution. (25-7-120) Open burning in the course of agricultural operations may be regulated only where, in the absence of regulations, the burning would constitute a substantial impediment to carrying out the air pollution objectives. (25-7-120) Within such designated portions of the state, no person may burn in any incinerator or in the open any wood or other flammable material until after a permit has been obtained from the appropriate air pollution control authority. In granting or denying the issuance of such permits, the appropriate authority must base its action on the location or proximity of such burning to any building or structure, the potential contribution of such burning to air pollution, climatic conditions on the day of the burning, and compliance by the applicant with applicable fire protection and safety requirements of the local area. A waiver of the incinerator or open burning requirements may be granted where the agency finds that such burning would not contribute significantly to air pollution. (25-7-120) Cities, towns, counties or any cooperative groups among them are authorized to enact local air pollution laws provided that they are consistent with minimum DOH and APCC standards. (25-7-125) No person may burn on any open premises, whether owned or controlled by him or by another, any rubbish, paper, wood, or other flammable material until a permit has been obtained from the appropriate authority. (Reg. 1(C)) Before

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*Legal code citations to Colorado statutes.

a permit may be issued, the agency must be satisfied that no practical alternative method of disposal is available and that the open burning is to be conducted in a reasonable manner so as to minimize emissions, including but not limited to the use of non-approvable incinerators and air curtain destructors. The only exceptions to the requirement of the permit for open burning deal with the noncommercial burning of private household trash. Incinerators with a charging rate capacity of greater than 50 tons per day must meet specific emissions standards. (Reg. 2, Sec. III) No incinerator may discharge into the atmosphere particulate matter in excess of 0.08 grams per standard cubic foot corrected to 12 percent carbon dioxide, maximum 2-hour average. (Reg. 2, Sec. III) Prior to December 31, 1977, existing wigwam burners were exempted from the emission limitations contained for incinerators. (Reg. 4) After January 1, 1978, the exceptions for wigwam burners would expire and they would be considered to be existing air contamination sources subject to the emission limitations contained in the incinerator emissions limitations section. (Reg. 4) No person may emit into the atmosphere from any source any air contaminant which is of such shade or density as to obscure an observer's vision to a degree in excess of 20 percent opacity. No person may emit, or cause to be emitted from any source, fugitive dust particulate matter which is of a shade or density greater than 20 percent opacity or is visibly transported off the property of the emission origination. Exceptions from the opacity regulation for fugitive dust include motor vehicles on unpaved roads, earth and construction material moving and excavating activities, open mining activities and agricultural cultivation activities. Permits are required before any person may construct or operate a new unpaved road or unpaved parking area. An exception to the permit requirement is made for roads or parking areas which will have an average daily traffic count of 165 vehicles per day or less over any consecutive 3-day period. Reasonable abatement and preventive measures must be taken by any individual whose activity could present a fugitive dust problem. (Reg. 1)

ADDRESS: Department of Health
Air Pollution Control Division
4210 E. 11th Avenue
Denver, CO 80220
303/388-6111

2. SOLID WASTE

The DOH, Division of Engineering and Sanitation, is the agency responsible

for implementing the state's solid waste management program. (30-20-101) No person may operate a solid waste disposal site or facility in the unincorporated portion of any county without first obtaining a certificate of designation from the Board of County Commissioners. (30-20-102) An application for such certificate must contain hydrological, geological and topographical data as may be required by the DOH. (30-20-103) No private dumping of solid waste may be made on any property except at an approved site or facility. (30-20-106) Private dumping of one's own solid waste on one's own property is not subject to the permit requirements provided that it does not constitute a public nuisance. (30-20-106) Any city or county may by ordinance designate and approve one or more solid waste disposal sites within or without its corporate limits. (30-20-107) No other sites may then be used for the dumping of solid waste. (30-20-107) All solid waste disposal sites must be so located, operated and maintained as to control vectors and odors and to comply with all applicable health and zoning laws. (30-20-110) All sanitary landfills must be so operated as to minimize nuisance conditions such as odors, windblown debris, insects and smoke. They shall provide compacted fill material of suitable quality. (30-20-110) The DOH and local health departments may render assistance, including the inspection of solid waste disposal sites. (30-20-111) Solid wastes deposited at any site or facility must not be burned. In extreme emergencies resulting in the generation of large quantities of combustible materials, authorization for burning under controlled conditions may be given by the DOH. (Solid Waste Disposal (SWD) Reg. Sec. 3g) All solid waste disposal sites must be designed and operated to protect the quality of water available in nearby wells. Soil studies and hydrological studies must be made in order to ascertain the necessary operating and design standards to protect groundwater. The design of sanitary landfills must provide for the deflection of rain or melting snow away from the active area where wastes are being deposited. (SWD Reg. Sec. 4)

ADDRESS: Department of Health
Division of Engineering
and Sanitation
4210 E. 11th Avenue
Denver, CO 80220
303/388-6111

3. WATER

The Water Quality Control Commission (WQCC) is the rule-making agency having

jurisdiction over water pollution problems. (25-8-202) The DOH, Water Quality Control Division, is the agency responsible for implementing the state's water pollution program adopted by the WQCC. (25-8-301) No person may discharge any pollutant into any state water from a point source without having received a permit from the DOH. (25-8-501) It is unlawful for any person to discharge, deposit, generate or dispose of any toxic or other hazardous wastes underground unless he has first found, beyond a reasonable doubt, that there would be no pollution resulting therefrom. (25-8-505) In such cases, the DOH may issue a permit upon the payment of a fee of $1,000. (25-8-505) No discharge may be permitted which will violate any regional, local or state land use plan or which will otherwise violate a control regulation. (25-8-503)

ADDRESS: Department of Health
Water Quality Control Division
4210 E. 11th Avenue
Denver, CO 80220
303/388-6111

4. STATE FORESTRY

The State Board of Land Commissioners (SBLC) is given the responsibility of protecting the state's timberlands from fire menace and destructive timber fires. (36-7-105) All streams in the state capable of being used for the driving or floating of logs or other timber products may be used for such purpose provided that a permit is given by the State Board of Land Commissioners. (36-8-101 et. seq.) Any person cutting trees upon state lands is required to post a bond with the SBLC for the carrying out of the provisions of the article. (36-7-106)

ADDRESS: State Board of Land
Commissioners
620 Centennial Bldg.
1313 Sherman St.
Denver, CO 80203
303/839-3454

5. NUISANCE

The DOH has general statewide authority to abate nuisances. (25-1-108) Any acts of pollution are classified as a Class 3 public nuisance. (16-13-305) All cities and towns may prohibit nuisance-type businesses within one mile beyond their boundaries. (31-15-501)

6. MISCELLANEOUS

The State Board of Agriculture is given the responsibility of providing for the protection of forest resources, both public and private, from insects and diseases. (23-30-202) The forestry function of the State Board of Agriculture is administered by the Colorado State Forest Service. (23-30-302) The State Forest Service has joint responsibility with the Board of Land Commissioners to suppress and prevent forest fires. (23-30-304) If any person, by setting fire to any woods or prairie, causes damages to another, such person is liable in damages to the party injured. (13-21-105) The Department of Agriculture is authorized to apply a quarantine or such other control or eradication measures as may be necessary to prevent the introduction or migration of insect pests or plant diseases. (35-6-101) The Department of Natural Resources, Division of Wildlife, frequently participates in the preparation of clearing specifications for reservoir basins so that fish habitat and stockpiling for upland game habitat will be maintained.

ADDRESS: Department of Agriculture
406 State Services Bldg.
1525 Sherman St.
Denver, CO 80203
303/839-2811

State Forest Service
Colorado State University
Fort Collins, CO 80521
303/491-6304

Division of Wildlife
Department of Natural Resources
6060 Broadway
Denver, CO 80216
303/825-1192

CONNECTICUT

1. AIR

The Department of Environmental Protection (DEP), Air Quality Division, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (19-507)* All new sources of air contaminants must obtain permits prior to discharging those air contaminants. (19-519a) The DEP is the permit-issuing agency. Compliance with the DEP regulations and statutes does not constitute a defense to any kind of nuisance action. Open burning permits are required for any setting of fires for the prevention, control or destruction of diseases and pests, agricultural burning for vegetation management and fires by any resident to dispose of brush on the property where he resides. Permits may also be granted for the following types of open burning subject to special conditions: 1) fires for the disposal of dangerous material where there is no reasonable alternative method, 2) fires in saltwater marshes, and 3) any other fires not otherwise specified. (Reg. 19-508-17) All open burning must be so conducted that a hazardous health condition will not be created. No open burning permit may be issued for a salvage operation or where any practical or alternative method for the disposal of the material to be burned exists; specifically, this includes chipping and cutting for forest products, landfilling, piling for protective cover for wildlife, and stockpiling. (Reg. 19-508-17) Open burning permits may not be issued for fires which would prevent the attainment or maintenance of any ambient air quality standard. Permits may not be issued where there is a danger of forest fire as determined by the state forest fire warden. Fires may not be set within 100 feet of any woodland or grassland. Garbage, paper, grass, leaves and other demolition wastes may not be burned. Such special conditions may be placed upon open burning permits as are necessary to avoid the creation of a nuisance or to otherwise protect the public safety or comfort. The permit may limit the materials and quantities to be burned, as well as specify the time, place and manner in which the burning is to occur. (Reg. 19-508-17) A state permit does not override any more stringent conditions or outright prohibition of any open burning

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* Legal code citations to Connecticut statutes.

by a municipality. The DEP may delegate its permit-granting authority to open-burning officials on the local level who have been trained in that capacity. (Reg. 19-508-17) No person may permit emissions of visible air pollutants of a shade or density equal to or darker than 20% opacity or No. 1 on the Ringelmann Chart. A person may discharge air pollutants for a period of not more than five minutes in any 60 minutes provided that the air pollutants are of a shade or density not darker than 40% opacity or No. 2 on the Ringelmann Chart. (Reg. 19-508-18) An exception from the visible emission requirements may be made for any open burning conducted under a valid open burning permit or exception thereto. (Reg. 19-508-18) No person may permit any materials to be handled, transported, stored, constructed, altered, repaired or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne. (Reg. 19-508-18) No person may permit the discharge of emissions beyond the boundaries of the property on which the emissions originate, if such emissions remain visible at ground level or impinge upon any building so as to diminish public health, safety or enjoyment of the life of the public. (Reg. 19-508-18) New incinerators may not emit particulate matter in excess of 0.08 grains per standard cubic foot corrected to 12 percent carbon dioxide, maximum 2-hour average. No person may allow unburned waste and ash to be emitted from an incinerator. (Reg. 19-508-18) The DEQ may declare air pollution emergency episode conditions; during such times open burning may be prohibited and incinerator operation curtailed or prohibited. (Reg. 19-508-6)

ADDRESS: Department of Environmental Protection
Air Quality Division
State Office Building
165 Capitol Avenue
Hartford, Connecticut 06115
203/566-3160

2. SOLID WASTE

The DEP, Solid Waste Management Section, is the agency responsible for implementing the state's solid waste management program. (19-524a) The DEP has extensive authority to control both ongoing and new solid waste disposal facilities. (19-524b) No solid waste facility may be built or altered until it's plans and designed method of operation have been filed with the DEP and approved by the DEP through the issuance of a permit. (19-524b) The DEP has

enacted regulations dealing with the operation and construction of solid waste disposal facilities. (Reg. 19-524-1) Permits are not required for solid waste facilities at which less than 5 tons per year of solid waste is processed or disposed of provided that no hazardous or toxic waste is involved and that there is no pollution of ground or surface waters. (Reg. 19-524-4) All persons who apply for permits must include extensive hydrological, geographical and topographical information. A minimum of 60 inches must be maintained between the base of deposited solid wastes and the maximum high water table or bedrock. (Reg. 19-524-6) The disposal area must be graded and provided with drainage facilities to minimize infiltration of surface runoff and to prevent the collection of standing water. Deposited solid waste must be protected from washout and from the threat of 50-year floods. Solid waste shall not be so deposited as to come into contact with surface watercourses. Adequate cover material, meaning soil having a textural range of sandy clay through sandy clay loam, must be placed upon the fill daily to a minimum thickness of 6 inches over all exposed wastes. Any person wishing to establish a solid waste disposal area specifically for bulky wastes must obtain approval of the plans and specifications from the DEP through the issuance of a permit. (Reg. 19-525-8) Bulky wastes are defined to include land clearing, demolition, and other non-putrescible wastes. (Reg. 19-524-2) Bulky wastes must not be so placed as to contact either ground or surface water. All bulky waste must be spread and compacted upon deposit and the working face of the disposal area must be confined and easily maintained. Deposited bulky waste must be covered where needed to prevent fire and the harborage of vectors. Bulky waste disposal may take place at an ongoing sanitary landfill as long as the special requirements are met. (Reg. 19-525-8) The DEP is authorized to conduct investigations and ascertain whether the departmental regulations have been complied with. (Reg. 19-524-10)

ADDRESS: Department of Environmental Protection
Solid Waste Management Section
State Office Building
Hartford, Connecticut 06115
203/566-5847

3. WATER

The DEP, Water Compliance Section, is the agency responsible for implementing the state's water pollution program. (22a-2) No person or municipality may

cause pollution of any waters of the state or maintain a discharge of any treated or untreated waste in violation of any statute or DEP regulation. (25-54f) All individuals who have a discharge of any matter, substance or material into the waters of the state must first receive a permit for such discharge from the DEP. (25-54i) The DEP may order any person who is causing the pollution of any waters to abate said discharge. (25-54h)

ADDRESS: Department of Environmental Protection
Water Compliance Section
122 Washington Street
Hartford, Connecticut 06115
203/566-3245

4. STATE FORESTRY

The DEP, Division of Preservation and Conservation, is the agency responsible for administering the statutes regulating forest management practices. (23-20) The DEP is responsible for the protection and management of all publicly-owned state forests. (23-20) The state forester, appointed by the DEP, is also the ex officio state forest fire warden. (23-33) The forest fire warden has all the powers of a prosecuting attorney in any violation of the statute conserving or preserving forest and timberland. (23-34) The state forest fire warden may enter onto private land for the purpose of suppressing forest fires. (23-35) The state forester may take such action as he deems necessary to provide for the prevention and control of forest fires. He may enter into arrangements with local fire fighting organizations and may establish forest protective districts. (23-36) District forest fire wardens possess the authority necessary to prevent and suppress all forest fires. (23-37) No person may pile or leave, within 25 feet of any highway or 100 feet of any building in such a way as to endanger life or property, for a period of more than 10 days any cut brush, tree growth or other inflammable material except for farm and wood products and wood for domestic use. (23-46) The state forest fire warden may order the removal of any material which is creating a forest fire hazard. (23-46) Any person who fails to heed an order of the state forest warden may be fined not more than $100 and may become liable to the state for any expense not exceeding $100 caused by the state's removal of such material. (23-46) In case of forest fire emergency, if downed timber, parts of trees, and brush located within 200 feet of any highway create a dangerous fire hazard, the state forest fire warden,

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with the written consent of the governor, may enter upon such property and remove such abnormal fire hazards. (23-47) If a fire kindled in the open air without proper authorization from state or local authorities causes an injury to persons or property the person responsible may be fined not more than $200, imprisoned for not more than 6 months, or both. (23-49) No person may use fire in the open air within 100 feet of any woodland, brushland or area containing dried grass that is adjacent to any woodland when the forest fire danger, as declared by the state forest fire warden, is high or extreme or during a drought emergency. (23-29a) These periods of extreme danger must be proclaimed by the state forest fire warden. Any owner of land may apply to the state forest fire warden or the district fire warden in which such land is located for a special permit during such periods of extreme hazardous conditions. Such permit may be issued if it is not in conflict with any state or local regulatory authority and if the permittee has the necessary equipment and manpower to confine such fire. (23-29a) Any person who violates the ban on burning or who burns without a permit may be fined not more than $200, imprisoned not more than 6 months, or both. (23-49a) The governor may proclaim that there is an imminent danger of forest fire and that all woodlands and brushlands will be closed except to the owners during such period of time. (23-50) During that period of time, no fire shall be kindled in the open air. (23-50) Any person who does enter upon forest or brushland and who causes a fire in the open air to occur during the period covered by the governor's proclamation may be fined not less than $5 nor more than $100, imprisoned for a period not exceeding 6 months, or both. (23-50)

ADDRESS: Department of Environmental Protection
Division of Preservation and Conservation
State Office Building
165 Capital Avenue
Hartford, Connecticut 06115
203/566-5348

5. NUISANCE

Any rubbish deposited in streams is specifically declared to be a public nuisance and double damages may be recovered for injury caused in this manner. (19-312) Allowing waters to become filthy or polluted also constitutes a nuisance. (19-315) All towns, cities or boroughs have the authority to abate

nuisances. (7-148) Cities, towns and boroughs are also given the authority to define, within their limits, all nuisances and to provide for the abatement of such nuisances at the expense of the owner. (7-194[29])

6. MISCELLANEOUS

The Connecticut Agricultural Experiment Station is in charge of all matters pertaining to control, suppression or extermination of insects or diseases which affect plants. (22-84) The Agricultural Experiment Station is authorized to enact rules and regulations dealing with such problems as quarantine, prohibition against the transportation of any class of nursery stock plant, food or other article capable of carrying any plant desease or insect infestations within the state. (22-84) The State Entomologist may inspect at least once a year all nurseries for infestation or infection and may prohibit the movement of any trees or other plant material which is either infected or infested. (22-98) Under the Connecticut Pesticide Control Act, any use of pesticides in any kind of diseased wood disposal would be regulated by the Department of Agriculture. (22-a-42 et. seq.)

ADDRESS: Department of Agriculture
273 State Office Building
165 Capital Avenue
Hartford, Connecticut 06115
203/566-4667

DELAWARE

1. AIR

The Department of Natural Resources and Environmental Control (DNREC), Air Resources Section, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (7-6002)* Any person who may cause or contribute to the discharge of an air contaminant must obtain a permit. (7-6003) All persons who discharge air contaminants and do not report the discharge to the DNREC are subject to fine. (7-6028) No person may cause or allow the disposal of refuse by open burning. (Reg. 13, Sec. 2) No person may cause or allow open burning in the conduct of any salvage operation. No person may allow open burning in an area north of the Chesapeake and Delaware Canal or within any city limits except for the purposes of agricultural operations without obtaining prior written approval of the DNREC. In any permit application, the DNREC will consider the following factors to be relevant in granting or denying the permit: 1) distance from the nearest populated area, 2) distance from a roadway, 3) distance from any airport, 4) distance from areas of high public use, 5) number of residences in the immediate vicinity, and 6) time at which the operation is to be conducted. Open burning may not be approved by the DNREC if it will cause a condition of air pollution or interfere with the attainment or maintenance of any ambient air quality standard. (Reg. 13, Sec. 2) The general proscriptions for open burning do not apply to open burning for plant disease or pest control. In such cases, approval will not be granted unless the applicant has documented that destruction by fire is the only effective means of control. (Reg. 13, Sec. 3)

ADDRESS: Department of Natural Resources and Environmental Control
Air Resources Section
Edward Tatnall Building
Dover, Delaware 19901
302/678-4791

2. SOLID WASTE

The DNREC, Solid Waste Management Section, is the agency responsible for

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* Legal code citations to Delaware statutes.

implementing the state's solid waste management program. (7-6025) No solid waste disposal facility may be constructed or operated without a permit from the DNREC. (Reg. 3.05) All solid waste disposal techniques, including such methods as sanitary landfill, industrial landfill, shredding in combination with landfill, composting and incineration, must be approved by the DNREC. The following types of solid waste disposal activity are exempt from the regulatory scheme: one-time disposal of demolition solid waste; composting on private property of leaves, grass clippings, and other vegetation originating on that property; and bulk storage of inert solid wastes, such as sawdust or wood chips, for reuse or recycling. However, even though they are exempt from the general regulatory scheme, disposal activities of these types require prior written approval from the DNREC. (Reg. 3.06) Sanitary landfill plans must include designs for leachate collection and for the monitoring of decomposition gases. (Reg. 6.01) All leachate must be so collected and treated as to provide a degree of removal of pollutants reflecting the application of a practicable level of technology. All disposal areas and leachate collection ditches and ponds must be lined with an impermeable liner. Refuse fills must be kept a minimum of 100 feet from all surface water. A layer of suitable cover material must be placed over all solid waste as soon as possible. This layer must be of such depth that, when compacted, it produces a cover layer of at least 6 inches in depth. The cover material must be of such character that it could be compacted to minimize percolation of water through the cover. Adequate provision must be made for the handling and compaction of bulky waste. (Reg. 6.01) No person may dispose of any solid wastes from a vessel, dock, or shoreline into surface waters without a permit from the DNREC. (Reg. 9)

ADDRESS: Department of Natural Resources and Environmental Control
Solid Waste Management Section
Edward Tatnall Building
Dover, Delaware 19901
302/678-4781

3. WATER

The DNREC, Water Quality Section, is the agency responsible for implementing the state's water pollution control program. (7-6002) All activity that may contribute to the discharge of a pollutant to any ground or surface water

requires a state permit. (7-6003) The DNREC regulations prohibit the discharge of any pollutant from a point source into surface or groundwater directly or indirectly. (Reg. 3.01) No person may discard, throw or dump into any waters or any drainage ditch any garbage, refuse, trash, lumber, timber or any other solid waste. (Reg. 12.01) No person may discharge or place into any running stream of water from which domestic drinking water is withdrawn any substance which makes the drinking water unpalatable or dangerous to public health. (60-1301) No state waters may be so polluted as to injure or destroy any fish or wildlife. (7-1112) All persons who discharge any pollutant matter into the waters of the state must report or be subject to fine. (7-6028)

ADDRESS: Department of Natural Resources and Environmental Control
Division of Environmental Control
Water Quality Section
Edward Tatnall Building
Dover, Delaware 19901
302/678-4761

4. STATE FORESTRY

The Department of Agriculture (DOA), Forestry Section, is the agency assigned plenary authority and responsibility for the application of appropriate control measures in public forestry functions, including the protection of forestlands from fire, disease and insect damage. (7-2901) Within the Department there is a State Forester. (7-2910) The DOA has direction of all forest interests and all matters relating to forestry and woodlands within the state. The DOA may, by rule or regulation, provide for the enforcement of state forestry laws and the protection of forestlands. (7-2911) The State Forester may appoint forest fire wardens who have authority to extinguish and control forest, brush or grass fires within their local districts. (7-2954) Any person who willfully or maliciously sets fire to any woodlot, forest or wildland or to any vegetation being grown upon lands of another shall be fined not less than $200 nor more than $5,000, imprisoned not more than two years, or both. (7-3101) Whoever carelessly sets on fire any forestland, brushland or other combustible materials and negligently allows this fire to escape from his control to the damage of another shall be fined not less than $10 nor more than $100. (7-3102) Whoever sets any woodland on fire after the first of April shall be fined not less than $15 nor more than $200 and shall be liable in

damages for injuries done by such fire to other property owners. Unless there is negligence, the burning of cut wood or of brush in clearing land does not fall within the penalty requirement of this section. (7-3103) There is a prohibition against the setting of a fire in any wood lot, forest, other wild land or vegetation other than brush to clear land without the consent of the owner or owners thereof. (7-715)

ADDRESS: Department of Agriculture
Forestry Section
P. O. Drawer D
Dover, Delaware 19901
302/678-4820

5. NUISANCE

No person may dump refuse or garbage without obtaining permission from the owner of the land. (16-1704) The State Board of Health is the primary regulatory body dealing with nuisances. (16-1501) The State Board may investigate and abate all nuisances in the absence of any locally elected board of health. (16-126) Local boards of health also have the authority to abate all nuisances. (16-310)

ADDRESS: State Board of Health
Department of Health and Social Services
Jesse S. Cooper Memorial Building
Dover, Delaware 19901
302/678-4701

6. MISCELLANEOUS

The Department of Agriculture is given the responsibility of abating, preventing and eradicating any disease or other injuriously dangerous insect pests which may appear in the state. (9-1101) The Department may set up quarantine restrictions in affected areas and prohibit and prevent the movement, shipment or transportation of any agricultural, horticultural or other material capable of carrying Japanese beetles or other insects. (9-1106) Anyone who sells or delivers any nursery stock within the state must attach a copy of a permit stating that the stock is free from insects, pests and diseases. (9-1303) The governor may, by proclamation, upon the recommendation of the state forester, declare that an extreme wild fire hazard exists because of drought or other

conditions and may establish definite areas within which it is unlawful, during that period, to set fire to any marsh, woods, cuttings of forest growth, leaves, grass or other material. Whoever violates the order of the proclamation shall be fined not less than $25 nor more than $100, imprisoned not less than 30 days nor more than 90 days, or both. (2-2111) There is also a state fire marshal who has the ability to enforce all laws and ordinances of the state and of the counties, cities and political subdivisions thereof having to do with the prevention of fires. (16-6607)

ADDRESS: Department of Agriculture
Forestry Section
P. O. Drawer D
Dover, Delaware 19901
302/678-4820

FLORIDA

1. AIR

The Department of Environmental Regulation (DER), Air Quality Management Program, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (403.031-2)* No stationary installation which can reasonably be expected to be a source of air pollution may be operated, maintained, constructed, expanded or modified without a currently valid permit issued by the DER. (403.087) DER representatives are authorized to inspect any property, premises or place except any single- family residence which may be a source of air contaminants. (403.091) The DER has enacted regulations which allow certain types of open burning. No open burning, however, is allowed which would constitute a hazard to air traffic; which reduces visibility on public roadways to less than 500 feet; or which violates any other laws, rules or ordinances. (Reg. 17-5.04) Open burning between the hours of 9 a.m. and one hour before sunset in connection with agricultural, silvicultural or forestry operations related to the growing, harvesting or maintenance of crops or in connection with wildlife management is allowed provided permission is secured from the Division of Forestry of the Department of Agriculture and Consumer Services prior to burning. (Reg. 17-5.05) The Division of Forestry may allow open burning at other times when there is reasonable assurance that atmospheric and meteorological conditions will provide proper diffusion and dispersion of the air pollutants The Division of Forestry or DER may suspend, after reasonable notice, any permission to burn where atmospheric or meteorological conditions have changed. (Reg. 17-5.05) Open burning of wooden material or vegetation generated by land clearing operations is allowed if the burning is at least 50 yards from any occupied residence or public highway and is performed between the hours of 9 a.m. and one hour before sunset. (Reg. 17-5.07) Open burning in land clearing operations is allowed at other times if: a) the burning takes place 50 yards or more from any occupied building or highway and a forced draft system is used; b) the open burning is 500 yards or more from any building or highway, and the DER has given permission because the atmospheric and meteorological conditions in the vicinity will allow good and proper diffusion and dispersion of air pollutants; or c) the burning is conducted under the supervision of the Department of Transportation,

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*Legal code citations to Florida statutes.

a forced draft is used, and visibility on roadways is not reduced to less than 500 feet. If the burning site is in a rural area or is adjacent to or near forest, grass, woods, wildlands or marshes, the Division of Forestry must be notified and consulted prior to the burning. (Reg. 17-5.07) All open burning under the land clearing exception must be conducted in the following manner: a) the piles of materials to be burned must be of such size that the burning is completed within the designated time frame, b) the moisture content and composition of the materials to be burned must be favorable to good burning and minimization of air pollution, and c) the starter fuel to be ignited shall not emit excessive visible emissions when burned. (Reg. 17-5.07) The emission rate for new incinerators with a charging rate of fifty or more tons per day is 0.08 grains of particulate matter per standard cubic foot of dry gas corrected to 50 percent excess air. For new incinerators with less than fifty tons per day capacity visible emissions are not allowed except for up to three minutes in any hour at densities up to No. 1 on the Ringelmann Chart. All existing incinerators with a charging rate of fifty or more tons per day must limit particulate emissions to 0.1 grains per standard cubic foot of dry gas corrected to 50 percent excess air. Smaller incinerators must comply with standards for new equipment.

ADDRESS: Department of Environmental Regulation
Air Quality Management Program
2562 Executive Center Circle, East
Tallahassee, FL 32301
904/487-1855

Department of Agriculture and
Consumer Services
Division of Forestry
Collins Building
107 W. Baines St.
Tallahassee, FL 32304
904/488-4274

2. SOLID WASTE

The DER, Solid Waste Management Program, is the state agency responsible for implementing the state's solid waste management system. (403.704) The DER is authorized to create a statewide resource recovery and management plan. (403.705) Included within this plan must be a permit system for the disposal of solid wastes. (403.705) No solid waste may be disposed of except by sanitary landfill, incineration, recycling or other method approved by the DER. (Reg. 17-7.04)

Unless otherwise approved by the DER, no solid waste may be disposed of by being placed in or within 200 feet of any natural or artificial body of water where leachate or runoff could result in violation of any city, county, state or federal laws; on the banks of any stream known to be hydraulically connected to any aquifer; in a sinkhole; in a limestone or gravel pit; in an area subject to frequent and periodic flooding; or where the water table is less than five feet below normal ground surface. (Reg. 17-7.04) Also solid waste may not be disposed of adjacent to or within the cone of influence of any public water supply pumping station, within 200 feet of any residence or place of business that is served by a public water supply system, within 1,000 feet of any residence that is served by individual shallow water supply wells, in any area open to public view from any major thoroughfare, within the boundaries of any airport property, or within 2 miles of any runway at an airport licensed by the state of Florida. No burning of solid waste is permitted in any land disposal site except in accordance with air quality regulations. Transportation of solid waste must not degrade the environment, cause a health hazard, or create a physical or aesthetic nuisance. (Reg. 17-7.04) A sanitary landfill must meet minimum criteria based upon extensive soil, hydrological, topographical and geographical data and a permit must be obtained before operating. (Reg. 17-7.05) A minimum separation of five feet must be maintained between putrescible solid wastes and anticipated high groundwater table. All leachate emanating from the landfill must be collected and treated. All sanitary landfills must receive a compacted cover of 6 inches of earth once during each working day. (Reg. 17-7.05) Hazardous wastes may be disposed of at landfills only after they have been rendered safe and sanitary prior to delivery thereto. (Reg. 17-7.04)

ADDRESS: Department of Environmental Regulation
Solid Waste Management Program
2562 Executive Center Circle, East
Tallahassee, FL 32301
904/437-1150

3. WATER

The DER, Bureau of Water Quality Management, is the agency responsible for implementing the state's water pollution control program. (403.061) No installation which may reasonably be expected to be a source of water pollution may be operated, maintained, constructed, expanded or modified without a DER permit.

(403.087) Local and regional pollution control agencies may operate a water pollution permit system provided they meet minimum DER requirements. (403-182(2)) They may have more stringent rules. All state waters must be free of any floating debris or other materials attributable to any discharge in amounts sufficient to be unsightly or deleterious. No material may be discharged that produces color, odor or other conditions in such a degree as to cause a nuisance in the receiving water body. (Reg. 17-3.02) Whoever willfully or maliciously makes impure any spring or other source of water supply is guilty of a misdemeanor of the first degree. (387.07) No person may allow the depositing in any waters of the state of any rubbish, filth, poisonous or deleterious substances, or substances which may have endangering effects on persons, fish or livestock. Any person who does discharge such deleterious substances is guilty of a misdemeanor of the second degree. (387.08)

ADDRESS: Department of Environmental Regulation
Bureau of Water Quality Management
2562 Executive Center Circle, East
Tallahassee, FL 32301
904/488-6221

4. STATE FORESTRY

The Department of Agriculture and Consumer Services (DACS), Division of Forestry (DOF), is the agency responsible for implementing the laws and regulations dealing with forest management practices. (589.04) The DOF has the primary responsibility for the care, management, prevention and extinguishment of forest fires and the enforcement of all laws relating to forests and woodlands. (589.04) The DOF has the authority to enact such rules and regulations as are reasonable and necessary to accomplish its purposes. (589.12) The DOF has general authority to prevent forest fires; to enforce fire protection laws; and to prevent, detect, suppress and extinguish forest fires in the state. (590.02) As noted earlier, DOF approval is required before certain types of open burning permits may be issued. It is unlawful for any person, either willfully or carelessly, to burn or set fire to any forest, grass, woods, wildlands or marshes within any fire protection district unless written permission is first secured from a duly appointed local fire warden. (590.03) The DOF has the authority to organize these districts. (590.04) It is unlawful for any person to willfully or carelessly burn or set fire to, or cause fire to be set to, any forest, grass, woods, wildlands or marshes not owned or controlled by such person (590.08) The

Commissioner of Agriculture, upon the advice of the DOF, may advise the governor when the forests in any county are endangered because of an emergency drought condition. The governor may, by proclamation, then declare a drought emergency. During this emergency, it will be unlawful for any person to set fire to any forest, grass, woods, wildlands or marshes; build a camp fire; or burn trash or other debris within 600 yards of any forests, woods, wildlands or marsh area unless a written permit is first obtained from the DOF or its designated agent. (590.081) Any person violating the emergency drought proclamation order is guilty of a misdemeanor of the second degree. The governor may, by proclamation, declare that an extraordinary fire hazard exists that endangers life and property and thereby make it unlawful for any person, except the owner of the property, to enter into or travel in any public or private forestlands, grasslands, woods, fields or marshes except on public roads or highways. (590.082) It is unlawful for any person, either willfully or carelessly, to burn or set fire to any forest, grass, woods, wildlands, marshes or vegetative land clearing debris owned or controlled by such person without first obtaining authorization from the DOF and giving notice to the owners of all surrounding residences. (590.12) Whoever violates said provision is guilty of a felony of the third degree. (590.14)

ADDRESS: Department of Agriculture and Consumer Services
Division of Forestry
Collins Building
107 W. Baines St.
Tallahassee, FL 32304
904/488-4274

5. NUISANCE

The Department of Health, Division of Public Health, and local public health agencies have the authority to regulate public health, nuisances and sanitary practices. (381.031) Any condition which allows the breeding of flies, mosquitoes or other insects capable of transmitting disease is declared to be a nuisance injurious to health and may be abated. (386.041)

6. MISCELLANEOUS

The DACS has authority to enact such rules and regulations with reference to plants and plant products in transportation through the state as may be deemed

necessary to prevent the introduction into and dissemination of injurious pl[illegible] pests and diseases. (581.031) The DACS may declare a dangerous insect pest or disease to be a nuisance and may establish quarantine areas within any nursery, grove, county or counties in reference to dangerous insect pests or diseases. It may prohibit the movement within the state of such things as may communicate the pest or disease. (581.031) The DACS may inspect any plants, plant products or other things that may be capable of disseminating pests or diseases. The DACS may declare a quarantine against any place, grove, orchard or county; it is unlawful thereafter until such quarantine is removed for any person to move, sell or otherwise dispose of any plant or plant product included in such quarantining. (581.101)

ADDRESS: Department of Agriculture and Consumer Services
Division of Forestry
Collins Building
107 W. Baines St.
Tallahassee, FL 32304
904/488-4274

GEORGIA

1. AIR

The Department of Natural Resources (DNR), Environmental Protection Division (EPD), is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (88-903, 40-3515)* The DNR has the authority to establish standards of quality of the air and to require the registration with the DNR of persons engaged in operations which may result in air pollution. (88-903) Nothing contained in the statute is deemed to grant to the DNR any jurisdiction that limits or restricts the owners of any forestland from burning over their own land. (88-910) The DNR regulations generally prohibit any open burning. (Reg. 391-3-1-.02) There are, however, a number of exceptions some of which are applicable in some parts of the state and others which are applicable in other parts of the state. The following exceptions are applicable in any county in which the population is less than 65,000: 1) reduction of leaves on the premises on which they fall by the person in control of those premises unless prohibited by local ordinance or regulation; 2) the burning over of any forestland by the owners of such land; 3) burning for weed abatement, disease and pest prevention; 4) burning in other than predominantly residential areas for the purpose of land clearing for construction or right-of-way maintenance, provided that the following conditions are met: prevailing winds are away from the major portion of the area's population, the location of the burning is 1,000 feet from any dwelling, the amount of dirt in the material being burned is minimized, and not more than one pile 60 feet by 60 feet, or equivalent, is being burned within a nine-acre area. In counties having a population exceeding 65,000, the only relevant exceptions from the open burning prohibition are for the burning of any forestland by the owners of such land, and for the burning for purposes of land clearing or right-of-way maintenance subject to the conditions stated above. If adequate disposal facilities for the particular combustible materials are not reasonably available in the more populous counties, burning shall be permitted if it does not exceed 100 cubic yards of material per day. No open burning may be permitted at any time during

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* Legal code citations to Georgia statutes.

which an air pollution episode has been declared. The only exception is for fires necessary to thwart or prevent a hazard which cannot properly be managed by any other means. (Reg. 391-3-1-.02) Any person must obtain a permit from the DNR before beginning the construction or modification of any facility which may result in air pollution. Likewise, an operating permit is necessary for the operation of a facility from which air contaminants are or may be emitted. (Reg. 391-3-1-.03) Variances from rules or regulations may be granted by the DNR. (Reg. 391-3-1-.05) The DNR may inspect at reasonable times any potential source of air pollution. (Reg. 391-3-1-.07)

ADDRESS: Department of Natural Resources
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334
404/656-6900

2. SOLID WASTE

The DNR, EPD, is the agency responsible for implementing the state's solid waste management program. (43-1602) Solid waste is defined to include such things as wood, tree branches, yard trimmings and residue from incineration processes. (43-1603) It is unlawful for any person to engage in solid waste handling or disposal except in a manner which conforms with all rules and regulations promulgated by the DNR. (43-1607) No person may engage in solid waste handling, or construct or operate a disposal facility or site without first obtaining a permit from the DNR. (43-1607.1) The DNR has the power to enter, at reasonable times, upon any private or public property for the purpose of inspecting and investigating conditions relating to solid waste handling. (43-1616) The regulations require that no person engage in solid waste handling or in operation of a disposal facility or site without a DNR permit. (Reg. 391-3-4-.02) Any person engaged in the storage, collection, transportation, utilization, processing or disposal of solid wastes must obtain a solid waste handling permit unless exempted by the statute. No person may engage in solid waste handling in a manner which would be likely to create a nuisance, impair air quality, impair land quality, impair ground or surface water quality or otherwise impair the quality of the environment. (Reg. 391-3-4-.04) No solid waste may be burned at a disposal facility or site except by an incineration method approved by the

DNR. No person may dispose of solid waste in an open dump. Hazardous waste must be handled in accordance with a written procedure submitted to and approved by the DNR. (Reg. 391-3-4-.04) Vehicles or containers used for the collection or transportation of putrescible wastes or rubbish must be covered, substantially leakproof, durable and of easily cleanable construction. Solid waste collection and transportation vehicles must be cleaned frequently to prevent nuisances and must be retained in good repair. (Reg. 391-3-4-.06) At any sanitary landfill, a uniform cover of at least 6 inches of proper material must be placed daily. (Reg. 391-3-4-.07) No person may collect hazardous wastes except in accordance with procedures submitted to and approved by the DNR. (Reg. 391-3-4-.06) Sanitary landfills must be operated in such a manner as to prevent air, land or water pollution; public hazards; or nuisances. Any person responsible for an incinerator must have it under the supervision and control of individuals qualified in incinerator management. Incinerators must operate at sufficiently high temperature and combustion time to produce a satisfactory residue. Waste water from any incinerator must be discharged to a wastewater treatment system and must be treated in a manner approved by the DNR. (Reg. 391-3-4-.08) Atmospheric emissions from incinerators must be controlled so as not to exceed emission standards set by the DNR. Composting facilities are allowed if the residue resulting from the composting operations are nonpathogenic and free from offensive odor. (Reg. 391-3-4-.08)

ADDRESS: Department of Natural Resources
Environmental Protection Division
270 Washington Street, S.W.
Room 824
Atlanta, Georgia 30334
404/656-2833

3. WATER

The DNR, EPD, is the agency responsible for implementing the state's water pollution program. (40-35145, 17-505) All discharges of sewage or other wastes must comply with the rules, regulations and permit requirements of the EPD. (17-510) No person may construct, install or modify any system for the disposal of any wastes into the waters of the state without first securing a permit from the EPD. (17-510) All waters must be kept free from any floating debris associated

with any discharge in sufficient amounts to be unsightly or interfere with legitimate water uses. All waters must be free from materials which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses. (Reg. 391-3-6-.03)

ADDRESS: Department of Natural Resources
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334
404/656-6593

4. STATE FORESTRY

The State Forestry Commission (SFC) is the state agency responsible for dealing with forest management practices. (43-206) The SFC has the power and authority to take all appropriate action to conduct and direct fire prevention work within the forests of the state. (43-206) The SFC has the authority to promulgate rules and regulations dealing with the efficient operation of the forests. (43-213) The SFC has authority to deal with insect pest or disease infestations or infections within wooded areas. (43-214) The SFC may declare the existence of a zone of infestation or infection in a proclamation, and has the power to define the areas of quarantine and to prescribe all needful regulations relating thereto. During such periods of quarantine, the SFC and its employees have the right to enter upon anyone's land to determine whether or not conditions thereon constitute a public nuisance. (43-214) The SFC may by order, rule or regulation prohibit the setting on fire of any woods, lands, marshes, refuse or other combustible material within any county or counties upon such conditions and under such regulations as in the judgement of the SFC are necessary and proper to prevent the destruction of property. (43-215) Where such prohibition has taken effect, no person may set any backfire except under the direct supervision of a state or federal forest officer. (43-215) Any controlled fire burning in any forested or cutover brushland or grassland is declared to be a public nuisance. (43-220) The SFC has the authority to deal with forest fire protection and to set up local fire protection units. (43-237) No statutory limitation, however, is placed upon the burning of one's own forestland provided the fire is not allowed to spread onto or over the land of another. (43-242) The governor is authorized to proclaim an extreme forest

fire emergency. (43-248) By order, rule or regulation he may prohibit hunting, fishing, camping or picnicking; prevent the entering into forest land; or enforce any other regulations he deems necessary during the time of the emergency. (43-248) Any person otherwise lawfully entitled to burn any woods, lands, marshes or other inflammable or combustible materials or vegetation shall, prior to such burning, give notice of the approximate time and location thereof to the county forest ranger where such burning is to take place. (43-252) The only exception to this notice requirement is in the case of an emergency. (43-252)

ADDRESS: Georgia Forestry Commission
P. O. Box 819
Macon, Georgia 31202
912/744-3241

5. NUISANCE

The Department of Human Resources and county boards of health are empowered to exercise responsibility in matters pertaining to health not already exercised by other agencies. (88-204, 88-108) This would include nuisance abatement authority. Nuisances are broadly defined by statute. (72-101)

6. MISCELLANEOUS

The Office of the State Entomologist, Department of Agriculture, may enact rules and regulations dealing with insect pests and plant diseases for any plant or plant product other than forest trees subject to jurisdiction of the Georgia Forestry Commission. (5-702) The State Entomologist is given the duty to protect the agricultural, horticultural and other interests of the state from insect pests and plant diseases and is vested with the power and authority to inspect plants, plant products or other articles capable of disseminating disease or pests. (5-706-07) The State Entomologist may enact rules and regulations dealing with the transportation or sale of any plant or plant product that may be infected or infested. (5-713) The State Entomologist may declare dangerous insect pests or plant diseases to be nuisances. (5-715) He is also authorized to declare a quarantine in any area, place, nursery, county or counties within the state and to enact rules and regulations dealing with transportation of plant products therein. (5-716) It is unlawful to ship from any quarantined area any plant product that has a dangerous insect pest or plant disease except as may be

provided by the State Entomologist. (5-734)

ADDRESS: Department of Agriculture
Agriculture Building
Capital Square, S.W.
Atlanta, Georgia 30334
404/656-3600

IDAHO

1. AIR

The Department of Health and Welfare (DHW), Division of Environment, Air Quality Bureau, is the agency responsible for implementing the statutes and regulations dealing with the problem of air pollution. (39-105)* The DHW may require the issuance of permits and licenses for all stationary sources. (39-115) The DHW has enacted open burning regulations of which the purpose and intent are to eliminate all forms of open burning. (Reg. D) The granting of an exemption by the DHW to continue certain forms of open burning does not excuse a person from responsibility for any consequent damages or injuries which may occur, nor from complying with local laws and ordinances which are not in conflict with DHW regulations. The DHW regulations do not interfere with the rights of city or county governments to provide equal or more stringent controls on open burning. No person may allow or permit the open burning of any material which emits toxic contaminants or large volumes of smoke, particulates or odors. No open burning operation which is otherwise permitted by regulation may be performed in such a manner as to create a nuisance, hazard or source of air pollution. The following categories of allowable burning have been promulgated: 1) fires used to control and alleviate fire hazards, or for weed control where no alternative control method exists; 2) burning at community tree disposal areas and private disposal sites in compliance with any solid waste control regulations; and 3) open burning of plant life growing on the premises in the course of agricultural, forestry or land clearing operations provided that it can be shown that such burning is necessary, and that no fire or traffic hazard will result. Mere convenience of disposal by burning is not a valid reason for a permit. Any person receiving a permit must make every reasonable effort to burn only when weather conditions are conducive to good smoke dissipation. Any person conducting an agricultural, forestry or land clearing burning operation must attempt to minimize air pollution. Emission of any air contaminant which is darker in shade than number 2 on the Ringelmann Chart is not permitted for existing sources. (Reg. E) For all new sources, air

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* Legal code citations to Idaho statutes.

contaminants emitted may not be any darker in shade than number 1 on the Ringelmann Chart. No person may permit any incinerator to discharge more than 0.2 pounds of particulates per hundred pounds of refuse burned. No person may install or permit the use of any new incinerator unless it complies with the requirements of "Multiple-Chamber Incinerator Design Standards for Los Angeles County" or is otherwise approved by the DHW. (Reg. L) Proposed regulations of the DHW would allow the use of air curtain combustion units as an alternative to open burning. This has already been allowed in certain debris burning by the Corps of Engineers within the state, with the requirement that visible emissions from the unit have 20% opacity or less.

ADDRESS: Department of Health and Welfare
Division of Environment
Air Quality Bureau
State House
Boise, Idaho 83720
208/384-2906

2. SOLID WASTE

The DHW, Division of Environment, is the agency responsible for implementing the state solid waste management program. (39-105) Reservoir clearing and cleaning debris would be considered to be solid waste for the purpose of the statutes. (39-103; 31-44) The DHW is authorized to enforce minimum sanitary standards for the storage and collection of solid wastes. (39-105) The DHW has prepared regulations which are used by both the DHW and local counties in their assessments of the acceptability of any solid waste management activity. Normally both the DHW and the counties issue permits, with the county normally being able to consider local factors such as local planning and zoning. All solid waste must be so managed, stored, collected, transferred, transported, processed, incinerated, composted and/or sheeted as to prevent health hazards, public nuisances or pollution of the environment. Solid wastes must be so managed that they will not provide sustenance to rodents or insects; cause or contribute to air or water pollution, including sub-surface or underground waters; or lead to abuse of the land. (Idaho Solid Waste Management Regs.) Geographical, topographical, hydrological and climatic conditions must be considered before a conditional permit may be issued for a sanitary landfill. In addition, a statement from local land use planning and zoning agencies

must accompany the application for a permit. The DHW has established general guidelines for sanitary landfill operation. (Idaho Solid Waste Management Stds. Part II) The application to operate a sanitary landfill must include information dealing with the proximity to water courses, ponds, lakes, reservoirs, property boundaries and special disposal trenches or areas for hazardous waste or large waste such as trees. It must also give the direction and distance to the nearest community. Detailed topographic and hydrological information and a report on operational procedures must be supplied. Surface drainage waters must be diverted from the landfill and, where leachate problems could arise, a collection and treatment system must be installed. All waste must be spread out and compacted in layers not exceeding two feet in thickness. A six-inch compacted layer of cover material must be placed over all exposed solid waste. Normally separate areas for the disposal of bulky waste are permitted and recommended. (Idaho Solid Waste Management Stds. Part II) Tree trunks and branches over six inches in diameter may be burned at the sanitary landfill site under a conditional use permit provided that 1) no tree stumps be burned; 2) the area for burning be at least 100 yards from the operating base of the landfill and 100 feet from any buried solid waste; 3) tree trunks and branches be burned no more frequently than three times per year; 4) the burning period does not exceed that provided for in the conditional use permit; and 5) the burning must be done on days approved by the DHW. All such burning must meet the approval of local fire control authorities. There may be no residences, businesses schools or other public gathering places within one-half mile of the burn area. At least once per year, immediately after a burning period, the area used for burning must be cleared of all residue except for unburned tree trunks and branches which are allowed to collect until the next burning period. A separate area away from a sanitary landfill site may be permitted for the burning of tree trunks and branches over 6 inches in diameter. This area must be established and operated under a conditional use permit issued by the DHW. (Idaho Solid Waste Management Stds. Part II) Community incinerators and compost plants may be operated under permits issued by the DHW, provided that they meet air pollution standards. (Idaho Solid Waste Management Stds. Parts III and IV) The collection and transportation of solid waste must be done in clean and sanitary vehicles. (Idaho Solid Waste Management Stds. Part VI)

Since most solid waste management sites are municipally or county owned they are receptive to alternative systems for the disposal of reservoir cleaning and clearing debris, thus conserving space at the local landfill. Any solid waste operation other than a sanitary landfill or incinerator must receive individual approval by the DHW. In practice, the DHW has allowed clean wood waste (slash) to be open burned provided that such control measures as fire guards and air guards are employed. For other than clean, dry wood, air curtain destructors with pits have been utilized. The solid waste management section normally works closely with local fire protection districts; these require a permit before the open burning will be allowed.

ADDRESS: Department of Health and Welfare
Division of Environment
Solid Waste Management Section
State House
Boise, Idaho 83720
208/384-2287

3. WATER

The DHW, Division of Environment, is also the agency responsible for implementing the state's water pollution program. (39-104) Water pollution is defined to include any degradation of existing water quality. (39-104) All sources of water pollution must obtain a permit from the DHW. (39-115) Regulations prohibit the placement of floating or submerged matter not attributable to natural causes. They also prohibit the storing, disposal, or accumulation of deleterious material adjacent to waters of the state where this material could be carried into the stream by high water or runoff. (Idaho Water Quality Reg. X) The Department of Water Resources (DWR) would have jurisdiction in matters concerned with dam safety and stream channel alteration. (42-17; 42-38) Placement of debris in stream channels is considered to be an alteration, and would require a permit from the DWR. (42-38)

ADDRESS: Department of Health and Welfare
Division of Environment
State House
Boise, Idaho 83720
208/364-2390

ADDRESS: Department of Water Resources
373 W. Franklin
Boise, Idaho 83720
208/384-2215

4. STATE FORESTRY

The Department of Lands (DOL), Division of Forestry and Fire (DFF), is the agency responsible for implementing statutes and regulations dealing with forest management practices. (38-102) Any forest or range fire burning out of control or without adequate or proper precautions has been declared to be a public nuisance. The DOL or the local fire warden may summarily abate the nuisance and the person who is responsible for such fire is liable for the cost incurred therein. (38-107) The DOL may divide the state into forest protective districts and appoint local fire wardens. (38-110) Between May 10 and October 20 has been designated as the closed season for fire. During such season it is unlawful for any person to set or cause to be set a fire in a slashing area, or in stumps, logs or timber on any forest or range land, or dangerously near thereto, without first having procured a permit from the local fire warden. (38-115) Every permit must prescribe the conditions upon which the permit is given including preventive measures which must be taken. At no time shall any fire be set when the wind is blowing to such an extent as to cause danger of the fire getting beyond control. The DOL may enact regulations governing the setting of fires on forest lands for both open and closed seasons. (38-115) The DOL has the power to extend the period of the closed fire season under conditions of unusual fire danger in order to meet a particular fire hazard. It normally does so through proclamation. (38-115) All slash that is produced must be properly disposed of in order to prevent fire hazards. (38-123) Everyone who disposes of slash on forest land must use care to prevent fire from spreading to other forest land. Disposal of slash during the closed season must be in accordance with open burning permits. Any violation of the statutorily mandated procedure in slash disposal is a misdemeanor. (38-124)

ADDRESS: Department of Lands
Division of Forestry and Land
State House
Boise, Idaho 83720
208/384-3280

5. NUISANCE

Public nuisances are broadly defined by statute and include the obstruction of free passage or use of any water body. (18-5901) Any individual who maintains or commits a public nuisance is guilty of a misdemeanor. (18-5903) It is also a misdemeanor to dump any material in a water body that is primarily used for domestic drinking water purposes. (18-7013) Nuisances may be abated by private or public legal action. (52-302, 303) District boards of health have the authority to preserve and protect the public health. (39-414) Cities may establish boards of health to operate within municipal boundaries and up to 5 miles outside of municipal boundaries. (50-304) City governing bodies may define nuisances and abate them within an area extending three miles beyond the municipal boundaries. (5-334)

6. MISCELLANEOUS

The DOL is given the authority to determine whether certain forests of the state are infested and may take necessary action to stop any infestation or infection of the forests of the state. (38-602) The Department of Agriculture may enact rules and regulations dealing with infected or infested plant life. (22-1905) There is a prohibition against sale or transfer of plant life from a quarantined area. (22-1908)

ADDRESS: Department of Agriculture
4696 Overland Road
P. O. Box 790
Boise, Idaho 83701
208/384-3240

ILLINOIS

1. AIR

The Illinois Environmental Protection Agency (IEPA), Division of Air Pollution Control, is the agency responsible for implementing the statutes and regulations dealing with the problem of air pollution. (111 1/2-1004)* There is also a Pollution Control Board (PCB), whose primary responsibility is to promulgate rules and hold adjudicatory hearings in cases of violation of the PCB-enacted rules. (111 1/2-1005) No person may allow the discharge or emission of any contaminant into the environment so as to cause or tend to cause air pollution or to violate regulations and standards adopted by the PCB. (111 1/2-1009) No person may construct, install or operate any equipment, vehicle or facility that is capable of causing air pollution without a permit issued by the IEPA. (111 1/2-1009) No person may cause or allow the open burning of refuse, the conducting of any salvage operation by open burning, or the burning of any refuse in any chamber not specifically designed for that purpose and approved by the IEPA. Exceptions may be adopted by the PCB only after a finding that no harm will result from such burning or that any alternative method of disposal of such refuse would create a safety hazard so extreme as to justify the pollution that would result from such burning. (111 1/2-1009) Refuse is defined by statute to mean garbage or other discarded materials. (111 1/2-1003) The PCB regulations define landscape waste to include any vegetable or plant refuse including trees, tree trimmings, branches, stumps, brush, weeds, leaves and grass. (Air Pollution (AP) Rule 501) The open burning of landscape waste is allowed, but only on the premises on which such waste is generated and only when atmospheric conditions will readily dissipate the contaminants. The burning may not create a visibility hazard on roadways, railroad tracks or air fields. The burning of landscape waste is not allowed in municipalities having a population in excess of 2500; municipalities of any size which adjoin a municipality having a population of 2500; all municipalities within 40 air miles of Meigs Field, Chicago; all municipalities within 20 air miles of McKinley Bridge in St. Louis, Missouri; and rural areas 1,000 feet or less from a municipality in which open burning of landscape waste is prohibited. (AP Rule 503) The IEPA may grant permits for open burning for the destruction of vegetation on site under circumstances in

*Legal code citations to Illinois statutes.

which its removal would necessitate significant environmental damages. (AP Rule 504) Permits may be granted for the burning of landscape waste in any area of the state if such is conducted with the aid of an air curtain destructor or comparable device to reduce emissions substantially and does not occur within 1,000 feet of any residential or populated area. (AP Rule 504) No permit is to be granted unless the applicant proves to the satisfaction of the IEPA that the open burning is necessary to the public interest. (AP Rule 504) The PCB regulations do not exempt open burning activities from applicable local restrictions. (AP Rule 503) Local agencies are obliged by the PCB regulation to enforce the open burning prohibition. (AP Rule 506) No person may emit smoke or other particulate matter from any emission source into the atmosphere with an opacity greater than 30 percent. (AP Rule 202) No person may allow the emission of particulate matter into the atmosphere from small (less than 2,000 pounds of refuse per hour) incinerators to exceed 0.2 grains per standard cubic foot of effluent gases. This standard applies to all existing incinerators. (AP Rule 203) For all new incinerators, the applicable standard is 0.1 grains per standard cubic foot of effluent gases. The emissions standard does not apply to incinerators which burn wood wastes exclusively if the following conditions are met: a) the emission of particulate matter does not exceed 0.2 grains per standard cubic foot of effluent gas, b) the location of such incinerator is not in a restricted area and is more than 1,000 feet from other populated areas, and c) it can be affirmatively demonstrated that no economically reasonable alternative method of disposal exists. (AP Rule 203) No person may cause or allow the emission of fugitive particulate matter that is visible by an observer looking generally towards the zenith at a point beyond the property line of the emission source. (AP Rule 203)

ADDRESS: Illinois Environmental Protection Agency
Division of Air Pollution Control
2200 Churchill Road
Springfield, IL 62706
217/782-3397

2. SOLID WASTE

The IEPA and the PCB are the agencies responsible for implementing and promulgating rules and regulations that deal with the problem of solid waste management. (111 1/2-1003, 1004) No person may cause or allow open dumping of garbage

or other refuse in violation of PCB regulations or conduct any refuse collection or disposal operation without a permit granted by the IEPA under such conditions as the IEPA considers necessary to protect against land pollution. (111 1/2-1021) The PCB is given the authority to adopt regulations dealing with standards for the location, design, construction, sanitation, operation, maintenance and continuation of refuse collection, disposal sites and facilities. (111 1/2-1022) Under the PCB regulations, no person may develop any new solid waste management site or modify any existing solid waste management site without a development permit. (Solid Waste (SW) Rule 201) In addition, no person may operate any solid waste management facility for which a development permit is required without obtaining an operating permit issued by the IEPA. (SW Rule 202) All existing solid waste management sites also must apply for and receive an operating permit. (SW Rule 202) The existence of a permit does not constitute a defense to a violation of the act. (SW Rule 208) Extensive regulations cover the sanitary landfill operation. (SW Rule 301 et. seq.) A compacted layer of at least 6 inches of suitable material must be placed on all exposed refuse at the end of each day's operation. All salvaging operations at a sanitary landfill must be conducted in a sanitary manner. Hazardous or liquid wastes and sludges may be accepted at a sanitary landfill only if authorized by a special permit. (SW Rule 310) No person may cause or allow open burning at a sanitary landfill except in accordance with the PCB air regulations. (SW Rule 311) No person may cause or allow operation of a sanitary landfill in a manner which threatens or allows the discharge of any contaminants into the environment which could cause water pollution. (SW Rule 313) No person may allow the development or operation of a landfill unless the applicant shows that no damage or environmental hazard to the waters of the state will result. (SW Rule 315) All applications for development permits for sanitary landfills must include soil, topographical, hydrological, and geographical information. (SW Rule 316)

ADDRESS: Illinois Environmental Protection Agency
Division of Land Pollution Control
2200 Churchill Road
Springfield, IL 62706
217/782-6760

3. WATER

The IEPA and the PCB are the agencies responsible for implementing the water

pollution program. (111 1/2-1003, 1004) No person may allow the discharge of any contaminants so as to cause or tend to cause water pollution or to violate any regulation or standards adopted by the PCB. (111 1/2-1012) No person may construct, install or operate any equipment, facility or vessel that causes or contributes to water pollution without obtaining a permit granted by the IEPA. No person may deposit any contaminants upon land in such place and manner as to create a water pollution hazard. All waters must be free from floating debris, odor, unnatural plant or algal growth, unnatural color or turbidity or other materials that may be harmful to human, animal, plant or aquatic life. (Reg. 203)

ADDRESS: Illinois Environmental Protection Agency
Division of Water Pollution Control
2200 Churchill Road
Springfield, IL 62706
217/782-5545

4. STATE FORESTRY

The Department of Conservation (DOC) is the agency responsible for enforcing all laws dealing with the prevention and suppression of forest fires. (57 1/2-76) The DOC is authorized to create forest fire protection districts throughout the state. (57 1/2-72) The DOC, whenever it determines that a forest fire hazard exists in any district, may issue a proclamation declaring it unlawful, during the period covered, to set on fire any woods, brush, grass, grain, weeds or stubble without first obtaining a burning permit issued by the local forest fire warden. (57 1/2-73) The DOC may also enact rules and regulations for the issuance of burning permits and for carrying out their responsibilities to protect the forests of the state. (57 1/2-76) It is unlawful for any person to kindle a fire in the open air outside any municipal limits within an intensive fire protection district during the months of February, March, April, October and November or during other times when fire hazard conditions have been declared to exist by a DOC order without first obtaining a burning permit issued by the district forest fire warden. (57 1/2-80) Any person violating the permit requirement may be fined not exceeding $1,000 or imprisoned for a period not exceeding six months, or both. (57 1/2-80)

ADDRESS: Department of Conservation
Rural Route 5
State Fair Grounds
Springfield, IL 62707
217/782-2361

5. NUISANCE

Public nuisances are broadly defined by statute. (100 1/2-26) All municipalities have the express authority to define, prevent and abate nuisances. (11-60-2) Counties have general authority to regulate air pollution and sources of air contaminants provided that they have rules as stringent as those of the IEPA. (34-421.2)

6. MISCELLANEOUS

The Department of Agriculture has the authority to inspect any place which may become infested or infected. (5-63) All trees and other plants or plant parts infested with injurious insect pests or infested with plant diseases are to be classed as public nuisances and may be destroyed. (5-74) The Department, after making a finding that a dangerous pest or plant disease exists in a particular area, may declare a quarantine. (5-80) Under such quarantine, the Department may prohibit the movement within or through any portion of the state of any agricultural or horticultural product or of any other material which may carry the disease or pest. (5-80)

ADDRESS: Department of Agriculture
Junior Livestock Bldg.
State Fairgrounds
Springfield, IL 62706
217/782-2274

INDIANA

1. AIR

The State Board of Health, Air Pollution Control Board (APCB), is the agency primarily responsible for implementing the statutes and regulations that deal with the problem of air pollution. (13-7-2-9, 13-1-1-4)* The Air Pollution Control Division of the State Board of Health administers the air pollution programs of the APCB. Any sources of air pollution must be covered by a permit obtained from the APCB. (13-7-10-1) In addition to the APCB, certain urban counties and all larger cities have the authority to regulate sources of air contaminants within their jurisdictions. (18-4-21-2, 18-1-1.5-12) The APCB has enacted a regulation dealing with open burning. (Reg. APC-2) The burning, on the farm, of wood products derived from farming operations, not including clearing operations, is exempted from the open burning prohibition without the necessity of prior approval. Under this exemption, only wood products may be burned and the fires must be attended to at all times. If such fires create an air pollution problem, a nuisance or a fire hazard, they must be extinguished. Normally, they must occur during daylight hours. (Reg. APC-2 Sec. 3) The following types of burning are allowed with prior approval of the APCB: a) burning of refuse resulting from a natural disaster, b) burning of natural growth derived from a clearing operation, and c) burning of highly explosive or other dangerous materials. In addition, a general exception is made for any kind of open burning for which a variance is sought and granted by the APCB. (Reg. APC-2 Sec. 4) Any person who allows the accumulation or existence of combustible material which constitutes or contributes to a fire causing air pollution is not relieved of responsibility on the basis that said fire was accidental. (Reg. APC-2 Sec. 5) The APCB regulations are not designed to pre-empt local laws, regulations or ordinances which otherwise prohibit open burning. (Reg. APC-2 Sec. 6) No person may so operate any equipment as to cause smoke or other visible emissions in excess of 40 percent opacity or number 2 on the Ringelmann Chart for an accumulated total of more than 15 minutes in any 24-hour period. (Reg. APC-3) The APCB regulates incinerator emissions through a permit system which only restricts emissions of particulate matter from those sources which have the potentials of emitting more than 25 tons per year (or 5 pounds per hour) of particulate matter. (Reg. APC-18, APC-19)

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*Legal code citations to Indiana statutes.

ADDRESS: State Board of Health
Air Pollution Control Board
1330 West Michigan Street
Indianapolis, IN 46206
317/633-0646

2. SOLID WASTE

The State Board of Health (SBH), Solid Waste Management Section, and the Stream Pollution Control Board (SPCB) have primary responsibility for the implementation of the state's solid waste management program. (19-2-1-2, 13-7-1-1) All counties, cities and towns are authorized to establish, operate and maintain a facility for the collection and disposal of refuse after prior approval granted by the State Board of Health. (19-2-1-3) Where incineration is to be utilized, approval from the APCB, also, must be received. (19-2-1-3) The SBH has the authority to select and approve burial sites for sanitary landfills. (19-2-1-3) No person may discharge or emit any contaminant or waste, including any noxious odor, from any source into the environment in any form which would cause or tend to cause pollution or to violate any regulation, standard or discharge requirement. (13-7-4-1) It is unlawful to allow the open dumping of garbage or other refuse in violation of any regulation. (13-7-4-1) It is unlawful to construct, install, operate, conduct or modify without prior approval of the SBH, SPCB or APCB any equipment or facility which may cause or contribute to air, land or water pollution. It is also unlawful to burn refuse in the open, to conduct any salvage operation by open burning, or to burn any refuse in any chamber not specifically designed for that purpose and approved by the SPCB, the APCB or the SBH. (13-7-4-1) The SPCB has enacted a regulation dealing with the permit requirements for all solid waste disposal systems. (SPC-18) All entities operating sanitary landfills or any other disposal sites must obtain an operating permit from the SPCB. (SPC-18) In addition, for new facilities no person may construct any sanitary landfill without a valid construction plan permit issued by SPCB. Extensive topographical, geographical and hydrological information must be given on the construction permit application. Applicable zoning and land use controls on the site location must also be included. Soil samples and soil maps must also be included on the application. State permits for operating sanitary landfills must also be secured. No refuse deposit may be made closer than 600 feet from any dwelling without written consent of the occupant and owner. Groundwater

monitoring wells may be deemed necessary by the SPCB. Open burning of solid waste at landfills is prohibited. (SPC-18) A cover of compacted soil must be applied over all exposed solid waste at the end of each operating day. Hazardous wastes may not be accepted in any sanitary landfill unless specifically authorized by the SPCB. Certain bulky wastes are acceptable at landfills if a separate area is provided for their disposal. (SPC-18) Persons who haul solid industrial wastes are exempt from the permitting requirements placed upon haulers of liquid industrial waste. (SPC-17)

ADDRESS: State Board of Health
Solid Waste Management Section
1330 West Michigan Street
Indianapolis, IN 46206
317/633-0176

Stream Pollution Control Board
1330 West Michigan Street
Indianapolis, IN 46206
317/633-0166

3. WATER

The Stream Pollution Control Board (SPCB), is the principal water pollution control agency for the state. (13-7-2-10) The State Board of Health (SBH) provides the staff necessary to carry out the programs established by the SPCB. The Enviromental Management Board also has certain regulatory and rule-making authority in the water pollution area, and is staffed by the SBH. (13-7-2-1) In addition, the Department of Natural Resources (DNR), Division of Water Resources, exercises certain authority under the Indiana Flood Control Act. (13-2-22) There is a prohibition against the discharge of any contaminant which might cause water pollution. (13-7-4-1) The SPCB has enacted a regulation which prohibits the discharge of any material which leaves the water body with any deleterious substance or floating debris in it. (SPC-1R-3) In addition, the DNR has general authority to investigate pollution of waters that run through state-owned land. (14-3-1-14) It is unlawful to erect or maintain in any floodway any structure, deposit, or excavation which will unduly restrict the capacity of the floodway. (13-2-22-13) The DNR has the authority to remove any deposit or excavation in any floodway which adversely affects the efficiency or restricts the capacity of the floodway. The DNR may by order establish any floodway within the state. (13-2-22-14)

ADDRESS: Stream Pollution Control Board
1330 West Michigan Street
Indianapolis, IN 46206
317/633-0166

Department of Natural Resources
Division of Water Resources
Room 605, 100 North Senate Ave.
Indianapolis, IN 46204
317/633-5267

4. STATE FORESTRY

The Department of Natural Resources (DNR), Division of Forestry, is the state agency responsible for regulating activities in the forests of the state. (14-3-1-3) The DNR has overall authority to preserve the forests and to prevent and control plant diseases, infections and pests. (14-3-1-3) The governor has the authority to declare an emergency fire hazard area by proclamation after receiving information from the DNR that, because of drought conditions existing in any area, an extreme fire hazard condition is present. (14-5-7-1) Notice must be given of the proclamation, and he may close such areas as are necessary to hunting, fishing and trapping for the duration of the hazard. (14-5-7-4) It is unlawful, during any period in which an extreme fire hazard has been proclaimed, for any person to burn or cause to be burned any rubbish, leaves, slashings, brush piles, fields, stumps or clearings from rights-of-way. (14-5-7-5) Any person who violates the proclamation order is guilty of a misdemeanor and may be fined no less than $25 nor more than $50 in addition to potential imprisonment in the county jail for not to exceed 30 days. (14-5-7-7) The DNR has the authority, acting through the State Forester, to equip and establish a fire-fighting organization for the purpose of preventing, fighting, and controlling fires in the state forestlands. The Department may extend the same fire detection, fighting and control services to other state land under its supervision and control. It may also establish such services for lands not owned by the state and not lying within the corporate limits of any city or town for the purpose of protecting forest, fields and grassland. (14-5-5-1)

ADDRESS: Department of Natural Resources
Division of Forestry
613 State Office Building
100 N. Senate Avenue
317/633-6517

5. NUISANCE

Nuisances are broadly defined by statute. (34-1-52-1) Nuisances may be abated or enjoined by any person or governmental organization. (34-1-52-3) The befouling of water with any noisome substance is a public nuisance. (35-1-103-4) The depositing in the water of any harmful material which may adversely affect the agricultural or livestock industries may be abated by the person suffering the damage. (16-1-26-1) Local boards of health have the authority to abate nuisances. (18-1-13-1)

6. MISCELLANEOUS

The DNR may promulgate regulations or take other actions as necessary to prevent the spread of plant pests from one part of the state to another. (15-3-6-1)

ADDRESS: Department of Natural Resources
608 State Office Building
100 N. Senate Avenue
Indianapolis, IN 46204
317/633-6344

IOWA

1. AIR

The Department of Environmental Quality (DEQ), Air Quality Management Division, and the Air Quality Commission (AQC), are responsible for implementing the statutes and promulgating regulations dealing with the problem of air pollution. (455 B.12)* Any political subdivision, city or county may conduct an air pollution control program within its boundaries provided that it is approved by the DEQ. (455 B.23, 24) Any person constructing, installing or altering any pollution-emitting equipment must obtain a permit from the DEQ. When portable equipment for which a permit has been issued is transferred from one location to another, the DEQ must be notified in writing at least 30 days prior to the transfer. (Reg. 400-3.1) There is a general prohibition in the regulations against open burning of combustible materials. (Reg. 400-4.2) In addition to the stated exemptions, however, any person wishing to conduct open burning may make an application for a variance. (Reg. 400-4.2) Open burning of diseased trees is exempted from the general application of the statute, unless such burning would cause a nuisance. In the case of a nuisance-creating operation, the DEQ may take appropriate action to secure relocation of the burning operation. Another exception to the open burning prohibition allows the burning of landscape wastes originating on the premises. Burning of this type of waste produced in clearing, grubbing and constructing operations must be limited to areas located at least 1/4 mile from any inhabited building. (Reg. 400-4.2) No exemptions for open burning are allowed in the Des Moines, Cedar Rapids or Council Bluffs areas until such time as the ambient air quality standard for suspended particulates has been achieved. (Reg. 400-4.2) No person may permit the operation of an incinerator with a capacity of 1,000 or more pounds per hour in such a manner that particulate matter discharged to the atmosphere exceeds 0.2 grains per standard cubic foot of exhaust gas adjusted to 12 percent carbon dioxide. No person may allow the operation of an incinerator with a capacity of less than 1,000 pounds per hour in such a manner that the particulate matter

* Legal code citations to Iowa statutes.

discharged to the atmosphere exceeds 0.35 grains per standard cubic foot of exhaust gas adjusted to 12 percent carbon dioxide. No person may permit the operation of an incinerator which produces visible air contaminants having a density equal to or darker than #2 on the Ringelmann Chart or 40% opacity except that visible air contaminants may be emitted for a period of not more than three minutes in any one hour that do not exceed #3 on the Ringelmann Chart or 60% opacity during operation breakdown or during the cleaning of air pollution control equipment. (Reg. 400-4.4)

ADDRESS: Department of Environmental Quality
Air Quality Management Division
3920 Delaware Avenue
P. O. Box 3326
Des Moines, Iowa 50316
515/265-8134

2. SOLID WASTE

The DEQ, Solid Waste Management Division, and the Solid Waste Disposal Commission are responsible for implementing the state's solid waste management program. (455 B.75) Every city, town and county must provide for the establishment and operation of a sanitary disposal project. (455 B.76) Every new sanitary disposal project must obtain a permit issued by the DEQ before operation. (Reg. 26.1) The DEQ has the duty of inspecting all sanitary disposal projects as least once per year. No permit may be issued unless the solid waste is disposed of in a manner that does not create a public health hazard. (Reg. 26.3) Open dumping is prohibited except for rubble. No disposal of toxic or hazardous waste may be made unless explicit instructions are first obtained from the DEQ. (Reg. 26.4) No permit may be granted for a solid waste disposal facility if the site location or operation does not conform to applicable federal, state and local laws. (Reg. 26.4) The DEQ sets minimum standards for containers and vehicles collecting and transporting solid waste. (Reg. 26.5) Vehicles and containers used for the collection and transportation of toxic and hazardous wastes must be so constructed that they will not create a danger to public health or safety. All sanitary landfill sites must be approved by the DEQ. Topographical, hydrological and geographical information must be submitted prior to site approval. (Reg. 27.1) All plans must be reviewed by the local

soil conservation district. No sanitary landfill may be located inside a floodplain or shoreland without prior approval. No landfill may be located within 1,000 feet of the nearest edge of the right-of-way of any state or federal highway or within 500 feet of an existing residence. (Reg. 27.1) Open burning at such facilities is prohibited except when specifically permitted under rules of the Air Quality Commission (AQC). Solid waste at landfills must be covered with a compacted layer of at least six inches of earth daily. Any city, town or private agency planning to use incineration as the method of disposal must obtain a permit from the DEQ. (Reg. 28.1) Land disposal or incineration of toxic or hazardous wastes must receive special review and a special permit from the DEQ. (Reg. 28.2) All incinerators must be approved as to design and operating conformity with emission limitations set by the AQC. (Reg. 28.3) Applications for a permit must be accompanied by geographical and topographical information. The DEQ allows composting as a method of disposal of solid waste provided that a permit is obtained from the DEQ. (29.1) Geographical, topographical and hydrological information must be submitted on the application for a permit seeking to set up a composting system. (Reg. 29.2) Any other method of waste handling, processing or disposal must be approved in advance by the DEQ. (Reg. 31.1)

ADDRESS: Department of Environmental Quality
Solid Waste Management Division
3920 Delaware Avenue
P. O. Box 3326
Des Moines, Iowa 50316
515/281-4263

3. WATER

The DEQ, Water Quality Management Division, and the Water Quality Commission, are responsible for implementing the state's water pollution program. (455 B.31, 455 B.32) It is unlawful to construct, install or modify any disposal system or to construct any new outlet for the discharge of any sewage or other waste into the waters of the state without obtaining a permit. (455 B.45) All waters must be free from floating debris or materials that are unsightly or deleterious to human, animal, plant or aquatic life. (Reg. 16.3(1))

ADDRESS: Department of Environmental Quality
Water Quality Management Division
3920 Delaware Avenue
P. O. Box 3326
Des Moines, Iowa 50316
515/265-8134

4. STATE FORESTRY

The Department of Conservation (DOC), Division of Land and Water, deals with all matters relating to state forests and forestry. (107.21) The DOC has the authority to enact rules and regulations providing for protection against fire and other destructive activities on both state and privately owned forest and wildlife areas. (107.24) The DOC is authorized to employ a State Forester to enforce the laws and regulations applicable to forestry. (107.13)

ADDRESS: Department of Conservation
State Office Building
300 4th Street
Des Moines, Iowa 50319
515/281-5629

5. NUISANCE

State, county and municipal boards of health have the primary responsibility over public health matters, including the right to issue permits for the collection and disposal of solid wastes. (137.7) They have general authority to abate nuisances; these are broadly defined by statute. (657.1) If a person willfully or negligently sets fire to any timbered land not his own, he may be fined up to $500 and imprisoned for up to one year. (707.7) If any person, between the first of September and the first of May, causes a fire which burns any timbered land or prairie, and allows the fire to escape his control, he may be imprisoned for up to 30 days and be fined up to $100. (707.8)

6. MISCELLANEOUS

The Office of State Entomologist, within the Department of Agriculture, has primary responsibility for enforcing the Iowa Crop Pest Act. (267.3) The State Entomologist must keep himself informed as to various insect pests and diseases, including the prevention of infection and infestation. (267.5) In order to implement his authority he may enact rules and regulations dealing with inspection, investigation, eradication and prevention of the dissemination of insect pests and diseases. This would include the treatment, cutting and destruction of plants and plant products which are infested or infected. (267.6) It is unlawful to bring into the state any plant or plant products without proper labeling. All such products must be free from disease. (267.8) The Entomologist

may declare a quarantine to prevent plant infestation or infection from spreading and may enforce such rules and regulations as are necessary to maintain basic freedom from infestation and infection. (267.11)

ADDRESS: Department of Agriculture
1007 East Grand Avenue
Des Moines, Iowa 50319
515/281-5321

KANSAS

1. AIR

The Department of Health and Environment (DHE), Bureau of Air Quality, is the agency responsible for implementing the statutes and regulations dealing with the problem of air pollution. (65.3002, Reorg. #3-1974)* There is also an Advisory Air Quality Conservation Commission. (65-3004) The DHE is given specific authority to establish emission control limitations and requirements for open burning. (65-3010) All local air quality conservation programs may continue to operate concurrently with the DHE if they meet the minimum requirements set by the DHE. (65-3010) Specific authority is granted for local air quality conservation programs, either on a single city or county basis or on a joint basis. (65-3016) The following types of open burning are totally prohibited: a) open burning of any waste; b) open burning of any item used in a salvaging operation; and c) open burning of structures, vegetation, or other combustible material. (Reg. 28-19-45) Exemption to the open burning prohibition is allowed where the open burning operations are conducted, upon approval of the DHE, where it is demonstrated that such open burning is necessary and in the public interest. (Reg. 28-19-47) The DHE may specify special conditions under which the open burning is to take place. An application for the permit must specify location and type of burning, state the reason why no alternative method is feasible, and give at least 30 days notice to the DHE. A further exception from open burning prohibitions are those fires which are employed for the purposes of land clearing, crop or game management, or other construction activities — provided that the burning is not specifically prohibited by the Department of Health or local boards. Such burning may not include materials which would cause heavy smoke. (Reg. 28-19-47) Burning operations may not be initiated until at least one hour after sunrise and must be finished two hours prior to sunset. Burning should not be carried out during inclement or foggy conditions or on cloudy days. Burning should be restricted to periods in which surface wind speed is more than 5, but less than 15, miles per hour. The burning must be at least 1,000 feet from any occupied dwelling or public roadway. (Reg. 28-19-47) No incinerator may be used for the burning of wastes or the conducting of salvage operations unless the incinerator is of the multiple-chamber variety. (Reg. 28-19-40)

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*Legal code citations to Kansas statutes.

Existing incinerators which do not meet the standard may be altered, modified or rebuilt to the satisfaction of the DHR. (Reg. 28-19-40) No person may cause the emission of particulate matter from any incinerator in excess of 0.3 grains of particulate matter per standard dry cubic foot of exhaust gas, corrected to 12 percent carbon dioxide, for an incinerator with a waste burning capacity of less than 200 pounds per hour. The emission limitation decreases to 0.2 grains of particulate matter for waste incinerators with capacities of between 200 and 20,000 pounds of waste per hour, and decreases further to 0.1 grains of particulate matter for incinerators with a waste burning capacity in excess of 20,000 pounds of waste per hour. (Reg. 28-19-41) No person may cause or permit the emission of visible contaminants of an opacity equal to or greater than 20 percent. (Reg. 28-19-41)

ADDRESS: Department of Health and Environment
Bureau of Air Quality
Topeka, KS 66620
913/862-9360

2. SOLID WASTE

The DHE, Solid Waste Management Section, is the agency responsible for implementing the state's solid waste management program. (65-3401) It is unlawful for any person to construct, alter or operate a solid waste processing facility or disposal area without first obtaining a permit from the DHE. (65-3407) It is unlawful for any person to construct, alter or operate a hazardous waste processing facility or storage or disposal area without first obtaining a permit. (65-3407) The DHE may subject each permit to such conditions as are deemed necessary to protect human health and the environment. (65-3407) It is unlawful for any person to dump, deposit or place any solid or hazardous wastes onto the surface of the ground or into the waters of the state without first receiving a permit. (65-3409) It is unlawful to conduct any solid waste burning operations in violation of the air pollution statutes and regulations. (65-3409) It is also unlawful to store, collect, transport, process, treat or dispose of any solid or hazardous wastes contrary to the rules set out by the DHE. Any person who violates any of these provisions is guilty of a Class A misdemeanor. (65-3409) The DHE has the authority to find that the storage, collection, transportation, processing or disposal of solid or hazardous wastes from any source may reasonably be expected to cause land, air or water pollution or become a public

nuisance and consequently require that the person operating such facilities or transportation systems change his method of operation. (65-3411) The DHE has enacted guidelines for construction and demolition waste disposal. It is recommended that such wastes not be disposed of at landfills because they are disruptive of normal sanitary landfill operations because of their bulk. Permits are required for all construction and demolition sites. In addition to the DHE requirements, there may be control of such sites by local, city or county ordinances. Waste materials such as brush, trees and stumps resulting from land clearing and excavation projects are defined as Class I wastes. Permit requirements for Class I wastes include that the bedrock materials be suitable for such disposal. Groundwater conditions are deemed to be suitable if the seasonal high water table is a minimum of 12 inches below the surface; if the water table is at the surface, a subbase of clean fill to a height 12 inches above the high water level must be deposited prior to the deposition of any wastes. If chipped wood wastes are included in the waste materials, a minimum soil depth of 24 inches above the seasonal high water table will be required in all locations. Flood plain locations for disposal of demolition and construction wastes will be severely restricted. For small sites of short duration, the director may waive any of the above requirements. All sites that are utilized must be included as part of the county solid waste management plan, and approval may be required by local, county and regional zoning land-use and solid waste management authorities. Site plans with topographical, hydrological and geographical information must be submitted. Open burning is prohibited at a demolition or construction landfill site unless a variance or exemption is obtained from the state or local agency. Demolition wastes may not be deposited in surface or groundwaters. Dumping of demolition wastes shall be confined to as small an area as is practicable. Demolition wastes shall be compacted as densely as practicable. Where combustible materials are disposed of, a compacted earth firebreak must be provided. Surface water drainage must be diverted around and away from the operating area. (Guidelines for Construction and Demolition Wastes). In addition, the DHE has enacted regulations dealing with sanitary landfill operations. Solid waste may be shredded, separated and consolidated at transfer stations approved by the DHE. (Reg. 28-29-10) Sanitary landfills have their own performance standards. No open burning of wastes is allowed at any sanitary landfill. Prior to receiving approval for sanitary landfills, extensive hydrological, geographical and topographical information must be given to the DHE. (Reg. 28-29-10)

ADDRESS: Department of Health and Environment
Solid Waste Management Section
Forbes Field
Topeka, KS 66620
913/862-9360

3. WATER

The DHE is the agency responsible for implementing the state's water pollution program. (65-159) The DHE is authorized to administer a water pollution control permit system for the discharge of any waste or sewage into the waters of the state. (65-165) Civil penalties of up to $10,000 for any violation of any sewage discharge permit, effluent standard or limitation, or water quality standard are allowed. (65-170d)

ADDRESS: Department of Health and Environment
Bureau of Water Supply
Forbes Building No. 740
Topeka, KS 66620
913/862-9360

4. STATE FORESTRY

The Forestry, Fish and Game Commission (FFGC) is the agency primarily responsible for dealing with problems of state forests. (32-214) The FFGC has general authority to provide against fire and storm damage to the property under its control and jurisdiction. (32-215) The FFGC has very proscribed authority in the area of reservoir clearing and cleaning debris disposal and has enacted no regulations dealing with the problem.

ADDRESS: University of Kansas
Division of Extension
Extension Forestry
2610 Claflin Road
Manhattan, KS 66502
913/532-5752

5. NUISANCE

The DHE has primary statewide responsibility for abating nuisances. (65-159) That authority may be delegated to local boards of health. (65-159) The maintaining of a public nuisance is a Class C misdemeanor. (21-4106) Cities have nuisance abatement authority within their jurisdictional limits. (12-1617e) The Department of Agriculture (DOA) is given overall supervisory authority over the suppression,

control, eradication, and prevention of the spread of any plant pests (2-2114) The DOA may impose quarantines and other restrictions on the transport of wood and brush that is infested by plant pests. (2-2116) It is unlawful to sell, transport, or ship any nursery stock which has not been inspected by the DOA. (2-2123)

ADDRESS: Department of Agriculture
State Office Building
10th and Topeka Avenue
Topeka, KS 66612
913/296-3556

KENTUCKY

1. AIR

The Department of Natural Resources and Environmental Protection (DNREP) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (224.005)* A "person" is so defined by statute as to include any governmental agency. (224.005) The DNREP, which has general authority to develop a comprehensive program for the management of air resources, (224.033) has enacted regulations applicable to the disposal of reservoir debris. No person may permit the emission, produced by incineration in an incinerator with a capacity of 2.5 cubic feet or greater, of any substance other than sawdust, wood chips or bark to exceed 20% opacity or 0.20 grains of particulate matter per standard cubic foot of dry flue gas. No person may permit the emission produced by the incineration of sawdust, wood chips or bark to exceed 40% opacity except for a duration of not more than one hour in any 8-hour period or to exceed 0.21 grains of particulate matter per standard cubic foot of dry flue gas corrected to 12% carbon dioxide. The above standards apply to all existing incinerators. (401 KAR 31060) New incinerators with a charging rate capacity of more than 45 metric tons per day may not discharge gases which contain particulate matter in excess of 0.18 g/dscm. New incinerators with a charging rate of less than 45 metric tons per day may not discharge into the atmosphere particulate matter in excess of 0.45 g/dscm. Examination of the emissions must be conducted by the owner of the incinerator. (401 KAR 3.050) No person may cause, allow or permit any materials to be handled, transported or stored without taking reasonable precautions to prevent particulate matter from becoming airborne. (401 KAR 3.060) Such reasonable precautions may include: covering open-body trucks transporting materials; the installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials; etc. No person may permit the discharge of visible dust emissions beyond his property line. There is also a general prohibition against open burning except for the following reasons: 1) fires set for the purposes of weed abatement and disease and pest prevention; 2) fires set for prevention of a fire hazard, including

* Legal code citations to Kentucky statutes.

the disposal of dangerous material when no safe alternative method is available; 3) fires set for recognized agricultural, silvicultural, range and wildlife management practices; and 4) fires set for disposal of natural growth in land clearing and of trees and tree limbs felled by storms or by other natural causes. In regions classified "Priority I" with respect to particulate matter, emissions from such fires shall not be of greater than 40% opacity. Open burning that is allowed must not conflict with any local ordinance and, where necessary, permission shall be obtained from the local fire department or fire district having jurisdiction at the place of the burning. (401 KAR 3.060) New process operations involving the manufacturing or processing of any raw material must not emit air contaminants at greater than 20% opacity. A table of allowable rates of particulate emissions based on process weight rates is included in 401 KAR 3.050. Any source of air pollution must obtain a permit from DNREP. (401 KAR 3.010) No person may cause air pollution or be in violation of any permit requirement.

ADDRESS: Department of Natural Resources and Environmental Protection
Air Quality Division
Capitol Plaza Tower, 5th Floor
Frankfort, Kentucky 40601
502/564-3350

2. SOLID WASTE

The DNREP, Division of Solid Waste, is the agency responsible for implementing the state's solid waste management program. (224.033) No construction permit may be issued for any solid waste disposal facility or landfill site until after public information has been given regarding said landfill. (224.855) No person may operate, establish, construct or maintain a solid waste disposal site or facility without receiving a DNREP construction or operation permit. (224.880) Hazardous wastes--meaning any substance or combination of substances which may cause a threat to public health, animal or aquatic life forms--require a special permit. (224.890) No person engaged in collecting, hauling or disposing of hazardous wastes on a seasonal or continuing basis shall dump such waste at a facility without first obtaining a special permit. (224.890) The DNREP may require licensing of any hauler of any substance which causes a threat or hazard to the environment or to public health. (224.900) The DNREP has enacted regulations implementing the permit requirement.

(401 KAR 2:010) On all construction or operation permits for landfills, preliminary site analysis must be sent to the DNREP with plans, specifications and topographical, geographical and hydrological information. Permits may be granted with special limitations not found in the regulations. No facility or landfill may be modified without prior written approval by the DNREP. Permits may be denied: 1) for failure to submit an adequate application, 2) for failure to comply with local zoning requirements, 3) for failure to provide on-site requirements, 4) for failure to comply with general design criteria, 5) because of insufficient provisions for cover material, 6) because of insufficient protection of the public health and welfare, or 7) to prevent a public nuisance from occurring. No landfill may be exposed to the once-in-five-year flood. Landfills exposed to the once-in-100-year flood must be protected against such flood. Landfills subject to a high groundwater table must be restricted to sites which provide greater than two feet of compacted earth between the solid waste and the maximum water table. There may be no burning of solid waste at landfill sites. No putrescible wastes may be deposited at other than a sanitary landfill. Cover material must be of such a character that it can be compacted to provide a tight seal. (401 KAR 2:010)

ADDRESS: Department of Natural Resources and Environmental Protection
Division of Solid Waste
Capitol Plaza Tower
Frankfort, Kentucky 40601
502/564-6716

3. WATER

The DNREP, Division of Water Quality, is the agency responsible for administering the state's water pollution program. (12.020) Water pollution is defined broadly to include any alteration of the physical, chemical or biological properties of the water. (224.005) No person may, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters any substance that will cause or contribute to the pollution of the waters. (224.060) No person may construct, modify or operate any facility that could cause a discharge of sewage or other wastes into the waters of the state without obtaining a permit. (401 KAR 5:005) "Other wastes" are defined to include sawdust, bark, or other wood debris. (401 KAR 5:005) All waters must be free from

floating debris in amounts sufficient to be unsightly or deleterious. In addition, waters of the state must be so maintained that they remain free from nuisance conditions. (401 KAR 5:025)

ADDRESS: Department of Natural Resources and Environmental Protection
Division of Water Quality
Capitol Plaza Tower
Frankfort, Kentucky 40601
502/564-3410

4. STATE FORESTRY

The DNREP, Division of Forestry, has the authority to supervise all forestry property and to advance forest interests of the state. (149.010) Forest wardens employed by the DNREP may assist in the prevention, controlling and extinguishing of all forest fires. (149.080) There is a general prohibition against the conducting of acts which create fire hazards in forests. (149.370) Included specifically within such hazardous acts are the setting on fire of any flammable material on timberland of another without his consent, and the setting on fire of flammable material on timberland without notifying adjacent landowners and without taking reasonable precautions to prevent the escape of said fire. It is unlawful to set fire, within or adjacent to timberland, to any flammable material, even upon land owned by the person starting the fire, unless all reasonable precautions have been taken to prevent the spread thereof. (149.375) No person may willfully, maliciously or wantonly set on fire any timberland or other flammable material. (149.380) Any person maintaining or operating a dump within 150 feet of any timberland must provide devices and conditions to prevent the escape of fire therefrom. (149.395) The periods March 1 to May 15 and October 1 to December 15 are declared to be fire hazard season. Even though all the statutory precautions may have been taken in the setting of fire, it is unlawful during these periods for any person to set fire to any flammable material capable of spreading fire to within 150 feet of any woodland or brushland except between the hours of 4:30 pm and 12:00 midnight or when the ground is covered with snow. (149.400) The Governor may proclaim an emergency drought period during which time further restrictions on open burning are authorized. (149.405) The Division of Forestry also has responsibility for controlling forest pests and other infestations which are declared to be public nuisances.

(149.610) It is the duty of the Director of Forestry to determine the threat or presence of infestation and to control forest pests. (149.620) The Director of Forestry may establish control zones to limit infection or infestation. (149.630) The DNREP may apply measures of infestation control on public or private forests to any trees, timber, or shrubs thereon which may harbor any forest pests. (149.640)

ADDRESS: Department of Natural Resources and Environmental Protection
Division of Forestry
618 Teton Trail
Frankfort, Kentucky 40601
502/564-4496

5. NUISANCE

On a statewide basis, the Department of Human Resources has the authority to abate all nuisances. (211.210) City and county health boards also have the power to abate nuisances. (212.245) Larger cities have the authority to abate nuisances within two miles of their city limits. (84.220) Smaller cities have an extraterritorial jurisdiction of nuisance abatement of one mile. (85.180)

ADDRESS: Department for Human Resources
Health Building
275 East Main Street
Frankfort, Kentucky 40601
502/564-3970

LOUISIANA

1. AIR

The Health and Human Resources Administration (HHRA), Air Quality Section, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (40:11)* There is also an Air Control Commission (ACC) which is responsible for rule-making. (40:2204) The ACC has enacted a regulation which prohibits all types of open burning of wastes or other combustible material except as provided within the regulations. (Reg. 11.2) Open burning that is allowed by regulation must be conducted in compliance with all other applicable laws or local governmental ordinances. Authority to conduct outdoor burning under the ACC regulation does not exempt or excuse a person from the consequences or damages resulting from such burning. (Reg. 11.3) The following burning is specifically allowed: a) fires purposely set to forestlands for a specific forest management purpose in accordance with practices acceptable to the Louisiana Forestry Commission; b) fires purposely set on agricultural land for any specific management purpose in accordance with practices acceptable to the Louisiana Department of Agriculture; c) outdoor burning in a rural park or recreation area of trees, brush, grass and other vegetable matter for game management purposes in accordance with practices acceptable to the Parks and Recreation Commission or the Wildlife and Fisheries Commission; and d) outdoor burning in other than rural recreation areas of trees, brush, grass and other vegetable matter originating on such area in land clearing and right-of-way maintenance operations if the prevailing wind at the time of the burning is away from the nearest city or town, the location of the burning is at least 1,000 feet from any dwelling, care is used to minimize the amount of dirt on the material being burned, the burning is conducted only between the hours of 8 a.m. and 5 p.m., and the burning is so controlled that no traffic hazard is created. (Reg. 11.3) Special permits are available for the outdoor burning of explosives and pyrophoric materials if there is no other safe or practicable method of disposal. (Reg. 11.3.12) All burning must be so conducted that smoke and suspended particulate matter emissions do not pass across public roads in such a manner as to create a traffic hazard. (Reg. 11.4) The ACC requires that all incinerators operated within the state be approved by the HHRA. (Reg. 20.4)

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*Legal code citations to Louisiana statutes.

No person may permit the emissions of particulate matter from any incinerator in excess of 0.2 grains of particulate matter per standard cubic foot of dry flue gas. (Reg. 20.6) All incinerators which are not multi-chambered must be specifically approved by the HHRA. No person may cause or permit the handling, use, transport or storage of any material which allows or may allow controllable particulate matter to become airborne in such a manner as to cause a public nuisance or otherwise violate ambient air quality standards. (Reg. 20.7)

ADDRESS: Health and Human Resources Administration
Bureau of Environmental Services
Air Quality Section
P. O. Box 60630
325 Loyola Avenue
New Orleans, LA 70160
504/568-5214

2. SOLID WASTE

The HHRA, Bureau of Environmental Services, is the agency primarily responsible for implementing the state's solid waste management program through its general nuisance abatement powers. (40:11) The HHRA has enacted a Sanitary Code which deals with the problem of solid waste pollution. All garbage, refuse and rubbish disposal processes must be approved by the HHRA. (Reg. 10.53.1) No landfill may be operated without approval. (Reg. 10.53.2) Refuse may not be deposited where it could cause water pollution. (Reg. 10.53.4) There are no specific requirements regarding reservoir clearing and cleaning debris disposal. "One-time" burning of wood from clearing operations may be allowed by a variance from the Air Control Commission regulations.

ADDRESS: Health and Human Resources Administration
Bureau of Environmental Services
State Office Building
New Orleans, LA 70112
504/568-5137

3. WATER

The HHRA, Water Quality Branch, is concerned with health aspects related to wastewater discharges. This includes sanitary sewage discharges, flows from meat packing plants and the like. The HHRA is responsible for handling the NPDES permits for these operations. Industrial waste activities are under the

the jurisdiction of the Stream Control Commission (SCC), which sets standards, promulgates regulations, and issues permits for industrial discharges. The Division of Water Pollution Control of the Department of Wildlife and Fisheries accomplishes investigative work for the SCC, and is instrumental in the enforcement of regulations and permit requirements. All discharges which tend to destroy fish or wild and domestic animals are prohibited. (56:1440) No person engaged in logging operations may discharge trees or treetops into the navigable waters of the state. (56:1440) All dischargers who cause water pollution are punishable by fines of not less than $100 nor more than $2,000 with possible incarceration for up to 120 days. (56:1461-3) No waste may be discharged into public waters without receiving the best practicable secondary treatment. (56:1464.1)

ADDRESS: Health and Human Resources Administration
Water Quality Branch
P. O. Box 60630
New Orleans, LA 70160
504/568-5101

Stream Control Commission
P. O. Drawer FC
University Station
Baton Rouge, LA 70893
504/389-5300

Division of Water Pollution Control
Department of Wildlife and Fisheries
P. O. Drawer FC
University Station
Baton Rouge, LA 70893
504/389-5300

4. STATE FORESTRY

The Department of Natural Resources (DNR), Office of Forestry, has replaced the Louisiana Forestry Commission as the agency responsible for implementing and enforcing forest management regulations. The overriding purpose of the DNR is to protect, conserve and replenish the natural resources of the state, including the forests. (56:1471) The DNR has the authority to prepare plans for the execution of all laws relating to forestry. (56:1474) The Office of the State Forester, within the DNR, has the authority to take such action as is necessary to prevent and extinguish forest fires. (56:1476)

ADDRESS: Department of Natural Resources
Office of Forestry
P. O. Box 1628
Baton Rouge, LA 70821
504/389-7121

5. NUISANCE

The HHRA has general authority to control and abate nuisances throughout the state. (40:11) Both parish (county) and local boards of health may administer to all matters of local sanitation including nuisance abatement. (40:35) Cities and towns also have general nuisance abatement authority. (33:401)

6. MISCELLANEOUS

Louisiana has a Structural Pest Control Commission which is largely responsible for dealing with controlling the spread of infestations of wood buildings in urban areas. (40:1264) The Department of Agriculture (DOA) and the State Entomologist deal with the problems of plant pests and diseases. (3:1651) The Department has plenary authority to prohibit or regulate the transport or shipment of plant products which may be infected or infested with crop or fruit diseases. (3:1652) Bulletins listing dangerous pests and diseases and describing the measures authorized in preventing the spread of pests or diseases are prepared by the State Entomologist and are available through the DOA. (3:1654)

ADDRESS: Department of Agriculture
900 Riverside N.
Baton Rouge, LA 70804
504/389-5453

MAINE

1. AIR

The Department of Environmental Protection (DEP) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (38-582)* In addition, municipal air pollution control is specifically not preempted by the state system as long as local controls are as stringent as those adopted by state statutes or DEP regulations. There is a general prohibition against the open burning of waste of any kind at sites other than municipal solid waste disposal sites after July 1, 1975. (38-599) Open burning at solid waste disposal sites serving less than 1,000 persons shall be prohibited only where there is a showing that the continuance of the open burning would violate an air quality standard. (38-599) Open burning may be permitted for any of the following purposes, provided a permit is obtained: 1) the prevention of disease, virus or similar hazard to public health; 2) agricultural purposes such as land clearing; and 3) the disposal of any material generated by the demolition of any building or the clearing of any land or in the development of any recreational facility. (38-599) Open burning permits may be granted by the forest ranger or town forest fire warden having jurisdiction over the location where the fire is to be set. (38-599) In certain cases the local ranger may refer the applicant to the Commissioner of the DEP for approval. In such cases permits will be issued if certain conditions are met. These include the lack of alternative disposal methods, the burning not taking place within 25 feet of a public way, and the burning complying with all applicable statutes and regulations of the Bureau of Forestry and any other applicable local fire regulations. (38-599) The forest ranger has the authority to condition the open burning permit on site selection and seasonal or weather criteria. (38-599)

ADDRESS: Department of Environmental Protection
Bureau of Air Quality Control
State House
Augusta, Maine 04333
207/289-2437

* Legal code citations to Maine statutes.

2. SOLID WASTE

The DEP is also the agency responsible for implementing the state's solid waste management program. (38-1304) No person may place, deposit or discharge, directly or indirectly, into inland or tidal waters of the state, any forest products refuse including slabs, edgings, shavings, chips, bark or other refuse. (38-417) No boundary of any public or private solid waste disposal area shall be closer than 300 feet to any classified body of water. Any individual establishing a solid waste disposal area must apply to the DEP for a determination that the boundaries of the proposed area are suitably removed from any classified body of water. (38-421) The DEP has the authority to require that all solid waste disposal facilities must receive DEP approval through a permit prior to operation. (38-1304) The DEP has promulgated regulations requiring that disposal of hazardous waste be solely upon conditions determined by the DEP. All operators of incinerators or other burning equipment must submit a plan to the DEP for approval, showing how the incinerator will be integrated into a solid waste system. (Reg. 402.3) The DEP requires site approval for solid waste disposal areas. (Reg. 406.1) The DEP regulations establish minimum requirements for daily, intermediate and final cover for landfill operations. (Reg. 408.19-21) In addition, substantial information is required on site approval, including an extensive definition of the characteristics of the site, nature of the soil, slope of the land and proximity to nearest body of water. (Reg. 406.1)

ADDRESS: Department of Environmental Protection
Bureau of Land Quality
Division of Solid Waste Management
State House
Augusta, Maine 04333
207/289-2111

3. WATER

The DEP is also the agency responsible for implementing the state's water pollution program. (38-361) No person may directly or indirectly discharge or cause to be discharged any pollutant without first obtaining a permit from the DEP. (38-413) Pollutants are broadly defined and would include reservoir debris. (38-361-A) No person may discharge pollutants into state waters without first

obtaining a license from the DEP. (38-413) Federal agencies are defined as persons by the statute. (38-361-A) The permit will only be issued if the DEP finds that, in the case of a discharge into a classified body of water, water quality will not be lowered below the standards set for the receiving body. (38-414-A) In addition, there is a specific prohibition against the placement of forest products refuse in any body of water whether it be inland or tidal. (38-417) The DEP also issues permits for dredging and related activities that may take place upon any great lake of the state. (38-422) These would include the control or use of material for construction of fish or wildlife habitats if in a great pond. The applicants must demonstrate that the proposed activity will not unreasonably interfere with existing recreational, navigational, scenic or aesthetic uses. Great ponds are defined to include any inland body of water which in its natural state has a surface area in excess of ten acres. (38-422)

ADDRESS: Department of Environmental Protection
Bureau of Water Quality Control
State House
Augusta, Maine 04333
207/289-2591

4. STATE FORESTRY

The Department of Conservation (DOC), Bureau of Forestry (BOF), is the agency responsible for implementing the statutes and regulations that deal with state forest practices. (12-501) There is also a State Entomologist, who is an officer of the BOF with responsibility for promulgating regulations for the control of diseases and pests in the state's forests. He is given the specific authority to prohibit the shipment of any type of wood product which may cause the introduction or spread of a plant disease or insect pest. (12-1106) The BOF officials have the right to enter upon any private or public lands to determine the presence of certain diseases or pests. (12-1103) The Governor may, by proclamation, announce that a period of drought is in effect; in this case he may prohibit smoking or the building or using of fires out of doors in the woods for any period of time and in any designated area. (12-1151) Failure to observe any gubernatorial proclamation may be punished by a fine of not less than $10 nor more than $100 per violation. (12-1154) Local forest rangers are given primary responsibility for the control and extinguishing of forest fires. (12-1255) Any

municipal or private dump within the state which might facilitate either the origin or the spread of forest fires must be operated under the following preventive measures: a strip ten feet wide cleared to mineral soil must be constructed on all sides; a water supply, the suitability of which is determined by the forest ranger or town forest fire warden, may be substituted for the cleared strip; inflammable material of all kinds must be removed from a distance of a hundred feet in all directions; live trees need not be removed, but green branches must be pruned; and dead snags of all trees must be removed. (12-1351) The forest ranger may close any private or municipal dumps for violations of any of these requirements. (12-1352) No person may kindle or use fires on the land of another without permission of the owner except at public camp sites or as authorized by the BOF. (12-1401) The BOF may issue permits for out-of-door fires except where forest fire conditions become serious. (12-1402) It is unlawful for any person to kindle or use a fire for the purpose of clearing land, or burning logs, stumps, roots, brush, slash, or dry grass, except when the ground is covered with snow without first obtaining a written permit from the BOF. (12-1551) The BOF will authorize the granting of permits by local forest rangers and forest fire wardens in order to avoid unnecessary delay in the granting of permits. (12-1551) Factors that the local rangers will consider in granting and conditioning the permit include moisture, wind, time of day, length of burning period needed, sufficient force and equipment and anything else deemed necessary to prevent forest fires. (12-1551) If a serious forest fire hazard is deemed to be present due to dry weather conditions, the local ranger may prohibit all burning under this section even though a permit has already been issued. (12-1551) No person granted a permit is in any way relieved of legal responsibility if the fire escapes or causes damage to the property of another. (12-1551) Persons guilty of violating these provisions may be imprisoned for a period of not more than 30 days or fined not more than $100. (12-1551) Slash is defined to include branches, bark, tops, chunks, cull logs, uprooted stumps and broken or uprooted trees and shrubs left on the ground as a result of logging, right-of-way construction or maintenance and land clearance. (12-1551-A)

ADDRESS: Maine Forest Service
State Office Building
Augusta, Maine 04333
207/289-2791

5. NUISANCES

Nuisances are defined very broadly by statute and include the causing of any noisome substance to collect to the detriment of another. Any act of water pollution is also defined to be a public nuisance. (17-2802) On a state basis, the Department of Human Services is given the responsibility of abating nuisances. (22-1) Local health departments as well as municipalities also have the power and authority to abate nuisances.

MARYLAND

1. AIR

The Department of Health and Mental Hygiene (DHMH), Environmental Health Administration (EHA), Bureau of Air Quality, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (43-690)* The term "person" as used in the air pollution statute would not include federal employees. (43-691) The DHMH has the authority to require permits for, and registration of, all equipment and operations which may cause emissions into the air. (43-706) The regulations governing the control of air pollution in Maryland divide the state into six areas. (Reg. 10.03. 36-41) These regulations provide a general prohibition against permitting an open fire. Permits to allow open burning may, however, be issued by the DHMH if 1) there is no practical alternative method of disposal of the material to be burned, 2) a hazardous condition of air pollution or nuisance will not be created, 3) fire control laws and regulations of other governmental agencies will not be violated, 4) material which produces dense smoke will not be burned, and 5) the material to be burned shall have originated on the premises on which it is to be burned. The DHMH may impose conditions to minimize the creation of smoke, to prevent nuisances and air pollution and to protect the health and safety of the citizens of the state. Certain open fires, if in conformance with other governmental fire control ordinances, are allowed without any permit being required provided no nuisance or air pollution is created. (Reg. 10.03.36-41.01)

In four areas of the state an exception is made for fires set in the course of agricultural operations in growing crops or in accepted forestry practice. (Reg. 10.03.36.01) A person may not cause or permit the discharge of visible emissions from any new plant or building. (Reg. 10.03.36.02) In these four areas a person may not cause or permit to be discharged into the atmosphere particulate matter to exceed 0.10 grams per standard cubic foot (gr/scf) from any new incineration plant that has a burning capacity of less than one ton of refuse per hour, or 0.03 gr/scf from any new incineration plant that has a burning capacity of one ton or more of refuse per hour. (Reg. 10.03.36.03)

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* Legal code citations to Maryland statutes.

The above regulations apply in four of the six air pollution control areas of the state. In the Baltimore and Washington metropolitan areas, particulate matter emissions are limited to 0.03 gr/scf for all new incinerators. (Regs. 10.03.38.03, 10.03.39.03)

ADDRESS: Department of Health and Mental Hygiene
Environmental Health Administration
Bureau of Air Quality
610 North Howard Street
Baltimore, Maryland 21201
301/383-2779

2. SOLID WASTE

The DHMH, EHA, Division of Solid Waste, is the agency responsible for implementing the state's solid waste management program. (43-394) No person may operate a system of refuse disposal without obtaining a written permit from the DHMH. (43-394) All construction shall take place in accordance with the approved plans. (43-394) Before issuing a permit for a landfill or refuse disposal system, the DHMH must hold a public hearing upon the request. (43-394A) All permit holders for landfill refuse disposal systems must close and cover all of the land for which the permit was issued in a manner which prevents erosion, health and safety hazards, nuisances and pollution. In addition, a bond may be required for all landfill refuse disposal systems in the amount of $1,000 for each acre of land to which the permit applies. (43-394B) It is DHMH policy to recommend that clearing and cleaning debris be buried on site or incinerated by means of a destructive air curtain. The DHMH authority over debris disposal applies primarily when the disposal is to take place at an established sanitary landfill. The state also issues permits for demolition disposal sites; these are a special kind of sanitary landfill which may receive cleaning/clearing debris.

ADDRESS: Department of Health and Mental Hygiene
Environmental Health Administration
Division of Solid Waste
201 West Preston Street
Baltimore, Maryland 21201
301/383-2770

3. WATER

The Department of Natural Resources (DNR), Water Resources Administration

(WRA), and the DHMH are jointly responsible for implementing the state's water pollution program. (43-387A, 8-201) Any discharger of waste or wastewater must obtain a permit from the WRA. (8-1413) All waters must be free of waste that would be unsightly, putrescent or otherwise harmful to human, animal, plant or aquatic life. (Reg. 08.05.04.02) The WRA is presently revising regulations pertaining to water pollution control in the state.

ADDRESS: Department of Natural Resources
Water Resources Administration
Tawes Office Building
Annapolis, Maryland 21401
301/269-5846

Department of Health and Mental Hygiene
Environmental Health Administration
201 W. Preston Street
Baltimore, Maryland 21201
301/383-2740

4. STATE FORESTRY

The DNR, Maryland Forest Service (MFS), is the agency responsible for implementing the laws and regulations dealing with forest management practices. (1-102) The MFS has enacted a regulation that attempts to control open burning within 200 feet of any woodland or inflammable material that could ignite or carry fire to woodlands. (Reg. 08.07.02) A person may not engage in open air burning unless there is a natural or constructed firebreak at least 10 feet wide completely around the material to be burned, there are adequate personnel and equipment to prevent the fire from escaping, and at least one responsible person remains at the location until the last spark is out. A person may not engage in open air burning except between the hours of 4 p.m. to 12 p.m. midnight unless the ground is covered with snow. (Reg. 08.07.03) Any person who possesses or operates a disposal area must insure that there is a clear strip around the disposal area of at least 300 feet in width; this strip must be kept free of inflammable material. The MFS may grant permission to burn in a disposal area during periods otherwise prohibited if open air burning would not create an unreasonable hazard to woodlands. (Reg. 08.07.04) A person may not conduct any operation which allows slash to remain within 50 feet of any public highway for a period of more than 30 days. (Reg. 08.07.05) Slash is defined to include

the residue accumulating on the ground as a result of felling, thinning, cutting, weeding, cleaning, girdling, poisoning or trimming of trees. No person may engage in any kind of proscribed open burning without a written permit from the MFS. Under prolonged or unusual conditions conducive to the easy starting and spread of wildfires, the DNR may declare a complete ban on all open air burning in woodlands. (Reg. 08.07.14) The MFS regulations are supplementary to any permit or other conditional requirements that may be placed upon open burning. The MFS has also enacted regulations concerning wood product operators which would deal with the sale of slash or debris to the private sector and with the processing of diseased wood. These regulations entail a permit requirement.

ADDRESS: Department of Natural Resources
Maryland Forest Service
Tawes Office Building
580 Taylor Avenue
Annapolis, Maryland 21401
301/269-3776

5. NUISANCE

The DHMH is the primary agency responsible for dealing with nuisance-type activity. (43-1F) The State Board of Health may investigate all claims of nuisances arising from waste disposal or water pollution. (43-36) City boards of health may abate nuisances within city limits. (43-47) Towns or villages, even if without local health departments, may make rules or regulations dealing with nuisances. (43-103)

ADDRESS: State Board of Health
Department of Health and Mental Hygiene
201 W. Preston Street
Baltimore, Maryland 21201
301/383-6195

6. MISCELLANEOUS

The Department of Agriculture is authorized to develop a program to prevent the sale and distribution of plants that may be infested or infected. (5-302) The Department may establish or rescind quarantines against the introduction of any plant material known to be infested or infected, quarantine any area of the

state, or regulate the movement of any infested or infected plant material. (5-304) All nurseries must be inspected and must be licensed by the Department. (5-309)

ADDRESS: Department of Agriculture
Parole Plaza Office Bldg.
Annapolis, Maryland 21401
301/267-1165

MASSACHUSETTS

1. AIR

Massachusetts has an umbrella environmental agency, entitled the Office of Environmental Affairs (OEA), within the executive office of the governor. (21A-1)* Within this office there are several departments including the Department of Environmental Quality Engineering (DEQE). (21A-7) The DEQE is responsible for implementing the statutes and regulations dealing with air pollution (111-142D) Six air pollution control districts have been established covering the state. (Air Pollution Control Regs.) In addition, authority has been given to local boards of health and other local governmental bodies to regulate and control atmospheric pollution including the emission of smoke, particulate matter, soot, cinders, ashes, fumes, etc. (111-31C) There is a general prohibition against the open burning of any combustible material. (Reg. 7.1) This prohibition does not apply to the following types of burnings if they take place during periods of good atmospheric ventilation, are completed without causing a nuisance, are implemented with smoke minimizing starters, and if the applicant has obtained a permit from the DEQE: 1) open burning of brush or trees resulting from agricultural land clearing operations, 2) open burning of fungus-infested elmwood provided that no suitable alternative method of disposal is available, and 3) open burning of combustible material with prior approval of the DEQE and after demonstration to the DEQE that no alternative suitable method of disposal is available. (Reg. 7.2.6-8) No person may construct or alter any incinerator without the written approval of the DEQE. (Reg. 8.1) No person may burn refuse or any other material in an incinerator that is not in conformance with the standard operating procedure issued by the DEQE. (Reg. 8.1.3) The design of all incinerators other than those owned by municipalities must be approved by the DEQE. (Reg. 8.1.4) No person may allow the burning of refuse in any incinerator which, in the opinion of the DEQE, is likely to cause or contribute to air pollution. (Reg. 8.1.5) No person may cause the emission of smoke (from stationary sources other than incinerators) which has a density equal to or greater than No. 1 on the Ringleman Chart for more than a total of 6 minutes during any one hour, provided further that the density during those 6 minutes does not reach No. 2 on the chart. (Reg. 6.1.1) Special restrictions on open burning and incineration may be required by the

*Legal code citations to Massachusetts statutes.

DEQE during an air pollution emergency. (111-2B)

ADDRESS: Department of Environmental Quality Engineering
Bureau of Air Use Management
600 Washington Street
Boston, MA 02111
617/727-5194

2. SOLID WASTE

The DEQE is responsible for implementing the state's solid waste management program and is given general authority to regulate the disposal of wastes from all sources. (16-19) Sanitary landfill facilities must be located at sites where the potential for air, land and water pollution is minimal. (Reg. 2.1) The use of wetlands or floodplains for sanitary landfills is discouraged. (Reg. 2.5) Every sanitary landfill must have its plan approved by the DEQE. (Reg. 3.1) Cover material used for landfills must be free of materials that attract flies and rodents and must provide a seal to prevent the percolation of water. (Reg. 6.1) No open burning is permitted in any landfill site. (Reg. 13.1) Special permits are required for the disposal of special wastes. (Reg. 16.1) Local boards of health may specify the maximum size of large, heavy or bulky items to be disposed of in sanitary landfills. (17.1) If brush is accepted at a sanitary landfill it must be chipped prior to placement in the active working area of the facility. Brush received at the site must be chipped within two weeks after deposition. (Reg. 17.2) All sanitary landfills must be so operated as to minimize surface water runoff onto and into the fill. (Reg. 21.1)

ADDRESS: Department of Environmental Quality Engineering
Bureau of Solid Waste Management
100 Cambridge Street
Boston, MA 02202
617/727-4293

3. WATER

The DEQE, Water Resources Commission (WRC), Division of Water Resources, is the agency responsible for implementing the state's water pollution program. (21-8) Every person who discharges waste into the waters of the state must obtain a state permit. (21-43) Discharges for which no permit has been granted are deemed to be illegal. (21-44) "Person" is so defined as to probably exclude federal agencies. (21-26A) The Fish and Game Commissioner may recommend to the

WRC that discharges be regulated or prohibited in order to protect inland water fisheries. (131-41) Any discharge which, directly or indirectly, injures or kills fish is prohibited. (131-42) The Department of Public Health may issue such orders regarding water pollution as it deems necessary to protect domestic drinking water supplies. (111-160) The willful defilement of drinking water supplies is a public offense. (111-171)

ADDRESS: Department of Environmental Quality Engineering
Water Resources Commission
600 Washington Street
Boston, MA 02114
617/727-2692

4. STATE FORESTRY

The Department of Environmental Management, Division of Forests and Parks (DFP), is responsible for controlling forest management practices. (21-4B, 132-1) DFP employees have the right to enter upon any land for the purpose of determining the existence and degree of infestation or infection caused by a public nuisance. (132-8) The DFP may enact rules and regulations governing the operation of cities, towns, or persons for the purpose of suppressing various types of infection and infestation which may destroy forest or shade trees. (132-11) Local DFP officials also have the authority to engage in insect pest control and may cooperate with local, city and town officials. (132-13) The DFP has the authority to remove and destroy all trees infected with the Dutch elm disease. (132-26A) The DFP may appoint local superintendents who have the responsibility for carrying out the DFP orders regarding public nuisances dealing with infected and infested trees. (132-12A, 132-13) Any person who knowingly brings into the state or transports from one town to another any pest (except when engaged in research work), or knowingly invades the requirement of a quarantine regulation may be punished by a fine of not more than $200 or imprisonment for not more than 60 days. (266-119) No person may set, maintain or increase an open fire at any time except by permission of the local forest fire warden or the chief of the local fire department. (48-13) The permit may condition the granting of the open burning privileges. (48-13) Any permit issued may be revoked at any time. The Forester may make rules and regulations relating to the granting and regulation of such permits. (48-13) The state legislature, in 1975, authorized certain open burning to take place between March 15 and April 15 for 1976 and 1977 except in the Boston metropolitan area. (91-142A) Products of open space land husbandry

and management including brush, driftwood, tree branches, etc. could be burned during that period of time. (91-142A) Such burning was allowed only by permit granted by the local fire warden or fire commissioner. (91-142A) Such open burning could be performed only when it would not cause a nuisance, between the hours of 10 a.m. and 4 p.m., and on the site designated in the permit application. (91-142B) Every owner or occupant of land who cuts or permits the cutting of brush, wood or timber on lands which border upon those of another, must dispose of the slash caused by such cutting in such a manner that it will not remain on the ground within 40 feet of another person's woodland. (48-16) All slash must be cut and scattered in such a manner as to minimize the danger from fire. (48-16) No slash is permitted within 25 feet of any brook, pond, river or water supply. "Slash" includes tops, branches, slabs or debris left from logging or land clearing operations. (48-16) The DFP has the authority to close forestlands during dry periods. (48-28C)

ADDRESS: Department of Environmental Management
Division of Forest and Parks
100 Cambridge Street
Boston, MA 02202
617/727-3180

5. NUISANCE

The Department of Public Health is the major state agency responsible for abating and regulating nuisances. (111-5) Boards of health of any city or town, provided that they hold public hearings, may regulate the location of noisome trade and any other activity attended by injurious odors or smoke. (111-143) The DEQE may act as an appeal board for local determination of nuisance. (111-143) Local boards of health have both inspection and regulatory power over nuisances. (111-122) Any person who creates a nuisance must abate it within 24 hours or face a monetary fine. (111-123) The burning of refuse or demolition debris within the marine boundaries of the commonwealth or within 12 miles of the shoreline of the commonwealth is a nuisance punishable by a fine of not less than $250 nor more than $1,000. (270-20)

MICHIGAN

1. AIR

The Department of Natural Resources (DNR), Air Quality Division, and the Air Pollution Control Commission (APCC) are the agencies responsible for implementing the statutes and regulations that deal with the problem of air pollution. (336.13, Exec. Orders 1973-2 and 1973-2a)* The APCC has the responsibility for issuing permits for the construction and operation of all air pollution control facilities. (336.15) The regulations provide that a person may not permit or cause open burning except for the burning of trees, logs, brush and stumps in accordance with applicable state and local regulations; such burning is not to be conducted closer than 1400 feet to an incorporated city or village and must not violate any of the Commission's rules (Reg. 336.45) The APCC regulations would not exempt any individual from local requirements that authorize or prohibit open burning. (Reg. 336.45) Wood may be used in fuel burning equipment. If the heat input of wood fuel is greater than 75 percent of the total heat input, the maximum allowable emission at operating conditions is 0.50 lbs of particulate per 1000 lbs of gas. An application must be made to the APCC to determine the allowable emission for equipment burning other combinations of fuel, of which wood is one of the fuels. (Reg. 336.35) For all municipal incinerators and for industrial incinerators rated at over 100 lbs of waste per hour, the maximum allowable particulate emission is 0.30 lbs of particulate per 1000 lbs of gas. (Reg. 336.35)

ADDRESS: Department of Natural Resources
Air Quality Division
P. O. Box 30028
Lansing, Michigan 48926
517/373-8630

Air Pollution Control Commission
705D S. Land
Lansing, Michigan 48926
517/373-3560

2. SOLID WASTE

The DNR, Resource Recovery Division, is responsible for implementing the state's solid waste management program. (35-292) No person may dispose of any

*Legal code citations to Michigan statutes.

refuse at any place except a disposal site licensed by the DNR. (325.292) Local governing bodies may develop and enforce local solid waste management rules or regulations; these must be at least as stringent as those of the DNR. Local governing bodies may also require additional permits if they desire. (325.292) No person, governmental unit or other agency may establish, conduct, manage, maintain or operate a disposal area which includes incinerators, sanitary landfills or other disposal facilities without obtaining a license from the DNR. (325.293) Applications for such license must specify site location and other important data. (325.293) The regulations provide that permits are required when refuse is to be removed to a location other than its point of origin, or where it is of such quantity as to become a public health concern. (Reg. 325.2702) Every plan for a sanitary landfill must include a topographic map together with some geological and hydrological data. (Reg. 325.2721) Landfill cover material must be of such character that it can be compacted to provide a tight seal. Sanitary landfill operations must be designed to prevent unlawful pollution of either ground or surface waters. (Reg. 325.2721) A compacted layer of at least six inches of suitable cover material must be placed on all exposed refuse at the end of each working day. (Reg. 325.2723) Hazardous materials may not be disposed of in sanitary landfills; case-by-case provision for their disposal is to be made through the health department having jurisdiction. No garbage or refuse may be burned at sanitary landfills without special permission which may be granted by the DNR or other local authorities where appropriate. (Reg. 325.2723) Open dumps are not permitted unless the location and method of operation have been approved in writing by the DNR. (Reg. 325.2731)

ADDRESS: Department of Natural Resources
Resource Recovery Division
P. O. Box 30028
Lansing, Michigan 48909
517/373-6620

3. WATER

The Department of Natural Resources, Water Quality Division, is the agency responsible for implementing the state's water pollution program. (3.521) The Water Resources Commission (WRC) is given the authority to set water and effluent quality standards. (3.525) It is unlawful for any person to discharge any substance that is injurious to the public health into the waters of the state. (3.526)

Any discharger of wastes and other materials must obtain a permit from the DNR. (Reg. 323.2106) Permits may be granted and revoked by the WRC. All waters of the state must be free of unnatural floating solids in quantities which are or may become injurious to any designated use. (Rule 323.1050) Water quality standards prescribed by the WRC do not apply to dredging or construction activities within water areas where such activities occur or during the periods of time when the after-effects of dredging or construction activities degrade water quality within such areas, provided that the dredging operations or construction have been authorized by the U.S. Army Corps of Engineers or by the DNR. The standards do apply in non-confined water areas utilized for the disposal of spoil from dredging operations, except within spoil disposal sites specifically defined by the U.S. Army Corps of Engineers or the DNR. (Rule 323.1092)

ADDRESS: Department of Natural Resources
Water Resources Commission
Steven T. Mason Bldg.
Lansing, Michigan 48926
517/373-1947

4. STATE FORESTRY

The DNR, Forestry Division, is the agency responsible for regulating forest management practices. (13.267(3)) The DNR is responsible for the prevention and suppression of forest fires. (13.267) At any time when the ground is not snow-covered no person shall burn any flammable material, except for domestic purposes, on or adjacent to forest land without a permit from the DNR. (13.267(4)) The DNR may set any conditions it deems necessary on burning permits. Any person doing burning on land adjacent to forest land must, prior to such burning operations, take every precaution to prevent the spread of fire. (13.267(4)) It is unlawful to set fire, or cause or procure the setting of fire, to any flammable material on or adjacent to forest land without taking reasonable precautions. (13.267(5)) If the Governor finds that conditions of extreme fire hazard exist he may forbid by proclamation, for such a period of time as the public interest requires, the use of fire by any person entering forest lands or land adjacent to forest lands. (13.267(9)) During such periods there may be no burning of any flammable material without a special permit. (13.267(9)) Any person who cuts any forest growth on or adjacent to any public road or highway must dispose

of all cuttings, slash and debris resulting therefrom. (13.272(2)) All cuttings of forest growth, slash and debris resulting from the construction or maintenance of any public utility must be disposed of by the person responsible in a manner approved by the Director of Conservation. (13.273(3))

ADDRESS: Department of Natural Resources
Forestry Division
P. O. Box 30028
Lansing, Michigan 48909
517/373-1275

5. NUISANCE

County boards of health have the primary responsibility to abate nuisances outside of city limits. (14.166) Within municipalities, the responsibility of abating nuisances is delegated to municipal boards of health. (5.1338) City councils have the authority to abate and define nuisances. (5.1285)

6. MISCELLANEOUS

Township boards are authorized, but not required, to prohibit the setting of forest fires or fires for the purpose of clearing land and disposing of refuse material and waste matter. (28.143) Any person who willfully or negligently sets fire to any woods, prairies or grounds which are not his property is guilty of a felony. (28.273) A township board may, by regulation, designate a period during which it is unlawful to set fires for the purpose of clearing lands or disposing of refuse material and waste matter within its jurisdiction. (28.274) The Department of Agriculture (DOA) may declare abandoned trees, shrubs, and plant parts which harbor destructive insect pests or plant diseases to be public nuisances. (12.263(3)) The DOA may promulgate special rules and regulations to control white pine blister rust. (12.272)

ADDRESS: Department of Agriculture
320 S. Walnut Street
Lansing, Michigan 48913
517/373-1050

MINNESOTA

1. AIR

The Pollution Control Agency (PCA), Division of Air Quality, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (116.02)* Any person, including governmental or political subdivisions or other public agencies, that operates any kind of an air contaminant treatment facility must obtain a written permit prior to operation. (116.081) Permits are required for all incinerators which have a capacity of more than 100 pounds per hour. Open burning may be conducted if an open burning permit is obtained pursuant to PCA regulations. Permits are to be issued where it is proposed that fires be set for the following purposes: (1) elimination of fire or health hazards which cannot be abated by any other practicable means, (2) activities in accordance with accepted forest or game management, (3) the disposal of trees, brush, grass and other vegetative matter in the development of land and right-of-way maintenance, and (4) the disposal of trees and brush in areas outside the metropolitan area of Minneapolis-St. Paul. A burning permit will be issued if the applicant agrees that all burning will be conducted under the following circumstances: (a) the prevailing wind must be away from nearby residences, (b) the burning shall be conducted as far as practical from any highway or public road, (c) the burning may not be conducted during the duration of an air pollution alert, warning or emergency, (d) the recipient of the permit must be present for the duration of any fire, and (e) prior notice must be given to the local Department of Natural Resources forest officer or local fire marshal. The permit application may be made through the Department of Natural Resources forest officer for locations within his jurisdiction or to a local pollution control agency upon approval of the PCA. Any permit may be denied if a reasonable or practical alternative method of disposal is available or if a nuisance condition would result. Permits may be revoked if a fire hazard exists or develops during the course of the burning. The obtaining of a permit does not excuse a person from any consequences, damages or injuries that might result from the burning. Sites for open burning

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* Legal code citations to Minnesota statutes

must be located in accordance with the following criteria or as approved by the Director of Air Quality: (a) not less than 1000 feet from an occupied building, (b) not less than 1000 feet from a public roadway, (c) not less than 1 mile from an airport, (d) not less than 300 feet from a stream, and (e) not within the wetlands. The site must be prepared so as to limit access by the public. Surface water drainage must be diverted around and away from the operating area and ash storage areas. Burning must be conducted only when the weather conditions are such that a nuisance will not be created. Prior notice must be given to local fire authorities of the time and duration of each fire. Adequate dust control must be provided on the site.

ADDRESS: Pollution Control Agency
Division of Air Quality
1935 West County Road, B2
Roseville, Minnesota 55113
612/296-7331

Department of Natural Resources
444 Lafayette Road
St. Paul, Minnesota 55101
612/296-4800

2. SOLID WASTE

The PCA, Division of Solid Waste, is the agency responsible for implementing the statutes and regulations that deal with the problem of solid waste pollution. (116.07) It is unlawful for any person to construct, install or operate any solid waste disposal, transportation or storage facility without receiving a PCA permit. (116.081) Vehicles or containers used for the collection and transportation of garbage or refuse containing putrescible wastes must be covered, leakproof, durable and of easily cleanable construction. Vehicles or containers used for the collection and transportation of any solid waste must be loaded and moved in such a manner that the contents will not fall, leak or spill therefrom. Where spillage does occur, the material must be picked up immediately. Vehicles and containers used for the collection and transportation of toxic or hazardous waste must be durable, enclosed and leakproof, and must be in compliance with any governmental regulation. (Minn. Reg. SW3) Open burning is prohibited at all final solid waste disposal sites except as allowed by PCA regulations. (Minn. Reg. SW4) Although sanitary landfill is the prescribed

method for the final disposal of solid wastes, the PCA Division of Solid Waste has issued regulations pertaining to the disposal by incineration and composting. (Minn. Reg. SW7, SW8) Both methods require a permit from the PCA. Composting must be conducted in a manner which minimizes pollution, public health hazards and nuisances. Materials resulting from composting must contain no pathogenic organisms, shall not reheat on standing, shall be innocuous, and shall contain no sharp particles which could cause handling injuries. (Minn. Reg. SW8) A special permit is available for those operating a demolition landfill. These landfills must not be opened for general use and must be restricted to organizations having a substantial volume of nonputrescible material from demolition or construction projects including earth, stone, trees, etc. Permits are required from the PCA for the operation of demolition landfills. They may not be located within 1,000 feet of the normal high water mark of a lake, within 300 feet of a stream, in a wetlands or in a flood plain. Open burning is prohibited in this type of landfill and demolition wastes may not be deposited in surface or ground water. Sanitary landfills may not accept hazardous wastes. The disposal process, whether by sanitary or demolition landfill, must meet the PCA performance standards for each type of operation.

ADDRESS: Minnesota Pollution Control Agency
Division of Solid Waste
1935 West County Road, B2
Roseville, Minnesota 55113
612/296-7296

3. WATER

The PCA, Division of Water Quality, is the state agency responsible for implementing the state's water pollution program. (115.03) The PCA has the authority to require the issuance of permits for the discharge of all pollutants into the waters of the state. (115.03) Other wastes which are included within the definition of a pollutant include decayed wood, sawdust, shavings, bark, ashes or other residues. (115.01) It is the duty of every person to notify the PCA of any discharge, accidental or otherwise, which may cause pollution of the waters of the state. (115.061) Every person also has the duty to minimize or abate pollution of waters that may be caused by his activities. (115.061) In addition to the PCA authority regional sanitary districts

may be created which have concurrent authority to abate water pollution. (115.18) These regional agencies may not enact ordinances conflicting with the PCA's regulatory scheme, but may enact more stringent regulations. (115.37)

ADDRESS: Pollution Control Agency
Division of Water Quality
1935 West County Road, B2
Roseville, Minnesota 55113
612/296-7202

4. STATE FORESTRY

The Department of Natural Resources (DNR), Division of Land and Forestry, regulates forest practices within the state. (84.081) All towns and cities are authorized to take necessary precautions to prevent the starting of forest or prairie fires. (88.04) All highways, roads and trails within forest areas are declared to be established firebreaks and the DNR may enter and clean up all dead and down timber, underbrush, or rotting logs for removal thereof. (88.05) DNR may permit a federal agency to clean up and remove all dead or down timber, underbrush, rotting logs, etc. which are deemed to be fire hazards and to use portions of these cuttings for firewood or other forest development needs. (88.06) The commissioner of DNR may create and establish forest fire protection districts. (88.08) Where, in the judgement of any forest officer, there is a danger of fires starting and spreading from slash and debris, from the cutting of timber or from the accumulation of other imflammable refuse, the forest officer may order that such debris be disposed of in a proper manner. Where conditions do not permit the burning of slash or debris over the entire area so covered, the commissioner may require the person responsible to dispose of the same in such a way as to establish a safe fire line around the area requiring such protection. (88.14) Where any such debris is not disposed of or is left unattended the forest officer may go upon such premises and burn or otherwise dispose of such debris and charge the expense to the owner. (88.14) Any person who cuts or fells trees in clearing land for any purpose is prohibited from setting fire to the slash, brush, roots or excavated stumps except as allowed by the commissioner of the DNR. (88.14) It is unlawful to start any open fire without the written permission of an authorized forest officer in any place where there are standing or growing native coniferous trees when the ground is not snow covered. (88.16) Permission to set fire to any grass, stubble,

rubbish, branches, slashing or wood for the purpose of cleanup, clearing and improving land shall be given where burning may be safely conducted and upon such reasonable conditions as the forest officer may declare. DNR may in its discretion revoke, refuse or postpone the use of any permits to burn when such action is necessary for the safety of life and property. No DNR permit is required, however, for the burning of leaves, rubbish, branches and similar combustible materials where the material is burned within an incinerator or burner constructed of fire resistant material having a capacity of not less than three bushels, and where no combustible material is nearer than three feet to the burner or incinerator when it is in use. (88.17) If the commissioner of DNR determines that conditions are conducive to a forest fire he may prevent certain activities, including camp fires and other fires, from occurring within the endangered area. (88.22)

ADDRESS: Department of Natural Resources
444 Lafayette Road
St. Paul, Minnesota 55101
612/296-4800

5. NUISANCE

The State Board of Health establishes and enforces health standards and identifies environmental health hazards. (144.05) Public nuisances are broadly defined by statute. (609.74) All persons are given the right to file a civil action for damages, injunctive relief or both to abate nuisances. (561.01) State or county boards of health also have the power to abate nuisances. (145.17) Cities are also given the authority to abate nuisances arising within their boundaries. (412.221, 429.021)

6. MISCELLANEOUS

The Department of Agriculture has authority to deal with the problem of infestation by forest pests. (18.361) The Commissioner of Agriculture may establish zones of infestation (18.371) and apply measures to deal with the problem. (18.381) A specific problem dealing with shade trees in the metropolitan area of St. Paul-Minneapolis has led to the passage of a statute giving the commissioner the power to control the disposal of diseased trees within the specified regions. (18.023) This would probably not apply to the Corps of

Engineers reservoir debris problem as it affects mostly the Dutch elm or oak wilt disease that has stricken this particular metropolitan area.

MISSISSIPPI

1. AIR

The Mississippi Air and Water Pollution Control Commission (AWPCC) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (49-17-17)* The AWPCC has the authority to enact rules and regulations in order to implement the air quality standards. (49-17-17) The production or emission of dense smoke or the open burning of garbage, rubbish, domestic waste, commercial waste or industrial waste is prohibited except as follows: 1) fires set for agricultural and/or forestry practices, 2) fires set for the prevention of a fire hazard that would otherwise endanger human or animal life where no safe alternative is possible, 3) fires used to dispose of waste resulting from storm damage, 4) fires set for clearing land as provided by law, and 5) fires set for recreational purposes unless prohibited by local ordinances. There is a general prohibition against the causing of air pollution in the state. (49-17-29) Within AWPCC there is a permit board which issues permits for sources of air pollution. (49-17-29) This would apparently include open burning which falls under the enumerated exceptions. Amendments are presently being offered to the regulations which would exempt from the permitting requirement the open burning of wastes from land clearing. There is as yet no definite change, however, in the existing regulations.

ADDRESS: Mississippi Air and Water Pollution Control Commission
Robert E. Lee Building - 11th Floor
P. O. Box 827
Jackson, Mississippi 39205
601/354-2550

2. SOLID WASTE

The State Board of Health is the agency responsible for implementing the Solid Wastes Disposal Act of 1974. Solid Wastes are broadly defined to include all putrescible and nonputrescible materials. Wood is considered to be combustible rubbish by legal definition. Counties or local governing bodies are under a duty to dispose of solid waste. All garbage and rubbish must be disposed of by sanitary landfill, approved incineration, composting, or by other

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* Legal code citations to Mississippi statutes.

means now available as approved by the State Board of Health. Trucks or other vehicles engaged in the business of hauling garbage and rubbish shall be covered, secured or sealed so that there will be no loss during haulage to cause littering of streets or highways or cause a nuisance or hazard to the public health. The open burning of rubbish shall be permitted only under controlled circumstances where sanitary landfills or landfill operations are not feasible. Hazardous wastes shall not be handled or disposed of along with ordinary wastes unless specific approval is obtained from the State Board of Health. They must be disposed of by special incinerator, separate landfills or other approved means. The formation of unauthorized dumps has been declared to be a public nuisance menacing public health and unlawful. The State Board of Health must exercise supervision over equipment, methodology and personnel in the management of solid wastes as may be necessary to meet sanitary requirements. Any violation of the Solid Waste Disposal Act is a misdemeanor. The operation of an open dump is specifically prohibited. Any governmental or public entity constructing a facility or system for the handling or disposal of solid waste must receive a permit from the local health officer; otherwise it will be in violation of the regulations promulgated by the State Board of Health. All applicants for permits must submit site approval forms as well as applications for approval of design and operating plans. Any person involved in the transportation of solid wastes without compensation or in the transportation of solid waste generated on his own premises is not required to obtain a permit. However, such persons must otherwise comply with the regulations in order to prevent the existence of a public health hazard. Solid wastes must be so stored as to prevent access by rats, flies or other vectors. Hazardous waste must be stored in special containers to avoid or minimize public access. Vehicles and containers used in transportation must be cleaned frequently. Any facility used for the purpose of processing, treating, utilizing, reclaiming or recycling of solid wastes must obtain a permit from the local health officer. Any system utilizing the processes of landfilling, sanitary landfilling, shredding, compressing, incinerating or any other method not commonly used for the reduction and/or disposal of solid wastes must obtain a permit from the local health officer.

ADDRESS: State Board of Health
P. O. Box 1700
Jackson, Mississippi 39205
601/354-6616

3. WATER

The State AWPCC is also the agency responsible for implementing the statutes and regulations that deal with the problem of water pollution. (49-17-17) It is unlawful to discharge any waste into the waters of the state which would reduce the quality of such waters below the applicable water quality standards. (49-17-29) A permit is required for the discharge of any wastes into the waters of the state. (49-17-29) The permit board of the AWPCC issues all permits for discharges. (49-17-29) The pollution of water is broadly defined to include any contamination which renders such waters harmful, detrimental or injurious to public health, safety or welfare, including recreational uses. (49-17-3)

ADDRESS: Mississippi Air and Water Pollution Control Commission
Robert E. Lee Building - 11th Floor
P. O. Box 827
Jackson, Mississippi 39205
601/354-7661

4. STATE FORESTRY

The state forestry program is operated by a state forestry commission which is appointed by the governor. (49-19-1) In addition, the state is divided into many smaller forestry districts. (49-19-1) Any fire burning uncontrolled on any forested cut-over brushland or grassland is declared to be a public nuisance. Any person responsible for the starting of such fire on land other than his own is required to control or extinguish it immediately.

ADDRESS: State Forestry Commission
908 Robert E. Lee Building
Jackson, Mississippi 39201
601/354-7124

5. NUISANCE

Local governments have the general authority to prevent, remove and abate nuisances. (21-19-1) The State Board of Health and, through them, local boards

are delegated general authority to abate nuisances caused by unsanitary conditions. (41-3-15) Local municipalities have the power to establish higher limits and otherwise control burning within their city limits. (21-19-21)

6. MISCELLANEOUS

The Commissioner of Agriculture and Commerce appoints a State Entomologist, whose duty is to inspect for and to properly dispose of defective plants and products. (69-25-5) If any plants, plant products or things or substances used or connected therewith are infested or infected with any insect, pest or disease listed as a public nuisance, the State Entomologist shall order the person in possession or control of said plants or plant products to control, eradicate or prevent the dissemination of such pests. (69-25-15) The commissioner also may prohibit the introduction into the state or passage through the state of diseased plants or plant products. (69-25-27) The State Game and Fish Commission is authorized to enact regulations to prevent the burning of rubbish, slashings and marshes or other areas as it may find reasonably necessary to reduce the danger of destructive fires. (49-1-29)

MISSOURI

1. AIR

The Department of Natural Resources (DNR) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (203.040)* There is also an Air Conservation Commission (ACC) whose primary responsibility is to enact regulations that affect the state's air pollution abatement program. (204.040) The DNR has the authority to regulate the use of any equipment known to be a source of air contamination or to establish maximum quantities of air contaminants that may be emitted from any particular source. (203.050) All persons, including agencies of the federal government, may be required to obtain a permit prior to the emission of any air contaminant. (203.020, 203.050) In addition to the statewide effort, any city or county may create and implement its own air pollution authority if it receives permission to do so from DNR. (203.140) Any regulatory program enacted must be at least as stringent as the state minimum standard. (203.140) The ACC has promulgated a regulation (Reg. S-III), applicable in all but 12 counties of the state, that attempts to limit open burning. There is an absolute prohibition against the open burning of refuse. Refuse is defined to include garbage, rubbish, leaves or other wastes. This prohibition, however, does not apply to the burning of refuse at a dump or other solid waste disposal area owned or operated by a city. The open burning of tree trunks, tree limbs, vegetation or untreated waste lumber when such burning takes place at the site of a sanitary landfill licensed by the DNR is also exempted from the prohibition. Open burning of tree trunks, tree limbs and vegetation from land clearing operations is also exempted when it takes place at a distance equal to or greater than 200 yards from the nearest residence. A general exemption also applies to fires set in connection with forestry operations related to the growing or harvesting of crops. Open burning which falls under one of the exceptions may not, however, be carried on in a manner which constitutes a hazard to vehicular or air traffic. The ACC has also enacted a regulation (Reg. S-IV) limiting and proscribing the use of incinerators to burn garbage, rubbish, leaves or other wastes. No person may cause or permit the emission of particulate matter from any chimney stack or vent of any new

* Legal code citations to Missouri statutes

incinerator at a rate greater than 0.2 grains of particulate matter per standard dry cubic foot of exhaust gas, corrected to 12% carbon dioxide. For smaller incinerators the standard is 0.3 grains of particulate matter. All new incinerators must be multiple-chamber incinerators unless the applicant has secured an exemption from the DNR. No emission from any incinerator of any air contaminant that causes opacity level to exceed Ringelmann Chart #1 is allowed.

The Kansas City Air Pollution Control Code establishes further requirements on open burning within the area to which it applies. The Kansas City Code also has a general prohibition against the disposing of refuse by open burning. (Reg. 18.85) An exception is made for the open burning of trade wastes, defined to include wood which results from the construction or the prosecution of any business, trade or industry, if an application for a permit is filed with the director of the Kansas City Department of Health. (Reg. 18.85) Upon written approval of the Department of Health, the chief inspector of fire prevention may issue a permit to burn trade wastes. On the Kansas City application form for the burning of trade waste felled timber, ornamental trees and natural vegetation are included within the definition of trade wastes. The location of the burning site and the type and quantity of material to be burned must be given. The nearest inhabited building must be more than 300 yards away. Burning must be accomplished between the hours of 10 a.m. and 6 p.m. The permittee may be required to cease burning by the director of health for reasons of weather, wind or otherwise without prior notice to the permittee.

ADDRESS: Department of Natural Resources
Air Quality Program
2010 Missouri Boulevard
P. O. Box 1368
Jefferson City, Missouri 65101
314/751-3241

2. SOLID WASTE

The DNR is also the agency responsible for implementing the statutes and regulations that deal with solid waste management. (260.200) Every person, including federal agencies, who wishes to operate a solid waste processing facility or disposal area must apply for a permit from the DNR. (260.205) Upon receipt of the permit application, the DNR must make an investigation of the area and determine whether the rules and regulations regarding solid waste

disposal have been complied with. It is unlawful to dump or deposit any solid waste onto the surface of the ground or into streams or other bodies of surface or groundwater except in an area permitted by the DNR. (260.210) The solid waste law also makes it a violation to burn any solid waste without meeting the requirements of the ACC. (260.210) The DNR regulations specify minimum performance standards for sanitary landfills. The design, location and construction must be such as to minimize environmental hazards and conform to applicable ground and surface water quality standards. Cover material must be applied to minimize fire hazards, infiltration of precipitation, odors and blowing litter. Cover material, sources, quantities and soil classifications must be approved by the department. The department specifies required compaction rates depending upon the nature of the landfill operation. A demolition landfill may be utilized for the controlled disposal of demolition wastes, construction materials, brush, wood waste and nondecomposable inert solids insoluble in water. (SW Reg. 3.1.0) Plans for the design, construction, or operation of a demolition landfill must be prepared or approved by a registered professional engineer licensed by the state. The plans must be submitted to the DNR, Solid Waste Management Division (SWMD), for review and approval. (SW Reg. 3.4.0) Requirements on location include protection from the 100-year design flood and disposal of decomposable wastes at an elevation above the predicted maximum water table. (SW Reg. 3.5.0) Open burning of tree trunks, limbs, or vegetation at these sites may be allowed by the DNR by variance or exception. The proposed location and operating procedures for such open burning practices must be submitted to the SWMD for review and written approval. (SW Reg. 3.6.0)

ADDRESS: Department of Natural Resources
Solid Waste Management Division
2010 Missouri Boulevard
P. O. Box 1368
Jefferson City, Missouri 65101
314/751-3241

3. WATER

The Missouri Clean Water Commission (CWC) is the agency responsible for implementing the statutes and regulations that deal with the problem of water pollution. (204.026) No person, including an agency or bureau of the federal government, may cause pollution of any waters of the state or permit contaminants

to be placed in any water where they might be reasonably certain to cause pollution. (204.051) It is also unlawful to discharge any water contaminants into any waters of the state. (204.051) Any person who discharges into a stream from a point source must receive a permit from the state. (204.051) Any contamination of a stream which would cause a fish kill is a misdemeanor subject to abatement by the Department of Fish and Game. (252.210)

ADDRESS: Clean Water Commission
1014 Madison Street
P. O. Box 154
Jefferson City, Missouri 65101
314/751-3241

4. STATE FORESTRY

The Department of Conservation (DOC), Office of State Forester, is responsible for developing programs for wildlife and forest control. (254.020) The DOC is responsible for fire control activities on all woodlands in the state which are deemed by the conservation commission to be in need of such protection. (254.270) The DOC presently participates in developing the clearing plans with the Corps of Engineers. The DOC has no open burning permit requirements, nor do they have any timber cutting regulations of a permitting nature. They do, however, assist the State Entomologist in investigating and eradicating insect and plant diseases. (263.040)

ADDRESS: Department of Conservation
2901 North Ten Mile Drive
P. O. Box 180
Jefferson City, Missouri 65101
314/751-4115

5. NUISANCE

All public nuisances may be abated through litigation, even though the activity or condition be not specifically listed in the state statutes as a public nuisance. (564.080) Cities have the general power to abate nuisances by legislative action and to impose the cost of abatement on the property owner. (71.780) The emission or discharge into the open air of dense smoke within any city is declared to be a public nuisance. (71.760) The willful setting of any fire in any wood, marsh or prairie which causes damage to another person may lead to a recovery of double the actual damages suffered. (570.400)

MONTANA

1. AIR

The Department of Health and Environmental Sciences (DHES), Air Quality Bureau, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (69-3909.1)* There is, in addition, a Board of Health and Environmental Sciences (BHES) which acts as the rule-making body. (69-3909) An Air Pollution Advisory Council also meets in order to advise the DHES and the BHES on any matter relating to air pollution. (69-3908) The DHES may issue permits for any type of activity which may directly or indirectly cause or contribute to air pollution. (69-3911) In addition, the DHES has the authority to enter and inspect, at any reasonable time, any property or premises except a private residence for the purpose of ascertaining the state of compliance with the air pollution statute and regulations. (69-3912) The definition of person does not include federal agencies or other subdivisions of the federal government. (69-3906) The BHES has enacted a regulation that restricts open burning. (16-2.14(1)-S1490) Open burning is not allowed except under the following conditions: a) when such fire is set by permission of a public officer and, in the opinion of that control officer, is necessary either for the elimination of a fire hazard which cannot be abated by any other means or for the removal of hazardous material, b) when such fire is set in the course of accepted forestry practices provided no public nuisance is created and provided a permit has been secured from the control officer, and c) when such fire is set for the clearing of lands for new roads under conditions stipulated in writing by the control officer. Normally the DHES will place conditions on the location and method of burning. Informally the DHES has required pit incinerators where they deemed them necessary. Seasonal requirements often limit burning during the fall due to air stagnation in several areas. In addition, no open burning or incinerator burning may produce emissions which cause a plume whose opacity is darker than No. 2 on the Ringelmann Smoke Chart. (16-2.14(1)-S1460)

ADDRESS: Department of Health and Environmental Sciences
Air Quality Bureau
Cogswell Building
Helena, Montana 59601
406/449-3454

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*Legal code citation to Montana statutes.

2. SOLID WASTE

The DHES, Solid Waste Management Bureau, is the agency responsible for implementing the state's solid waste management program. (69-4007) Solid waste is defined to include wood products or wood by-products. However, slash and forest debris regulated under laws administered by the Department of Natural Resources and Conservation (DNRC) is not included in the definition of a solid waste. (69-4002) A federal bureau or agency would fall under the definition of person included within the Montana Solid Waste Management Act. (69-4002) No person may dispose of any solid waste or hazardous waste or transport hazardous waste without a license from the DHES. (69-4004) After a permit application has been filed with the DHES, local health officials must be notified of the application. (69-4004) An exception to the licensing requirement is made for the disposition of solid waste, except hazardous waste, upon land owned by the person disposing of the waste as long as it does not create a nuisance or public health hazard. (69-4008) A person may dispose of his own hazardous waste upon land owned by him after complying with the licensing requirement of the statute. (69-4008) Recently-proposed, but not yet promulgated, regulations would classify wood materials and brush as Group III wastes; these could be placed into Class I, II, or III disposal sites. A Class III site could include water-saturated areas, but may not be on the banks of a live or ephemeral stream, or in a floodplain. These regulations would require the applicant for a license to state the location of the proposed site including a legal and general description of the area in which the disposal is to occur. Also included within the application are soil and geological data, water quality information, days and hours the site would be open for use, and other information more pertinent to the municipal solid waste disposal situation. No solid waste management operation may be conducted in such a manner as to constitute a nuisance or hazard to public health.

ADDRESS: Department of Health and Environmental Sciences
Solid Waste Management Bureau
1400 11th Avenue, Suite A
Helena, Montana 59601
406/449-2821

3. WATER

The DHES, Water Quality Bureau, is the agency responsible for implementing

the statutes and regulations that deal with the problem of water pollution. (69-4802) It is unlawful to cause pollution of any of the state's waters or to discharge waste of any kind into state waters. (69-4806) The DHES regulates the flushing of debris downstream through a general water quality standard which states that no wastes are to be discharged and no activities conducted which would cause turbidities to exceed those allowed by specific water quality criteria. However, short-term activities necessary to accommodate dredging or stream diversion may be authorized by the DHES under conditions which it may prescribe. The DHES administers the Montana Pollutant Discharge Elimination System (MPDES) by issuing permits for the discharge of pollutants from point sources into state waters. (Reg. 16-2J4(10))-S14460)

ADDRESS: Department of Health and Environmental Sciences
Water Quality Bureau
Capitol Station
Helena, Montana 59601
406/449-2406

4. STATE FORESTRY

The DNRC, and the State Board of Forestry are responsible for managing and regulating forestlands in the state of Montana. (28-105) All lands which are classified as forestlands by the Board of Natural Resources and Conservation (BNRC) must be protected against the existence and spread of forest fires. (28-109) During the forest fire season, beginning May 1 and ending September 30, no person may ignite or set a forest fire, slash burning fire, land clearing fire, debris burning fire, or an open fire within forestlands without an official written permit to set such a fire from the local fire warden or peace officer as authorized by the DNRC. (28-114) The forest fire season may be extended beyond the statutory dates when, in the judgment of the DNRC, dangerous fire conditions exist. (28-103) Persons who do not comply with the permitting requirements for open burning are guilty of a misdemeanor. (28-116) The DNRC has enacted regulations which prohibit entry upon certain forestland during times of extreme forest fire hazards. Entry is allowed only upon written permit issued by the State Fire Warden. The State Fire Warden may, during forest fire season, prohibit any burning or other activity that is known to cause fires. The DNRC also regulates the reduction of slash and forest debris along rights-of-

way. (28-405) Before engaging in silvicultural activities persons must provide for the reduction or management of the fire hazard created. (28-404) Any person clearing a right-of-way for a public trail, ditch or private road must reduce the fire hazard in accordance with DNRC regulations. Disposal of slash must be done in such a manner as to minimize fire potential. (28-405) Methods listed by the DNRC for compliance with the State Fire Hazard Reduction Law include lopping and scattering, dozer piling, broadcast burning, reduction by chippers, hand piling and burning, management of fire hazards by construction of firelines carried to mineral soil, and the turning over of the slash to the appropriate forest fire protection agency.

ADDRESS: Department of Natural Resources and Conservation
Division of Forestry
2705 Spurgin Road
Missoula, Montana 59801
406/728-4300

5. NUISANCE

The DHES is also given general responsibility for the control of nuisances. (69-4110) It may delegate that authority to local boards of health. (69-4509) Pollution of waters is specifically mentioned as a public nuisance. (69-4905) Cities and towns also have nuisance-abatement authority. (11-935) Public nuisance is broadly defined by statute. (57-101) It is lawful for any county or city to abate any injurious smoke nusiance. (11-2501)

NEBRASKA

1. AIR

The Department of Environmental Control (DEC), Air Pollution Control Division, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (81-1502)* There is also an Environmental Control Council (ECC) which has general rule-making authority for air pollution. (81-1502) The DEC has the authority to issue permits, under such conditions as it may prescribe, for the prevention and control of air pollution. (81-1504) The ECC has enacted regulations dealing with emission standards for incinerators used in the disposal of refuse. (Nebraska Air Pollution Control [NAPC] Rule 7) No person may permit the emission of particulate matter in the discharge from any incinerator with a waste burning capacity of less than 2,000 pounds per hour to exceed 0.2 grains of particulate matter/dry cubic foot. Open fires are generally prohibited but may be allowed in cases of fires set in an agricultural operation, such as the burning of trees or vegetation indigenous to the property of the landowner, where no nuisance is created, or fires set with the permission of the DEC for the following purposes: a) the destruction of diseased trees, b) land clearing for roads or other construction activity, or c) the destruction of wood and trees at community land disposal sites, where such burning is distinctly separate from the disposal area for non-burnables. (NAPC Rule 11)

ADDRESS: Department of Environmental Control
Air Pollution Control Division
P. O. Box 94877
301 Centennial Mall South
Lincoln, Nebraska 68509
402/471-2186

2. SOLID WASTE

The DEC, Solid Waste Division, is the agency responsible for implementing the state's solid waste management program. (81-1504) The ECC retains its rule-making authority as well. (81-1502) The DEC may require permits for any operation or activity that can result in land pollution including the placement of refuse, garbage or rubbish in such quantities as to be harmful to the public health, safety or welfare. (81-1502) All solid waste disposal areas must be approved by the DEC after original submission to either the county or city

*Legal code citations to Nebraska statutes.

zoning body for their approval. (81-1518) Cities and counties may also require minimum standards for regulating solid waste disposal sites. (81-1516) No person or governmental agency may dispose of refuse, garbage or rubbish at any place except a solid waste disposal area which has obtained a DEC license. (Nebraska Solid Waste Management (NSWM) Rule 2a) Local governing bodies may develop and enforce local ordinances or rules on solid waste disposal provided that they are at least as stringent as the DEC rules. Nothing in the DEC rules will relieve the applicant from obtaining a local license if one is required, and from meeting and securing all proper zoning permits as well. (NSWM Rule 2b) Only those methods of solid waste disposal which would not create a health hazard or public nuisance will be approved. (NSWM Rule 3a) All disposal sites must be located in conformity with applicable state statutes and local zoning laws and ordinances. (NSWM Rule 3b) Sites subject to flooding should be avoided, and surface drainage must be diverted from the deposited waste. (NSWM Rule 3d) Landfill sites must be located on subsoil structures that will prevent leachate from contaminating groundwater or surface water. (NSWM Rule 31) Open burning is prohibited at disposal sites; however, the DEC may issue permits for the controlled burning of trees and wood scraps where no local ordinance or regulations prohibit such burning and where such trees or wood scraps cannot practically be incorporated into the landfill. Burning must take place in a location separate from the landfill disposal area and the operator must be present when the burning takes place. (NSWM Rule 3s)

ADDRESS: Department of Environmental Control
Solid Waste Division
P. O. Box 94877
301 Centennial Mall South
Lincoln, Nebraska 68509
402/471-2186

3. WATER

The DEC and the ECC are also the agencies responsible for implementing the statutes and regulations that deal with the problem of water pollution. (81-1502, 1503) Any person discharging pollutants from any point source into the waters of the state must obtain a permit. (Neb. NPDES Regs., Rule 3.01) The definition of "person" probably would not include federal agencies, but would include any interstate body. (Neb. NPDES Reg., Rule 2.21) Pollutants are defined to include solid waste, biological materials, and agricultural waste. (Neb. NPDES Regs.,

Rule 2.23)

ADDRESS: Department of Environmental Control
Water Quality Control Division
P. O. Box 94877
301 Centennial Mall South
Lincoln, Nebraska 68509
402/471-2186

4. STATE FORESTRY

The State Forester, who is affiliated with the University of Nebraska, is responsible for developing and administering plans for the prevention and suppression of forest, brush and grassland fires on public and private lands, and for the development and implementation of plans for the protection of forest resources from insect and other natural pests. (85-163.03)

ADDRESS: State Forester
201 Miller Hall, East Campus
University of Nebraska at Lincoln
Lincoln, Nebraska 68583
402/472-2944

5. NUISANCE

The statutory definition of a nuisance includes any activity which renders unwholesome or impure any watercourse, stream or other water body. (28-1016) All counties, cities, towns and villages have responsibilities to abate nuisances. (18-1720) It is unlawful to create dams or other obstructions so as to produce stagnant waters which are injurious to the public health. (28-1012) It is also unlawful to deposit any substance into a well, river or stream used for domestic purposes. (28-1013)

6. MISCELLANEOUS

The Department of Agriculture (DOA) may prescribe rules and regulations necessary to enforce the plant disease and insect pest inspection and quarantine laws. (2-1001) The DOA may stop and detain for official inspection any person or vehicle if he is likely to be carrying any insect, pest, diseased plant or other substance that would endanger agricultural interests. (2-1001) The DOA may quarantine any part of the state if it finds that there has been an infection or infestation present. (2-1002) In eradicating and controlling insect pests and plant diseases, plant and plant products are specifically defined to include

trees, shrubs, cuttings, wood, lumber and all other plant products. (2-1010)

ADDRESS: Department of Agriculture
1420 P Street
P. O. Box 94653
Lincoln, Nebraska 68509
402/471-2186

NEVADA

1. AIR

The Department of Conservation and Natural Resources (DCNR), Division of Environmental Protection (DEP), is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (445.456)* The State Environmental Commission (SEC) is the rule-making body for all environmental legislation. (445.451) The DEP is given the authority to issue permits for all sources of air pollution. (445.473) The SEC has enacted regulations dealing specifically with the open burning of any combustible refuse, waste or garbage. (Reg. 5) All open burning is prohibited except that which is exempted by the regulations. Open burning that is exempt is that which is approved in advance by the Director of the DEP, or which is concurred in by the Director and authorized by an officer of the State for the purpose of weed abatement, conservation, game or forest management, or the elimination of hazards. All open burning must be attended and controlled at all times to eliminate fire hazards. All permit holders must consent to on-site inspections by the DEP for the purpose of insuring that the conditions of the permit are being fulfilled. (445.581) The SEC has also promulgated regulations that seek to minimize the emissions of fugitive dust. (Reg. Art. 7.3) These cover the collection, storage and transportation of any material. One is not permitted to allow controllable particulate matter to become airborne. Incinerator burning is prohibited except in multiple-chamber incinerators or in others approved by the DEP. Small incinerators (less than 900 Kg/hour burning capacity) may not have an emission rate exceeding 1.5 g/Kg of dry refuse charged. (Reg. 6.6.2) Counties and cities may be delegated air pollution control authority. (244.361, 268.410) Washoe and Clark counties have their own air pollution control agencies which issue permits and enforce regulations that are somewhat more stringent than those of the remainder of the state. In Carson City and Churchill County, additional restrictions may be imposed on air pollution sources.

ADDRESS: Department of Conservation
and Natural Resources
Division of Environmental Protection
201 South Fall Street
Carson City, NV 89710
702/885-4670

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*Legal code citations to Nevada statutes.

2. SOLID WASTE

Prior to 1975, both the rule-making and enforcement functions of the state's solid waste management program were performed by the State Board of Health, Division of Health, Bureau of Environmental Health. (439.130, 439.200) In 1975 the SEC was given authority to develop a statewide solid waste management system and to examine and approve or disapprove plans for solid waste management systems. (444.570) The SEC is empowered to make rules and issue permits through the Division of Environmental Protection of the DCNR. (444.560, 444.570) The SEC has recently proposed rules governing solid waste management systems that will replace the extant State Board of Health Regulations. "Solid waste" is defined by statute to include all putrescible and non-putrescible waste. (444.490) The statutes also define a "person" to include a federal agency. (444.480) The State Board of Health regulations require that all solid wastes must be collected, treated, processed, stored and disposed of in such a manner as to not create a health hazard, public nuisance or impairment of the environment. All solid waste systems must be operated in a manner that will not pollute the air, surface waters or groundwaters. Solid wastes may not be placed in surface waters, groundwaters, or within 4 feet of the highest groundwater table. No system for solid waste disposal may be operated without approval by the appropriate health authority. No open burning is allowed at disposal sites except as permitted by the DEP or the SEC. Landfills which incorporate large quantities of construction or demolition wastes must be cross-filled so as to minimize fire hazards. The regulations also specify minimum standards for the transportation of solid waste. Municipalities may enforce stricter standards than those created by the State Board of Health. Transportation of solid wastes must be accomplished in such a manner that a nuisance is not created and that unnecessary leakage or blowing of material can be prevented. The proposed SEC regulations keep the basic framework of the earlier regulations but move the enforcing and implementing authority from the local health board to the SEC and the DCNR. (444.570) Permits received from the State Board of Health will continue to be recognized by the SEC. (444.510) Both sets of regulations require different performance standards for sanitary landfills depending upon the population served by the landfill. These requirements, since they relate primarily to municipal waste treatment facilities, are not directly related to the burning of reservoir clearing and cleaning debris.

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MANAGEMENT OF RESERVOIR CLEARING AND CLEANING DEBRIS.(U)
JUL 78 S E KLOSTER, W J MIKUCKI

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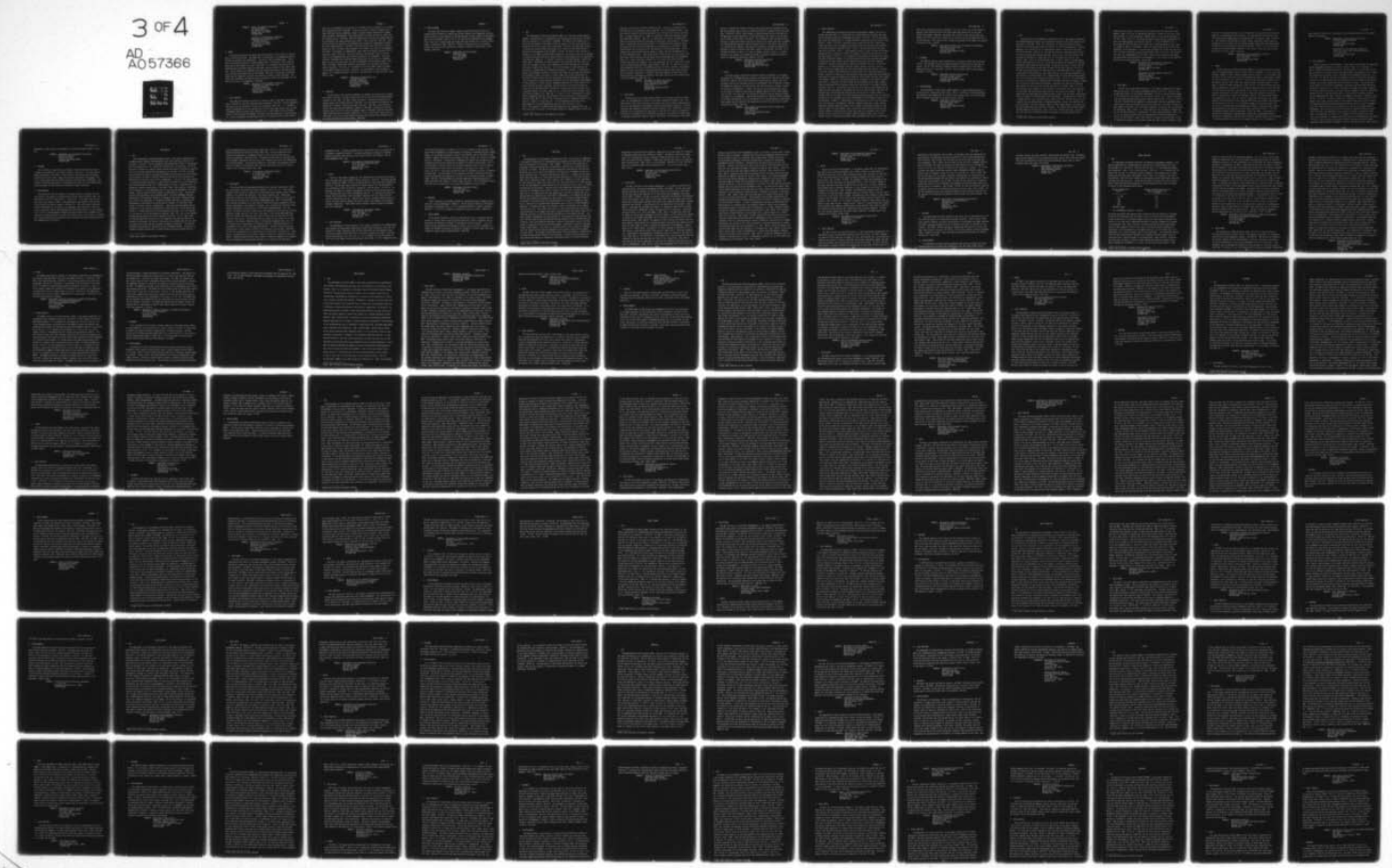

ADDRESS: State Environmental Commission
113 Nye Building
201 South Fall Street
Carson City, NV 89710
702/885-4670

Division of Environmental Protection
Department of Conservation and
Natural Resources
201 South Fall Street
Carson City, NV 89710
702/885-4670

3. WATER

The administration of the water pollution program is very similar to that of the air pollution program. The DCNR, DEP is responsible for implementing and enforcing the statutes and regulations. The SEC is the rule-making body. Pollutants are broadly defined to include dredged spoil, solid waste, rock, sand and other wastes discharged into water. (445.178) It is unlawful for any person to discharge from any point source any pollutant into any waters of the state. (445.221) "Point sources" are defined to be any discernible ditch or discrete conveyance from which pollutants may be discharged. (445.176) The SEC has promulgated water quality standards to govern the content of effluent from discharges. Any person who discharges any material that is harmful to fish into the waters of the state is guilty of a misdemeanor. (503.430)

ADDRESS: Division of Environmental Protection
Department of Conservation and
Natural Resources
201 South Fall Street
Carson City, NV 89710
702/885-4670

4. STATE FORESTRY

The DCNR also contains a Division of Forestry (DOF). (232.120) The executive head of the DOF is also the state forester-firewarden. (232.120) The DOF regulates and supervises the creation of local fire protection districts. It is unlawful within the boundaries of any such district to burn any brush, grass, logs or other inflammable material unless such burning or act is done under a written permit from the state forester-firewarden. (473.090) Written permission is not required if: a) the firewarden has determined that no fire hazard exists at that time of

year; or b) the materials are burned in a screened, safe incinerator or in incinerators approved by the firewarden. Fires set on public roads or plowed fields at least 100 feet from any woodland, timber or brush-covered land are also exempt from the permit requirement if one adult person be present during all times that the burning occurs. (473.090) Most fire protection districts are county-wide and are created by the county commissioners after a local election. (474.100) These districts have the authority to promulgate and enforce all regulations necessary for their administration. (474.470) Every person who shall willfully or negligently set any fire which causes damage to any timber is guilty of a misdemeanor. (475.010) The Governor is empowered to close land and prohibit burning in fire-hazardous areas. (475.210) The use of slash to retard water flow on tractor trails is recommended where more effective measures are precluded. The state forester-firewarden may eradicate forest pests upon the failure of a property owner to do so and may charge the cost of abatement to the property owner. (527.200) The State Forester may proclaim infestation zones and apply reasonable control measures. (527.170) It is unlawful to cut and remove timber not owned by the person taking the timber. (527.010) If the removal or sale of debris amounts to a logging practice, a permit is required prior to such activity. (528.040 et. seq.)

ADDRESS: Department of Conservation and
Natural Resources
Division of Forestry
201 South Fall Street
Carson City, NV 89710
702/885-4350

5. NUISANCE

Private actions for nuisance abatement and damages are specifically allowed by statute. (40.140) Private citizens may also sue to enforce the environmental statutes of the state. (41.540) Public nuisances, including the befouling of public waters, are broadly defined. (202.450) The State Board of Health has the authority to regulate, prevent and abate nuisances. (439.200) Local boards of health also have nuisance abatement authority. (439.360) Counties and unincorporated towns also have nuisance abatement powers. (269.205) Counties must hold public hearings when a nuisance complaint is filed in the county clerk's office. (244.360) City councils may regulate nuisances and provide that abatement costs be recaptured from the nuisance owner. (266.335)

6. MISCELLANEOUS

No person may obstruct, damage, change or modify the natural form of a stream system or destroy or modify the natural shape of the vegetative cover by such activities as bush removal or burning without written consent of the Department of Fish and Game. (Reg. 11.01-1) No vehicles may operate on any highways unless they are so constructed and loaded that their loads will not drop, shift, leak, or otherwise escape. (484.771) Vehicle loads must be so covered that neither the load nor the covering will present a hazard to other users of the highway. (484-772)

ADDRESS: Department of Fish and Game
1100 Valley Rd.
P. O. Box 10678
Reno, NV 89710
702/784-6214

NEW HAMPSHIRE

1. AIR

The Department of Health and Welfare (DHW), Air Pollution Control Agency (APCA), is responsible for implementing the statutes and regulations that deal with the problem of air pollution. (125:80)* The APCA has the authority to establish and operate a statewide system for permits for the construction and operation of all new sources of air pollution. (125:81) No person may install or operate any device which contributes to or causes air pollution unless a permit has been obtained from the APCA. (125:90) No person, with "person" so defined as to probably exclude federal agencies, may ignite, cause to be ignited, or maintain the open burning of refuse unless the requirements of the regulations have been met. (Reg. No. 1) Refuse is defined to include garbage, rubbish and trade waste. Regardless of state permission to allow open burning, local or state fire wardens or other fire prevention officials may deny any individual the right to permit open burning. The following types of open burning are allowed on a statewide level provided no nuisance is created: 1) burning of brush, tree cuttings and slash in forest areas when the cuttings have accrued from pulping, lumber, clearing of rights-of-way and similar operations; 2) burning of leaves and burning for the purpose of weed abatement on the premises; burning for disease and pest prevention and for agricultural improvement; 3) open burning in remote areas of dangerous materials for which there is no other feasible method of disposal; and 4) burning of construction material resulting from the demolition of buildings, brush, tree trunks and the like, originating within the state. (Reg. No. 1) No open burning is allowed in any solid waste disposal site. (Reg. No. 2) There is also a regulation for incinerators depending upon the classification of the waste that is being burned therein. (Reg. No. 6) For all new incinerators an air contaminant which is as dark as or darker in shade than No. 1 on the Ringelmann Chart may not be discharged for a period aggregating any more than 3 minutes in any 1 hour. Incinerators of greater than 200 pounds per hour capacity shall not emit more than 0.2 grains of particulate matter per standard cubic foot of dry

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* Legal code citations to New Hampshire statutes.

flue gas corrected to 12 percent carbon dioxide. Existing incinerators may not emit any air contaminants darker than No. 2 on the Ringelmann Chart. Not more than 0.4 grains of particulate matter per standard cubic foot of dry flue gas is allowed. (Reg. No. 6) There is a specific regulation designed to deal with wood waste burners. (Reg. No. 7) Wood waste is limited to combustible material resulting from the processing of wood and/or wood products. Construction or alteration of wood waste burners is prohibited unless detailed plans and specifications have been submitted to, and approved by, the APCA. These waste burners may be used only for the purpose of burning wood waste. No discharge from a waste burner may be darker in shade than that designated No. 2 on the Ringelmann Chart. Particulate matter which exceeds 0.3 grains per standard cubic foot of dried flue gas shall not be discharged into the atmosphere. There is a 5-year compliance schedule for all existing wood waste burners to meet the emission standards. The only exceptions for this compliance limitation are backyard and municipal waste burners. (Reg. No. 7) During air pollution emergency conditions, the APCA may declare an alert, warning, or emergency. During an alert, all persons holding open burning permits must cease burning, and incinerator operation is limited to the hours between 12 noon and 4 p.m. During warning or emergency conditions, both open burning and incinerator operation are prohibited. (Reg. No. 19)

ADDRESS: Department of Health and Welfare
Air Pollution Control Agency
State Laboratory Building
Hazen Drive
Concord, New Hampshire 03301
603/271-2281

2. SOLID WASTE

The DHW, Division of Public Health (DPH), is the agency primarily responsible for implementing the state's solid waste management program. (147) The DPH requires that every town and city provide and maintain public dumping facilities for the depositing of garbage, refuse and putrescible materials. (147:23) No person may operate or maintain a private disposal site. (147:30-b) A private disposal site is defined to be any tract of land which is used or intended to be used for the depositing or disposing by burying, incineration or other means of garbage, putrescible waste or refuse. (147:30-a) An exception to this prohi-

bition is granted for private disposal sites which have been approved by the DPH utilizing the same criteria as those which public disposal facilities must meet. (147:30-d, 147:25) Waste matter originating outside the state may not be deposited in any structure or on any land within the state or in the territorial waters of the state. (147:30-f) This regulation does not apply to the disposal of municipal wastes from out-of-state cities participating as a member of a New Hampshire regional refuse disposal district. (147:30-g) Any person or institution who removes, transports, of disposes of putrescible material by portable or mobile container must hold a permit from the DPH. (147:34) It is unlawful to place or leave in or near a highway, street, alley or private disposal site, except as provided by permit, any putrid or offensive material which is injurious to the public health. (147:13)

ADDRESS: Department of Health and Welfare
Division of Public Health
61 South Spring Street
Concord, New Hampshire 03301
603/271-2526

3. WATER

The Water Supply and Pollution Control Commission (WSPCC) is the agency responsible for implementing the statutes and regulations that deal with water pollution. (149:2) All classifications for water quality require that, as a minimum, there be no floating solids of unreasonable kind or quantity. (149:3) The WSPCC has authority to issue permits for the discharge of sewage or waste to surface or groundwaters. (143:8) Any person who contaminates the waters of the state is liable to the state for damages caused to fish, other aquatic life or wild life. (211:75) The pollution of waters used for domestic drinking supply is a misdemeanor. Any person proposing to transport forest products or to alter the terrain in or on the border of the surface waters of the state must submit detailed plans to the Commission at least 30 days prior to undertaking the activity. (149:8-a)

ADDRESS: Water Supply and Pollution Control Commission
105 Loudon Road
P. O. Box 95
Concord, New Hampshire 03301
603/271-3503

4. STATE FORESTRY

The Department of Resources and Economic Development (DRED), Division of Forests and Land (DFL), is responsible for implementing the statutes and regulations dealing with forest management practices. (12-A:8-a) The DFL may enact such rules and regulations as it deems necessary concerning the use of all state forests. (219:7) The DFL is expressly given responsibility for controlling forest and brush fires throughout the entire state except within the boundaries of the White Mountain National Forest. (218:5) The DFL may divide the state into fire districts. (224:1) It may appoint district chiefs to have the primary responsibility of aiding all forest fire wardens to perform such duties as the DFL may require. (224:2,3) It is unlawful for any person to kindle a fire upon the land of another without first obtaining permission from an authorized agent or upon public land without written permission from the official caretaker. (224:27-a) No person may kindle or cause to be kindled any fire, or burn any material, in or near woodlands, pasture, brush, waste or cut-over land, or where fire may be communicated to such land, except when the ground is covered with snow, without first obtaining a written permit from the local forest fire warden. (224:27-b) Permits for the burning of blueberry stands and waste material from wood mills may be granted by the district chief rather than the local forest fire warden. (224:27-c) Any person causing or kindling a fire without a permit where such is required is civilly liable for the payment to the town, state or federal government of the expenses incurred by the forest fire warden in extinguishing such fire. Any person violating any of the permit requirements may be fined not more than $200 or imprisoned for not more than 60 days. (224:36) The Governor may, by proclamation, declare any area to be one in which there is extreme forest fire danger and extraordinary preventive measures may, by official proclamation, be required such as the forbidding of the kindling of any fire in any woodland. Whoever is found guilty of violating provisions of the proclamation is guilty of a misdemeanor. (224:32) Whoever pushes over, cuts, saws or otherwise operates upon any timber, brush, lumber or wood must dispose of the slash or waste in such a manner that it does not remain within 25 feet of the land of another; within 50 feet of any lake, pond, or navigable river; within 25 feet of any river which will float a canoe at normal water level; in any stream, river or brook which normally flows throughout the year; or within 100

feet of any occupied building. (224:44-b) If such slash is to be destroyed by burning, such burning shall not be done without the permission of the town forest fire warden. (224:49) Any person who intends to cut growing wood and timber shall file a notice of intent to cut with the state tax commission prior to such cutting. This notice shall include an estimate of the amount and species of wood to be cut. (79:10)

ADDRESS: Department of Resources and Economic Development
Division of Forest Lands
State House Annex
Concord, New Hampshire 03301
603/271-2214

5. NUISANCE

The DHW has overall state responsibility for public health and sanitation. (125:9) City health officers may make regulations preventing and abating nuisances. (147:1) The leaving of offensive matter anywhere but in the public dumping facility is a nuisance. (147:13) City and town councils may regulate nuisances. (47:17)

ADDRESS: Department of Health and Welfare
Division of Public Health
61 South Spring Street
Concord, New Hampshire 03301
603/271-2526

6. MISCELLANEOUS

The Department of Agriculture (DOA) appoints a state entomologist who is responsible for suppressing plant pests. (431:1) The DOA or state entomologist may undertake the suppression or control of any insect, pest, or plant disease which threatens the state or any part thereof. (437:2)

ADDRESS: Department of Agriculture
201 State House Annex
Capitol Street
Concord, New Hampshire 03301
603/271-3551

NEW JERSEY

1. AIR

The Department of Environmental Protection (DEP) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (26:2C-8)* There is, in addition, an advisory Clean Air Council. (25:2C-3.3) No person may construct, install or alter any equipment or control apparatus that could emit an air contaminant unless an application has been filed with the DEP. (26:2C-9.2) The DEP has enacted a regulation dealing with open burning which does not pre-empt the right of any local governmental body to adopt an ordinance or regulation that is consistent with the DEP regulation. (Reg. 7:27-1.5) No person may cause, allow or permit a salvage operation by open burning. (7:27-2.2) No person may permit the disposal of rubbish, garbage or trade waste by open burning. No person may cause or permit the disposal of fallen leaves or any type of plant life by open burning. (7:27-2.3) The DEP may issue a permit for open burning of infested plant life, except in a municipality which prohibits such open-burning, to any person responsible for the control of infested plant life. Applications for such open burning permits are to be reviewed by the Bureau of Forestry. (Reg. 7:27-2.5) The permit application for such burning of infested plant life must include site location, reason for utilizing of open burning techniques, frequency and intensity of burning and citation of any local restrictions that may be involved. (Reg. 7:27-2.5) The DEP may issue a permit for such burning in accordance with a plan approved by, and under the controlled supervision of, the Bureau of Forestry. Such a permit may be conditioned upon meteorological factors and any other requirements which the Bureau of Forestry deems to be necessary. A permit may be issued for a single event or for a period of days. (Reg. 7:27-2.6) The DEP may also issue a permit for the open burning of hazardous material, except in a municipality which prohibits such open burning, where no other known methods of disposal can be used without hazard to health or property. The permit may be conditioned as the DEP deems to be necessary. (Reg. 7:27-2.8) The DEP may issue a plan for the open burning of herbaceous plant life except in any municipality which

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* Legal code citations to New Jersey statutes

prohibits such burning. Conditions may be placed upon the granting of such permits. (Reg. 7:27-2.9) No person may construct, install or use a new incinerator unless it is of the multiple chamber type or is otherwise approved by the DEP. (Reg. 7:27-11.2) No person may permit smoke from any incinerator of which the shade appears to be darker than No. 1 on the Ringelmann Chart. No person may allow the emission of particles of unburned waste or ash, from any common or special incinerator, which are large enough to be visible once suspended in the atmosphere. No person may construct or install any new incinerator without obtaining a permit from the DEP. (Reg. 7:27-11.4) The Governor may, upon the recommendation of the DEP, declare an air pollution emergency and may prohibit the operation of incinerators, or the burning of any materials whatsoever during the emergency. (26:2C-29)

ADDRESS: Department of Environmental Protection
Bureau of Air Pollution Control
P. O. Box 2807
Trenton, New Jersey 08625
609/292-6704

Department of Environmental Protection
Bureau of Forestry
John Fitch Plaza
Trenton, New Jersey 08625
609/292-2520

2. SOLID WASTE

The DEP, Solid Waste Administration, is the agency responsible for implementing the state's solid waste management program. (13:1E-3) There is also an Advisory Council on Solid Waste Management. (13:1E-3) No person may engage in the collection and disposal of solid waste without first filing a registration statement and obtaining approval thereof from the DEP. (13:1E-5, 7:26-2.2, 7:26-3.2) The DEP has the authority to promulgate rules and regulations concerning solid waste collection and disposal activities. (13:1E-6) The use of open dumps is declared to be a nuisance, hazardous to health, and is prohibited by regulation. (Reg. 7:26-2.1.1) Solid waste must be disposed of through the use of sanitary landfills, incinerators, or other approved methods. (Reg. 7:26-2.1.2) No sanitary landfill may be conducted where leachate produced as a result of said landfill impairs the quality of surface or ground waters so as to degrade the quality of such waters below the water quality standards. (Reg.

7:26-2.5) All exposed surfaces of solid waste must be covered daily with cover material or intermediate cover material. All applications for sanitary landfills must present topographical and hydrological information. (Reg. 7:26-2.12. 2) The collection and haulage of organic and/or combustible matter must be through the use of collecting and haulage systems established and permitted by the DEP or by other methods authorized by the DEP. (7:26-3.1) No vehicle may be used for collection and/or haulage if the design is such that solid waste materials will spill. (Reg. 7:26-3.4)

ADDRESS: Department of Environmental Protection
Solid Waste Administration
P. O. Box 1390
Trenton, New Jersey 08625
609/292-9120

3. WATER

The DEP, Division of Water Resources (DWR), is the agency primarily responsible for implementing the state's water pollution program. (13:1D-7) No waste, garbage, sawdust or other polluting matter may be placed in, or discharged into, any waters of the state from which any municipality shall or may obtain a supply of water for domestic use. (58:10-1) No person may discharge or permit to be discharged into any fresh water any sewage or other polluting matter if such water is used for human consumption. (Reg. 58:10-5) No person may put any hazardous, deleterious, destructive or poisonous substances onto or near any fresh or tidal waters within the jurisdiction of the state. (23:5-28) No person may cause to be placed in any water used by a state fish hatchery any material which is deleterious to such fish hatchery. (23-8-5) No person shall remove any vegetation or soil from, or dump or discard any refuse upon, land under control of the Division of Fish, Game and Shellfisheries without the permission of the Division. (23:7-9) It is unlawful to dump or discard on state land any refuse or material which would endanger hunting or fishing tracts without the permission of the Division of Fish, Game, and Shellfisheries. (23:7-9) The Bureau of Water Facility Operations, within the DWR, is occasionally involved with clearing and cleaning debris under their Maintenance Program. Disposal is presently by contract with a private licensed hauler; the contractor is seeking a permit for burial at an approved landfill site. Disposal of

these wastes by burning or incineration is not employed because of the state's general prohibitions.

ADDRESS: Department of Environmental Protection
Division of Water Resources
P. O. Box 2809
Trenton, New Jersey 08625
609/292-4091

Department of Environmental Protection
Division of Fish, Game and Shellfisheries
P. O. Box 1809
Trenton, New Jersey 08625
609/292-2965

4. STATE FORESTRY

The DEP, Bureau of Forestry (BOF), is the agency responsible for regulating forest management practices. (13:1A-5, 13-1B-3) There is, in addition, a Parks, Forestry and Recreation Council. (13:1B-15.103) It is the duty of the DEP to protect all forests, brush lands and marshes from damage by fire, insects and disease and to promote the use of good forest management principles. (13: 1B-15.101) The DEP has the power to determine forest fire hazards, to remove or cause to be removed brush or other material which contributes to forest fire hazards, and to make regulations for the burning of brush. The DEP may prescribe duties for the local firewardens relating to the prevention and extinguishing of forest fires. (13:9-3) The State Firewarden has overall responsibility for protecting forests and brush from fire damage. (13:9-13) Any person setting fire to or burning brush, grass or other material whereby property may be endangered must keep a careful and competent watchman in charge of such burning. (13:9-18) In districts having a firewarden no person may set fire to stumps, logs, brush, fallen timber or other matter that might cause a forest fire without obtaining written permission from the state or local firewarden. (13:9-19) Permission may not be granted if any forest or woodland would be endangered. No fire may be set within 200 feet of adjacent forest or brush land. (13:9-19) The setting of fire to burn any forest, brushland or salt marsh is prohibited. (13:9-20) It is unlawful to allow brush or any tree litter to accumulate in a manner that would create an extraordinary fire hazard. (13:9-23) Such conditions constitute a public nuisance and may be abated immediately by the State Firewarden. (13:9-24) The Governor may close forests,

woodlands or other lands by proclamation in cases of extreme drought. (13:9-52)

ADDRESS: Department of Environmental Protection
Bureau of Forestry
John Fitch Plaza
Trenton, New Jersey 08625
609/292-2520

5. NUISANCE

Any building or place where any statute, including the sanitary code, is violated is considered to be a public nuisance. (2A:130-2) A nuisance may be abated immediately. (2A:130-4) Local boards of health may enact ordinances protecting the public water supply and controlling disposal of garbage. (26:3-31) Local boards may also define nuisances and order their abatement. (26:3-45,46) No person may deposit or accumulate any refuse in such a manner that polluting matter can gain access to any body or water. (26:3B-4)

6. MISCELLANEOUS

Municipalities have the authority to require owners or tenants of land to eliminate fire hazards by removing brush, weeds, dead and dying trees, and other debris within a 10-day period. (40:48-2.13) If the owner does not remove said brush, weeds or debris, the municipality may remove it for him and charge him for the cost of removal. (40:48-2.14) The State Board of Agriculture may determine the existence of any dangerous plant disease or the existence of injurious insects, and may establish and enforce general or local quarantines. (4:7-1) The Department of Agriculture may prohibit the shipment of any diseased or suspected plants. (4:7-8) Any plant, shrub or tree which is infested with a plant disease may be declared to be a nuisance and may be destroyed without compensation. (4:7-16,17)

NEW MEXICO

1. AIR

The Environmental Improvement Agency (EIA) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (12-12-4)* The Environmental Improvement Board (EIB) is responsible for the promulgation of all regulations dealing with air pollution. (12-12-6) Municipal or county air quality control boards may exercise concurrent authority over air pollution regulations upon approval by the EIB. (12-14-4) The EIB, by regulation, may require any person, defined to include any political subdivision or agency, to obtain a permit from the EIA prior to the construction or modification of any new source of air contaminants. (12-14-7) All open burning is prohibited except that which is specifically provided for by EIB regulations. (Air Pollution Control Reg. 301) Open burning of refuse is permitted only in communities having a population of less than 3,000. Open burning is permitted for the disposal of dry tumbleweeds and for agricultural management, excluding timber, directly related to the growing or harvesting of crops. The EIA may condition the granting of open burning permits for weed abatement purposes, prevention of fire hazards, disposal of dangerous materials, forestry management, control of vegetation in irrigation ditches and canals, clearance and maintenance of watercourses and flood control channels to eliminate flood hazards, and other special circumstances. These open burning permits may be issued only if no practical alternative to burning exists, if the health and welfare of no other person will be detrimentally affected, and if the ambient air quality will not be detrimentally affected. (Reg. 301) Any person seeking an open burning permit must send a request to the EIA; in it he must state the location where the burning is to be conducted, the type and quantity of material to be burned, the date of the burning, the methods that will be used to control the burning and any alternative method of disposal. The EIA may condition the granting of the permit in any reasonable manner. No person is allowed to permit the emission of smoke having an opacity greater than No. 1

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*Legal code citation to New Mexico statutes.

on the Ringelmann Scale for a period of more than 1 minute in any consecutive 30-minute period (Air Pollution Control Reg. 401) The EIB regulations also restrict the operation of woodwaste burners so that no burner may have an emission exceeding an opacity of 20%. A woodwaste burner must be equipped with an instrument, approved by the EIA, which will measure and record the temperature of the exiting gases. No person may operate a "contingency use woodwaste burner" unless the owner has notified the EIB, and provided justification for the use thereof. (Air Pollution Control Reg. 402)

ADDRESS: Environmental Improvement Agency
Air Quality Division
P. O. Box 2348
Santa Fe, NM 87503
505/827-2813

2. SOLID WASTE

The EIA and the EIB have general authority to regulate liquid waste disposal, solid waste sanitation and refuse disposal. (12-12-10, 11) Local refuse disposal districts may be created on a county-wide basis; however, their primary authority lies within the municipal solid waste disposal area. Anyone who operates a system for the collection, transportation or disposal of solid waste must register with the EIA. (Solid Waste Management Reg. 103) The permittee must provide information as to the type of solid waste being disposed of and the general topography of the potential disposal site, including the location of any nearby watercourses or water wells. (Solid Waste Management Reg. 103) Any person, including a political subdivision, who generates solid waste must provide adequate storage facilities for such solid waste. (Solid Waste Management Reg. 105) All persons who transport waste must provide vehicles which do not leak and which have covers. The vehicles must be cleaned at such times and in such a manner as to prevent offensive odors. (Solid Waste Management Reg. 107) All solid waste must be disposed of in sanitary landfills, modified landfills or incinerators or by use of other approved methods. Sanitary landfills must be covered with a 6-inch layer of earth at the conclusion of each day's operation and must be so operated as to prevent entry of runoff water into the fill. They must be so operated as to not create a public nuisance or a hazard to the public health. Modified landfills must have a means to minimize blowing of solid waste and be surrounded by trenches whose bottoms are a minimum of 20 feet above

groundwater level. Products remaining after incineration must be disposed of in a sanitary or modified landfill. No person operating a sanitary or modified landfill may permit the burning of solid waste within said landfill. (Solid Waste Management Reg. 108)

ADDRESS: Environmental Improvement Agency
Solid Waste Management Section
P. O. Box 2348
Santa Fe, NM 87503
505/827-2693

3. WATER

The EIA is the agency responsible for implementing the statutes and regulations that deal with the problem of water pollution. (75-39-3) The Water Quality Control Commission (WQCC) is the rule-making body for water pollution regulations. (75-39-4) The EIA may require persons to obtain permits for the discharge of any contaminant, either directly or indirectly, into the water. (75-39-4.1) In addition, the WQCC has recently promulgated regulations which require approval for discharges which may affect groundwater quality. All persons who would discharge water contaminants into groundwater supplies must have their plan for disposal approved by the EIA. General water quality standards dealing with turbidity and other matters empower the EIA to control and regulate the flushing of debris downstream. These powers would include a permit-issuing requirement and site inspection.

ADDRESS: Environmental Improvement Agency
Water Quality Division
P. O. Box 2348
Santa Fe, NM 87503
505/827-5271

4. STATE FORESTRY

The Department of State Forestry is the agency responsible for implementing the statutes and regulations dealing with state forest practices. (62-3-3) The extension of state regulation over private forestland for the purpose of preventing and suppressing forest fires is expressly granted the state in the New Mexico Constitution. (Art. XV, Sect. 2) It is unlawful for any individual to set fire to any timber, brush or grass upon state lands. (7-7-1) Anyone who does

so willfully is guilty of a felony. (7-7-1) It is lawful for any person to use any stream in New Mexico for the purpose of floating or transporting logs, timber, lumber, or the products thereof as long as the natural flow of the water in the stream is capable of handling the capacity of logs, timber, etc. which is floated. (62-1-6) Any person is authorized or empowered to improve the navigability or floatability of any such stream by the removal of natural obstructions. (62-1-7) The Department of State Forestry has primary responsibility for the prevention and suppression of forest fires on nonfederal and nonmunicipal lands in the state. (62-3-6.2) This would exclude any type of regulatory activity on federally-owned land. The Department is also empowered to enact regulations dealing with the prevention and suppression of fires on all forested, cutover or brushlands. (62-3-9) The Department has enacted regulations requiring persons to obtain permission to dispose of slash, snags and tops. All silvicultural activities must be so carried on as to prevent any outbreak of forest fires.

ADDRESS: Department of State Forestry
P. O. Box 2167
Santa Fe, NM 87503
505/827-2312

5. NUISANCE

Public nuisances are broadly defined by statute and whoever commits one is guilty of a petty misdemeanor. (40A-8-1) The polluting of water by introducing any object or substance into it is by statutory definition a public nuisance. (40A-8-2) It is also a nuisance to unlawfully dispose of refuse. (40A-8-4)

6. MISCELLANEOUS

Every person producing, selling or offering for sale, or transporting any nursery or florist stock within the state must have a valid inspection tag as prescribed by the Board of Regents of New Mexico State University. It is unlawful for any transportation company or public carrier to ship, transport or accept for shipment any parcel or bundle of nursery or florist stock until such inspection tag has been attached thereto. (45-8-34)

NEW YORK

1. AIR

The Department of Environmental Conservation (DEC), Division of Air Resources, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (ECL 3-0301)* The DEC has the authority to promulgate rules and regulations for preventing, controlling or prohibiting air pollution. (19-0301) The DEC has enacted regulations dealing with open burning. No person may burn or permit the burning in an open fire of garbage, refuse at a refuse disposal area, or rubbish generated by industrial or commercial activities other than agriculture; no refuse may be burned during an air pollution episode. (Reg. 215.2) Burning of wood, trees, leaves, tree trimmings, or brush generated by land clearing or demolition activities, for the construction of a right-of-way, or for the development or modification of any recreational area or park is allowed, provided that such burning is done on-site at an appropriate designated burning area and in accordance with a permit issued by the DEC after written application. (Reg. 215.3) An application for such permit must include the reasons why such burning should be permitted and such other information as is required by the DEC. The DEC may condition the approval of any permit in any manner deemed necessary to prevent air pollution and the contravention of air quality standards. (Reg. 215.3) Burning at an appropriately designated site of toxic or other dangerous materials is allowed provided such burning is done in accordance with a permit issued by the DEC. Such permit shall be for a specified period and can contain such conditions as are deemed necessary to protect health and safety. (Reg. 215.3) Proposed revisions to the open burning regulations are now before the DEC. The major changes contemplated are the deletion of the exemption of agricultural rubbish from the open burning prohibition and the addition of the following new prohibitions: toxic and explosive materials, rubbish from growing crops or raising animals, vegetation to provide wildlife habitat, vegetation to provide livestock range, forest debris, tree trunks or branches greater than 4 inches in diameter, and tree stumps and any rubbish generated by any project financed with federal or state funds. The proposed regulations would allow revocation or suspension of any open burning permit without a prior hearing. Permits could be granted for restricted open burning of vegetation from growing crops or raising livestock,

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*Legal code citations to New York statutes.

vegetation to provide wildlife habitat, vegetation to provide range for livestock, or vegetation afflicted with disease or insects. According to existing regulations, all incinerators having a capacity of 2000 pounds per hour or less, and built and installed after January 1, 1968, must not emit more than 0.5 pounds per hour of particulates. (Reg. 219.4) No incinerator, regardless of size, may emit smoke of an opacity greater than 20 percent or No. 1 on the Ringlemann Chart. (Reg. 219.5)

ADDRESS: Department of Environmental Conservation
Division of Air Resources
50 Wolfe Road
Albany, NY 12233
518/457-7231

2. SOLID WASTE

The DEC, Division of Solid Waste Management, is the agency responsible for implementing the solid waste management program. (ECL-0301) The DEC may recommend and provide for methods for the best disposal of solid waste. (ECL-0301) The DEC may require the approval of all new solid waste management facilities. (ECL-27-0501, 17-0507) The DEC has enacted regulations dealing with the disposal of all solid wastes. (REG. 360.1) Sites used solely for the deposition of non-putrescible construction and demolition debris are exempt, provided that a written exemption from the DEC is obtained prior to the deposition of any debris. (Reg. 360.2) "Construction and demolition debris" is defined to mean waste resulting from construction, remodeling, repair and demolition of structures. Such waste includes bricks, soil, rocks and lumber. (Reg. 360.1) No person may construct or modify any solid waste management facility without a valid construction permit, or operate a solid waste management facility except in accordance with a valid operation permit. (Reg. 360.2) An operator of any existing solid waste facility must submit an application for an operating permit describing any remedial action which has been taken in order to prevent contamination of groundwater, surface water or air. (Reg. 360.3) An operator of a new, proposed or modified facility must obtain a construction permit from the DEC. (Reg. 360.3) Detailed hydrological, topographical and geographical information must be included in the application. (Reg. 360.3) The provisions of each permit will insure compliance with the standards of design and operation set forth in the regulations. (Reg. 360.4) Solid waste must not be deposited in, and shall be prevented from entering, surface or groundwaters. (Reg. 360.8) Solid waste management facilities may not be

placed on agricultural land designated as Class 1 or Class 2 if such land is being actively used as cropland. Leachate from solid waste management facilities must not be allowed to drain or discharge into surface water, except pursuant to a state pollutant discharge elimination system permit, and may not contravene groundwater quality standards. Salvaging must be controlled by the facility operator. Vectors, dust and odors must be controlled by effective means so that they will not constitute nuisances or hazards to health. (Reg. 360.8) Limits are placed on the noise that may extend beyond the property line of any facility. (Reg. 360.8) Hazardous waste may be accepted only at facilities which have been specifically approved therefor by the DEC. (Reg. 360.8) Solid waste management facilities may not be operated or constructed on floodplains unless provisions have been made to prevent the encroachment of flood waters. (Reg. 360.8) For sanitary landfills, a vertical separation of at least five feet shall be maintained between the solid waste and the groundwater table. The required horizontal separation between deposited solid waste and the surface waters must be determined by reference to soil attenuation characteristics, drainage, and natural or man-made barriers. (Reg. 360.8) Cover must be placed upon all exposed solid wastes prior to the end of each operating day. Cover material and drainage control must be designed and maintained to prevent ponding and erosion and to reduce to a minimum the infiltration of water. A grass or groundcover crop must be established and maintained on all exposed final cover material within 4 months after placement. No hazardous wastes or materials may be disposed of in sanitary landfills except pursuant to specific operation permit authorization. (Reg. 360.8) All hazardous waste must be landfilled only in accordance with a special permit for a secure land burial facility. (Reg. 360.8) Secure land burial facilities must be so constructed, maintained and operated that an impermeable barrier consisting of a synthetic liner or a natural material having a hydraulic conductivity of 0.000001 centimeters per second or less shall be placed or constructed between any deposited hazardous waste and the surrounding soil. (Reg. 360.8) Surface drainage from actively-used areas must be collected in a holding area. (Reg. 360.8) No facility may be closer than 10 feet to groundwater or located over groundwater recharge areas serving public water supplies. (Reg. 360.8) Incinerator operators may not dispose of residues and fly ash in a smoldering condition in, or allow them to be transported to, any disposal site. (Reg. 360.8)

ADDRESS: Department of Environmental Conservation
Division of Solid Waste Management
50 Wolfe Road
Albany, NY 12233
518/457-6605

3. WATER

The DEC, Division of Pure Waters, is the agency responsible for implementing the state's water pollution program. (ECL 1-0301, 3-0301) A state permit is required for any point source that discharges waste into the waters of the state or for the modification of any waste discharge through an existing outlet or point source. (ECL 17-0505, 17-0507) No garbage or refuse may be dumped or permitted to run into the waters of any marine district. (ECL 13-0345) Sewage or any other substance injurious to edible fish or shellfish, or which creates an objectionable odor or sanitary condition, is not allowed in any marine district or waters of Long Island. (ECL 17-0503) No deleterious substance shall be allowed to run into any waters, whether public or private, where it may be injurious to fish or wildlife. (ECL 11-0503) No person may place sewage or other matter injurious to fish where it can find its way into waters used by a state fish hatchery. (ECL 11-0503) It is illegal to deposit refuse or other matter into any waters of any canal system. (Canal Law 82) There is a stream protection statute which prohibits the change or modification of any material from a bed or bank of any stream for which the DEC has established water quality standards. The DEC has also adopted regulations to protect public supplies of potable water from contamination. (Public Health 1100)

ADDRESS: Department of Environmental Conservation
Division of Pure Water
50 Wolfe Road
Albany, NY 12233
518/457-6674

4. STATE FORESTRY

The DEC, Division of Lands and Forests, is the state agency responsible for implementing laws and regulations dealing with forest fires. (9-1103) Whenever the forests of the state are in danger of fire, the governor may, by proclamation, prohibit any person or persons from entering forests, woodlands, waters and open lands and prohibit the starting of fires in the out-of-doors. (9-1101) The DEC may maintain a system of forest fire protection in such areas of the state as it

determines to be necessary. (ECL 9-1103) It may make rules and regulations to secure better fire protection within any portion of those areas designated as fire districts. (ECL 9-1103) No fire shall be set on or near forestland and left unquenched. (ECL 9-1105) No fire shall be set which will endanger the property of another, nor shall any person set forestland on fire or negligently allow fire on his own property to extend to the property of another. (CL 9-1105) No person may deposit and leave brush or other inflammable material upon the right-of-way of highways in any fire town or fire district. (ECL 9-1105) The DEC has the authority to conduct necessary investigations for the purpose of discovering better methods for the control and prevention of spreading of forest, insect and tree diseases. (ECL 9-1303) The DEC has the authority to establish quarantine districts and to prohibit the movement of materials which may be harboring insects or disease. (ECL 9-1303) The DEC has the discretionary authority to destroy insect pests and forestry diseases on private land. (ECL 9-1303) The DEC may promulgate rules and regulations governing the operations designed for the purposes of preventing the spread of forest insects and tree diseases. (ECL 9-1303)

ADDRESS: Department of Environmental Conservation
Division of Lands and Forests
50 Wolfe Road
Room 504
Albany, NY 12233
518/457-3620

5. NUISANCE

The Commissioner of Public Health on the state level is possessed of all of the necessary powers to investigate and abate nuisances. (Public Health 1300) Local boards of health also have the authority to investigate and abate nuisance. (PH 1303) Abatement expenses are to be borne by the owner or occupant of the premises. (PH 1306) Placing noisome or unwholesome substances on or near highways constitutes a nuisance. (PH 1300-a) Cities have general nuisance abatement power. (General City 20) Towns may regulate unnecessary emissions of smoke or noxious gas. (Town 130)

6. MISCELLANEOUS

The Department of Agriculture and Markets may take such action as may be deemed necessary to prevent the introduction into the state of New York of

injurious insects and plant diseases. (Agriculture and Markets 163) The Department has the authority to issue quarantine orders and to enact rules and regulations for the purpose of controlling and eliminating insect pests or plant diseases within the state. (A & M 167)

ADDRESS: Department of Agriculture and Markets
State Campus, Building 8
1220 Washington Avenue
Albany, NY 12235
518/457-4188

NORTH CAROLINA

1. AIR

The Department of Natural Resources and Community Development (DNRCD) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (143-215.106, 143-215.3) An Environmental Management Commission (EMC) is the rule-making body. (143-215.3) It is charged with the supervision of local air pollution control programs; such programs may be implemented provided that their requirements are at least as stringent as the State requirements. (143-215.3(11)) DNRCD has promulgated several regulations that deal with open and refuse burning. No person may permit the emission of particulate matter from refuse burning equipment to be discharged from any stack or chimney in excess of the following hourly rates:

Refuse Charged (P) lb/hour	Maximum Allowable Emission of Particulate Matter (E) lb/hour
0 - 100	0.2
200	0.4
500	1.0
1000	2.0
2000 and above	4.0

For intermediate values E = 0.002 P.

No person may permit particulate matter resulting from the working or finishing of wood to be discharged from any stack, vent or building into the atmosphere without providing, as a minimum, adequate duct work, and properly designed collectors; in no case shall established ambient air quality standards be exceeded at the property line. (Reg. 2D.0512) No person may permit particulate matter caused by any industrial process for which no emission control standards are applicable to be discharged at an allowable emission rate of greater than 0.55 pounds/hour for a process weight rate of 100 pounds/hour. The allowable emission rates for particulate matter increase with increasing process weight rates in accordance with a table included in the regulations. (Reg. 2D.0515) No person may allow open burning of refuse or other combustible material except under a permit granted by the DNRCD or by a local air pollution control agency. Open

*Legal code citations to North Carolina statutes.

burning is permitted for the following purposes: a) fires set to agricultural lands for disease and pest control and other accepted agricultural or wildlife management practices, b) fires purposely set to forestlands for forest management practices as approved by the EMC, c) open burning for land clearing or right-of-way maintenance in areas other than those used primarily for residential purposes. Prevailing wind at the time of the burning must be away from any built-up area, the location of the burning must be at least 1,000 feet from any dwelling, the amount of dirt on the material being burned must be minimized and burning may normally be commenced only between the hours of 9 a.m. and 3 p.m. (Reg. 2D.0520) Permission granted by virtue of this open burning permit may be revoked at any time. In addition, the applicant must comply with all applicable laws, ordinances, regulations and orders of any governmental entity having jurisdiction even though a permit has been granted by the DNRCD. No person shall permit the burning of wood or agricultural waste in a conical incinerator without taking precautions to prevent air pollutants from becoming airborne. Such precautions shall include: 1) an underfire or an overfire forced air system; 2) a method for continuous recording of the temperature of the exit gas; 3) a feed system to maintain 800°F during operation. (Reg. 2D. 0523) The DEM may declare periods of excessive buildup of air contaminants as air pollution alerts, warnings, or emergencies. During an alert, no open burning is allowed, and incinerator use is limited to the hours between 12:00 noon and 4:00 p.m. During a warning or emergency, neither open burning nor incinerator use is permitted. (Reg. 2D.0300)

ADDRESS: Department of Natural Resources & Community Development
Division of Environmental Management
Air Quality Section
P. O. Box 27687
Raleigh, NC 27611
919/733-5188

2. SOLID WASTE

The Department of Human Resources (DHR), Division of Health Services, Solid Waste and Vector Control Branch is the agency responsible for implementing the solid waste management statute. (130-166.18) The DHR has the authority to provide standards for the establishment, location, operation, maintenance, use and discontinuance of solid waste management sites and facilities. Such standards must be designed to accomplish the maintenance of safe and sanitary conditions. (130-166.18) All solid wastes must be stored, collected, transported,

treated, processed and disposed of in a manner consistent with the regulations. Hazardous solid waste must be stored in containers and at locations prescribed by state or federal regulations regarding the specific hazardous material. (Solid Waste Disposal Reg. Sec. III) All containers for the storage of solid waste must be maintained so as to prevent the creation of a nuisance or of unsanitary conditions. Vehicles or containers used for the collection or transportation of solid waste must be covered, leakproof, durable and of easily cleanable construction. Vehicles must be loaded and moved in such a manner that the contents will not fall, leak or spill therefrom. (Solid Waste Disposal Reg. Secs. IV-V) All facilities for the treatment and processing of solid waste must be operated in such a manner as to prevent the creation of a nuisance, insanitary conditions or potential public health hazard. (Solid Waste Disposal Reg. Sec. VII) Disposal of solid wastes must be by sanitary landfill, use of an incinerator or other DHR-approved method. (Solid Waste Disposal Reg. Sec. VII) All sanitary landfill and solid waste disposal sites must be approved by the DHR. Extensive topographical information and a statement of the source and characteristics of cover material that is to be utilized must be submitted with the request for site approval. Identification of nearby watercourses is also required. Open burning of solid waste at a sanitary landfill is prohibited. Sanitary landfill sites are prohibited within the boundaries of a public supply watershed, within a floodplain of any watercourse where underground seepage could cause contamination, and within areas having high water tables where private or public well water supplies could be contaminated. Solid waste must be disposed of in such a manner as to have no detrimental effect on ground or surface water. No hazardous waste may be disposed of in a sanitary landfill without specific permission. Surface water must be diverted from the landfill area. (Solid Waste Disposal Reg. Sec. VIII-XI) If incinerators are used they must be designed and operated in a manner to prevent the creation of a nuisance or potential health hazard and must comply with all the NRCD regulations. Site location for incinerators must be such as will minimize interference with other activities in the area. All residue from the incinerator plants shall be promptly disposed of at an applicable and approved site. (Solid Waste Disposal Reg. Sec. XII)

ADDRESS: Department of Human Resources
Division of Human Resources
Solid Waste and Vector Control Branch
P. O. Box 2091
Raleigh, NC 27602
919/772-2178

3. WATER

The DNRCD, Water Quality Section, is the agency responsible for implementing the statutes and regulations that deal with water pollution. (143-215.3) The EMC is the rule-making body. (143-215.3) No person may permit any waste to be discharged, directly or indirectly, in any manner into the waters of the state so as to violate the receiving water quality standards. (143-215.1) There is also a general prohibition against the discharge of any waste to the subsurface or ground waters of the state by means of a well. (143-214.2) The DNRCD also regulates the flushing of debris downstream if it would cause a violation of the receiving water quality standards.

ADDRESS: Department of Natural Resources & Community Development
Division of Environmental Management
Water Quality Operations Branch
P. O. Box 27687
Raleigh, NC 27611
919/733-4740

4. STATE FORESTRY

The DNRCD, Division of Forest Resources (DFR) is the agency responsible for regulating forest management practices. (113-44.5) In Dare, Hyde, Tyrrell and Washington Counties, it is unlawful for any person to willfully start any fire in any woodlands under the protection of the DNRCD or within 500 feet of such protected area without first having obtained from the DNRCD a permit to start and burn such fire. It is unlawful for any person to willfully burn any debris stumps, brush, or inflammable material without having obtained a permit. Permits must be issued only after personal inspection of the proposed burning site and assessment of the conditions thereon which might endanger protected woodlands as a result of such burning. All brush burning and other burning may be prohibited if it would cause or potentially cause a threat to nearby woodlands or forest. (14-139) For the remaining part of the state, it is unlawful for any person to cause to be started any fire in any of the areas of woodlands under the protection of DNRCD or within 500 feet of such protected areas between the hours of 12 midnight and 4 p.m. without first obtaining permission from the DNRCD. The DNRCD may declare a period of hazardous forest fire conditions. (143-221B) During such period, the DNRCD is authorized to cancel all permits otherwise allowed under the statute. The DNRCD may refuse to issue a permit if

the burning would violate applicable air pollution regulations. The penalty for failing to obtain a permit for an open burn is a fine of not more than $50 and imprisonment for a period of not more than 30 days. (14-139) All persons who burn brush, grass or other inflammable material must keep and maintain a careful and competent watchman in charge of such material during the period of burning. (14-140) The DNRCD may and does issue conditional permits depending upon climatic and seasonal conditions. The DNRCD also has residual power to prevent and control forest fires in any parts of the state. (113-51) It may delegate that duty to local forest rangers who have primary responsibility for the prevention and extinguishing of fires within woodlands of the state. (113-54, 55) The DNRCD also has the authority and responsibility for investigating insect and other infestations of forests. (113-60.4) The DNRCD may take actions to prevent insects and diseases due to infestation of control zones where potential or actual infestations have occurred. (113-60.7)

ADDRESS: Department of Natural Resources & Community Development
Division of Forest Resources
P. O. Box 27687
Raleigh, NC 27611
919/733-7490

5. NUISANCE

It is unlawful for any person to place, deposit or leave any refuse, debris or waste materials of any kind within a river or stream. (14-134.1) Local boards of health are given the primary responsibility to abate nuisances. (130-20) Cities may also abate nuisances both within city limits and up to 1 mile outside of the incorporated boundary. (160S-193) It is also unlawful to pollute the natural flow of water into any fish hatchery. (113-265)

6. MISCELLANEOUS

The Division of Parks and Recreation has, by contract with local Corps of Engineers units, agreed to keep certain areas of Corps property free of debris. In so doing, burial of grass, weeds and other materials is the most common method of disposal. Paper, plastic and other materials are usually transported to the county landfill. Burning or incineration of wastes is normally done only when approved by the local Corps office. The Division of Parks and Recreation usually

cuts and splits wastes of fuel value and distributes them to campsites for camp fires. All of these disposal techniques are employed in cooperation with the local Corps office.

NORTH DAKOTA

1. AIR

The Department of Health (DOH) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (23-25-03)* There is, in addition, an advisory state Air Pollution Control Agency. (23-25-02) No person may construct, modify, use or operate a source of air contaminants, designated by regulation as causing or contributing to air pollution, without a permit from the DOH. (23-25-04.1) Receipt of a permit does not relieve any person of the responsibility of complying with applicable emission limitations or other provisions of state laws or regulations. (23-25-04.1) No person may dispose of refuse or other combustible material by open burning nor shall any person conduct or permit the conduct of a salvage operation by open burning. (Reg. 23-25-04.100) An exception is made to the general prohibition against open burning if no public nuisances would be created and if the burning is not prohibited by, and is conducted in compliance with, any other applicable laws, ordinances and regulations. (Reg. 23-25-04.200) The burning of trees, brush, grass, wood and other vegetable matter in the clearing of land or agricultural crop burning is allowed if the following conditions are met: a) the prevailing wind at the time of the burning must be away from any city, b) the location of the burning must not be adjacent to any occupied residence, c) care must be taken to minimize the amount of dirt on the material being burned, d) the initial burning may begin only between 3 hours after sunrise and 3 hours before sunset, e) the burning must not be conducted adjacent to any highway or public road, and f) the burning must not be conducted within 1 mile of any military, commercial or other airport or landing strip. (Reg. 23-25-04.206)

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*Legal code citations to North Dakota statutes.

ADDRESS: Department of Health
Divisionof Environmental Engineering
1200 Missouri Blvd.
Bismarck, ND 58505
701/224-2374

2. SOLID WASTE

The DOH, Division of Solid Waste Management, is the agency responsible for implementing the state's solid waste management program. (23-29-04) Any political subdivision of the state may enact and enforce a solid waste management ordinance if the ordinance is at least as stringent as the state statute. (23-29-05) The DOH may require the issuance of permits for any solid waste management facilities. (23-29-07) The owner of any premises is responsible for the storage of all solid wastes. (Reg. 23-29-01.201) Nonputrescible solid waste, such as brush, may be bundled or placed in containers to prevent scattering. (Reg. 23-29-01.204) Storage of hazardous wastes is the responsibility of the owner; the DOH may provide technical assistance to such owner. (Reg. 23-29-01.205) Vehicles used for the collection and transportation of solid waste must be so loaded and moved so as to prevent fallings, leakage and spilling therefrom. (Reg 23-29-01.302) Every person operating a refuse collection service must obtain a permit from the DOH. Open burning is prohibited at sanitary landfills. Sanitary landfills must be covered after each day of operation with a compacted layer of at least 6 inches of suitable cover material. Sanitary landfills must be so constructed as to promote surface water runoff without ponding or excessive erosion. Surface water drainage shall be diverted around the landfill. Hazardous wastes may not be received at a landfill unless prior approval has been granted by the DOH. The DOH may require that a water monitoring system be constructed to determine if leachate from a landfill is causing groundwater or surface pollution. (Reg. 23-29-01.501) All incinerators used for solid waste disposal must be operated in compliance with the air pollution regulations and maintained in a clean and nuisance-free condition. (Reg. 23-29-01.503) Any method of disposal other than by landfill or incinerator must receive prior permission from the DOH. (Reg. 23-29-01.504) No construction, installation or establishment of a new disposal operation may be commenced until the owner has filed an application for and received a permit to construct. (Reg. 23-29-01.601) Plans in sufficient detail with topographic, geographic and hydrological information must be submitted. (Reg. 23-29-01.604) In addition to a construction permit, the DOH also

requires an operation permit. (Reg. 23-29-01.700)

ADDRESS: Department of Health
Division of Solid Waste Management
1200 Missouri Blvd.
Bismarch, ND 58505
701/224-2354

3. WATER

The DOH, Division of Water Supply and Pollution Control, is responsible for implementing the state's water pollution program. (61-28-04) There is also an Advisory State Water Pollution Control Board. (61-28-03) The DOH has the authority to issue, modify or revoke orders prohibiting or abating discharges of waste into the waters of the state. (61-28-04) The DOH may also make rules governing the application for permits to discharge wastes into state waters. (61-28-04) It is unlawful for any person to cause pollution of any waters of the state or cause any wastes to be placed in a location where they are likely to cause pollution. It is also unlawful to discharge any wastes which reduce the quality of receiving waters below the established water quality standards. (61-28-06)

ADDRESS: Department of Health
Division of Water Supply and Pollution Control
1200 Missouri Blvd.
Bismarck, ND 58505
701/224-2345

4. STATE FORESTRY

The State Forester, who must be a staff member of the state School of Forestry, is granted the power and authority in all matters relating to the prevention, detection and suppression of forest fires outside the limits of incorporated cities in established forest protection districts. (18-02-05) In each organized township in which 25% of the area is woodland, the township supervisors act as forest fire wardens. (18-02-01) In unorganized townships the county board may select forest fire wardens. (18-02-02) Each forest fire warden shall take such precautions against the kindling and spreading of forest fires as he deems necessary. (18-02-03) The State Forester may also organize forest protection districts for the purposes of preventing, detecting and suppressing forest fires. (18-02-08) Forest rangers and fire wardens have the authority to enforce the laws against the illegal setting of forest fires. (18-02-09)

ADDRESS: State Forester
School of Forestry
North Dakota State University
First and Simrall Avenue
Bottineau, ND 58318
701/228-2277

5. NUISANCE

Both city and county boards of health have the authority to inquire into and abate all nuisances. (23-05-01, 23-05-04) Nuisances, broadly defined by statute, include the unlawful obstruction of lakes, navigable rivers, and streams. (42-01-01)

6. MISCELLANEOUS

The Commissioner of Agriculture may promulgate such rules and regulations as he deems necessary for the prevention of pest infestation of plants within the state. (4-33-02) Regulations may restrict the movement of pests and of any regulated articles into or through the state. (4-33-04) He may find that property or an area of the state requires emergency measures due to an outbreak and may seize, quarantine, or otherwise dispose of pest-infested articles in any manner he deems warranted by the threat. (4-33-05) Local bodies may also authorize the creation of local pest control programs. (4-33-10)

OHIO

1. AIR

The Ohio Environmental Protection Agency (OEPA), Office of Air Pollution Control, is the state agency responsible for implementing the statutes and regulations dealing with the problem of air pollution. (3704.03)* The OEPA has rulemaking authority to take whatever steps are necessary to prevent, control and abate pollution. (3704.03) The OPEA regulations do not allow any open burning in an area where an air alert warning or an emergency is in effect. (OAC - 3745-19-02) No provisions of the OEPA regulations permitting open burning exempt any person from compliance with any other section of the state statutes, any regulations of any state agency, or any local ordinance or regulation dealing with open burning. (OAC - 3745-19-02) There is a general prohibition against open burning in restricted areas; these are defined to mean all areas within the boundaries of any municipal corporation, within 1,000 feet beyond the boundaries of a city having a population of 1,000 to 10,000 people, and within a mile beyond the boundaries of any city with a population of 10,000 people or more. (OAC - 3745-19-03) Exceptions are made to this prohibition against open burning for recognized silvicultural, range or wildlife management practices and for the prevention or control of disease or pests if prior notification is given to the OEPA. Fires used for the above purposes, however, may not be simultaneously used for waste disposal purposes, and the fuel used must be so chosen as to minimize the generation and emission of air contaminants. Open burning is also allowed upon receipt of written permission from the OEPA for the disposal of hazardous or toxic materials if there is no practical alternative method of disposal, or in any recognized agricultural or horticultural management purposes to maintain or increase the quality of agricultural or horticultural production subject to any conditions that may be specified in the permit. (OAC - 3745-19-03) Open burning is allowed with prior notification to the OEPA in unrestricted areas for recognized silvicultural, range and wildlife management practices, and prevention and control of disease or pests provided that waste disposal is not carried out. Open burning is allowed for the following purposes upon receipt of written permission

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* Legal code citations to Ohio statutes.

from the OEPA provided that any specified conditions are followed: 1) disposal of hazardous or toxic materials where the OEPA determines that there is no practical alternative method of disposal; and 2) disposal of landscape wastes, including trees, brush, etc., if the following conditions are also observed - the fire is set only when atmospheric conditions will readily dissipate contaminants; the fire does not create a visibility hazard on roadways, railroad tracks or air fields; the fire is located at a point on the premises most remote from residential or populous areas and no less than 1,000 feet from such residential or populous areas; and an air curtain destructor or other device determined by the OEPA to be at least as effective as an air curtain destructor is utilized to limit release of air contaminants. (OAC - 3745-19-04) All applications for open burning permits must be submitted at least 10 days before the fire is to be set and must contain the following information: a) purpose of the proposed burning, b) nature and quantities of materials to be burned, c) date or dates when such burning will take place, d) location of the burning site, e) methods that will be taken to reduce the emissions, f) proof of unavailability of alternatives, and g) citation of the specific subsection of the regulations that authorize the burning. Permission shall not be granted unless the applicant demonstrates to the satisfaction of the OEPA that open burning is necessary to the public interest and that it will be conducted at such a time, place and manner as to minimize the emission of air contaminants. (OAC - 3745-19-05) Permission to burn must be obtained for each specific project. Notification must be submitted in writing at least 10 days before any open burning on such form as may be required by the OEPA.

ADDRESS: Ohio Environmental Protection Agency
Office of Air Pollution Control
361 East Broad Street
Columbus, Ohio 43216
614/466-7390

2. SOLID WASTE

The OEPA, Division of Solid Waste Management, is the agency responsible for implementing the state's solid waste management program. (3734.02) The OEPA issues permits for all solid waste disposal sites. (3734.02) The OEPA regulations do not cover the temporary storage of solid wastes, vehicles used

for hauling solid wastes, or incinerators located on the premises where the wastes incinerated are generated. Solid wastes may be disposed of only by sanitary landfill, incineration, composting or other methods so conducted as not to cause a nuisance or health hazard and approved by OEPA. (OAC - 3745-27-05) The open dumping of waste is prohibited. (OAC - 3745-27-05) Any person proposing to establish a new solid waste disposal facility must seek a permit from the OEPA and have his plans approved. (OAC 3745-27-06) "Person" is defined by the regulation to include public or private corporations or other entities. (OAC 3745-27-01) Plans, specifications and information on hydrogeologic, topographic and geographic conditions are required for sanitary landfills. (OAC - 3745-27-06) At the time of submission of these documents to the OEPA, copies of the proposal are to be sent to the local board of health, any general purpose government, a regional solid waste planning agency if any is applicable, and any conservancy district having jurisdiction over the site. (OAC - 3745-27-06) Incinerators are allowed if they meet the requirements of the OEPA, Air Quality Division. Waste materials intended for composting must be maintained in a nuisance-free condition before, during and after the composting operation. (OAC - 3745-27-07) All facilities must be managed in such a manner as to prevent or minimize the attraction, breeding and emergence of insects, rodents and other vectors. Salvaging operations must be approved by the OEPA. (OAC - 3745-27-08) For sanitary landfills, a compacted layer of cover material not less than 6 inches thick must be placed over all exposed waste materials at the end of each working day. All cover materials shall consist of nonputrescible material having low permeability to water, good compactibility, cohesiveness and relatively uniform texture. (OAC - 3545-27-09) All possible precautions must be taken to prevent leachate from occurring on the site. Surface waters must be diverted from the area where the waste materials have been deposited. Any person who wishes to obtain a waiver of any of these provisions may apply to the OEPA. The OEPA may impose any conditions upon the granting of a waiver. (OAC - 3745-27-11) "Waste" is defined to include refuse, shavings, bark, and other wood debris. (6111.01)

ADDRESS: Ohio Environmental Protection Agency
Office of Land Pollution Control
Division of Solid Waste Management
P. O. Box 1045
Columbus, Ohio 43216
614/466-8934

3. WATER

The OEPA is the agency responsible for implementing the state's water pollution program. (3745.01, 6111.03) The OEPA may adopt regulations dealing with the issuance of permits and orders to prevent, control and abate water pollution. (6111.03) No person may cause pollution or place any wastes in a location where they might cause pollution except in cases where the OEPA has issued a valid unexpired permit. (6111.04)

ADDRESS: Ohio Environmental Protection Agency
361 East Broad Street
P. O. Box 1049
Columbus, Ohio 43216
614/466-8565

4. STATE FORESTRY

The Department of Natural Resources (DNR), Division of Forestry (DOF), is the agency that regulates forest management practices. (1501.01) The chief of the DOF may prescribe rules and regulations for the administration and protection of the public forests. (1503.01) The DOF may declare any property, whether private or public, which by reason of its condition or operation is a special forest fire hazard and as such endangers property, to be a public nuisance. The chief of the DOF may notify the owner thereof to abate or remove the nuisance. If the owner does not so abate, the DOF may cause the nuisance condition to be removed or abated and have the cost of such removal charged to the landowner. (1503.07) Within the DOF there may be appointed a chief forest fire warden whose primary responsibilities are to supervise local forest fire wardens and deal with the problem of forest fires. (1503.08) Forest fire wardens shall prevent and extinguish forest fires and assist in the enforcement of laws for the prevention and suppression of forest fires. (1503.11) All owners of land upon which fires may burn or be started have the duty of extinguishing such fires. (1503.16) No person may kindle a fire upon public land without written permission from a forest fire warden. Unless all leaves, grass, wood and inflammable material have first been removed and all other reasonable precautions have been taken no person may kindle a fire in or near any woodland, brushland or land containing tree growth if such fire is likely to escape. (1503.18) No person may kindle, or authorize another to kindle, a fire in the open air

outside city limits for the purpose of burning wood, brush, weeds, grass or rubbish of any kind at any time during the months of March, April, May, October and November without first obtaining written permission from the local forest fire warden. (1503.20) An exemption from the written permit requirement may be authorized by the DOF. (1503.21) In the absence of any forest fire warden, any person may kindle a fire at any time on his own land for the purposes of backfiring. (1503.22) There are no statutes or regulations pertaining to plant pests or diseased wood control for deadwood. The Department of Agriculture does not consider this aspect to be a serious problem. Inspection and licensing from the DOA would be required where live trees are excavated for transport followed by replanting elsewhere. (927)

ADDRESS: Department of Natural Resources
Division of Forestry
Fountain Square
Columbus, Ohio 43224
614/466-7842

Department of Agriculture
State Office Building
65 South Front Street
Columbus, Ohio 43215
614/466-2732

5. NUISANCE

City and county boards of health may abate all public nuisances. (3707.01) No person may dispose of wastes in any state water without an OEPA permit. Said disposal is declared to be a public nuisance. (3767.32) Cities are also given the authority to abate all nuisances within their jurisdictional limits. (715.40)

OKLAHOMA

1. AIR

The Department of Health (DOH), Air Quality Service, is the agency responsible for implementing the statutes and regulations that deal with air pollution. (63-2002)* There is, in addition, an advisory Air Quality Council whose primary function is to recommend to the DOH rules and regulations for the controlling or prohibiting of air pollution. (63-2002) Cities and towns may enact ordinances dealing with air pollution provided that they are not in conflict with the state regulations and are at least as stringent as the DOH statute and regulations. (63-2003) No person is allowed to permit open burning of refuse or other combustible material except as provided for by the DOH regulation. Open burning, while generally forbidden, is allowed for the following purposes if it will not create a public nuisance and if the burning is not prohibited by other applicable laws or ordinances. Fires may be set 1) for the elimination of a fire hazard which cannot be abated by other means when authorized by the appropriate governmental entity, 2) for the removal of dangerous or hazardous materials, 3) in the management of forests or rangelands in accordance with the practices recommended by the Department of Wildlife Conservation or the Department of Agriculture. The burning of trees, brush, grass and other vegetable matter in the clearing of land and right-of-way maintenance operations is allowed if prevailing winds at the time of the burning are away from any city or town, the location of the burning is not adjacent to any occupied residence, and care is used to minimize the amount of dirt on the material being burned. This burning must take place between three hours after sunrise and three hours before sunset. The burning of combustible material in an open-pit incinerator which is properly designed and operated to control smoke and particulate matter is also allowed. (Air Pollution Reg. No. 1)

ADDRESS: Department of Health
Air Quality Service
N.E. 10th and Stonewall St.
Oklahoma City, OK 73105
405/271-5220

2. SOLID WASTES

The DOH, Sanitation Division, Solid Waste Management Section, is the

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*Legal code citations to Oklahoma statutes.

agency responsible for implementing the solid waste management program. (63-2260) There is also a solid waste management advisory committee which acts basically as an advisor on the formulation of rules and recommendations of the DOH. (62-2254) The DOH has the authority to examine and approve plans and specifications for solid waste disposal facilities and inspect the operation of solid waste disposal sites and facilities. (63-2260) It also has the authority to issue, modify or deny permits for the establishment, construction or operation of solid waste disposal sites and facilities. (63-2260) It is unlawful for any person to dump, deposit, throw or abandon any solid waste on property owned by another person without written permission. (63-2262) The DOH has enacted a regulation which requires that no person may dispose of solid waste at any site or facility for which a permit for solid waste disposal has not been issued. No person may operate a disposal site immediately upon the bank of any stream or lake wherefrom the waste may enter the stream, lake, or tributary. No permit will be issued for a sanitary landfill where open burning or uncontrolled burial is performed or where water may be polluted. Temporary disposal sites may be permitted if they will: 1) be operated so as not to create a public health hazard or nuisance, 2) not cause any littering of surrounding countryside, and 3) have burning only where necessary and confined to daylight hours and to climatological conditions which are such as to limit the threat of the spread of fire and/or air pollutants to the surrounding lands. (Solid Waste Management Reg. 2) The storage, collection and transportation of solid waste must be so carried on as to minimize spillage and littering. Cities and counties have the primary responsibility for setting minimum standards for the collection and transportation of this waste. (Solid Waste Management Reg. 3) All sanitary landfill areas must be so constructed as to allow the spreading and compacting of refuse in shallow layers. A uniform compacted layer of at least 6 inches of suitable cover material must be placed on all exposed refuse at the end of each working day. No garbage or refuse burning is allowed at a disposal site except through an approved incinerator. Incineration as a method of disposal must receive special permission from the DOH. The depositing of refuse in groundwater or within a minimum of 2 feet of the highest groundwater is prohibited. Drainage of surface water around the disposal site must be accomplished. (Solid Waste Management Reg. 4) All wastes which present significant hazards to people, animals or the environment require special handling and disposal procedures as determined by the DOH. Special soil characteristic

requirements are stated for any disposal site where hazardous wastes are to be buried. (Solid Waste Management Reg. 5) Trees and tree trimmings from construction and demolition operations may be disposed of at special sites. A permit from the DOH is required for the operation of a landfill operation of this type. Open burning, uncontrolled dumping, or uncontrolled burial is not permitted. Access to the disposal area must be controlled. (Solid Waste Management Reg. 6)

ADDRESS: Department of Health
Sanitation Division
Solid Waste Management Section
N.E. 10th and Stonewall St.
Oklahoma City, OK 73105
405/271-5338

3. WATER

The Water Resources Board (WRB) is the state agency responsible for implementing the statutes and regulations that deal with water pollution. (82-926.3) The WRB is given the statutory authority to prevent, control and abate new and existing sources of water pollution. (82-926.3) It is unlawful for any person to cause pollution of the waters of the state or to place or cause to be placed any waste in a location where it is likely to cause pollution. Any such action is declared to be a public nuisance. (926.4) It is unlawful for any person to discharge any wastes into the waters of the state without securing a permit from the WRB. (926.4)

ADDRESS: Water Resources Board
5th Floor, Jim Thorpe Building
Oklahoma City, OK 73105
405/521-3947

4. STATE FORESTRY

The Department of Agriculture, Division of Forestry (DOF), has primary responsibility for forest fire prevention within the state. (1301-208) It is unlawful for any person to willfully or carelessly burn or cause to be burned any fire in any forest, grass or woodland not owned by the person setting such fire. (1301-205) Any person who violates this section is guilty of a misdemeanor punishable by a fine of not more than $500 or by imprisonment for not more than 1 year. (1301-205) It is unlawful for any person to set fire to any forest, grass, woods, wildlands or marshes or to burn trash or other material that may cause such fire within a county in which there is a gubernatorially proclaimed

emergency drought condition. The only fire that may be set legally in such a county is a backfire necessary to afford protection from forest fires as determined by a DOF representative. The DOF advises the governor on lands that should be included within the emergency drought condition declaration. Any person who violates the emergency declaration is guilty of a misdemeanor and is punishable by a fine of not more than $500 or by imprisonment for not more than 1 year. (1301-206) It is unlawful for any person to burn or set fire to any forest, grass, woods, wildlands or marshes under that person's control unless notification is given to the local office of the DOF at least 4 hours in advance of such burning if the burning is within a protected area. For burning to be lawful outside protected areas, a person must take reasonable precaution against the spreading of fire to other lands. (1301-208) Any person who sets fire to any woods or prairies except as provided by statute is guilty of a misdemeanor and may be fined a sum not more than $500 and imprisoned for a period of not more than 6 years. (2-741) The State Board of Agriculture has the authority to inspect any private or public place which might become infested or infected with dangerous or harmful insects or plant diseases. (3-15) An authorized agent of the Board is empowered to prohibit and prevent the removal, shipment or transportation of plant or other material from any private or public property in any area of the state which, in the judgment of the official, contains dangerously infested or infected plant or other material for such periods and under such conditions as he deems necessary. (3-16) It is unlawful for any person in the state to knowingly permit any dangerous insect or plant disease to exist in or on his premises. Owners of forests which contain infested or infected plant material must remove such material at their own expense; otherwise the state will take such action as it deems necessary to eliminate the infestation or infection. (3-19)

ADDRESS: Department of Agriculture
Division of Forestry
122 Capitol
State Capitol Building
Oklahoma City, OK 73105
405/521-3886

5. NUISANCE

No person may deposit any noxious or toxic substance in any stream, lake or pond or in any place where such substances may be washed into such waters. Persons who violate the statute face a fine of not less than $100 nor more than $500 per day for each violation. (7-401) Nuisances are broadly defined by

statute to include anything that annoys, injures or endangers the comfort, repose, health or safety of others or which interferes with the passage of any lake or navigable stream. (50-1) Nothing which is done under the express authority of a statute, however, may be deemed to be a nuisance. (50-4) All nuisances may be abated or, in the case of a public nuisance, there may be a criminal prosecution. (50-8) Cities and towns have the right to define nuisances within their corporate limits. (50-16) County health boards also may abate nuisances and control sanitary conditions within the county. (1-204)

6. MISCELLANEOUS

The Department of Wildlife Conservation does not have any statutes or any authority to deal with the problem of disposal of reservoir clearing and cleaning debris. The Division of State Parks utilizes various techniques to control such debris in the state park areas. They do control burning sites and size reduction processes within state park areas. In several instances state parks will control the sale of such debris to the private sector as well as to other public agencies.

OREGON

1. AIR

The Department of Environmental Quality (DEQ), Air Quality Division, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (468.035)* The DEQ, by regulation, may require permits for any source of air contaminant. (468.310) Without first obtaining a permit, no person shall discharge any air contaminant into the outdoor ambient air or construct, install, develop, modify or operate any source of air contamination for which a permit is required. (468.315) The DEQ has adopted two types of open burning regulations, one dealing with general open burning and the other with agricultural open burning. The following types of open burning are exempted from the general open burning rules and regulations: a) fires set or allowed by any public agency when such fire is set or allowed in the performance of its official duty for the purpose of weed abatement or elimination of fire hazards; b) open burning which is included within the definition of an agricultural operation; and c) open burning on forestland permitted under the smoke management plan. Open burning is under the jurisdiction of the Office of State Forester. (Reg. 340-23-035) No person may cause any open burning which is prohibited by any rule or regulation. (Reg. 340-23-040) All combustible materials to be open burned must first be dried to the extent practicable to prevent emissions of excessive smoke. (Reg. 340-23-040) Open burning of any waste materials which emit dense smoke or noxious odors or which tend to create a public nuisance is prohibited. If the DEQ determines that open burning may cause a public nuisance, it may require that the burning be terminated or that auxiliary combustion equipment be used to insure complete combustion and elimination of the nuisance. No open burning may be initiated in any part of the state when the DEQ advises fire permit issuing agencies that open burning is not allowed because of adverse meteorological or air quality conditions. (Reg. 340-23-040) No open burning may be initiated in any area in which an air pollution alert, warning or emergency has been declared. (Reg. 340-23-040) Authorization of open burning under these rules does not exempt or excuse any person from liability for the consequences or damages resulting from such burning. If also does not exempt any person from complying with other applicable laws, ordinances or regulations. Forced air pit

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*Legal code citations to Oregon statutes.

incineration may be approved as an alternative to open burning provided that the following conditions are met: a) the person requesting approval must demonstrate to the regional authority or the DEQ that no feasible or practical alternative exists, b) the facility must be designed and operated in such a manner that visible emissions do not exceed 40 percent opacity for more than 3 minutes in any one hour, and c) the person requesting approval must obtain an air contaminant discharge permit if such be required therefor. (Reg. 340-23-040) Open burning at solid waste disposal sites is prohibited statewide except as may be authorized by a solid waste permit. (Reg. 340-23-045) Open burning of commercial waste is prohibited within open burning control areas. These areas are defined by regulation. (Reg. 340-23-045) "Commercial waste" is defined to be combustible waste generated by any activity of wholesale or retail commercial offices or facilities or by industrial, governmental or other facilities. This definition does not include industrial waste (combustible waste produced as a direct result of any manufacturing or industrial process) or construction and demolition waste (waste generated by the removal of debris, logs, trees, or brush from any site in preparation for land improvement or construction). (Reg. 340-23-030) Open burning of industrial waste is also prohibited with limited exceptions. Open burning of construction and demolition wastes, including non-agricultural land clearing debris, is prohibited within certain open burning control areas in various counties throughout the state, in any area within 3 miles of a city which has a population greater than 1,000 but less than 45,000, or within 6 miles of the boundary of any city greater than 45,000 population. (Reg. 340-23-045) Burning of commercial, industrial, construction and demolition wastes on a singly-occurring or infrequent basis may be allowed by a letter permit issued by the DEQ, provided that the applicant can meet the following conditions: a) no practicable alternative method of disposal of waste is available; b) application for the disposal of the waste is made in writing to the DEQ, listing quantity and type of waste to be burned and describing all efforts which have been made to dispose of the waste by other means; c) a DEQ evaluation approves the request, taking into account reasonable efforts to use alternative means, the condition of the particular air shed where the burning will occur, the remoteness of the site, and other methods used to insure complete and efficient combustion; d) the DEQ is satisfied that reasonable alternative methods are not available and that significant degradation of air quality will not occur. Within the

boundaries of certain counties, such letter permits may be issued only for the purpose of disposal of waste resulting from emergency occurrences. Failure to conduct open burning according to the conditions of the letter permit or any open burning in excess of that allowed shall cause the permit to be immediately terminated and lead to immediate assessment of civil penalties. (Reg. 340-23-045) The agricultural burning regulations deal with open field burning, which is defined to include the burning of perennial grass seed fields, annual grass seed fields or cereal grain fields in such a manner that combustion air and combustion products are not effectively controlled. Field burning utilizing a device other than an approved field sanitizer shall constitute open field burning. (Reg. 340-26-005) No person may conduct open field burning within the Willamette Valley without first obtaining a valid permit from the DEQ and a fire permit and validation number from the local fire permit issuing agency for any given field the day that the field is to be burned. Open field burning permits are not valid until acreage fees have been paid and the validation number obtained from the appropriate local fire permit issuing agency. Such permits will not be issued unless the applicant affirms that the acreage to be burned will be planted to seed crops which require flame sanitation for proper cultivation. (Reg. 340-26-010) All debris cuttings and prunings shall be dry, cleanly stacked and free of dirt and green material prior to being burned. No substance or material which normally emits dense smoke or obnoxious odors may be used for auxiliary fuel in the igniting of debris. (Reg. 340-26-010) On any marginal day of burning, priorities for agricultural open burning are set forth in the statute. These give perennial grass seed fields first priority, annual grass seed fields used for grass seed production second priority, grain fields third priority, and all other burning fourth priority. (Reg. 340-26-010) Approved pilot field sanitizers or propane flamers may be used as alternatives to open field burning subject to approval by the DEQ. (340-26-011) Emergency field burning permits may be issued on a showing of extreme hardship or disease outbreak based on personal investigation, or of insect infestation documented by a signed statement by the county agricultural agency or state Department of Agriculture. (Reg. 340-26-013) There are two burning seasons: the summer burning season from July 1 through October 31, and the winter burning season which is November 1 through June 30. More stringent regulations are placed upon winter burning. (Reg. 340-26-020) Existing sources of air contaminants may not emit into the ambient air outside

of any special control areas, as defined by the regulation, an emission of particulate matter as dark as or darker in shade than that designated number 2 on the Ringelmann Chart or equal to or greater than 40 percent opacity. (340-21-015) Special control areas are primarily those in or around the urban areas of the state. (Reg. 340-21-010) For existing sources within special control areas and for all new sources, the applicable emission limitation for particulate matter is no darker than the shade designated as number 1 on the Ringelmann Chart or equal to or greater than 20 percent opacity. (Reg. 340-21-015) No person may permit the emission of particulate matter from any refuse burning equipment in excess of 0.3 grains per standard cubic foot for equipment designed to burn 200 pounds or less of refuse per hour. For larger equipment, the emission limitation is 0.2 grains per standard cubic foot for existing sources or 0.1 grain per standard cubic foot for new sources. (Reg. 340-21-025) No person may cause or permit the emission of particulate matter from any air contaminant source other than fuel burning equipment or refuse burning equipment in excess of 0.2 grains per standard cubic foot for existing sources or 0.1 grain for new sources. (Reg. 340-21-030) Fugitive emission requirements are applicable within any special control area or when ordered by the DEQ. Where fugitive particulate emissions escape from buildings or equipment in such a manner as to create nuisance conditions or violate any regulations, the DEQ may order that the process handling and storage be done in tightly closed or ventilated facilities such that air contaminants are controlled or removed. (Reg. 340-21-060) No person may cause or allow any materials to be handled, transported or stored or any equipment to be operated without taking reasonable precautions to prevent particulate matter from becoming airborne. (Reg. 340-21-060)

ADDRESS: Department of Environmental Quality
Air Quality Division
1234 Southwest Morrison St.
Portland, OR 97205
503/229-5749

2. SOLID WASTE

The DEQ, Solid Waste Division, is the agency responsible for implementing the state's solid waste management program. (459.025) The DEQ may adopt reasonable and necessary regulations governing the accumulation, storage, collection, transportation and disposal of solid waste. (459.045) Local governmental

agreements to deal with the solid waste management problem are authorized. (459.065) Counties may enact ordinances regulating solid wastes that constitute public nuisances on private property outside the limits of cities. Ordinances may prohibit the deposit, accumulation, storage, collection, maintenance or display on private property of waste that is hazardous to the health and safety of the public or which creates offensive odors or a condition of unsightliness, and may provide for the abatement of such offensive or unsightly conditions as a public nuisance. (459.120) No disposal site may be established, operated, maintained, or substantially altered until the person owning or controlling the disposal site obtains a permit from the DEQ. (459.205, Reg. 340-61-020) The DEQ may prescribe criteria and conditions for excluding classes of disposal sites from the permit requirements. (459.215) Such has not yet been done for reservoir clearing and cleaning debris. In addition, the DEQ is authorized to grant variances or conditional permits in cases of unnecessary hardship where the conditions that exist are beyond the control of the applicant and strict compliance would be unreasonable, burdensome or impractical. (459.225) The personnel of the DEQ or of a county or city board of health may enter upon the premises of any person operating a solid waste disposal site for the purpose of insuring compliance with any permit condition. (459.285) The DEQ has exempted from the permit requirement for sanitary landfills and other disposal sites any landfills used only by the owner for the disposal of soil, rock, concrete or other similar nondecomposable materials. (Reg. 340-61-020) The DEQ may determine that any proposed or existing disposal site or solid waste handling operation used only by the owner or person in control of the premises is not likely to create a public nuisance, health hazard, air or water pollutant or other environmental problem and may waive all of the requirements of the regulations. (Reg. 340-61-020) As a matter of course, most of the reservoir clearing and cleaning debris matters have been handled under this last exception, whereby the DEQ responds with a letter authorizing the one-time disposal of debris through some type of burial. The DEQ may impose such conditions as it deems necessary on a disposal operation and may include an agreement to terminate the operation immediately upon request of the DEQ. (Reg. 340-61-020) Applications for permits to operate solid waste disposal facilities must include recommendations of the local or state health agency having jurisdiction and recommendations of the governing body and of the regional solid waste advisory committee and/or city or county planning commission having jurisdiction. (Reg. 340-

61-025) Any other information that the DEQ considers to be important, including hydrological, geographical and topographical information may also be required. (Reg. 340-61-030) In addition, feasibility studies are required as well as detailed plans and specifications. (Reg. 340-61-030, 340-61-035) For sanitary landfills, the location and design of all physical features, including surface drainage control, water and wastewater facilities, trenches, monitoring wells, and existing contours must be submitted; land use regulations must be cited. Open burning or open dumps of putrescible solid wastes are not permitted. Open burning of non-putrescible combustible wastes at a disposal site more than 500 feet from the active landfill area may be permitted, in accordance with approved plans issued by the DEQ, provided that such burning is also allowed by rules and regulations of the local air pollution control authority. (Reg. 340-61-040) As a matter of course, the Solid Waste Division would prefer open burning to solid waste disposal through sanitary landfill. Leachate production must be minimized; it may be required that leachate shall be collected and treated or otherwise controlled in a manner approved by the DEQ. Areas having high groundwater tables may be restricted to landfill operations which will maintain a safe vertical distance between deposited solid waste and maximum water table elevation. A disposal site must be so located, sloped or protected that drainage will be diverted. Adequate quantities of cover material shall be available to provide for periodic covering of deposited solid waste. All nuisance-type conditions, including dust, odors and noise must be controlled to prevent air pollution. (Reg. 340-61-040) All incineration equipment and air pollution control appurtenances must comply with the applicable air pollution control rules and regulations of the DEQ or of a regional air pollution control authority. (Reg. 340-61-045) There may be no discharge of wastewater to public waters except in accordance with a water discharge permit. All incinerator sites must be so designed that surface drainage will be diverted away from the operational area. All solid waste deposited at an incineration site must be confined to the designated dumping area. (Reg. 340-61-045) Composting plants are also allowed after a permit has been obtained. (Reg. 340-61-050) Detailed plans and specifications must be submitted to the DEQ for approval. A proposed plan for utilization of the compost produced must be assured. Provisions shall be made to effectively control, treat or dispose of leachate or other drainage. There may be no discharge of wastewater to public waters except in accordance with a waste discharge permit. (Reg. 340-61-050) No hazardous solid waste may

be deposited at any disposal site without prior written approval of the DEQ. (Reg. 340-61-060) Demolition materials should be disposed of at special demolition landfills or landfills incorporating large quantities of combustible materials so as to prevent the spread of fire. (Reg. 340-61-060) Storage and collection of solid waste must be so conducted as to prevent vector production and sustenance, conditions for the transmission of disease, hazard to the public, air and water pollution or objectional odors, and dust or other nuisance-type conditions. (Reg. 340-61-070) Solid waste collection and transfer vehicles and devices must be so constructed as to prevent dropping, leaking, blowing or other escapement of solid waste from the vehicles. (Reg. 340-61-075)

ADDRESS: Department of Environmental Quality
Solid Waste Division
1234 Southwest Morrison Street
Portland, Oregon 97205
503/229-5696

3. WATER

The DEQ is the agency responsible for implementing the state's water pollution program. (468.035) The pollution of any waters of the state is declared to be not a reasonable or natural use of such waters and to be contrary to the public policy of the state. (468.715) The DEQ shall take such action as is necessary for the prevention and abatement of pollution by requiring the use of all available and reasonable means necessary to achieve the public policy of the state. (468.715) Except as provided under a state discharge permit, no person may cause pollution of any waters of the state or place any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means. (468.720) No person may discharge into the waters any wastes which would reduce the quality of the water below the water quality standards. No person may violate the conditions of any waste discharge permit. Violation of any of the above prohibitions is declared to be a public nuisance. (468.720) A permit is required for the discharge of any wastes into the waters of the state from any industrial or commercial activity or any activity of a disposal system. (468.740) Where injury occurs to any fish or wildlife, or to fish or wildlife habitat, resulting from pollution that is in violation of any permit conditions, the person responsible for such injury is liable to the state in any amount reasonably necessary to restock or replace such fish or wildlife. (468.745)

ADDRESS: Department of Environmental Quality
Water Quality Control Division
1234 Southwest Morrison Street
Portland, Oregon 97205
503/229-5696

4. STATE FORESTRY

The State Forestry Department (SFD), Office of State Forester (OSF), is the agency responsible for implementing the Oregon Forest Practices Act. (477.001) All forestland inadequately protected from fire which may endanger life or property is declared to be a public nuisance. (477.062) Whenever the OSF learns of such inadequately protected forestland, it may advise the owner to take proper steps for its protection; if the owner does not respond favorably, the OSF may, within 10 days, conduct such work as it deems necessary for the protection of life or property. (477.062) Any fire on a forestland burning uncontrolled or burning without proper action being taken to prevent its spread is declared to be a public nuisance and may be abated by the OSF. (477.064) Each owner of forestland on which a fire exists, notwithstanding its origin, shall make every reasonable effort to control and extinguish such fire. If the owner fails to do so and the fire is burning uncontrolled, the OSF or any forest protective association may take action to summarily abate the nuisance. (477.066) Where the owner or operator of the forest is willful, malicious or negligent in the origin of fire, the actual costs incurred by the forester or forest protective association shall be paid by said owner within 90 days. (477.068) During the season when there is danger of fire, every owner of forestland must provide adequate protection against the starting or spread of fire. (477.210) Such protection is deemed to have been provided when the owner files with the OSF a bona fide forest protection plan which meets the approval of the State Board of Foresters or if the owner is a member in good standing of a forest protective association. (477.210) This requirement of forest protection plans does not apply to federal grazing land or federal timberland for which adequate protection is provided unless the lands have been included within the boundaries of a forest protection district pursuant to a cooperative agreement. (477.220) The OSF may designate areas of forestland within the state as forest protection districts within which the OSF is required to provide protection. (477.225) District fire wardens are under the direction of the OSF and are in charge of the fire fighting systems in their respective

forest protection districts. (477.360) These local fire wardens have the authority to take proper steps for the prevention and extinguishment of fires and for the control of the use of fire for clearing land in any closed season. (477.365) When fire hazard conditions exist in any district or part thereof, the OSF may designate a closed season for that district. The closed season shall continue for that district until such conditions of fire hazard no longer exist. It is unlawful during a closed season to smoke while working in or traveling through any operation area or to use explosives or fuses in caps for blasting or topping of trees. (477.150) It is unlawful to set or cause to be set any fire on forestland, including flammable forest growth, refuse, slashing, forest debris or any other inflammable material, within the boundaries of a forest protection district or within 1/8 mile of a forest protection district for which a closed season has been designated without first securing a written permit from the OSF or the local forest fire warden and complying with the conditions on said permit. (477.515) The OSF may waive the requirement that the permit be secured prior to burning whenever conditions are such as to justify oral permission. (477.515) In granting permits, the OSF or any warden may prescribe necessary conditions to be observed. (477.515) For the purpose of maintaining air quality, the OSF and the DEQ may approve a plan for the purpose of managing smoke in designated areas. (477.515) A local fire warden or the OSF may refuse, suspend or revoke a permit when necessary to prevent danger to life, health or property. The governor may suspend any and all such permits and prohibit the use of fire upon the advice of the OSF. (477.520) It is unlawful during any closed season to set or cause to be set on fire any forestland, grass, grain, or stubble within the area enclosed by the outside boundaries of a federal grazing district for which a closed season has been designated without first obtaining a written permit from the local forest fire warden appointed for the grazing district. (477.530) If the OSF determines that any forestland is particularly exposed to fire danger, it may by proclamation designate such forestland as an extra fire hazard and may restrict the use of such land, including regulated closure, permit closure, or absolute closure. (477.535) "Permit closures" make the area subject to entry only through permits issued by the OSF or the local warden. "Absolute closures" restrict the area as to all forms of use. (477.545) In a forest protection district, all burning of slashings must be done only after receipt of the necessary open burning permit. (477.575) Before any such burning may take place, the permittee shall first cut down all dead

trees and snags over 25 feet in height for a distance of not less than 250 feet inward from any exterior boundaries of such slashings. (477.575) Following any notice by the landowner of the intent to start an operation, and after slashings have been created by the operation, the OSF shall make a determination if such slashings and debris exist in sufficient quantity and arrangement as to constitute an additional fire hazard and if there be need for additional worker protection to reduce, abate or offset the additional forest fire hazard. (477.580) If such fire hazard exists on the area sufficient to endanger life, property or adjacent lands, the OSF may promulgate rules dealing with the disposal of such slash. (477.580) The fire plans that any owner of forestland must submit must include a legal description of the land involved, a description of the system adopted for discovering and reporting any and all fires originating or spreading on the forestland, and other fire prevention information. (Reg. 629-42-005) The OSF also requires that all dead trees and snags over 15 feet in height and within 200 feet of any timber equipment must be felled before operation. (Reg. 629-43-005) During the closed season, the OSF may issue permits for the burning of grass, grain, stubble or forestland subject to the following conditions: 1) permits issued shall be limited to the period of time needed to accomplish the prescribed burning, and in no event shall be issued for more than 10 days; 2) all areas must be inspected by the OSF prior to the issuance of the permit; and 3) each permit shall contain necessary terms and conditions for such burning. (Reg. 629-43-040) In those forest protection districts designated by the OSF, a permit is required when accumulated debris and refuse are regularly burned in closed burners or incinerators. Such permits may be issued for a period longer than 10 days if the area surrounding the incinerator has been cleared of all inflammable material. (Reg. 629-43-040) A permit to burn must be obtained for all slash burning within a restricted area within the boundaries of a forest protection district at all times of the year. (629-43-041) In order that the burning of annual slashings on forestland shall be done in an acceptable manner with the necessary precautions against threat of fire, the owner or operator of any forestland must, prior to slash burning, develop a written plan outlining manpower, equipment and manner of burning pertinent to the area. (Reg. 629-43-045) All inadequately protected forestland containing inflammable debris likely to cause the further spread of fire is declared to be a nuisance. (Reg. 629-43-055) Notice, issued by the OSF, of additional fire hazards shall be given to the landowner in writing

with instructions for offsetting or abating such hazards. The OSF will issue a release upon successful compliance with the instructions for abating the hazard; this may be accomplished by burning part or all of the slashings to reduce the extra hazard or by making physical improvements to offset the hazard. (Reg. 629-43-080) The OSF and the State Board of Forestry may enact rules and regulations dealing with forest management practices including reforestation, road construction and maintenance, and disposal of slashing on forestland. (527.710) Changes shall not be made in natural fish-bearing stream courses either by crowding or relocation of the channel except upon written approval of the OSF. (Reg. 24-109) The regulations also deal with the disposal of slashing, which is deemed to be a necessary tool for the protection or reproduction of forestlands. (Reg. 24-300) Treatment of slashings include use of mechanical processes, fire, chemical, or other means to minimize competitive vegetation or residue from harvesting operations. (Reg. 24-300) The following methods may be used to dispose of slash: 1) scattering of slash accumulations, 2) piling or windrowing of slash, 3) mechanized chopping, and 4) controlled burning along with provisions for additional protection from fire during periods of increased hazard. (Reg. 24-301) Slashings must be disposed of so as to prevent their entry into streams. If burning is the means selected for slash or competitive vegetation treatment, it must be accomplished in such ways that humus and soil surfaces are adequately protected and that buffer strips are utilized. (Reg. 24-301)

ADDRESS: Department of Forestry
Office of State Forester
2600 State Street
Salem, Oregon 97301
503/378-2511

5. NUISANCE

It is unlawful for any person to dispose of any offensive or noxious substance in any water body or on land. (164.785) Both the State Board of Health and local boards have the authority to abate nuisances which are threats to the public health. (431.140) Counties are given the specific authority to regulate waste disposal on private property if it rises to the level of a public nuisance. (459.120)

6. MISCELLANEOUS

Forest insect pests and tree diseases that are harmful, detrimental and injurious to timber are declared to be public nuisances. (527.320) Every owner must control and destroy forest insect pests or tree diseases. (527.330) The OSF may investigate the presence of any pests or diseases and may have access to privately owned land for this purpose. (527.335) The OSF may designate any area as an infestation control district and make applicable rules and regulations thereon. (527.340) The OSF may eradicate infestation if the owner fails to act, and may recover the cost of eradication from the owner. (527.350, 527.360) Local fire protection and fire prevention districts may require the issuance of permits by the fire chief of the district before trash or other waste materials may be burned. (478.920) No person may burn waste materials or trash in an unguarded manner without a permit. (478.930) No person, within the boundaries of any fire protection district, may permit the open burning of commercial wastes, demolition material, domestic waste, industrial waste, land clearing debris or field burning without first securing a permit from the fire chief of the local district. (478.960)

ADDRESS: Office of State Forester
Department of Forestry
2600 State Street
Salem, Oregon 97301
503/378-2511

PENNSYLVANIA

1. AIR

The Department of Environmental Resources (DER), Bureau of Air Quality Control, is the agency responsible for implementing the state's air pollution program. (35-4004)* Rule-making authority, however, is vested with the Environmental Quality Board (EQB). (35-4005) Any new source of air pollution is required to obtain a permit from the DER. (Reg. 127.21) Any violation of any order of DER is deemed to constitute a public nuisance and may be abatable in the manner provided by law. (35-4013) Local air pollution control authorities at the county, city and town levels are specifically provided for; ordinances that they enact must be no less stringent than the state statutes and regulations. (35-4012) In any designated air basin, which includes much of the industrialized area of the state, no person may cause or permit the open burning of any material. (Reg. 129.14) Outside of air basins, no person may cause or permit open burning in such a manner that 1) the emissions are visible outside the property line; 2) the emissions interfere with the reasonable enjoyment of life or property; or 3) the emissions cause damage to vegetation, are deleterious to human health or are otherwise malodorous. The requirements that the emissions not be visible and not contain malodorous air contaminants may be waived for fires set for the prevention and control of disease or pests as predetermined by the DER. Special requirements apply for the incineration of clearing and grubbing wastes. Clearing and grubbing wastes are defined to include trees, shrubs and other native vegetation cleared from land during the process of construction. They do not include demolition wastes and dirt-laden roots. Clearing and grubbing wastes may be burned in any basin if an air curtain destructor is used during the burning and if the particular use of the air curtain destructor is reviewed and approved by DER prior to the burning. Such review is an authorized alternative to the securing of plan approval or operating permits under Chapter 127 (relating to sources). Approval for the use of an air curtain destructor at one site may be granted for up to 3 months, with additional limited extension periods being subject to DER approval. The burning of clearing and

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* Legal code citations to Pennsylvania statutes.

grubbing wastes is allowed outside of any air basin providing no complaints are received by the DER, or providing that the DER determines that no air pollution problem exists. This authorization does not apply to clearing and grubbing wastes transported from an air basin for disposal outside of an air basin. (Reg. 129.14) The DER may declare air pollution episode conditions, during which time specific burning or incineration activities may be restricted. During an air pollution alert, open burning is prohibited, and incinerator operation is limited to the house between 12 noon and 4 p.m. During a warning or an alert, both open burning and incinerator operation are prohibited. (Reg. 137)

ADDRESS: Department of Environmental Resources
Bureau of Air Quality Control
200 North 3rd Street
P. O. Box 2063
Harrisburg, Pennsylvania 17120
717/787-9702

2. SOLID WASTE

The DER, Division of Solid Waste Management, is the agency responsible for implementing the state's solid waste management program. (35-6003) "Person" is defined to include any legal entity and, thus, would probably include the federal government. (35-6001) The dumping or depositing of any solid waste onto the surface or into the waters of the state without a permit is specifically prohibited. (35-6009) No solid waste may be collected, stored, transported, or disposed of in a manner that would create a public nuisance. (35-6009) It is also illegal to burn solid waste except in a manner approved by the Bureau of Air Quality Control. (35-6009) Any person proposing to use, or continuing to use, his land as a solid waste processing or disposal area is required to obtain a permit. (Reg. 75.31) Applications for permits to operate a solid waste disposal facility must include design plans which provide for suitable prevention of water pollution; local geographic information is also required. (Reg. 75.32) All areas of solid waste management systems must be operated so as to prevent health hazards and environmental pollution. (Reg. 75.42) Necessary measures must be taken to prevent and extinguish fires at disposal sites. (Reg. 75.46) Vector control procedures must be carried out when necessary to prevent health hazards. (Reg. 75.50) Design standards for sanitary landfills are required as well as topographic and geological information. Open burning of solid waste at landfills

is not allowed. (Reg. 75.98) All waste must be spread and compacted in shallow layers and covered with a 6-inch layer of cover material. (Reg. 75.113) The depositing of solid waste is prohibited in areas where there would be contact between solid waste and the groundwater table. (Reg. 75.118) The storage of all solid waste must be practiced so as to prevent unnecessary vectors and rodent infestation. (Reg. 75.151) Solid waste must be so collected and transported as to prevent public health hazards, safety hazards and nuisances. (Reg. 75.161) Hazardous materials must be specially treated. (Reg. 75.165) Any incinerator must receive a construction permit. (Reg. 75.173) Hazardous wastes may not be incinerated without the specific approval of the DER. (Reg. 75.193)

ADDRESS: Department of Environmental Resources
Bureau of Land Protection
Division of Solid Waste Management
P. O. Box 2063
Harrisburg, Pennsylvania 17120
717/787-7381

3. WATER

The DER is the agency responsible for implementing the state's water pollution program. (71-510-5) Rule-making for water pollution is also vested with the EQB. (71-510-21) The discharge into the waters of the state of any substance which causes or contributes to pollution is declared to be a public nuisance. (71-510-5) The DER requires that all dischargers submit their plans, reports and specifications for approval and obtain a permit prior to the discharge. (Reg. 91.21)

ADDRESS: Department of Environmental Resources
Bureau of Water Quality Management
Harrisburg, Pennsylvania 17120
717/787-2666

4. STATE FORESTRY

The DER, Bureau of Forestry, is the agency responsible for implementing the statutes and regulations that deal with forest management. The chief forest fire warden has the responsibility of declaring any particular land which by reason of its condition or operation is a special forest fire hazard. (32-191) After such a declaration, the owner must abate the nuisance at his own expense.

(32-192) Any person causing a forest fire is liable to the state for all expenses incurred in fighting the fire. (32-314) Forest fires are defined to include fires which burn in woods, marshes, brush barrens, brushlands and other uncultivated land. (32-316) The Bureau of Forestry also regulates the transportation and sale of wood and timber to the private sector. This regulation is apparently based on internal administrative rules and without any statutory authorization.

ADDRESS: Department of Environmental Resources
Bureau of Forestry
Box 1467
Harrisburg, Pennsylvania 17120
717/787-2703

5. NUISANCE

On a statewide level, the DER has the power to declare public nuisances. (71-510-17) It may order the nuisances abated and removed and recover any expenses of the abatement. (71-510-17) Counties also have nuisance abatement powers through county health departments. (16-12026) Townships and township sanitary boards also have the authority to inspect for and abate nuisances. (53-66958) It is unlawful for any person to place into any of the waters of the state any substance that may be injurious to the public health. (691.401) Any person guilty of violating this prohibition may be fined a sum of not less than $100 nor more than $500. (691.401)

6. MISCELLANEOUS

A fish warden has the power to arrest any person found to have discarded, deposited or otherwise thrown any garbage, rubbish or other types of debris or trash in an area subject to his jurisdiction. (30-256) The Department of Agriculture is authorized to enforce the plant pest law. (3-214-3) The Department has the duty and right to inspect within reasonable hours any land, premises, building, etc. for the purposes of inspecting plants or plant products. (3-214-4) Plant or plant products include any plant or portion thereof, including trees, shrubs or vines. (3-214-2) Upon finding any insect pests, the Department notifies the owner and may prescribe the necessary treatment. (3-214-8) If the Department finds any land or premise infested or infected with plant pests, it may notify the owner and require that treatment be immediately started to remove

the infection or infestation. (3-214-18) The existence of any insect pest is declared to be a public nuisance. (3-214-19) The Department may also quarantine areas of the state in which infection or infestation has been found. (3-214-20) Any white pines, currants or gooseberries which are found to be infected with white pine blister rust are declared to be a public nuisance and must be destroyed. (3-219) The DER, Bureau of Forestry, may establish control areas for white pine blister rust. (3-220)

RHODE ISLAND

1. AIR

The Department of Health (DOH), Division of Air Pollution Control, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (23-25-5)* The DOH is specifically authorized to prohibit the burning by any person of any material in an open fire on premises operated as a public or semi-public refuse disposal facility. The DOH may also prohibit the burning by any person of any material in an open fire in connection with any salvage, industrial, commercial or institutional operation. (23-25-18) Notwithstanding the DOH authority to regulate open burning, cities and towns are not preempted from enforcing laws, ordinances and rules prohibiting open fires. It is statewide policy that open fire shall be eliminated to the maximum extent possible. All cities and towns are empowered to totally prohibit open fires by ordinance or regulations. (23-25-18) "Persons" are defined by the statute to include departments, bureaus, agencies or any other entities recognized by law. (23-25-3) The regulations require that no person may discharge into the atmosphere for any more than 3 minutes in any one hour a plume which is as dark as or darker than the shade designated number 1 on the Ringelmann Chart. (Reg. 1) The regulations also make it unlawful to burn any material in an open fire at a refuse disposal facility, at any central refuse disposal sites, or in connection with any salvage, industrial, commercial or institutional operations. (Reg. 4) No person may construct, install or modify a facility capable of becoming a source of air pollution without first obtaining approval of the DOH. (Reg. 8) Air pollution episodes may be proclaimed by the DOH. During an alert, open burning of tree waste, refuse, or debris is prohibited, and incinerator use is limited to the hours between 12:00 noon and 4 p.m. During warning or emergency levels, both open burning and incinerator use are prohibited. (Reg. 10)

ADDRESS: Department of Health
Division of Air Pollution Control
75 Davis Street
Providence, Rhode Island 02908
401/277-2808

* Legal code citations to Rhode Island statutes.

2. SOLID WASTE

The DOH, Division of Solid Waste Management, is the agency responsible for implementing the state's solid waste management program. (23-46-8) No person may operate any solid waste management facility until a license has been obtained from the DOH. (23-46-8) The DOH has the full power to make rules or regulations establishing standards to be met for the issuance of any license. (23-46-8) The DOH has the authority to review plans and specifications for any solid waste disposal facility. (23-46-8) DOH regulations require that conditions must be maintained that prevent the harboring, feeding and breeding of vectors. Refuse shall not be deposited in such a manner that the refuse or leachings from it shall cause or contribute to the pollution of any source of surface or groundwater. Open burning of any type at a solid waste management facility is prohibited. The operator must undertake suitable measures to control dust at solid waste facilities. (SWM Reg. II) All top surfaces of the landfill must be covered with 6 inches of material at least as often as the end of each working day. No sanitary landfill may be conducted where the solid waste may be in direct contact with groundwaters. A minimum of 4 feet of soil is required between the highest water table and the lowest level of deposited refuse. Any brush accepted at a landfill must be stored at a minimum distance of 200 feet from the working face or be buried. All brush not buried must be chipped within one week after arrival. Chipped brush may be stored indefinitely. (SWM Reg. III) The operation of incinerators must conform with any applicable air pollution regulations. No unprocessed combustible solid waste may be stored for more than 48 hours at the incineration facility. (SWM Reg. IV)

ADDRESS: Department of Health
Division of Solid Waste Management
75 Davis Street
Providence, Rhode Island 02908
401/277-2808

3. WATER

The DOH, Division of Water Supply and Pollution Control, is the agency responsible for implementing the state's water pollution program. (46-12-3) It is unlawful for any person to cause pollution of the waters or to place or cause to be placed in any stream, river, brook, pond or lake any solid waste

materials or debris of any kind whatsoever. (46-12-4) It is unlawful for any person to discharge into the waters of the state without first receiving a permit. (46-12-4) No person may discharge any substance into a source of domestic water supply or allow drainage from one's land that would pollute any drinking water supply. (46-14-1)

ADDRESS: Department of Health
Division of Water Supply and Pollution Control
75 Davis Street
Providence, Rhode Island 02908
401/277-2234

4. STATE FORESTRY

The Department of Natural Resources (DNR), Division of Forest Environment, is the agency responsible for regulating forest management practices. (42-17-1.1) Local fire chiefs and officers of forest fire districts have the responsibility of enforcing the laws and regulations dealing with the prevention of forest fires. (2-11-2,9) The DNR has the authority to enact rules and regulations to prevent and suppress forest fires. (2-12-5) No person may burn any flammable material, including slash, on or adjacent to forest land without a written permit from the DNR. A permit may be cancelled or suspended if in the opinion of the DNR public necessity so requires. The DNR may condition the granting of a permit as it deems fit. Whoever conducts open burning without a permit is liable to a fine of not more than $100 nor less than $10 and imprisonment for not less than 10 nor more than 30 days. (2-12-6) The above restrictions do not apply if the DNR has, by regulation, exempted attended fires from the permit requirement. (2-12-7) The DNR may declare that hazardous forest fire conditions exist and may enforce any regulations deemed necessary to protect the forest. (2-12-13) No person may cut or saw standing or growing trees or vegetation for commercial forest products unless he is registered with the DNR as a woods operator. (12-15-1) The DNR must be notified at least 5 days prior to such cutting. (2-15-2) The utilization of wood for public picnic facilities must be approved by the DNR. (2-15-7) The cutting or removal of shrubs and trees or the burning of debris in any park or public grounds requires a permit from the DNR or the park commission of the town or city having jurisdiction over the area. (2-15-8)

ADDRESS: Department of Natural Resources
Division of Forest Environment
RFD #2, Box 815
North Schituate, Rhode Island 02857
401/647-3367

5. NUISANCE

The attorney general or any citizen of the state may file an action in the name of the state seeking to abate any nuisance-type conditions. (10-1-1) Cities and towns have general nuisance abatement authority as well. (23-19-1) Any city or town may order the owner of any premise to remove any nuisance at his own expense. (23-19-4) No owner of land may burn any refuse in such a manner as to create a public nuisance. (11-30-13) Any city or town may enact ordinances which seek to abate nuisances. (23-19-7)

6. MISCELLANEOUS

The DNR possesses the authority to control, suppress, exterminate or exclude all plant pests. (2-16-3) It may establish rules to enforce quarantines prohibiting or restricting transportation of injurious insects or any class of plant or plant parts. (2-16-3) It is unlawful for any person to knowingly permit any seriously injurious insect or plant disease to exist on his premises. (2-16-4) The chief entomologist of the state or the director of the DNR may inspect any garden or public ground which is suspected to be infested with any insect pest or plant disease. (2-18-9) If any plant parts being shipped to or from any point in the state are found to be infected with dangerous insects or contagious diseases, the entire shipment may be declared a public nuisance and may be destroyed without compensation or may be returned to the consignor's at the consignor's expense. (2-16-9)

SOUTH CAROLINA

1. AIR

The Department of Health and Environmental Control (DHEC) is the state agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (63-195.7)* The DHEC is the primary authority for preparing a comprehensive program for the abatement, control and prevention of air pollution. (63-195.14) A permit to operate must be issued by DHEC for any facility which discharges an air contaminant into the atmosphere from any source. Local air pollution agencies may coexist with the DHEC. Any regulatory scheme which they promulgate must be at least as stringent as that of the DHEC. (63-195.34) Open burning is generally prohibited by regulation. (Reg. 2.2) Open burning may, however, be conducted in specified situations if no "undesirable levels" of air contaminants are or will be created. Compliance with all regulations on burning, however, does not relieve the person responsible from liability for the consequences of, or the damages or injuries resulting from, said burning nor does it exempt or excuse anyone from complying with other applicable laws, ordinances, regulations or orders. The following types of open burning are exempt from the general prohibition: a) fires purposely set to forestlands for specific forest management purposes in accordance with practices previously approved by the DHEC; b) fires purposely set for agricultural control of diseases and pests in accordance with acceptable practices as determined by the DHEC; c) open burning of trees, brush, grass and other vegetable matter for game management purposes; d) open burning in other than predominantly residential urban areas for the purpose of land clearing or right-of-way maintenance (this exemption applies only if the prevailing wind is away from any nearby city or town, if the ambient air will not be significantly affected by the burning, if the location is at least 1,000 feet from all residential development, and if the burning be commenced only between 9 a.m. and 3 p.m.); e) open burning in remote or specified areas of trade wastes provided that the smoke density does not exceed #2 on the Ringelmann Chart except for a reasonable period to get the fire started, and that the burning is for a non-recurring, unusual circumstance. All open

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* Legal code citations to South Carolina statutes.

burning under this last exception must be done pursuant to a written permit from the DHEC. The DHEC also reserves the right to impose any and all restrictions and conditions upon any allowed open burning. (Reg. 2.2) All existing incinerators must operate in such a manner that the particulates in the flue gas shall not exceed 0.75 pounds per million BTU of heat input. Emissions may not cause smoke which is greater than #2 on the Ringelmann Chart for a period of more than 5 minutes. New incinerators must not discharge particulates in excess of 0.5 pounds per million BTU of heat input or produce smoke denser than #1 on the Ringelmann Chart. Emissions should not contain individual particles which are sufficiently large to be visible as individual particles if they would fall on property other than that owned by the incinerator owner. (Reg. 2.6) During periods when the accumulation of air pollutants in any place becomes excessive, the DHEC may proclaim an air pollution watch, alert, or emergency. During a watch, it is requested that persons voluntarily cease open burning of tree waste, vegetation or other debris, and that incinerator operation be limited to the hours between 12 noon and 4 p.m. During an alert or emergency, no open burning or incinerator operation are allowed. (Reg. 2.3)

ADDRESS: Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201
803/758-5681

2. SOLID WASTE

The DHEC is also the agency responsible for implementing the state's solid waste management program. Any new system for the disposal of refuse or solid waste requires a written permit from the State Board of Health prior to operation. (SBH - SW Reg. 1) All open dumps are prohibited. Sanitary landfills are the preferred method of disposal of solid waste and site location requirements are imposed upon any potential operator thereof. The disposal site must be so situated as to prevent water pollution and to have an adequate quantity of acceptable earth cover. Site design and operational techniques must be approved by the State Board of Health. All refuse must be covered daily with a minimum of 6 inches of cover. (SBH-SW Reg. 1) Cellulosic materials, including chipwood waste, bark, sawdust and wood shavings may be spread, mixed or covered with earth provided adequate provisions are taken to prevent accidental fires

and a permit is obtained from the State Board of Health. Waste disposal techniques must be approved by the DHEC. Applications for waste disposal permits must be accompanied by soil, topographical and hydrological data. (SCPCA-SWG-3)

ADDRESS: Department of Health and Environmental Control
Solid Waste Management Division
2600 Bull Street
Columbia, South Carolina 29201
803/758-5544

3. WATER

The DHEC is also the agency responsible for implementing the statutes and regulations that deal with the problem of water pollution. (63-195.2) The Board of Health and Environmental Control (BHEC) has the authority to enact rules and regulations dealing with water pollution. (63-195.9) It is unlawful for any person (defined to include any governmental agency) to allow, directly or indirectly, the discharge of any waste into the waters of the state except in compliance with a permit issued by the DHEC. Wastes are defined to include refuse, decayed wood, shavings, and bark. Any waste disposal operation must obtain a construction and operating permit from the DHEC. (Pollution Control Acts, Sec. 13) No waters of the state may have as principal purpose the transporting of waste. The waters of the state must be free from any substances attributable to waste that will settle to form sludge deposits or be otherwise unsightly so as to constitute a nuisance, or that will interfere directly or indirectly with other water uses. Floating debris and other floating materials attributable to wastes in sufficient amount to be unsightly or to create a nuisance are also prohibited. (Classification Stds. Sec. III)

ADDRESS: Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201
803/758-5681

4. STATE FORESTRY

The State Commission of Forestry is the agency responsible for preserving and otherwise regulating forest management practices. (29-7) It is unlawful for any owner or lessee of land or any employee to start or cause to be started a fire in any woodlands, brushlands, grasslands, ditch banks or hedge rows or

in any debris, leaves or other flammable material until after he has notified the state forester and the area to be burned has been cleared. (29-65.11) A supervisor must be present at all times during burning. (29-65.11) No burning may be carried out during any period in which the governor has declared that an emergency exists in connection with forest fires. (29-65.14) In addition, the state forester may forbid fires during such emergencies. (29-65.15) Burning of fires within municipal limits is to be regulated by the local or town authorities. (29-65.13) Any person violating the burning notification law is guilty of a misdemeanor and may be fined not more than $100 nor less than $10 and be imprisoned for a period of not less than 10 days nor more than 30 days. (29-65.16) During periods of drought, low humidity, high wind or other conditions, the governor may, upon recommendation of the state forester, forbid by proclamation the use of open fires. (29-41) During such periods it is unlawful for any person to build or ignite a fire of any kind. An exception, however, is made for fires which may be started within corporate limits of any town or city. (29-43) County boards, fire wardens and local officials have the authority to adopt forest fire protection plans. (29-56) However, they may do nothing to limit the right of any owner of forestland to burn on his own land if the fire is not allowed to spread onto or over the land of others. (29-61) The General Assembly may enact fire protection laws that cover either statewide or local problems. (29-30.12) For example, several counties within the state require that a permit be issued for fires to take place on certain lands between the period of October 15 to May 15. (29-30.14) The State Forestry Commission has the authority to take such action and to provide organized means to prevent, control and extinguish forest fires. (48-23-90) In particular, it may regulate pest and accidental fire control at burial sites.

ADDRESS: State Commission of Forestry
P. O. Box 21707
Columbia, South Carolina 29221
803/758-2261

5. NUISANCE

The State Board of Health has the primary responsibility for controlling and regulating nuisances. Local boards are under the general supervision of the state. (32-12) The State Board's activities do not, however, limit

the right of any individual to bring an action to abate a nuisance. (32-10)

6. MISCELLANEOUS

The State Commission of Forestry has the responsibility for detecting and controlling forest pest outbreaks. (29-65.1) The Commission may establish control zones, give notice to all affected forestland owners, and take such actions as are necessary to control said outbreaks. (29-65.2) In addition, the State Crop Pest Commission of South Carolina may enact reasonable rules and regulations designed to prevent the spread or dissemination of any injurious insects and plant diseases. (3-104) Upon discovery of injurious insects or plant diseases the State Entomologist has the responsibility and authority to take such remedial measures as he may deem necessary. (3-107) The burning of timber or wood at Heritage Preserves and Sites within the state is controlled by the Wildlife and Marine Resources Department. No activity is allowed or permitted in these areas which might pollute any stream, body of water, or the atmosphere. (R686, H3038)

ADDRESS: Wildlife and Marine Resources Department
P. O. Box 167
Columbia, South Carolina 29202
803/758-6524

SOUTH DAKOTA

1. AIR

The Department of Environmental Protection is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (34-16a-2)* Permits are required for all new sources of air contaminants. (34-16a-21) The DEP may delegate to local and county agencies its air pollution abatement powers. (34-16a-41) No person may dispose of refuse and/or other combustible material by open burning or cause or permit the conducting of a salvage operation by open burning. (Reg. 4.1) Open burning that is permitted may never be conducted in such a manner as to constitute a public nuisance or be in violation of local laws, ordinances or regulations. The authority to conduct open burning under DEP regulations does not exempt or excuse a person from the consequences, damages or injuries which may result therefrom. Fires may be set for the removal of hazardous or dangerous material where there is no other practical, lawful method of disposal. (Reg. 4.2.3) The burning of trees, brush, grass, wood and other vegetable matter in the clearing of land, right-of-way maintenance and agricultural crop management is allowed if the following conditions are met: a) prevailing winds are away from any urban area, b) the location of the burning is not adjacent to an occupied residence, c) care is taken to minimize the amount of dirt or other material being burned, d) the initial burning is begun only between three hours after sunrise and three hours before sunset or when weather conditions are right for good smoke dispersion, e) the burning is not conducted adjacent to any highway, and f) the burning is not conducted within one mile of any airport. (Reg. 4.2.6) In rural areas where no organized collection system or disposal facility is available the burning of refuse and/or other combustible material generated on the premises may be allowed. No person may cause or permit the emission from any incinerator of particulate matter to exceed 0.20 pounds per 100 pounds of refuse charged. (Reg. 6.1.1)

ADDRESS: Department of Environmental Protection
Air Quality Control Section
Joe Foss Building
Pierre, SD 57501
605/224-3351

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*Legal code citations to South Dakota statutes.

2. SOLID WASTE

The DEP is the agency responsible for implementing the state's solid waste management program. (34-16B-3.1) The DEP has the authority to require a permit for all solid waste disposal sites. (34-16B-8) Counties are also responsible for developing solid waste management plans. (34-16B-7) "Person" is specifically defined in the statute to include federal governmental agencies. (34-16B-2) The owner or occupant of any premises or business establishment must be responsible for the sanitary storage of all solid waste. (Reg. 34-S.202) All solid waste must be stored in an environmentally acceptable manner. (Reg. 34-S.203) Objects too large or otherwise unsuitable for storage containers must be stored in a nuisance-free manner consistent with the directions of the local governmental unit involved. (Reg. 34-S.205) Hazardous or toxic wastes shall not be placed in any container unless the DEP has approved a method of storage, transport, processing or disposal. (Reg. 34-S.206) The collection and transportation of all solid wastes must be by a vehicle that is readily cleanable and designed to prevent spillage. (Reg. 34-S. 207) The transportation of all solid waste must be by means of vehicles which will not permit blowing refuse or leakage. (Reg. 34-S.208) All disposal of solid waste must be by a method that provides rodent, insect and nuisance control. (Reg. 34-S.301) All sanitary landfills must be graded and provided with facilities to drain off surface water and minimize runoff onto the fill. (Reg. 34-S.302) DEP approval is required prior to the acceptance of any hazardous or toxic waste at a landfill. (Reg. 34-S.306) All incinerator sites must be provided with all-weather access roads. (Reg. 34-S.307) All incinerators used for solid waste must be designed and operated so as to prevent excessive smoke and odor. Operation must be in compliance with the state air pollution rules. (Reg. 34-S.308) DEP approval must be secured for any other method of disposal of refuse. (Reg. 34-S. 309) No sanitary landfill may be located within 1,000 feet of any lake or pond, within 300 feet of any river, within any floodplain, within an area from which solids or leachates might be carried to surface water, within an area from which leachates might have a detrimental effect on groundwater, within 1,000 feet of the nearest edge of any state highway or boundary of a public park, on a site which is not screened by natural objects so as to be invisible from a highway or public park, or on a site where portions of the fill would be less than 6 feet above the historically high groundwater table. An application for a permit to operate a sanitary landfill must be accompanied by: (1) a map or aerial

photograph showing land use and zoning within 1/4 mile of the site, (2) a plan of the site showing dimensions, fencing, trenching, and cover stock piles, (3) a report indicating the type of waste, the source of cover material, data on groundwater contamination, and provisions concerning leachate, and (4) topographic maps which include all pertinent information applicable to the operation of the landfill. (Reg. 34-S.403) No person may construct or operate any kind of solid waste disposal system until a valid permit has been obtained from DEP. (Reg. 34-S.401)

ADDRESS: Department of Environmental Protection
Solid Waste Program
Joe Foss Building
Pierre, SD 57501
605/224-3351

3. WATER

The DEP, Division of Water Quality, is the agency responsible for implementing the state's water pollution program. (46-25-25) It is unlawful for any person to cause pollution of the waters of the state or to cause any wastes to be placed in a location where they are likely to cause pollution. (46-25-39) "Person" is defined to include state or local governmental agencies, but not the federal government. (46-25-24) It is unlawful for any person to discharge wastes into any waters of the state if such wastes would reduce the quality of such waters below the level existing on March 27, 1973. (46-25-40) It is unlawful for any person to discharge any wastes without seeking a permit from the DEP. (46-25-45)

ADDRESS: Department of Environmental Protection
Division of Water Quality
Joe Foss Building
Pierre, SD 57501
605/224-3351

4. STATE FORESTRY

The Game, Fish and Parks Commission may appoint a State Forester whose primary responsibilities lie in the area of fire prevention and protection. (38-25-1,2) The State Forester may take any action necessary to prevent, suppress, or extinguish forest fires on state or privately owned land. (38-25-3)

ADDRESS: Department of Game, Fish and Parks
Sirgud Anderson Building
Pierre, SD 57501
605/224-3481

5. NUISANCE

The State Public Health Advisory Committee has authority to control public nuisances. (34-1-17) This power is shared with municipalities. (9-29-13) Cities may abate nuisances up to 1 mile outside the city limits. (9-29-1) Nuisances are broadly defined by statute. (21-10-1)

6. MISCELLANEOUS

It is unlawful to set or cause to be set on fire any woods, marsh, prairie, grassland or stubble land at any time of the year without first having such place or area completely encompassed by a fire guard of not less than 50 feet in width. Any person setting such a fire must give due consideration to prevailing weather conditions. (34-35-10) Any person who unlawfully sets fire to any woods without providing a proper fire guard is liable for any damages he may cause and is guilty of a misdemeanor with a fine of not less than $25 nor more than $100 and imprisonment for not less than 5 nor more than 30 days. (34-35-11) A Black Hills Forest Protection District has been created to protect the timber within its boundaries due to unusual fire dangers contained therein. (34-35-15) The starting of any open fire or the permitting of any fire to burn in his presence by a person or group of persons is prohibited in the Black Hills Forest Protection District unless a permit is first obtained from the State Forester or from the United States Forest Service supervisor. An open fire is defined to mean any fire to burn slash, brush, grass, stubble, debris or other inflammable material. (34-35-16) Either the United States Forest Service supervisor or the State Forester may condition the issuance of any permit for an open fire within this district. (34-35-17) The Department of Agriculture is empowered to authorize quarantines and embargos on the transportation of any plant or plant product in order to prevent the spread of any insect pest. (38-24A-6) Movement of plants into and out of quarantine areas is prohibited without permission of the Department. (38-24A-10) Any board of county commissioners may declare a forest insect or disease to be a public nuisance. (38-26-3) The State Forester may enter upon any privately-owned land for the purpose of identifying any forest insects or diseases that have been declared to be public nuisances. Upon finding such nuisance the State Forester must notify the landowner and advise him of acceptable methods of controlling the infestation. (38-26-4) It is unlawful for any person to knowingly permit any dangerous insect or plant disease to exist in or

on his premises. It is unlawful to sell or to offer for sale any stock infested or infected with such insects or plant diseases. (38-24-2) The Department of Agriculture has the authority to prohibit the removal, shipment or transportation of any plant material, including trees, from any public or private property which in its judgment contains dangerously infested or infected nursery stock or plants. (38-24-30) If the Department finds, upon examination, that any park or any public or private premises is infested or infected he must notify the owner of such findings. (38-24-31) The Department of Agriculture may prohibit the sale of any nursery stock for the purpose of inspection or reinspection when it is deemed necessary. (38-24-32)

TENNESSEE

1. AIR

The Department of Public Health (DPH), Division of Air Pollution Control, is the agency responsible for implementing the statutes and regulations dealing with air pollution. (53-3412)* The Air Pollution Control Board is responsible for the enactment of rules or regulations. (53-3411) Local pollution control programs may be operated concurrently with the state program provided that the local regulations are no less stringent than those adopted by the state. (53-3422) No person may allow or permit open burning except as specifically provided for by regulation. (Rule 1200-3-4-.02) If burning is done under an exemption, the person responsible is legally liable for any damages, injuries or claims resulting from such burning. Specific exemptions are made for fires used to clear land or materials grown on that land for agricultural, forest or game management purposes, provided that no land, air or water hazard is created. Other open burning is allowed only when authorized by a specific permit which may be conditioned to meet any special condition. A one-time occurrence of open burning of trees, limbs, brush and other items of comparable combustion characteristics is allowable if; 1) the site of the burning is not nearer than 1/2 mile to an airport, school, nursing home and/or hospital; 2) the site of such burning is not nearer than 1,000 feet to a designated primary or secondary highway, national reservation, national or state park, national or state forest, schools and/or residence not on the same property (if three or fewer residents are located within 1,000 feet of the proposed burning site, a permit may still be approved if the occupants give written consent); 3) the site of such burning is not closer than 500 feet to a registered sanitary landfill or other land disposal site; and 4) burning is conducted within time periods set by the DPH. As a general rule, burning will not be permitted except between the hours of 9 a.m. and 3:30 p.m. For repetitive burning at the same site, open burning of trees, limbs, brush or other items of comparable combustion characteristics is allowed by permit provided that: 1) the site of such burning is not nearer than 1 mile to an airport, hospital, school or highway; 2) the site of such burning is not nearer than 1/2 mile

*Legal code citations to Tennessee statutes.

to any national reservation, national park, state park, national or state forest, and/or residences; 3) the site is no closer than 500 feet to any registered sanitary landfill or other land disposal site; and 4) the burning is conducted normally between the hours of 9 a.m. and 3:30 p.m. or within such time periods as the DPH may designate. Open burning of the materials specified above is not allowed if the conditions listed have not been met, unless an air curtain destructor or equivalent disposal method is to be used. If an air curtain destructor is used the following conditions must be met: 1) where the burning is a one-time occurrence, the site must not be nearer than 100 feet to a national park or forest or designated primary or secondary highway; within 500 feet of any airport, school, registered sanitary landfill or other land disposal site; or within 1,000 feet of a nursing home or hospital; 2) where there is to be repetitive burning in the same site, the distances increase to 500 feet from any sanitary landfill or highway; 1,000 feet from any school, national or state park or national or state forest; and 1/2 mile from any nursing home or hospital. The smoke from the air curtain destructor must not violate the visible emissions standards, except for a start-up period, of a density greater than #2 on the Ringelmann Chart. Air curtain destructors may be operated only as determined by the DPH. Normally such burning must occur between the hours of 7 a.m. and 3:30 p.m. Open burning may be approved by the DPH if there is no other practical, safe or lawful method of disposal. (Rule 1200-3-4-.03) The DPH may specify any condition necessary to comply with the intent of the chapter in granting a permit for open burning. To this end, one condition that may be specified includes that the material to be burned be given sufficient time to dry out. No permit may be issued for a site within 500 feet of the boundary of any registered sanitary landfill for the burning of material grown on that site. Where there are extremely large quantities to be burned or other conditions indicate that a nuisance is likely to be created, special conditions may be made a part of the permit. The DPH may not grant any application for an open burning permit that would interfere with the attainment or maintenance of any air quality standard. The obtaining of an open burning permit does not relieve any person from the responsibility of also obtaining a permit required by any other agency. (Rule 1200-3-4-.04)

ADDRESS: Department of Public Health
Division of Air Pollution Control
256 Capitol Hill Building
301 7th Avenue, North
Nashville, TN 37219
615/741-3931

2. SOLID WASTE

The DPH, Division of Solid Waste Management, is the agency responsible for implementing the state's solid waste management program. (53-4303) It is unlawful to place solid waste into the waters of the state except in a manner that may be approved by the DPH or the Stream Pollution Control Board. (53-4304) It is unlawful to burn solid wastes except after receipt of a DPH permit. It is also unlawful to construct or operate any kind of solid waste processing or disposal facility or site in violation of any DPH rules or regulations or in such a manner as to create a public nuisance. (53-4304) The DPH has the authority to exercise general supervision over all solid waste disposal facilities. (53-4305) It may enact rules and regulations including a permit system. (53-4307) In practice the DPH has no specific regulations dealing with clearing and cleaning debris but individual situations will be evaluated on a case-by-case basis and permits, site location and disposal methods may be regulated.

ADDRESS: Department of Public Health
Division of Solid Waste Management
301 7th Avenue, North
Room 320
Nashville, TN 37219
615/741-3424

3. WATER

The Department of Public Health, Division of Water Quality, is the agency responsible for implementing the state's water pollution program. (70-329) A Water Quality Control Board (WQCB) has primary responsibility for rule making. (70-328) It is unlawful, without a permit, to discharge any pollutants into water that will alter the physical, chemical, biological or bacteriological properties of the water. (70-330) Wastes which may result in pollution are defined to include decayed wood, silt, sawdust, shavings, and bark. (70-326)

ADDRESS: Department of Public Health
Water Quality Division
621 Cordell Hull Building
Nashville, TN 37219
615/741-2275

4. STATE FORESTRY

The Department of Conservation, Forestry Division (FD), is primarily responsible for regulating forest management practices. (11-401) The State Forester has the general responsibility for conservation and protection of the forests, including protection against the danger of forest fires. (11-403) The FD is given the authority to go upon any land within the state for the purpose of investigating, preventing and controlling forest, woods, brush or grass fires of any nature. (11-434)

ADDRESS: Department of Conservation
Forestry Division
2611 West End Avenue
Nashville, TN 37203
615/741-3326

5. NUISANCE

Nuisances are broadly defined by statute. (39-2903) Nuisances may be abated by any court. (39-2902) Enforcement responsibility is given to local health officers. (39-2210) County and city health departments are responsible for abating public nuisances within their jurisdictions. (53-301)

6. MISCELLANEOUS

The Director of Entomology, within the Department of Agriculture, has the authority to inspect any plant, plant products or other articles that may be capable of disseminating or carrying insects or plant diseases. (43-520) The Director may supervise or require the treatment, cutting, or destruction of plants; treat or supervise treatment of land or soil; require the elimination of specific crops; or prohibit planting in certain areas as he may deem necessary to prevent the dissemination of insect pests and/or plant diseases. (43-520) The Director may also quarantine any area where there is an infestation or infection so as to prohibit its spread, and may intercept, inspect, treat, or destroy plant products or materials carrying insect pests or plant diseases while being transported in the state. (43-520) No person shall set fire to any woods, whether or not they are his own property, without giving at least two days notice to persons owning the adjacent lands and making effective preparation to extinguish such fire before it extends beyond his own land. Any

person violating this provision is guilty of a misdemeanor. (53-2445) Any person, defined to include governmental agencies, who desires to impound water must seek a permit from the DPH. (53-802) The Wildlife Resources Commission has the authority to approve the leaving of standing timber in reservoirs created by the impounding of waters. (53-810)

ADDRESSES: Department of Agriculture
Ellington Agricultural Center
Hogan Road
P. O. Box 40627
Nashville, TN 37204
615/741-1531

Wildlife Resources Agency
Ellington Agricultural Center
Hogan Road
P. O. Box 40747
Nashville, TN 37204
615/741-1431

TEXAS

1. AIR

The Texas Air Control Board (TACB) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (4477-5(3.01))* No person may permit the emission of any air contaminant or the performance of any activity which causes or contributes to air pollution. (4477-5(4.01)) "Person" is defined by statute to include any government or governmental subdivision or agency. (4477-5(1.03)) Any person who plans to construct any new facility or engage in the modification of any existing facility which emits air contaminants must obtain a construction permit before any work is done. (4477-5(3.27)) After a construction permit has been issued and the facility completed, the person operating such facility must submit an application for an operating permit. (4477-5(3.28)) No person may permit or cause any outdoor burning within the state of Texas except as provided by the TACB rules. (Reg. 131.03.01.001) Outdoor burning is authorized under the following conditions: a) pursuant to a written grant of authority from the TACB who must determine that there is no practical alternative to outdoor burning and that the burning will not cause or contribute to a violation of a national ambient air quality standard, b) outdoor burning in rural areas of trees, brush, grass and other dry vegetable matter at the site where it occurs and where no practical alternative to burning exists for right-of-way maintenance, land clearing operations and for those forest and range management purposes not covered by other rules. Burning of forestland under this section must be preceded by notification of the Texas Forest Service and must occur outside the corporate limits of a city or town. Burning may be commenced only when the wind direction is such as to carry pollutants away from nearby residential, industrial, commercial or recreational areas, navigable waters or public roads. The burning must be at least 300 feet or 90 meters from any residential, recreational, commercial or industrial area except when necessary to eliminate a naturally occurring fire hazard. The initiation of burning for crop and range management purposes must commence after 9 a.m. and be completed by 5 p.m. Burning should

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* Legal code citation to Texas statutes

not be commenced when the surface wind speed is predicted to be less than 6 miles per hour or greater than 23 miles per hour during the burning period. Burning under a TACB permit does not exempt or relieve the responsible person from the consequences, damages or injuries resulting from said burning. It does not exempt the permittee from complying with all other applicable laws, ordinances, regulations or orders of governmental entities having a jurisdiction. (Reg. 131.03.002-.004) No person may permit or cause the burning of garbage or rubbish in a single-chamber commercial incinerator unless approved by the TACB. No person may cause or permit visible emissions from any stationary flue to exceed an opacity of 30% averaged over a 5-minute period. (Reg. I, Rule 102)

ADDRESS: Texas Air Control Board
8520 Shoal Creek Blvd.
Austin, Texas 78758
512/451-5711

2. SOLID WASTE

The Department of Health Resources (DHR), Division of Solid Waste Management, is the agency responsible for implementing the state's solid waste management program. (4477-7) The DHR has the authority to require the issuance of permits to govern and authorize the operation and maintenance of sites used for the storage, processing or disposal of solid waste. (4477-5) Upon receiving an application for a solid waste permit, the DHR must send copies of the application to the TACB; to the mayor and health authorities of the city or town within whose territorial limits the solid waste storage, processing or disposal site is located; and to the county judge and health authorities of the county in which the site is located. (4477-5) Counties also have the authority to issue permits for the operation and maintenance of sites for the processing or disposal of solid wastes. (4477-5) Any vehicle or container which is defective and allows leakage or spilling of contents is deemed to be a public nuisance if used in the transportation of garbage or other organic matter. (4477-1) The depositing, storing or exposing of any organic wastes in such a way as to be a potential public health hazard is also a nuisance. (4477-1) All solid wastes must be stored in such a manner as not to constitute a fire or health hazard or provide food or harborage for animals and vectors. All vehicles and equipment used for

the collection and transportation of municipal solid wastes must be constructed, operated and maintained to prevent loss of liquid or solid waste material. Municipal solid waste is defined to include anything other than industrial solid waste. (4477-7) No solid waste facility may be operated without a permit issued by the DHR or a license issued by a county which has been empowered by the DHR to issue such licenses. Permitting procedures are described in the DHR publication Municipal Solid Waste Management Regulations (MSWM Regs.). Extensive information is required for all site location decisions; this includes soil sampling analyses, type of waste proposed to be disposed of, distance from nearest residences, public roads, airports, etc. (MSWM Reg. Sect. E) Landfills must be operated so as to minimize potential groundwater pollution through percolation of leachate. Solid wastes should not be deposited where a hazard could result to a drinking water supply well, an intake of a water treatment plant or any other system which furnishes water for human consumption. Surface drainage on a land disposal site must be controlled to minimize runoff within and from the working area. Sufficient soil data must be collected by borings that meet minimum requirements as to depth and number over the particular area. Prior to the depositing of any solid waste in a disposal area or excavation the site operator must notify the DHR that the area has been checked and lined as necessary to assure that the sides and bottom are sufficiently impermeable. The ground and surface water near the disposal site must be protected. Hazardous waste may not be accepted for disposal at any facility without prior written approval of the DHR. Solid waste must be spread and compacted evenly and all solid waste deposited each day must be covered by a minimum of 6 inches of well-compacted earthen material. (MSWM Reg. Sect. E) Brush and construction-demolition wastes may be disposed of in a Type IV sanitary landfill. (MSWM Reg. Sect. D) A Type IV operation requires compaction as frequently as necessary to minimize voids and covering with a minimum of 6 inches of earthen material as frequently as necessary to minimize windblown waste materials and to eliminate harborage of insects, rodents, and snakes. A final cover of at least 2 feet of earthen material is required. Burning at a Type IV site is subject to the jurisdiction of the TACB. (MSWM Reg. Sect. F-3)

ADDRESS: Department of Health Resources
Division of Solid Waste Management
1100 West 49th Street
Austin, Texas 78756
512/458-7271

3. WATER

The Texas Department of Water Resources (DWR), Texas Water Quality Board (TWQB), is the agency that is responsible for implementing the statutes and regulations that deal with water pollution. (Water Code 21.061) Reservoir debris may fall under the definition of either recreational wastes (which include waterborne solid substances that emanate from any public or private recreational area) or of other wastes, which include decayed wood, sawdust, shavings or bark. (Water Code 21.003) The TWQB has the authority to require permits for the discharge of any waste into or adjacent to waters in the state. (Water Code 21.079) The TWQB may issue waste control orders which will authorize the disposal of a statutorily defined waste into or adjacent to the water in the state. (Rule 300.2) There is a general prohibition against the discharging, depositing or disposal of waste unless the disposal is authorized by and conducted in compliance with a waste control order. (Rule 300.5) There are numerous exceptions to this permitting requirement; however, none of them would seem to deal with reservoir clearing or cleaning debris. There is a general water quality criterion that surface waters must be maintained so as to be essentially free of floating debris.

ADDRESS: Department of Water Resources
Texas Water Quality Board
P. O. Box 13246
1700 North Congress Avenue
Austin, Texas 78711
512/475-2651

4. STATE FORESTRY

The Texas Forest Service is an agency of the Texas A&M University system. (Education Code 88.001) The State Forester may take any action deemed necessary by the Board of Regents to prevent unextinguished forest fires. (Educ. Code 88.102) Under that authority, the State Forester has sought to regulate pest and fire control at burial sites but has basically deferred most regulatory authority to the TAQB and the TWQB.

ADDRESS: Texas Forest Service
Texas A&M University
College Station, Texas 77843
713/845-2641

5. NUISANCE

The DHR has general statewide authority in all matters pertaining to the health of the citizenry. (4419) Both cities and counties also have authority to appoint local boards of health to deal with nuisance problems. (4435) The state may set minimum standards of sanitation and health protection. (4477-1) The dumping of any refuse into a water body is made unlawful by statute. (6674v-2)

6. MISCELLANEOUS

The Commissioner of Agriculture is authorized to quarantine areas within the state when he determines that a dangerous insect, pest or plant disease is found therein. (135a-1) The Commissioner may take such action as he deems necessary to prevent the spread of such dangerous insects, pests or plant diseases. (135a-1) The Commissioner is also responsible for regulating the traffic, shipping and selling of trees, plants, cuttings, etc. (119) The Commissioner may determine that any items or premises inspected are diseased or infected and he may abate such public nuisances as may, in his judgement, be necessary to safeguard public health. (121) The Texas Parks and Wildlife Department regulates the disposal or removal of sand, gravel, marl and shell from state-owned waters; however, it does not require the Corps to obtain a permit to conduct any public work related to navigation.

ADDRESS: Department of Agriculture
Stephen F. Austin State Office Bldg.
1700 North Congress Avenue
P. O. Box 12847, Capitol Station
Austin, Texas 78711
512/475-6346

UTAH

1. Air

The Division of Health (DOH), Air Conservation Committee (ACC), is the agency primarily responsible for implementing the statutes and regulations that deal with the problem of air pollution. (26-24-3, 26-24-3.1)* The ACC's primary responsibility is to adopt rules and regulations dealing with air pollution and to issue such orders as are necessary to effectuate the goals of the program. (26-24-5) A person is defined to include any legal entity that has rights or duties, which would probably include the federal government. (26-24-2) Any emission of air contaminants in sufficient quantities to cause air pollution is prohibited. (Reg. 1.2) Any person planning to construct a new installation which might reasonably be expected to become a source of air pollution, or to modify existing installations must notify the DOH of his intent to construct. (Reg. 1.6) No open burning may be accomplished at sites used for the disposal of community trash, garbage or other waste except as authorized through a variance. (Reg. 2.1.1) There is a general prohibition against the burning of trash, garbage or other wastes or the conducting of a salvage operation by open burning except as authorized specifically by other provisions of the regulation. (Reg. 2.1.2) Allowable burning without a permit is limited primarily to domestic burning and would not include any type of burning of forest debris. Certain types of open burning are also permitted if they would not cause nuisances, if individual permits are issued by the local authority and coordinated with the DOH, or if specifically exempted by the ACC following a written application for an exception. These include open burning of tree cuttings and slash in forest areas where cuttings accrue from pulping, lumbering and similar operations but excluding wastes from sawmill operations; open burning of trees or brush within railroad and other rights-of-way provided that the dirt is removed; open burning in remote areas of highly explosive or otherwise hazardous materials for which no other known practical method exists; and open burning for special purposes or unusual circumstances when approved by the DOH following a formal request. (Reg. 2.1.4) No emission source may create a shade or density in its plume darker than #2 on the Ringelmann Chart. Single source emissions from any incinerator must be no darker than #1 on the Ringelmann

*Legal code citations to Utah statutes.

Chart. (Reg. 2.2.2) Local authorities normally handle requests for burnings not specifically covered by the regulations on a case-by-case basis with permits usually being required.

ADDRESS: Division of Health
Bureau of Air Quality
44 Medical Drive
Salt Lake City, UT 84113
801/533-6108

2. SOLID WASTE

There are no statutes that specifically cover the solid waste management problem. However, the DOH and the State Board of Health regulate the disposal of solid wastes through their general authority to prevent water pollution. (72-14-1) Regulations have been enacted which make it unlawful for any person to deposit any solid wastes except at a site which has been designated by a city, county, special district or other properly designated agency and approved by the DOH. This requirement does not include the deposition of inert construction debris provided such deposition does not cause a public nuisance. No solid waste disposal site may be constructed or operated without the approval of the DOH. There must be submitted to DOH plans and specifications dealing with the site including such matters as availability, source, and characteristics of cover material; soil and water studies, etc. At each disposal site, 6 inches of earth must be placed on each operating day's waste collection. Special provisions must be made for dealing with hazardous or special wastes. Processes, methods and equipments other than those specifically addressed in the regulations require the case-by-case approval of the DOH prior to installation. (Code of Solid Waste Disposal Regs.)

ADDRESS: Division of Health
Bureau of Solid Waste Management
44 Medical Drive
Salt Lake City, UT 84113
801/328-6163

3. WATER

The DOH is the agency primarily responsible for implementing the state's water pollution program. There is also a Committee on Water Pollution (CWP) which serves primarily as an advisory board. (73-14-3) It is unlawful for any person to cause pollution of any waters of the state or to cause any wastes to be placed

in locations where they will cause pollution. (73-14-5) It is unlawful for any person to construct, install or modify any establishment which would increase or cause a discharge of waste into the waters without receiving a permit from the DOH. (73-14-5) The general water quality standards promulgated by the DOH require that all waters be free from floating debris or other floating materials attributable to controllable sources of pollution. All waters must also be free from organisms pathogenic to human beings, and from substances otherwise toxic or deleterious when these are attributable to controllable sources.

ADDRESS: Division of Health
Bureau of Water Quality
44 Medical Drive
Salt Lake City, UT 84113
801/533-6146

4. STATE FORESTRY

The Division of State Lands, Board of Forestry and Fire Control, is responsible for implementing the laws and regulations dealing with forest management practices. (24-2-1, 2) The Board delegates to counties the authority and duty to abate uncontrolled fires on privately-owned or county-owned forest, range and watershed lands. In order to aid the counties, a wildland fire protection system has been created. (24-2-7) The Board's primary responsibility, however, is to protect state-owned land from forest fires. (24-2-1) Throughout the state of Utah the period between June 1 and October 1 in every year is closed fire season. In years of unusual fire danger the State Forester may advance or extend the closed season by changing the inclusive dates. During the closed season it is a misdemeanor to set a fire or cause any fire on any forest, brush, range, grass, grain, stubble or hay land without first securing a permit from the State Forester or his designated deputy. The State Forester may prescribe any conditions he deems necessary to protect the state's forestlands. District fire wardens may issue burning permits, but it is the Board of State Lands that must determine the conditions for the issuance of the burning permits. The burning permit in no way relieves any individual from personal liability due to neglect or incompetence. The State Forester has the right to immediately refuse, revoke, postpone or cancel permits. (24-2-12) The State Forester, when he deems an area to be extremely fire prone, may require the closure of such lands so as to prohibit any type of open fire for such a period of time as he may deem necessary and proper. (24-2-13) Any

person who willfully or negligently sets on fire any trees, shrubs, brush or grass, undergrowth or other property on any land other than his own is guilty of a misdemeanor. (24-2-14)

ADDRESS: Board of Forestry and Fire Control
1596 West North Temple
Salt Lake City, UT 84116
801/533-5439

5. NUISANCE

It is unlawful for any person to throw, deposit, discard or permit to be deposited or discarded on any public recreational area or any other public or private land any boards, trash or garbage which would mar or impair the scenic aspect or beauty of such land in the State of Utah. (41-6-114) Enforcement of this provision is delegated to state fish and game conservation officers, local police officers and county sheriffs. (41-6-114) In addition, nuisances are broadly defined by statute. (78-38-1) The abatement of nuisances is entrusted primarily to local boards of health. (26-5-5) The State Board of Health and the DOH are also involved in abating public nuisances. (26-15-4) Garbage, refuse or other organic waste matter may not be allowed to remain in any street, public place, or watercourse. (26-6-2) Any person who willfully or negligently exposes to fire any growing trees, shrubs, brush or grass on any land not his own is guilty of a misdemeanor. (76-24-1) Public nuisances include anything which unlawfully interferes with or tends to obstruct any lake, stream, channel, canal or basin. (76-43-3)

6. MISCELLANEOUS

The Commissioner of Agriculture is vested with the authority to enforce a quarantine against any county, state or nation or against any infested tract of land on which any trees, shrubs or other plants are liable to spread insects, pests, fungi or diseases injurious to crops or plants. (4-3-1) The Commissioner may disinfect or destroy such trees in a manner he deems proper and necessary. (4-3-2) Any infected premise is declared to be a nuisance and must be abated at the cost of the landowner. (4-3-6) Counties may establish fire protection districts which have authority to deal with forest fires. (17-9-1 et seq.) The Division of Wildlife Resources enforces the prohibition against the pollution of waters deemed necessary by the Wildlife Board for the purposes of protecting

certain aquatic wildlife, stoneflies, mayflies, waterbugs and other crustaceans. (23-15-6) If clearing or cleaning debris were to pollute such waters the Division of Wildlife Resources would be required to abate such a nuisance.

ADDRESS: Division of Wildlife Resources
1596 West North Temple
Salt Lake City, UT 84116
801/533-9333

VERMONT

1. AIR

The Agency of Environmental Conservation (AEC), Air and Solid Waste Program, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (10-354)* The AEC has the authority to establish such emission control requirements through its rule-making powers as, in its judgment, are necessary to prevent, abate or control air pollution. (10-358) Local air pollution control programs established by municipalities are allowed if they provide rules and regulations at least as stringent as those provided by the AEC. (10-364) The legislative branch of any municipality may authorize the burning of natural wood and chemically untreated wood at any designated place within the city limits. The burning must take place under the direction of the fire warden for the municipality and at such time as he determines. (10-364) The burning of natural and chemically untreated wood for fuel is permitted except where a violation of a federal air pollution standard could result. (10-364) There is a general prohibition against open burning, defined to include the burning of any type of combustible material in the open where the products of combustion are emitted directly into the atmosphere. (Reg. 5-201) The burning in forestland areas of brush, tree cuttings and slash where the cuttings accrue from pulping lumber and clearing of initial right-of-way is specifically allowed. Other types of allowable open burning include on-premise burning for the purpose of weed abatement, disease, forest fire and pest prevention; on-premise burning of leaves, bush, tree cuttings and deadwood accrued from normal property maintenance; open burning in remote areas if prior approval is obtained from the local air pollution control officer; and the burning of brush, tree trunks, and the like, and burning of natural wood in an area designated by the legislative body of a municipality. (Reg. 5-202) Open burning incidental to the development and testing of open-pit incinerators is also allowed provided that the plant and location have been approved by the local air pollution control officer. A permission granted by the AEC for open burning does not relieve the permittee from any legal responsibility attributable to his burning. (Reg. 5-204) The definition of "person" would appear to include federal agencies. (Reg. 5-101) No person may emit visible air contaminants that, for a period of 6 minutes in any hour, have a shade or density greater than #2 on the Ringelmann Chart. (Reg. 5-211)

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*Legal code citations to Vermont statutes.

No person may permit air contaminants from any incinerator to exceed the rate of 0.1 pounds of particulate matter for 100 pounds of refuse burned. All new incinerators must be multiple-chamber incinerators unless exception is granted by the AEC. After January 1, 1974, no incinerator with a capacity of less than 500 pounds per hour of refuse burnt may be installed. (Reg. 5-231) In the event that the AEC finds that a generalized condition of air pollution exists, persons contributing to the pollution may be ordered to reduce or discontinue commission of air contaminants. A hearing must be held within 24 hours in order to affirm, modify or set aside the order. (10-360)

ADDRESS: Agency of Environmental Conservation
Air and Solid Waste Program
P. O. Box 489
Montpelier, VT 05602
802/828-3395

2. SOLID WASTE

The AEC, Air and Solid Waste Program, is the agency responsible for implementing the statutes and regulations dealing with solid wastes. (24-2201a) Each town and city has the primary responsibility for operating and maintaining sanitary landfills, incinerators or both as the exclusive agent for disposing of garbage or refuse. (24-2201a) Any person who throws, dumps, deposits, or causes to be thrown any garbage, refuse of other noxious thing on or within 300 feet of the land of another or within the waters of the state is guilty of a misdemeanor and may be fined no more than $500. Refuse from logging and sawmill operations and from farming operations is exempt from the demand that it be disposed of no closer than 300 feet from the property line and within the public view of a highway. (24-2201) Any person or municipality intending to establish or operate a refuse disposal area must obtain approval from the AEC. (Reg. 5-1102) Plans and specifications together with topographical data must be submitted to the AEC for approval. The AEC requires that a compacted layer of at least 4 inches of suitable cover be placed on all exposed refuse at the end of the working day. Sanitary landfills may not be operated in a place where water pollution is likely to occur as a result of the operation. Soils used as cover material must be of such a character that they can be compacted to provide a tight seal. Any other material used as cover must have prior approval of the AEC. (5-1102)

ADDRESS: Agency of Environmental Conservation
Air and Solid Waste Program
P. O. Box 489
Montpelier, VT 05602
802/828-3395

3. WATER

The AEC, Department of Water Resources, is the agency responsible for implementing the statutes and regulations dealing with water pollution. (51-2802) No person may discharge any waste, substance or material into the waters of the state without first obtaining a permit from the AEC. (47-1259) A person who does not qualify for a discharge permit may be entitled to a temporary pollution permit; in such case he must show that the proposed discharge would not qualify for a discharge permit and that there is no present alternative means of disposing of the waste other than by discharge. (47-1265) It is unlawful for any person to deposit edgings, slabs, sawdust, shavings or other sawmill refuse in the waters of any stream, pond, reservoir or lake. (47-1301) No settleable solids may be discharged into the waters of the state. No solid waste refuse of any kind is allowed in the waters in the state except that which is naturally caused.

ADDRESS: Agency of Environmental Conservation
Department of Water Resources
State Office Building
120 State Street
Montpelier, VT 05602
802/828-3361

4. STATE FORESTRY

The Department of Forests and Parks is the agency responsible for implementing the statutes and regulations that deal with forest management practices. (10-2001) The State Forester appoints local forest fire wardens whose primary duties involve the control and extinguishing of forest fires. (10-2193) Fires kindled for the purpose of burning brush or other lawful purposes must be lit at such times and under such conditions as to not cause forest fires. The burning of brush, grass, weeds or rubbish is prohibited without prior approval of a local fire warden unless the ground is snow covered. (10-2206) Such permission is not required if the burning takes place more than 200 feet from any woodland, timberland or field. (10-2206) The State Forester may waive the permit requirements in any town or portion of any town. Fires built in special containers need not

obtain approval from local fire wardens. (10-2206) The Governor may, during periods of extreme fire hazard, require the State Forester to disallow any brush burning permits. (10-2208) No one may build a fire in the woodlands of another without permission between April 1 and November 1. (10-2209) The Governor may also proclaim an excessive drought period and prohibit the kindling of any fire in or adjacent to woodlands during such period. (10-2212)

ADDRESS: Division of Forests
Agency of Environmental Conservation
Barmar Building
No. 5 Court Street
Montpelier, VT 05602
802/828-3375

5. NUISANCE

Public nuisances may be abated by any town or municipality. (24-2121) All land which may be flooded by damming, taking, storing, diverting, raising the level or increasing the area of any waters shall, prior to such flooding, be cleared of all trees and bushes. These must be removed or burned and shall be further cleared to the low-water mark of such stream by cutting all trees, bushes and stumps close to the ground. (25-146)

6. MISCELLANEOUS

Any person who cuts or permits to be cut any forest growth must remove all slash within a distance of 50 feet from the right-of-way of any public highway and within 50 feet of the boundary lines of woodlots owned by adjoining property owners. All slash must also be removed at least 100 feet from standing buildings on adjoining property. (20-2751) Owners or operators of timber or woodlots must leave main logging roads through cutover areas free from slash. If, in the opinion of the town forest fire warden, no fire hazard would result from a cutting, he will issue a statement relieving the operator from meeting the above-mentioned requirements. (20-2751) In addition, any person who cuts, saws, fells, removes, bulldozes or causes to be cut any timber, brush or wood in any way which creates slash must comply with the requirement that it be moved to at least 50 feet from a real estate boundary. (20-2751) The Department of Agriculture has the authority to inspect nurseries for the purpose of granting permits for transportation of nursery stock that is deemed to be insect- and disease-free. (10-2152)

VIRGINIA

1. AIR

The State Air Pollution Control Board (SAPCB) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (10-17.18)* SAPCB may create local air pollution control districts to implement and enforce the statutory and regulatory program. (10-17.19) There is a general prohibition against open burning except as provided for by the regulations. (Reg. 4.10) Even persons meeting the requirements of the regulations must comply with any other applicable law, ordinance or regulation of any other governmental entities. (Reg. 4.10) There are two sets of rules that allow open burning, one for the Washington, D.C., metropolitan area and the other for the rest of the state. In the Washington metropolitan area (Air Quality Control Region 7) open burning is allowed only after notification of both state and local air pollution authorities and for the following purposes: (1) prevention of a fire hazard, and (2) protection of the public health. A specific exemption is made for fires not in the course of forest management and agricultural operations provided no nuisance is created. (Reg. 4.12) In the remainder of the state (Air Quality Control Regions 1-6) open burning is allowable to protect the public health with the permission of the SAPCB. Open burning is permitted for disposal of land clearing debris resulting from development or modification of roads and other designated areas provided the person: (a) informs the SAPCB prior to the proposed burning, (b) performs the burning at least 1,000 feet from any occupied building, and (c) attends the fire. (Reg. 4.11(g)) In addition to these specific exemptions, SAPCB has provided two general exemptions for the open burning regulation: namely, open burning which does not emit smoke at a greater than 20% opacity reading or if the SAPCB or local agency has in advance approved the device or method used in the burning. (Reg. 4.13) Under this regulation, SAPCB has approved the use of air curtain destructors. SAPCB has also promulgated a fugitive dust regulation. (Reg. 4.41) No person may permit any materials to be handled, transported or stored without taking reasonable precautions to

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* Legal code citations to Virginia statutes

prevent particulate matter from becoming airborne. The SAPCB has the authority to grant variances in case of severe hardship. (10-17.18)

ADDRESS: State Air Pollution Control Board
Room 1106
Ninth Street Office Building
Richmond, Virginia 23219
804/786-2378

2. SOLID WASTE

The Department of Health (DOH), Bureau of Solid Waste and Vector Control, is the state agency responsible for implementing the state's solid waste management program. (32-9.1) Solid waste is defined to include garbage, refuse or other discarded solid materials. All persons operating systems of solid waste disposal must receive a valid permit from the Health Commissioner. DOH may inspect the operation of any solid waste disposal system. The open dumping of solid waste has been illegal since July 1, 1973. The disposal of solid waste in state waters is specifically forbidden. Disposal of solid waste by sanitary landfills is permitted if the operations meet the requirements of DOH. If disposal by incineration is used, SAPCB and State Water Control Board rules must also be met. On all landfills a 50-foot firebreak must be maintained around the working area.

ADDRESS: Department of Health
Bureau of Solid Waste and Vector Control
401-A Colley Avenue
Norfolk, Virginia 23507
804/627-4511

3. WATER

The State Water Control Board (SWCB) is the state agency responsible for implementing the state's water pollution program. (62.1-44.5) Wastes are defined to include decayed wood, sawdust and shavings. (62.1-44.3) Any owner who handles, stores, distributes, or produces wastes of these types may be requested by the SWCB to install facilities or adopt measures approved by the SWCB to prevent the escape, flow, or discharge of these wastes into state waters. (62.1-44.16) No wastes are allowed to be discharged into state waters without a permit. (62.1-44.5, 62.1-44.15) The SWCB has executed a memorandum

of understanding with DOH which allows the disposal in quarries or other areas of large tree trunks and large tree parts incidental to the clearing of some land.

ADDRESS: State Water Control Board
2111 Hamilton Street
P. O. Box 11143
Richmond, Virginia 23230
804/786-1411

4. STATE FORESTRY

Within the Department of Conservation and Economic Development there is a Division of Forestry (DOF). (10-8.1) The DOF is headed by a State Forester. Between March 1 and May 15 it is illegal for any person to set fire to any wood, brush, logs, leaves, grass or other inflammable material within 300 feet of any woodland or brushland except between 4:00 p.m. and 12:00 midnight. (10-62) During the rest of the year, reasonable precautions must be taken before wood or brush may be burned. (10-62) The penalty for violating these provisions is a fine of at least $10 and not more than $100. (10-62) There is, in addition, liability for the cost of extinguishing escaped fires. (10-61) A fine of $100 may be imposed for failing to extinguish any fire built in the open. (10-63) The State Forester may also order the destruction of insect-infested and diseased trees. (10-90.2) It is unlawful to set a fire on lands on which the Governor has declared that an extraordinary fire hazard exists. (27-54.1) The State Forester's authority in open burning regulations is in addition to that of the SAPCB.

ADDRESS: Department of Conservation & Economic Development
Department of Forestry
Box 3758
Charlottesville, Virginia 22903
804/977-6555

5. NUISANCE

The governing body of any county, city or town may adopt its own fire prevention code. (27-5.1) The careless or negligent setting of woods on fire is a Class 4 misdemeanor and a person guilty of it is liable for the full amount of all expenses incurred in fighting the fire. (18.2-88) Grand juries may investigate and sue to abate public nuisances upon the receipt of a complaint from

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five or more citizens. (48-1) Cities and counties have the primary responsibility for abating nuisances. (15.1-517, 15.1-867) Sanitary districts, as well, may abate nuisances. (21-18.4)

6. MISCELLANEOUS

The Commissioner of Agriculture and Immigration within the state Department of Agriculture and Commerce is authorized to carry out a program to eradicate, suppress, and prevent the dissemination of plant pests. (3.1-140) Plant pests are defined to include any living stage of insects, protozoa, bacteria, fungi, viruses, or any infectious substances which can directly or indirectly injure or damage other plants. (3.1-135) Materials infested or infected with such plant pests may not be transported within the state or brought into the state. (3.1-146)

ADDRESS: Department of Agriculture and Commerce
203 N. Governor Street
Richmond, Virginia 23219
804/786-3501

WASHINGTON

1. AIR

The Department of Ecology (DOE), Air Resource Division, is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (43.21A.060)* Concurrent authority over air pollution control is also exercised by nine local air pollution control agencies. (70.94.053) The DOE has enacted regulations that deal with the problem of open burning. Each of the nine local agencies may have its own regulatory scheme for open burning provided that it is as stringent as the DOE regulations. (WAC 18-12-020) The DOE regulations do not apply to the burning of field and turf grasses grown for seed, or to open burning subject to the permit-issuing authority of the Department of Natural Resources (DNR). (WAC 18-12-020) No open burning is allowed if an air pollution episode has been declared. (WAC 18-12-035) If a fire protection agency decides that fires must be set to protect the public health, the DOE regulations need not be followed. (WAC 18-12-055) Burning at an approved solid waste disposal site is allowed if DOE has approved the solid waste management plan for the site. (WAC 18-12-055) No commercial open burning may be conducted before receipt of a DOE permit. (WAC 18-12-075) Permits will not be issued where: 1) a no-burn area has been designated, 2) the matter to be burned contains prohibited materials, 3) an air pollution episode has been declared, 4) an approved practical alternative method of disposal is available, 5) the burning is not reasonably necessary to carry out the applicant's purpose, 6) the burning violates any regulation of a local fire protection agency, or 7) the burning would create a nuisance. The DOE may place conditions on open burning permits so as to minimize air pollution, insofar as is practical. (WAC 18-12-075) The DOE has the authority to prohibit burning in areas where the ambient air quality standards for suspended particulates are presently being exceeded. (WAC 18-12-095) The designation of an area as a no-burn area shall be preceded by a rule-making procedure, including a public hearing. (WAC 18-12-95) It is DOE policy to provide alternative methods to open burning as a means of disposal. (WAC 18-12-110) The DOE does not exercise authority

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* Legal code citations to Washington statutes.

regarding the issuing and regulation of burning permits for open fires in areas protected by DNR. (WAC 18-12-120) If the fire is for the purpose of abating a forest fire hazard, preventing a fire hazard, instructing public officials in methods of forest fire fighting, or any silvicultural operation to improve the forest lands, the DNR has primary permit-issuing responsibility, although the provisions of the smoke management plan of the DOE must be satisfied. (WAC 18-12-120)

ADDRESS: Department of Ecology
Air Resource Division
Olympia, Washington 98504
206/753-2800

2. SOLID WASTE

The DOE is also the state agency responsible for implementing the state's solid waste management program. (70.95.030) DOE's function, however, is merely to set up minimum guidelines, while the primary implementation is done by health departments of cities, counties, or other jurisdictions. (70.95.160) Each of these local boards of health has the responsibility of enacting regulations dealing with solid waste storage and disposal facilities in such a manner that the public health is protected. (70.95.160) The DOE approves all local comprehensive solid waste plans; these must include a permitting requirement for solid waste disposal sites or facilities. (70.95.170) It is unlawful to dump or deposit solid waste without a permit after a local board of health has enacted regulations. (70.95.240) There is an exception for the dumping or deposition of solid waste resulting from a person's activities on his own land when such action does not violate statutes or ordinances, or create a nuisance. (70.95.240) The DOE has enacted regulations relating to functional standards for solid waste handling which establish the minimum standards that the local health agency must require. Local agencies have the authority to enact more stringent regulations dealing with solid waste management if they desire. All hazardous wastes must be properly labeled and stored so as to be inaccessible to the public. (WAC 173-301-123) Problem waste and other waste unsuitable for storage containers must be stored in a nuisance-free manner. (WAC 173-301-125) A person collecting or transporting solid waste shall be responsible for the prevention of littering or the creating of other nuisances during any stage of

the transportation process. (WAC 173-301-141) Vehicles used in the collection and transportation of waste must be tightly covered, durable and easily cleanable. They must be cleaned frequently enough to prevent nuisances and insect breeding. (WAC 173-301-142) Vehicles used in the collection and transportation of solid waste must be so loaded and moved that the contents will not fall, leak or spill. If spillage does occur, the waste must be picked up immediately. (WAC 173-301-143) At all waste disposal sites adequate pollution control measures must be provided to protect surface water, groundwater and air from degradation. (WAC 173-301-153) Adequate on-site fire protection must be provided as determined by the local fire control jurisdiction. (WAC 173-301-156) Solid waste disposal sites may not be established or altered until the site location and proposed method of operation have been approved by permit from the health department having jurisdiction. (WAC 173-301-180) The disposal site or facility must be so located as to prevent the creation of a nuisance and it shall comply with all state and local requirements including, if applicable, zoning, land use, fire prevention, water pollution prevention, air pollution prevention, and aesthetic regulations. (WAC 173-301-180) Arrangements must be made with the local fire protection agency to acquire its services when needed. (WAC 173-301-188) Plans for a sanitary landfill must include provisions for interception and treatment of leachate. (WAC 173-301-300) All incinerators must be designed and operated in conformance with the current edition of the Oregon-Washington Incinerator Committee standard. (WAC 173-301-550)

ADDRESS: Department of Ecology
Solid Waste Management Division
Olympia, Washington 98504
206/753-2849

3. WATER

The DOE, Water Quality Management Section, is responsible for implementing the statutes and regulations that deal with the problem of water pollution. (43.21.A.060) It is unlawful for any person to allow a discharge into any of the waters of the state or to permit to be thrown, run, drained, seeped or otherwise discharged into any such waters, organic or inorganic matter that shall cause or tend to cause pollution. (90.48.080) The placement or depositing of any unclean or unwholesome substance sufficiently near the source of a

drinking water supply so that it might cause pollution thereof is declared to be a nuisance and may involve criminal penalties. (35.88.030, 35.88.040) Any person who deposits in any waters used for domestic drinking supply purposes anything that could pollute the water is guilty of a gross misdemeanor. (70.54.010)

ADDRESS: Department of Ecology
Water Quality Management Division
Olympia, Washington 98504
206/753-2800

4. STATE FORESTRY

The DNR is the state agency responsible for implementing the forest protection laws. (76.04.010) The DNR provides fire protection for approximately 12 million acres of state and private land. It is a misdemeanor to violate any order, rule, regulation or statute based on the forest practices act. (76.04.120) The director of the DNR may designate any region as one of extra fire hazard. (76.04.140) He is also authorized to promulgate rules and regulations for the protection of these fire-hazardous regions. (76.04.140) No one may burn any inflammable material during the period from March 15 through October 15 within any county in western Washington or between April 15 and October 15 in eastern Washington unless the local supervisor of forestry has set different dates. (76.04.150) The DNR may refuse, revoke or postpone the use of any permits to burn when such act is clearly necessary for the safety of adjacent property. (76.04.150) Anyone desiring to dispose of refuse or waste forest material on or from forest lands must make application to DNR for a permit to do so. The application must state the location and extent of the area to be burned over and the person responsible for the burning. DNR is authorized to impose reasonable conditions on such permits for the protection of life, property and air quality and may suspend or revoke such permits when conditions warrant. (76.04.170) No one may burn any forest material, waste or debris resulting from logging or land clearing operations until such work shall have been done in and around the area proposed to be burned as to prevent the spread of fire therefrom. (76.04.180) Permission to burn must be received from the local forest supervisor, warden or ranger. (76.04.180) The governor, with the advice of a forester, may suspend all permits in a period of extreme or

unusual fire danger. (76.04.200) Every person who willfully or negligently sets or fails to carefully guard any fire is guilty of a misdemeanor. (76.04.220) No person shall dump mill waste from forest products or forest debris of any kind in quantities that the DNR declares to constitute a forest fire hazard. (76.04.242) Forest debris is defined to include forest slashing, chopping or any other vegetative residue resulting from activities on forest land. (76.04.010) DNR may allow the dumping of such forest debris after a written permit, which specifies terms and conditions, has been issued. Said permit must be in addition to any and all other permits required by law. If a person dumps mill waste or forest debris without a required permit he shall be guilty of a gross misdemeanor. (76.04.242) Operation of any steam, internal combustion or electric engines or any other spark-emitting equipment on forest land or elsewhere where, in the opinion of the DNR, fire could be communicated to forest land is unlawful during the closed season. No person shall burn any forest material or the waste or debris resulting from logging or land clearing operations until the site prepared for the burning has been cleared. (76.04.180) Anyone desiring to dispose of the refuse or waste forest material on or from forest lands during the period March 15 to October 15 in western Washington and April 15 to October 15 in eastern Washington must receive a permit. (76.04.170) Everyone clearing right-of-way for any use must pile and burn on such right-of-way or dispose of by some other satisfactory procedure all refuse, timber, brush or debris cut thereon as rapidly as possible. (76.04.310) Every landowner has the responsibility of clearing his land from forest hazard conditions. (76.04.370) Any person who shall negligently suffer fire originating on his own property to spread to the property of another shall be deemed guilty of a misdemeanor. (76.40.395) Washington has adopted a forest practices act under which a forest practice board may enact regulations which govern forest practices. (76.09.030) Forest practice is defined to mean any activity pertaining to forest land and relating to the growing, harvesting or processing of timber, including such considerations as salvage of trees and brush control. Forest practices may include methods of regulating disposal through the sale of the debris, and through the control of cutting, splitting and shipping operations. The forest practices board may issue permits and perform site inspections regarding forest practices that fall under the statutory definition. No county, city, municipality or other governmental entity may enforce any law, ordinance or regulation

pertaining to forest practices except for land use planning or zoning authority and public health regulations. (76.09.240) Forest land owners shall permit reasonable access by appropriate agencies for removal from streambeds of log and debris jams accumulated from upstream ownership. Any material removed from streambeds must also be removed in compliance with all applicable laws administered by other agencies. (76.09.280) Wood debris is defined to include wood that is adrift on navigable waters or that has been adrift and stranded on beaches, marshes, or shorelands and which is not merchantable or economically salvageable. (76.42.020) The DNR may contract, license, or permit licensed log patrolmen, other private contractors, DNR employees or other public bodies to remove wood debris. This will not prohibit any individuals from using any non-merchantable wood debris for their own personal use. (76.42.030)

ADDRESS: Department of Natural Resources
Division of Fire Control
Olympia, Washington 98504
206/753-5350

5. NUISANCE

Nuisances are broadly defined by statute. (7.48.010) Public nuisances are defined to include the depositing of noisome substances in a place where they injure another and the depositing of offensive matter in any watercourse. (7.58.140) Every person who maintains a nuisance is guilty of a misdemeanor. (9.66.030) First-class cities may provide for the abatement of nuisances. (35.22.280) The obstruction, so as to interfere with the enjoyment of life or property, of any channel of any stream used for boating or rafting logs, lumber or timber is a nuisance. (7.48.010) Any individual who has been injured by it may bring an action to abate a nuisance. (7.48.020) The interference with or obstruction of any lake, navigable river, bay, stream, canal, basin or public park is declared to be a public nuisance. (9.66.010) Local health authorities also have nuisance abating powers.

6. MISCELLANEOUS

No person may cause to be started or continue an open fire on any clear or cultivated land within a fire protection district without a written permit therefor. (52.28.010) A fire district may issue a burning permit for a fire on any forest or cut over land. The permit must specify the time limit of the

fire and the nature of the materials to be burned. (52.28.030) The permitee must comply with all terms and conditions of the permit and must thoroughly extinguish the fire when the authorized burning is completed. (52.28.040) If any person or governmental agency desires to construct any hydraulic project that diverts, obstructs or changes the natural flow of any river or stream or utilizes any waters of the state, that agency must submit to the Department of Game full plans and specifications of the proposed construction. (75.20.100) The director of game and director of fisheries may control the use of clearing debris for construction of fish and wildlife habitat. (75.20.100) They may also control the flushing of debris downstream and may require the issuance of permits where surface waters are involved. (75.20.100) The State Parks and Recreation Commission does not deal with the problem of reservoir clearing and cleaning debris.

ADDRESS: Department of Game
600 North Capitol Way
Olympia, Washington 98504
206/753-5715

WEST VIRGINIA

1. AIR

The Air Pollution Control Commission (APCC) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (16-20-4)* As defined by the statute the term "person" would not include an agency or subdivision of the federal government. (16-20-2) There is a general prohibition against the causing of statutory air pollution, defined to include the discharge of contaminants into the air so as to be injurious to human health or welfare. (16-20-3) No person may construct or modify any stationary source of air pollution without first obtaining a permit from the APCC. (16-20-11b) The APCC has promulgated a regulation designed to control the combustion of refuse. (Reg. VI) Compliance with the APCC regulations does not excuse any person from complying with any other applicable laws, ordinances or regulations. All persons engaged in any form of combustion of refuse must give careful consideration to the effects of the resultant emissions. The APCC recommends, but does not require, that all municipalities prohibit open burning. Refuse is defined to include all unwanted or discarded solid waste materials resulting from community, commercial, industrial or citizen activities. Construction and demolition wastes are defined to include combustible waste building materials and rubble resulting from construction, repair or demolition of houses, buildings, pavements and other structures. The open burning of refuse for the purpose of volume reduction is prohibited except for the open burning of construction or demolition wastes if: 1) there is no practical alternative method available, 2) the health, safety, comfort and property of persons are protected from the effects, and 3) in non-rural areas such burning is done after receiving permission from the APCC. Burning of slash and debris has been allowed under the exception for burning vegetation grown on the premises of a home or farm. The exception as written, however, would not seem to cover reservoir debris. The APCC may prohibit all forms of open burning during existing or predicted periods of atmospheric stagnation. No person may permit particulate matter to be discharged from an incinerator into the open air in

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* Legal code citation to West Virginia statutes.

excess of the following formula: emissions (pounds/hour) = F x incinerator capacity (tons/hour) where the factor, F, is indicated to be 8.25 for incinerators with capacities of 200 pounds/hour or less, 5.43 for incinerators with capacities from 200 to 15,000 pounds/hour, and 2.72 for incinerators with capacities of 15,000 pounds/hour or more. No person is allowed to permit the emission of smoke with opacity greater than Ringelmann Smoke Chart #1 into the atmosphere from any incinerator. All operators of existing and new incinerators must register with the APCC. (Reg. VI) Air pollution episode levels (alert, warning, and emergency) have been established by the Commission. During these periods of adverse meteorological conditions when excessive air pollutants may accumulate, no open burning of tree waste or vegetation is allowed. During an alert, the use of incinerators for waste disposal is limited to the hours between 12 noon and 4 p.m. During a warning or emergency, the use of incinerators for waste disposal is prohibited. Any person responsible for the operation of a stationary source of air pollutants may be required to prepare standby plans for reducing emissions during periods of air pollution episodes. (Reg. XI)

ADDRESS: Air Pollution Control Commission
1558 Washington Street, East
Charleston, West Virginia 25311
304/348-3286

2. SOLID WASTE

The Department of Health (DOH) has primary responsibility for implementing the laws and regulations that deal with solid waste management problems. (16-1-9) No public institution may install or establish any method of solid waste disposal without first obtaining a written permit from the DOH. All systems or methods installed must be in accordance with plans and specifications which have been approved prior to installation. (16-1-9) The disposal of solid waste in a manner not previously approved by the DOH constitutes prima facie evidence of the existence of a condition that endangers public health. (16-1-9) All solid waste must be disposed of by landfill or by incinerators constructed in accordance with applicable regulations of both the DOH and the APCC. Permits may be issued for the operation of solid waste disposal facilities only after a determination that an acceptable site has been chosen. Sites in which hazardous wastes are to be disposed of must be individually approved by the DOH. For other

disposal facilities, sites must be chosen that are botn geologically and hydrologically acceptable for the receipt of the wastes. Surface and groundwater resources must be protected. All wastes must be covered by at least 6 inches of compacted earth on a daily basis. The DOH allows composting of wastes provided that surface and groundwater supplies are protected. (Solid Waste Disposal Reg. Sect. 1-6) An incinerator is defined to be a multi-chambered furnace designed for burning solid waste in the temperature range of 1600°F to 2000°F with stack emissions not exceeding APCC limits. Plans and specifications for an incinerator must be prepared by a registered engineer and approved by the APCC. (Solid Waste Disposal Reg. Sect. 7)

ADDRESS: Department of Health
Solid Waste Management Program
1800 Washington Street, East
Charleston, West Virginia 25305
304/348-2987

3. WATER

The Department of Natural Resources (DNR), Division of Water Resources, is the agency responsible for implementing the state's water pollution program. (20-5A-3) "Person" is defined by statute to include any governmental agency. (20-5A-2) Sawdust, shavings, bark and other wood debris and residues are included under the definition of "other wastes." (20-5A-2) It is unlawful for any person to allow wastes to flow into any waters of the state without a permit. (20-5A-5) The knowing or willful depositing of an offensive or poisonous substance into any water used for domestic purposes is a crime and the penalty is a fine of not less than $25 nor more than $200. Any person who throws any offensive or poisonous substance into any stream or onto the surface of any land is such a location that drainage conditions would cause such offensive material to be washed into the stream is guilty of a misdemeanor and may be fined no less than $100 nor more than $1,000. Upon conviction the person must, within 24 hours, remove the offensive material and bury it to a depth of at least 3 feet under the ground or otherwise destroy it. (16-9-3) No waste shall enter any of the waters of the state which would cause or materially contribute to any of the following conditions: distinctly visible floating or settleable solids; objectionable deposits in sludge banks on the bottom; concentrations of materials poisonous

to man, animal or aquatic life; or objectionable bacterial concentrations. (Reg. 20-5-3.C1)

ADDRESS: Department of Natural Resources
Division of Water Resources
Charleston, West Virginia 25305
304/348-2107

4. STATE FORESTRY

The DNR, Division of Forestry, is the state agency primarily responsible for regulating forest management practices. (20-3-1) The periods between March 1 and May 31, inclusive, and October 1 and December 31, inclusive, are designated as forest fire seasons. No person shall set on fire any grass, grain, slash, debris or other inflammable materials on any forestland except between the hours of 5 p.m. and 5 a.m. The prohibition of fires between 5 a.m. and 5 p.m. does not include small fires set for food preparation or for providing light or warmth. The director of the DNR may issue permits authorizing fires otherwise prohibited by statute. (20-3-5) These permits may be granted under such conditions and for such periods of time as the DNR deems necessary to prevent danger from fire. All permit holders must take necessary and adequate precautions to confine and control any fire. (20-3-5) The DNR may designate an area as one in which greater control is needed to prevent danger from fire and may forbid all burning in such area. (20-3-5) Any person who willfully causes to set on fire any forestlands, slash or other inflammable substances upon the property of another is guilty of a felony, and may upon conviction be imprisoned for a period of not less than 1 year and not more than 5 years. (20-3-7) Any person using any land for the purpose of inflammable waste disposal must remove annually all grass, brush, debris, and other inflammable material adjacent to such disposal areas to prevent the escape of fire to adjacent lands. Escape of fire from any such area is evidence that compliance has not been met; this may constitute a misdemeanor. (20-3-10) The DNR is also responsible for protecting the forest against destructive insects and plant diseases. (20-3-19) The DNR is authorized to establish control zones and to institute adequate control measures to regulate infection by disease or infestation by insects. (20-3-19) At the present time open burning permits are required by both the APCC and the DNR. Legislation has been proposed that would

eliminate the present conflicts between the DNR and the APCC regarding the regulation and control of open burning. There is also a State Fire Commission which has the authority to promulgate regulations dealing with fire hazards. (29-[illegible] The State Fire Marshall may enforce all laws dealing with the storage, sale [illegible] use of any combustible article in solid form. (29-3-12) The primary thrust of the regulatory authority, however, appears to be to the urban situation.

ADDRESS: Department of Natural Resources
Division of Forestry
Capitol Building
Charleston, West Virginia 23505
304/348-2788

5. NUISANCE

The Department of Health, and through it local boards of health, has general authority to abate all nuisances. (16-2A-1, 16-1-3) All municipalities also have the authority to prevent the depositing of offensive material in any manner so as to cause potential injury to the public health. (8-12-5)

6. MISCELLANEOUS

No person shall fell any timber and permit the same to remain in any navigable or floatable stream when to do so shall obstruct the passage of rafts, staves, ties or timber of any kind. (61-3-47) Any person who violates this provision is guilty of a misdemeanor and may upon conviction be fined not more than $1,000. (61-3-47) The Department of Agriculture has authority to control infected or infested nursery stock, defined to include all trees. (19-12-7) No person may sell, expose, offer for sale, move, transport or deliver any plant pest or other insects without first obtaining a permit from the Department of Agriculture. (19-12-4) The Department is authorized to seize and destroy any infected or infested nursery stock, article, or material wherever it may be found. This includes material transported or moved within the state or being transported into the state. (19-12-7) The Wildlife Resources Division of the DNR does not have any responsibility regarding the disposal of clearing and cleaning debris. It leaves the regulation of such disposal techniques to the Division of Forestry.

WISCONSIN

1. AIR

The Department of Natural Resources (DNR) is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (144.31)* In addition, there is an advisory air pollution control council. (144.37) County-wide air pollution control programs may be established with DNR approval if they contain requirements that are compatible with, or more extensive than, those imposed by the DNR. (144.41) As defined by the regulations, a person would not include a federal governmental agency or bureau. (NR 154.01) No person shall cause, allow or permit emissions into the ambient air in excess of the amounts set forth in the regulations. (NR 154.09) Open burning is prohibited with the following exceptions: a) burning of brush or weeds on agricultural lands, b) backfires to control forest fires or fires set for forest or wildlife habitat management subject to prior approval of the DNR where no reasonable alternative is available, c) burning of small amounts of dry, combustible rubbish except where prohibited by local ordinance, d) burning at rural or isolated solid waste disposal sites that serve less than 2500 people if these be outside of the Southeast Wisconsin Intrastate Air Quality Control Region (AQCR), e) burning of trees, limbs, stumps, brush or weeds for clearing or maintenance of rights-of-way outside of the Southeast Wisconsin Intrastate AQCR, f) burning of trees, wood, brush or demolition material by such methods as are approved by the Department, and g) burning of small amounts of dry leaves and dry plant clippings except where prohibited by local ordinance. All allowed open burning must be conducted in a safe, pollution-free manner when wind and weather conditions are such as to minimize adverse effects. Open burning must also conform to local and state fire protection regulations. (NR 154.10) No person may permit particulate matter to enter the ambient air if such release contributes substantially to the exceeding of an ambient air quality standard. (NR 154.11) No person may permit particulate matter (concentrations corrected to 12% carbon dioxide) to be admitted into the ambient air from any incinerator in excess of the following limitations: incinerators rated at 4,000 pounds of

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* Legal code citation to Wisconsin statutes.

waste per hour or more, 0.15 pounds of particulate matter per 1,000 pounds of exhaust gas; incinerators rated at over 500 pounds but less than 4,000 pounds of waste per hour, 0.20 pounds of particulate per 1,000 pounds of exhaust gas; and incinerators rated at 500 pounds of waste per hour or less, 0.30 particulate per 1,000 pounds of exhaust gas. (NR 154.11) No person may cause or permit emission into the ambient air where the resulting shade or density would be greater than #1 on the Ringelmann Chart or 20% opacity. (NR 151.11) Air pollution emergency episodes may be declared by the Secretary of the DNR. During these episodes, there shall be no open burning by any persons of tree waste, vegetation, refuse, or debris in any form. The use of incinerators for the disposal of solid waste may be prohibited or limited to specific periods during the day. (NR 154.20)

ADDRESS: Department of Natural Resources
Air Quality Control Section
Box 7921
Madison, Wisconsin 53707
608/266-1199

2. SOLID WASTE

The DNR is also the agency responsible for implementing the state's solid waste management program. (144.43) The Department has the responsibility of preparing and adopting minimum standards for the location, design, construction, operation and maintenance of solid waste disposal sites. (144.43) Subsequent to the adoption of these minimum standards, no person is allowed to establish, maintain, conduct or operate a solid waste disposal site or facility without applying for a license and meeting such minimum standards. (144.44) Solid waste disposal sites are prohibited within areas under the jurisdiction of shoreland and floodplain zoning regulations except insofar as the DNR may issue permits authorizing sites and facilities in such areas. (144.46) All solid wastes must be stored, collected, transported, utilized, and disposed of in a manner consistent with the DNR regulations. All solid waste must be so stored as to be nuisance-free. (NR 151.04) Any person may apply for an exemption from any of the requirements of the regulations if such factors as population, amounts of waste generated, seasonal characteristics of disposal operation and nature of the waste would warrant such exemption. (NR 151.06) No collection or transportation services for solid waste may be operated until they have been licensed

by the DNR. (NR 151.08) Licensing for solid waste disposal operations involving incinerators having a capacity of 1,000 pounds per hour or less is waived except if such incinerators are used for the degradation of toxic or hazardous wastes. (NR 151.11) No person may dispose of solid waste at any land disposal site which is not licensed by the DNR. (NR 151.12) Several exceptions are made for this licensing requirement; these include the one-time disposal of industrial, agricultural or demolition solid waste. Although licensing is not required for such operation, written approval by the DNR is required. In any event, all land disposal must be maintained in a nuisance-free and aesthetic manner. Solid waste land disposal operations may not take place within 1,000 feet of any navigable lake or pond, within 300 feet of any navigable river, within any area for which the DNR finds that leaching pollution to groundwater or surface water will have a detrimental effect, within 1,000 feet of the nearest right-of-way for any state highway and within wetland areas. Extensive site tests must be made before approval will be given. Open burning at land disposal facilities is prohibited except for facilities which serve population equivalents of less than 2,500. In addition, the open burning must be licensed by the DNR. The open burning must be supervised by an attendant. It must be accomplished in a nuisance-free manner and must not create a hazard for adjacent properties. The open burning must not be in violation of any federal or state air pollution control rules. Solid waste must be compacted and covered with at least 6 inches of soil at the end of each operating day. Less frequent covering is required in the smaller operations. Surface water drainage must be diverted away from the landfill operation. No solid waste composting operation may be operated until it receives a license from the DNR. (NR 151.13) Detailed soil-sample analyses and engineering reports must be made prior to the granting of a license for a composting operation. No air curtain destructor system may be used to dispose of solid waste without receiving a permit from the DNR. (151.14) An air curtain destructor is defined to be an incineration device which utilizes a pit for burning combustible matter, into which air is blown at high velocity through a manifold and nozzle system along one side of the pit to create a turbulent, vortical flow of air-combustible gases in the pit to bring about complete combustion. (NR 154.01) The DNR must approve the plan and specifications for both the burning pit and the blower unit appurtenances. Only clean wood wastes and

similar combustible materials may be burned in an air curtain destructor. The stockpile of waste material must be kept at a minimum of 100 feet from the burner, and burning is allowed only during daylight hours. The unit must be surrounded by a fence with a lockable gate, and an attendant must be on duty while the blower unit is in operation. The burning pit must be cleaned out on a regular schedule. (NR 151.14)

ADDRESS: Department of Natural Resources
Solid Waste Management Section
P. O. Box 7921
Madison, Wisconsin 53707
608/266-7055

3. WATER

The DNR, Bureau of Water Quality, is the agency responsible for implementing the statutes and regulations that deal with the problem of water pollution. (144.025) The discharge of any pollutant into any water of the state is deemed unlawful unless such discharge or disposal is done under a permit issued by the DNR. (147.02) The statutory definition of "person" to whom the permit requirement applies would not include an agency of the federal government. (147.015) There may be no dumping of refuse in any area that is subject to inundation by periodic flooding if the potential exists for such refuse to be washed into any surface waters of the state. (144.045) No permit is required for the disposal of solid wastes if the site or operation is licensed pursuant to DNR solid waste regulations. (NR 200.03)

ADDRESS: Department of Natural Resources
Bureau of Water Quality
P. O. Box 450
Madison, Wisconsin 53701
608/266-3910

4. STATE FORESTRY

The DNR is also the agency responsible for regulating forest management practices. (23.09) The DNR may, by rule, establish an intensive or extensive forest protection district which has the authority to take every step necessary to protect the area from forest fires. (26.12) Unless written permission has been received from the duly appointed fire warden, no person shall set any fire

except for cooking purposes within the limits of any intensive forest protection district at any time of the year except when the ground is snow-covered. Unless written permission has been received from a duly appointed fire warden, no person shall set any fire except for cooking purposes with the limits of any extensive forest protection district during the period January through May, except when the ground is snow-covered. (26.12) Any person engaged in cutting timber or forest products must dispose of all slash up to 4 inches in diameter. Slash means treetops, limbs, bark, abandoned products, windfalls and other debris left on the land after timber or other forest products have been cut. All slash within 500 feet of any residential area shall be disposed of. All slash disposal must be by burning unless the DNR authorizes disposal by removal or by lopping or scattering. The disposal of slash and the felling of ram pikes, snags or stubs must be done concurrently with the cutting operation. All slash which falls into or deposited in any lake or stream must be immediately removed therefrom. (26.12) In addition to intensive and extensive fire protection districts, town fire wardens may be created; fire wardens may require written permission for open burning within the township limits. (26.13) Any person who shall set a fire on any land not his own or under his control must totally extinguish such fire before leaving it subject to a fine of not less than $10 or more than $100. Any individual whose property is destroyed by a fire that has been wrongfully set may recover double the amount of damages actually suffered. (26.21)

ADDRESS: Department of Natural Resources
Bureau of Forestry
P. O. Box 7921
Madison, Wisconsin 53707
608/266-0842

5. NUISANCE

Any county, city, village or town may initiate legal action to abate public nuisances. (823.01) Nuisances are broadly defined by statute. (146.14) Local board of health personnel have the authority to inspect premises upon which nuisances are said to exist. (146.14) The cost of abating the nuisance may be charged against the owner of the premises. (146.14) The DNR, also, has the responsibility to abate any public nuisance. (30.03)

6. MISCELLANEOUS

The DNR is vested with the authority to prevent, detect and control forest pests on forestlands of the state. (26.30) The DNR may declare an area to be an infestation control zone where it believes that forest pests are threatening to or have already infested the area. The DNR may then impose what it considers to be adequate control measures in order to minimize the continued spread of the infestation. (26.30) The Department of Agriculture exercises concurrent authority to modify and enforce reasonable rules to prevent the dissemination of plant pests. (93.07) The Department of Agriculture may remove and inspect any infected materials through the Office of the State Entomologist. Nursery stock and people who deal with nursery stock must be licensed by the Department. (94.60)

ADDRESS: Department of Agriculture
801 W. Badger Road
Madison, Wisconsin 53713
608/266-7100

WYOMING

1. AIR

The Department of Environmental Quality (DEQ), Air Quality Division (AQD), is the agency responsible for implementing the statutes and regulations that deal with the problem of air pollution. (35-502.5)* There is also an advisory board consisting of five members attached to AQD. (35-502.13) The DEQ has enacted open burning regulations. No person may dispose of refuse by open burning; no definition is given, however, for "refuse." (Reg. I-13) No person may cause or permit disposal of trade wastes; these are defined to be solid, liquid or gaseous material resulting from the construction or prosecution of any business, trade or industry or any demolition operation including, but not limited to, wood and cinders. An individual seeking an open burning permit for disposal of trade wastes must show that disposal by burning is absolutely necessary in the public interest. The permit application must include evidence that the open burning has been approved by the local fire department which has jurisdiction. Open burning of vegetation grown on the premises in the course of any agricultural or forestry operation is permitted when it can be shown that such open burning is necessary and that no fire hazard or public nuisance will be created. (Reg. I-13) Visible emissions of any contaminant discharged into the atmosphere from a single source must be limited to 20% opacity. The emission of particulate matter from any incinerator is limited to 0.20 pounds per 100 pounds of refuse charged and to a shade or density equal to, but not greater than, 20% opacity. (Reg. I-14) Emissions of any air contaminant from any wood waste burner may not exceed an opacity of 20% for any 6 minutes in any hour. A thermocouple and a recording pyrometer or other recording device approved by the AQD must be installed and maintained, and a daily written log of the wood waste burner operation must be kept. (Reg. I-15) Any person who plans to construct, modify or engage the use of a facility which will result in air contaminant emission must obtain a construction permit from the DEQ before any actual work is begun on the facility. (Reg. I-21)

ADDRESS: Department of Environmental Quality
Air Quality Division
Hathaway Office Building
Cheyenne, WY 82001
307/777-7391

*Legal code citations to Wyoming statutes.

2. SOLID WASTE

The DEQ, Land Quality Division (LQD) is responsible for implementing the state's solid waste program. (35-502.42) Every person who proposes to establish a new solid waste disposal site must submit to DEQ his proposed plans including sufficient information describing location, local ground and surface conditions, groundwater conditions, distance to roads, etc. (35-502.43) The DEQ has the authority to promulgate rules and regulations regarding solid waste disposal. (35-502,.44) Brush may be landfilled in a Type III operation. This type operation may not be located within 1,000 feet of any public road, residence, waterway, or water well unless the DEQ determines that the operation will not create a nuisance or be a detriment to the environment or to public health. Disposal must be accomplished by either a modified landfill using a minimum of once-per-month compaction and cover, or any other method approved by the DEQ. (Solid Waste Management Reg. Sec. 7) New solid waste facilities must submit construction and operating plans to the DEQ for approval, and existing facilities are required to submit operating plans. (Solid Waste Management Reg. Sec. 8) No solid waste may be deposited nearer than 500 feet to a stream, reservoir, or lake unless engineering data supplied to the DEQ show that there is no danger of the contamination of these waters. No burning of solid waste is allowed at any site without the written permission of the DEQ. (Solid Waste Management Reg. Sec. 10)

ADDRESS: Department of Environmental Quality
Land Quality Division
Hathaway Office Building
Cheyenne, WY 82001
307/777-7756

3. WATER

DEQ, Water Quality Division (WQD), is the agency responsible for implementing the state's water pollution program. (35-502.6) No "person," defined to include any legal entity but possibly not a federal agency, may discharge any wastes without a permit. (35-502.18) No person may alter the physical, chemical or bacteriological properties of any waters of the state without a permit. (35-502.18) In class I and class II waters, wastes of other than natural origin shall not cause natural turbidity of the water to be increased to more than 10 Jackson Turbidity Units. (W.Q. Reg. I-21) In waters designated for full body contact

recreation, wastes other than those of natural origin shall not be discharged in amounts which will increase turbidity to the extent that a Secchi disc is not visible at a depth of one meter. (W.Q. Reg. I-21) While this may include the flushing of any large debris downstream, in Wyoming the primary problem has to do with the flushing of silt, which collects behind dams. The WQD treats any discharge of this matter as a point source and requires a National Pollutant Discharge Elimination System (NPDES) permit for the operation.

ADDRESS: Department of Environmental Quality
Water Quality Division
Hathaway Office Building
Cheyenne, WY 82001
307/777-7781

4. STATE FORESTRY

The Board of Land Commissioners (BLC), State Forester, is the agency responsible for regulating forest management practices. (36-14,21) The State Forester is responsible for taking such actions as he may deem necessary to extinguish forest and range fires and to assist the county sheriff in the enforcement of all laws pertaining to the protection of forest and rangelands from fire. (36-21) The State Forester may recommend plans for improving the state system of forest protection, enlargement and replacement. The State Forester has advisory powers and exercises these powers in dealing with the processing and storage of certain types of debris including chipping, cutting and diseased wood. Most of the State Forester's duties and responsibilities do not extend to nonstate-owned lands. (36-21) If the Commissioner of Public Lands determines that there is danger of fire starting or spreading from slashings and debris resulting from the cutting of timber of any kind on state land he may order the disposal of such slashings and debris in a manner in which he may prescribe. (36-41) Failure to follow the Commissioner's orders would be a misdemeanor, punishable by a fine of not less than $50 nor more than $1,000. Where such slashings or debris are not disposed of the Commissioner may enter upon the land and dispose of them himself with the costs of disposal being collectable against the landowner. (36-41)

ADDRESS: Bureau of Land Commissioners
Office of State Forester
Capitol Building
Cheyenne, WY 82001
307/777-7586

5. NUISANCE

The State Board of Health is given primary responsibility for abating nuisances related to public health laws. (35-5) It also retains some residual powers to prevent any kind of water pollution. (35-19) County and city boards of health also have authority to regulate and abate nuisance-type conditions. (35-486) The placement of refuse matter or garbage in any natural waterway is declared to be a public nuisance. (35-462) It is also a nuisance to place waste material on public or private property not under the control of the person depositing said wastes. (35-466)

ADDRESS: Department of Health and Social Services
Hathaway Bldg.
2300 Capitol Avenue
Cheyenne, WY 82002
307/777-7657

6. MISCELLANEOUS

The Game and Fish Department has autnority to prosecute and enforce several state statutes dealing with water pollution. The Department of Game and Fish may enforce the prohibition against the placement of any garbage, debris, or refuse or other waste material on public or private property. This would also include the discharging of any materials which may be subject to regulation, control or limitation by air or water quality laws. (35-466) Any owner of a sawmill, reduction works or other manufacturing works wherein sawdust or other refuse matter is discharged which may injure, kill or destroy fish shall not discharge such matter; he is subject to a fine of not less than $50 nor more than $100 for each discharge causing such injury. (35-196) The office of the State Entomologist has the authority to enact rules and regulations including the requirement of licenses on any horticultural or agricultural pursuit including trees or pasturage. (11-23) It may enact rules to protect trees from the ravages of insects, animal pests, plants or plant diseases. (11-23) No person may sell, offer for sale or transport nursery stock without first obtaining a license from the State Department of Agriculture through the State Entomologist. (11-122) The definition of "nursery stock" is to be determined by the Commissioner of Agriculture. (11-122) The State Entomologist or county pest inspectors may enter onto anyone's land during reasonable business hours to check for infestation and infection. (11-123) Nursery stock is defined to include all field-grown, greenhouse-grown and collected

wild stock of woody plants such as fruit, forest, windbreak, shade and ornamental trees and shrubs. (11-125.1) Any person engaged in selling, distributing or transporting nursery stock within the state must obtain a license from the State Department of Agriculture. (11-125.2)

ADDRESS: Game and Fish Department
5400 Bishop Blvd.
Cheyenne, WY 82002
307/777-7631

Department of Agriculture
2219 Carey Avenue
Cheyenne, WY 82002
307/777-7321

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APO San Francisco 96238

US Army Engr Div, New England (2)
ATTN: NED-VE
424 Trapelo Road
Waltham, MA 02154

Kloster, Sharen E
Management of reservoir clearing and cleaning debris / by S. E. Kloster, W. J. Mikucki. -- Champaign, Ill. : Construction Engineering Research Laboratory ; Springfield, Va. : available from National Technical Information Service , 1978.
311 p.; 27 cm. (Technical report - Construction Engineering Research Laboratory ; N-50)

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