

**REPORT OF THE
BOARD OF COMMERCE ON**

**The Need for Regulating
Operators at Landfills and
Waste Management Facilities**

**TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA**



SENATE DOCUMENT NO. 5

**COMMONWEALTH OF VIRGINIA
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COMMONWEALTH of VIRGINIA

Department of Commerce
Board of Commerce

MILTON K. BROWN, JR.
Director

3600 WEST BROAD STREET, RICHMOND, VIRGINIA 23230-4917

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October 5, 1990

The Honorable Douglas L. Wilder
Governor of Virginia, and
The General Assembly of Virginia
3rd Floor, State Capitol
Richmond, VA 23219

Dear Governor Wilder and General Assembly of Virginia:

The report transmitted herewith is pursuant to Senate Joint Resolution 124 of the 1990 Session of the General Assembly of Virginia. This Resolution requested the Board of Commerce, in cooperation with the Department of Waste Management, to study the need for regulating operators of waste management facilities and landfills, and submit its findings and recommendations to the Governor and the 1991 Session of the General Assembly.

Respectfully submitted,

A handwritten signature in cursive script that reads "W. Randy Wright".

W. Randy Wright
Chairman

WRW/psr

Boara of Commerce Report
on the Need for
**Regulating Operators of Landfills
and Waste Management Facilities**
(Senate Joint Resolution 124)

Study Subcommittee Members

John A. Cutler
Charlotte B. Dammann

Department of Commerce Staff

Debra L. Vought
Alvin D. Whitley
Peggy S. Roberts

Department of Waste Management Staff

William Gilley

Acknowledgements

Virginia Polytechnic Institute's Graduate Center

VIRGINIA BOARD OF COMMERCE
REPORT ON THE REGULATION OF
OPERATORS OF WASTE MANAGEMENT FACILITIES

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- I. EXECUTIVE SUMMARY
 - A. Study Overview
 - B. Key Findings
 - C. Special Concerns
 - D. Conclusions
 - E. Recommendation

A. Study Overview

This study was initiated by the passage of Senate Joint Resolution 124 which requested the Board of Commerce, in cooperation with the Department of Waste Management, to study the need for regulating operators of landfills and waste management facilities.

The Board of Commerce, through research (including several site visits), three public hearings, surveys to involved parties, and receipt of written comments, reviewed the nature of these occupations, and the effect, if any, on public health, safety and welfare from the current practice.

The Board of Commerce, in cooperation with the Department of Waste Management, bases its recommendations on an extensive analysis and discussion of this information.

B. Key Findings

1. Waste disposal is a growing concern in the Commonwealth of Virginia, for existing landfills are approaching capacity and it has become increasingly expensive to build new landfills and other waste management facilities.
2. The operation of landfills and waste management facilities is a complicated and technical task requiring knowledge of waste disposal, as well as the state and federal regulations which govern operation of these facilities.
3. At least half of the other states have, or are implementing, a program to regulate operators of landfills and waste management facilities.
4. There are training programs available through the Government Refuse Collection and Disposal Association (GRCDA), the American Society of Mechanical Engineers (ASME), American Society for Testing and Materials (ASTM), as well as in-house training conducted by the major waste management corporations or municipalities. Unfortunately, the participation in, or completion of, such programs is not widespread. Only 13.7% of the supervisors at permitted facilities who completed the Board of Commerce's survey had received any formal training for operation of a waste management facility (including landfills).

C. Special Concerns

1. A distinction was noted regarding the types of facilities (sanitary landfills, industrial waste landfills, construction and demolition debris landfills, incinerators and energy recovery facilities, compost facilities and solid waste transfer stations). "Captive" landfills at industrial sites and mono-landfills operated by electric utilities solely handle solid waste generated by their own production processes or operations at the industrial facility.
2. The public hearings brought to the Board's attention the concern that some personnel may be illiterate and thus unable to complete a written examination. The Board members recommend that an oral examination be included in any regulatory program.
3. The Board is also aware of the concern voiced by smaller jurisdictions where difficulties could occur in complying with operator certification requirements. Unfortunately, these smaller waste management facilities are not exempt from problems which can occur if those facilities are not properly operated.

D. Conclusions

1. The operator of a landfill or waste management facility performs a service which involves a potential hazard to public health and safety.
2. Virginia citizens are concerned about their environment and should be assured that training exists and that minimum qualifications are met by landfill and waste management facility operators. The Board of Commerce believes such assurances are necessary no matter what size the facility.
3. There are waste management facilities which receive more controlled, uniform waste; however, the need for properly trained personnel at such sites is no less crucial to the environment and to public health and safety, though regulations that reflect the differences are entirely appropriate.

4. The increasing cost and new technology of landfill development and operation under the Solid Waste Management Regulations will require operating personnel who are trained and knowledgeable.

E. Recommendations

The Board of Commerce, in coordination with the Department of Waste Management, recommends that the General Assembly consider legislation for a training and licensure program for key operating personnel at landfills and waste management facilities.

Each permitted facility should be required to have a minimum of one state licensed employee on the premises during all operating hours. The legislation should allow for different levels of training and licensure which would be commensurate with the type of facility.

II. INTRODUCTION

- A. Background and Purpose of this Report
- B. Solid Waste Management Program
- C. Solid Waste Management Facilities
- D. Regulation of Waste Management Facilities

II. Introduction

A. Background and Purpose of this Report

The 1990 General Assembly was presented several bills which were waste management initiatives designed to provide greater accountability, disclosure, and safety in the operation of waste management facilities in the Commonwealth of Virginia. Senate Joint Resolution 124 was a part of this legislative package. The passage of Senate Joint Resolution 124 required the Board of Commerce, in cooperation with the Department of Waste Management, to study the need for regulating operators of landfills and waste management facilities. (See Appendix A for a copy of SJR 124).

Section 54.1-100 of the Code of Virginia (1950, as amended) states that **"no regulation shall be imposed upon any profession or occupation except for the exclusive purpose of protecting the public interest when:**

1. **The unregulated practice of the profession or occupation can harm or endanger the health, safety, or welfare of the public, and the potential for harm is recognizable and not remote or dependent upon tenuous argument;**
2. **The practice of the profession or occupation has inherent qualities peculiar to it that distinguish it from ordinary work and labor;**
3. **The practice of the profession or occupation requires specialized skill or training and the public needs, and will benefit by assurances of initial and continuing professional and occupational ability; and**
4. **The public is not effectively protected by other means."**

Using these requirements in Section 54.1-100 and Section 54.1-311 of the Code of Virginia, which outlines the degrees of regulation as well as the criteria for determining such degrees, the Board of Commerce began a six month study of this issue. This study included information gathering, a complaint search, surveys to involved and interested parties, several site visits, three public hearings, and receipt of written comments.

This report will serve to outline the findings of the study and the Board's conclusions and recommendations.

B. Solid Waste Management Program

Every Virginia household, community, commercial facility, institution, industry, recreational facility, and others, generate a variety of solid wastes for management, recycling and disposal. The amount of solid waste has grown over the years with more than 4 million tons per year being generated from all sources. No matter what the activity of society may be, some form of solid waste is generated requiring some form of management. These wastes range from every day items such as paper and garbage to chemicals, paints, fertilizers, asbestos, infectious materials, small quantities of hazardous wastes, metals, industrial wastes, residues from waste water treatment and every other material used in our society and subsequently discarded. Hazardous wastes from regulated sources are separately managed and do not appear in the everyday waste streams to be managed by solid waste sites or facilities.

Improperly managed solid wastes can result in nuisance or aesthetic problems from situations where dust, odors, or debris can create unacceptable conditions in the immediate area. Solid waste containing garbage, food wastes or other organic wastes can generate extreme odors and become a major source of insects and rodents with substantial health risk for the surrounding communities. Improperly managed facilities can result in air releases of volatile organics, gases and other compounds which may violate air quality standards and constitute a threat to health and environment. Fires can cause the release of air contaminants containing toxins or other combustion products which may cause substantial health risks. Land can become contaminated causing contact exposures or contaminant uptake in the food chain.

When solid waste decomposes, it releases methane gases and other gases. With gas migration to structures, toxic effects may result or, with explosive mixtures, serious explosions and fire can result. Gas migration has been observed from sanitary landfills to adjacent buildings such as schools or homes. These effects have occurred at municipal waste sites as well as construction/

demolition/debris disposal sites. Anywhere there are decaying organic wastes, gases may form with potential for damaging results.

Early history of solid waste management shows that landfill sites were chosen because lots were vacant or not usable for other purposes. They were out of sight and not considered of any concern. At one time, many rural dump sites were intentionally operated by daily burning to reduce volume, thus allowing small sites to continue operation for solid wastes for extended periods of time. There have been other cases where solid waste was simply dumped, sometimes in ravines or wetlands, without cover or much thought as to environmental risks from such practices. Rodent infestations, fly infestations, odors and other obvious problems existed, but with little attention to the isolation of waste from the environment.

Poorly designed and operated landfills can be a substantial groundwater threat from the release of contaminated waste water (leachate) into the environment through the solid and surface discharges. Leachate results from water coming in contact with solid waste, with contaminants being leached from the solid waste as a result of biological and chemical processes. This usually occurs from water entering the landfill as precipitation, surface run-off entering the disposal unit, water infiltrating covering material, groundwater intrusion into the waste either from lateral movement or from seasonal high water levels, or disposal of liquids in the landfill. The most obvious method of preventing the formation of leachate is to exclude water from the various sources through site operations, water control and barriers. Failure of site operations constitutes a major factor in the generation of leachate and its high potential for contamination of groundwater.

As a result of the enactment of the Resource Conservation and Recovery Act by the U.S. Congress, the U.S. Environmental Protection Agency promulgated criteria for determining which solid waste facilities should be classified as open dumps constituting a threat to health and environment. The criteria included the following conditions:

- Facilities in flood plains. Sites or practices in flood plains may result in washout of solid waste, so as to pose a potential hazard to human life and wildlife, or to cause a potential for contamination of land or water resources.
- Endangered species. Sites or practices that cause or contribute to the taking of any endangered or threatened species of plants, fish or wildlife.
- Surface water discharge without treatment or permits. A site that causes a discharge of pollutants into state waters is causing harm to health and environment.
- Ground water discharges of leachate. Discharges cause contamination of groundwater creating an adverse environmental impact.
- Application to land. Land application of solid wastes such as sewage sludges containing heavy metals and other contaminants.
- Disease. A site where operation or practices exist that cause or contribute to the on-site population of disease vectors such that a potential threat to public health or environment is created.
- Open burning of solid waste.
- Safety. The presence of explosive gases, fires, and hazards to aircraft are major safety hazards which would substantially affect health and safety. Lack of access control could result in illegal disposal or of injury to the public.

All of the conditions outlined relate to siting, design, construction and operations of solid waste management facilities, and how they may cause substantial threats to health and environment. The Federal and State laws enacted, and regulations promulgated, have been to correct many of the open dump conditions and problems and to prevent development of future threats. By necessity, design and construction is becoming more extensive and complex, requiring greater knowledge and skills by those responsible for operating solid waste management facilities. The Board of Commerce concludes that not only is it important that the sites and facilities themselves be regulated and

inspected, but that certain responsible personnel at such sites and facilities be trained and knowledgeable in their safe and correct operation.

Constructing and operating a landfill is not only an extremely technical venture due to environmental regulations, but also very costly. Testimony presented at the public hearings for this study revealed an estimated \$200,000 per acre in development costs. The city of Lynchburg spokesperson testified that their existing landfill originally cost only \$200,000 to build, but the next one would cost \$7.5 million. Small communities are being forced by these costs to develop cooperative regional operations.

C. Solid Waste Management Facilities

The first solid waste regulations were adopted by the Board of Health in 1971, establishing the initial design and operating standards for all types of landfills in the protection of health and safety, as well as state waters. Most towns, cities, and counties operated landfills, while some were operating incinerators. A limited number of privately owned and operated landfills were established for municipal type solid waste, and industries frequently established their own dump sites for the industrial wastes generated in the course of their daily operations.

Since 1971, 570 solid waste management unit permits have been issued, with 238 remaining active today. These currently active facilities are grouped in Table 1 (see Appendix B).

Sanitary landfills are operated to receive the broadest categories of solid waste for disposal. Generally, they will receive the domestic solid waste from households, municipal-type solid wastes, non-hazardous industrial solid waste, commercial and institutional solid wastes. These wastes may include asbestos containing material and other special wastes requiring special handling, as well as the following:

- Agricultural waste.
- Ash from fuel and solid waste combustion.
- Commercial waste.
- Compost.

- Construction waste.
- Debris.
- Demolition waste.
- Discarded material.
- Garbage.
- Household/residential waste.
- Industrial wastes which are not hazardous.
- Inert waste.
- Institutional waste, except for regulated infectious waste.
- Municipal solid waste.
- Putrescible waste.
- Refuse.
- Rubbish.
- Scrap metal.
- Sludge.
- Trash.
- White goods.
- Non-regulated hazardous wastes.

A sanitary landfill is an engineered land burial facility for the disposal of a broad range of solid wastes and is so located, designed, constructed and operated to contain and isolate the solid waste so that it does not pose a substantial present or potential hazard to human health or the environment. These are substantial operations requiring planned and controlled materials management, beginning with the receipt of waste, placement, and burial of solid waste. Trained and knowledgeable personnel would seem essential.

An industrial waste landfill is also an engineered land burial facility for industrial solid waste, which is used primarily for the disposal of a specific industrial waste or a waste which is a

by-product of a production process. Industrial waste results from manufacturing processes such as electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. These wastes specifically exclude hazardous wastes. Friable asbestos is disposed in specifically approved industrial waste landfills. In addition, other special wastes such as those generated in the cleanup of underground storage tanks may be disposed of after appropriate treatment. The public needs assurances that these, too, are supervised by knowledgeable people.

A Construction/Demolition/Debris landfill is a land burial facility engineered, constructed and operated to contain and isolate construction waste, demolition waste, debris waste, inert waste, or combinations of the above solid wastes. Construction and demolition wastes consist of lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, and metal and plastics, if the metal or plastics are a part of the materials of construction or empty containers for such materials. Debris wastes generally refer to land clearing debris resulting from construction or other activities.

An incinerator, or waste heat recovery facility or device, is a facility designed for the treatment of solid waste by combustion and/or the recovery of energy with combustion. Such combustion takes place in an engineered unit with temperature and combustion air control, as well as control of emissions. Frequently, the resultant ash must be handled separately from the balance of the solid waste stream either in a separate landfill designed for the ash, or may have properties suitable for use or reuse. Included in the category of incinerators are the infectious waste incinerators specifically permitted by the Department of Waste Management.

Transfer stations are any solid waste storage or collection facility at which solid waste is transferred from collection vehicles to haulage

vehicles for transportation to a central solid waste management facility for disposal, incineration, or resource recovery. They are usually located in urban areas and associated with regionalized disposal facilities.

Solid waste facilities permitted by the Department of Waste Management are owned or operated by governments, or private owners or operators. Of the total, local, state or federal government owns 75% of the permitted facilities. The breakdown by type of facility is shown in Table 2 (see Appendix C).

D. Regulation of Waste Management Facilities

Regulations governing the management of solid wastes are implemented by the Department of Waste Management. The current regulations were promulgated by the Virginia Waste Management Board effective December 21, 1988, and cover all aspects of waste management practices. They are detailed and extensive in nature, providing specific guidance in siting, design, construction, operations, monitoring and closure. They establish the procedures by which wastes are identified, how permits are issued, the means for obtaining variances, reporting requirements and other waste management responsibilities for facility owners and operators.

The Waste Management Board did recognize that the 1988 regulations were more extensive and demanding, with immediate impact on existing facilities. The Board included delay periods for compliance by existing facilities to allow time for redesign and construction for future compliance, delayed time for installation of groundwater monitoring, and preparation of updated closure plans. The more stringent operating standards are available from the effective date of the regulations and do not represent a dramatic departure from professional practices prior to the effective date. New facilities and new areas of existing facilities are required to be in full compliance with the regulations from the date of effectiveness.

New areas of concern for landfill facility operators will be the design, construction and maintenance of multiple liner systems for the collection and removal of leachate, management of leachate, groundwater monitoring, corrective action where groundwater contamination is encountered, and site closure standards. Where methane gas

ventilation is required, monitoring and control will become an important element of operation before, and for a number of years, following closure.

Management of solid waste at any one of the different types of facilities has become more complex and demanding for operators and supervisors alike as these modern facilities achieve environmental and health protection. Operators will be the key to success since their actions can influence the effectiveness of the best engineering solution that may be permitted for the present and future. Therefore, the Board of Commerce concludes that the time has come for such operators to be licensed and certified under a state regulatory program.

III. KEY ISSUES

- A. Public Health, Safety and Welfare
- B. Definition of Facility Operators
- C. Existing Training and Certification Programs
- D. Captive Landfills

III. Key Issues

A. Public Health, Safety and Welfare

The so called "NIMBY" ("not in my back yard") problem faced by promoters of proposed landfills is the public's opposition to living near a landfill. Such concern is not unwarranted since an improperly managed waste management facility has the potential for a long and/or short term adverse impact on public safety and the environment in the area of the landfill.

Serious problems include failure to recognize or identify hazardous waste entering a landfill, groundwater contamination, methane gas accumulation, and leachate run-off into surrounding water resources.

The Board of Commerce recognizes that waste management facilities are highly regulated and the implementation of the new regulations further underscores the Commonwealth's commitment to ensuring that Virginia's landfills are constructed and maintained in a manner which protects the public health. However, a landfill operator who is unfamiliar with state and federal regulations, who is unable to identify hazardous materials being brought into a landfill, or who does not have the necessary understanding of landfill gas and leachate, represents an additional serious threat to the public health, safety and welfare.

One example of a poorly operated and maintained waste management facility was that of Kim-Stan, Inc., in Selma, Virginia, a sanitary landfill which was closed in May, 1990. The landfill was found to have numerous leachate discharges and the facility admitted that operators had sometimes failed to keep the garbage covered with dirt.

The Board of Commerce finds that the public deserves the assurance that waste management facilities are staffed by personnel who have demonstrated expertise and competence in operating such a facility, and that without such assurance there is a threat to public health, safety and welfare.

B. Definition of Facility Operators

Senate Joint Resolution 124 referred to the need to regulate "landfill and waste management facility

operators". Depending upon the size of the facility, there may be any number of employees who affect the daily operation of the landfill. A regulatory program for administrative personnel would be ineffective since these people have little impact on the day-to-day management of the facility. Likewise, it would be difficult to require a regulatory program for all scalehouse operators, loadspotters, bulldozer operators, or garbage truck drivers.

The Board of Commerce realizes, however, that at small landfills, the bulldozer operator may be the "operator", for there may be only one or two people regularly on-site. A survey sent to all permitted facilities revealed that 51.3% of the 117 responding landfills did not have a manager (46.2% had one, 1.7% had two managers). Likewise, 52.1% did not have a supervisor employed (37.6% had one supervisor; 4.3% had two; 6.2% had more than two supervisors).

The Board of Commerce also recognizes that experience with the daily situations that occur at a landfill are as crucial to the operation as formal education. Through visits to landfill operations and through the public comments received, the Board of Commerce heard the concern that individuals may have over 20 years experience at a waste management facility, and are knowledgeable, but may be unable to read or write. The Board of Commerce would not support any regulatory program which would eliminate people from these positions simply because they could not read an examination. The Board members recommend that an oral examination be included in a regulatory program.

Testimony and written comments received by the Board of Commerce on this issue also leads the Board to conclude that any regulatory program should have training and licensing commensurate with the type of facility (landfill, incinerator, transfer station, resource recovery facility).

The Department of Waste Management has suggested an outline of the knowledge and skills for operators of the various types of facilities which is included as Appendix D of this report.

Municipal Waste Combustors are waste management facilities that are currently regulated, in part, by a program administered by the Department of Air Pollution Control. In December, 1989, the Environmental Protection Agency (EPA) proposed regulations that would require that the chief operators and shift supervisors be certified by the American Society for Testing and Materials (ASTM). These certification requirements would most likely be part of Virginia's State Implementation Plan through the Department of Air Pollution Control and administered by that Department.

C. Existing Training and Certification Programs

The Government Refuse Collection and Disposal Association (GRCDA) is a national non-profit educational association of solid waste management facilities. There are more than 100 members in the Virginia Chapter of GRCDA. The GRCDA conducts training programs and offers certification for managers of landfill operations. The GRCDA has also assisted a number of states in planning and implementing certification programs.

The American Society of Mechanical Engineers (ASME) is a worldwide engineering society focused on technical, educational, and research issues. The ASME offers a certification program for Resource Recovery Facility personnel.

On the state level, the Southwest Virginia Solid Waste Management Association offers conferences which bring together government officials, equipment suppliers, waste haulers, landfill operators, and involved citizens to discuss the latest issues and trends in the waste management field. The Association does not currently offer a certification program and submitted a resolution to the Board of Commerce proposing standardized training at different levels in lieu of operator certification or licensing.

Some of the large waste disposal companies also presented comments to the Board of Commerce regarding their current in-house training and certification programs.

Unfortunately, the participation in, or completion of such programs, does not appear to be widespread. Only 13.7% of the supervisors at permitted facilities who returned the Board's survey had received any formal training for operation of a waste management facility.

D. Captive Landfills

Captive landfills are facilities operated by industries for the purpose of handling the solid waste generated by their own production processes. A captive mono-landfill is a captive landfill that receives only one type of waste (i.e., coal combustion ash from an energy plant).

The Virginia Manufacturers Association, as well as individual industrial facilities in Virginia, testified and submitted written comments opposing the need for regulating operators at such landfills. Arguing that the waste stream into a captive landfill is uniform and its operations are more limited, industry spokespersons saw no need for additional regulation. Instead, they contended that the captive landfill is providing a significant benefit to the public by removing its waste stream from the already burdened public systems. While the Department of Waste Management shows a better operating and compliance record for industrial landfills, these facilities experience the same type of violations (lack of daily cover, excessive slopes, generation and discharge of leachate) which necessitate enforcement action.

The Board of Commerce finds that the need for properly trained personnel at captive landfills is equally crucial to the protection of the environment and the public's health and safety. However, the Board agrees that regulations which reflect the differences are entirely appropriate.

IV. INFORMATION GATHERING AND PUBLIC COMMENTS

- A. Methodology
- B. Public Hearings
- C. Written Comments
- D. Survey of Landfill Permit Holders
- E. City/County Survey
- F. Survey of Other States

IV. Information Gathering and Public Comments

A. Methodology

Section 54.1-311 of the Code of Virginia requires that the Board of Commerce conduct an extensive review of the occupation to determine the proper degree of regulation, if any, that should be implemented. The following section outlines the means by which the Board of Commerce compiled information about the occupation and complaints and abuses which have occurred.

B. Public Hearings

Three public hearings were conducted by the Board of Commerce to gather information about landfill operators and to hear complaints relating to the occupation. The series began with a hearing in Roanoke, where Board members heard testimony regarding the development costs of landfills and the resulting development of additional regional landfills. In Richmond, the participants included representatives from the Government Refuse Collection and Disposal Association (GRCDA), which supports certification, and from the Virginia Manufacturers Association, who testified that further regulation of captive landfills at industrial facilities would be inappropriate.

The Virginia Waste Industries Association presented testimony at the Falls Church hearing in support of a regulatory program which would focus on training persons with direct on-site supervisory responsibilities. At all the hearings Board members were advised of the need for tailoring any regulatory program to meet the needs of different types of landfills. Appendix E provides a list of all hearing participants.

C. Written Comments

Public hearing notices provided for written comments to be submitted in lieu of testimony. The Board of Commerce received numerous written comments which are listed as Appendix F.

Virginia Attorney General Mary Sue Terry provided written comments regarding the need for regulation of landfill operators and cited the Kim-Stan landfill operated in Selma, VA, as a situation which resulted from mismanagement and disregard for proper operating procedures.

Opposition for regulation of landfill operators came from members of the industry who have captive landfills, and from counties and planning district commissions who feared such regulation could be administratively burdensome and unnecessarily costly.

D. Survey of Landfill Permit Holders

The Department of Waste Management staff drafted a survey to the landfill permit holders throughout the Commonwealth. These permit holders primarily included sanitary landfills, demolition/debris landfills, industrial waste landfills, and incinerators. There were 276 permitted facilities surveyed, and 117 completed surveys were returned, of which 66.7% described themselves as sanitary landfills. The data revealed that 51.3% of the respondents did not have a manager (46.2% had one), and 52.1% did not have a supervisor (37.6% had one) at the landfill. The survey results revealed that only 13.8% of the supervisors at permitted facilities had received any formal training for operation of a waste management facility (40.2% had received on-the-job training). Appendix G provides a copy of the survey and results.

E. City/County Survey

The Department of Commerce and Department of Waste Management surveyed 128 cities and counties, and 74 completed surveys were returned. The majority (59.5%) of the responding cities/counties have landfills operated by city/county employees, 20.3% by contract, 8.1% by service authority, 4.1% by incineration, 6.8% by other jurisdictions or facilities. While 64.9% indicated there was not public demand for more regulations at landfills (31.1% answered yes), 56.8% did perceive that unregulated landfill operators posed a threat to public health, safety and welfare (39.2% did not see such threat).

Comments regarding frequent complaints and comments regarding the regulation of landfills were mixed, with some seeing the need for training and certification, and others viewing regulation as another costly state intervention. A copy of the survey with results can be found as Appendix H.

F. Survey of Other States

Section 54.1-311 of the Code of Virginia requires that the Board of Commerce determine the number of states which have regulatory programs similar to that being considered.

Thirty-one of the 49 states surveyed returned completed surveys and 40.0% regulate solid waste management facility operators, 60.0% do not. The move toward regulation, however, is apparent since 32.3% responded that their states were considering proposals to regulate solid waste facility operators. See Appendix I for a copy of the survey with results and comments provided by some of the responding states.

V. SUMMARY

A. Key Findings

B. Conclusions

C. Recommendations

V. Summary

A. Key Findings

The Board of Commerce, in cooperation with the Department of Waste Management, upon completing its research and reviewing the information obtained through the public hearings and written comments, summarized their findings as follows:

1. Waste disposal is a growing concern in the Commonwealth of Virginia, for existing landfills are approaching capacity and it has become increasingly expensive to build new landfills and other waste management facilities.
2. The operation of landfills and waste management facilities is a complicated and technical task requiring knowledge of waste disposal, as well as the state and federal regulations which govern operation of these facilities.
3. At least half of the other states have, or are implementing, a program to regulate operators of landfills and waste management facilities.
4. There are training programs available through the Government Refuse Collection and Disposal Association (GRCD), the American Society of Mechanical Engineers (ASME), as well as in-house training conducted by the major waste management corporations or municipalities. Unfortunately, the participation in, or completion of, such programs is not widespread. Only 13.7% of the supervisors at permitted facilities who completed the Board of Commerce's survey had received any formal training for operation of a waste management facility (including landfills).

Such findings lead the Board of Commerce to determine whether regulation is required. Section 54.1-100 of the Code of Virginia states that "no regulation shall be imposed upon any profession or occupation except for the exclusive purpose of protecting the public interest when:

1. The unregulated practice of the profession or occupation can harm or endanger the public, and the potential for harm is recognizable and not remote or dependent upon tenuous argument";

An improperly operated waste management facility is a definite threat to the land, air and water quality. The leachate percolating down into ground water aquifers can cause short-term or long-term adverse effects upon the drinking water for citizens living near a landfill, and can pollute nearby lakes, rivers, and streams.

2. **"The practice of the profession or occupation has inherent qualities peculiar to it that distinguish it from ordinary work and labor;"**

Environmental demands, ever changing technology, and the numerous state and federal regulations which govern the Commonwealth's waste management system make it difficult for an untrained individual to properly operate a waste management facility.

The Board of Commerce recognizes that there are several positions at a waste management facility and each requires different experience, education and training. The Board supports training programs which can facilitate improved performance in each of these positions.

3. **"The practice of the professions or occupation requires specialized skill or training and the public needs, and will benefit by, assurance of initial and continuing professional and occupational ability";**

Citizens who live near a landfill or any waste management facility deserve the assurance that such facilities will follow state and federal regulations designed to protect their health, safety and welfare. The primary supervisor of that facility's daily operation should be properly trained.

4. **"The public is not effectively protected by other means."**

The Board of Commerce understands that new Department of Waste Management regulations effective in 1992 will mean stricter standards for waste management facilities. While these regulations go a long way in protecting the public, the Board believes that certain key personnel at the facility should also be properly trained to make sure the regulations are followed.

B. Conclusions

1. The operator of a landfill or waste management facility performs a service which involves a potential hazard to public health and safety.
2. Virginia citizens are concerned about their environment and should be assured that training exists and that minimum qualifications are met by landfill and waste management facility operators. The Board of Commerce believes such assurances are necessary no matter what size the facility.
3. There are waste management facilities which receive more controlled, uniform waste; however, the need for properly trained personnel at such sites is no less crucial to the environment and to public health and safety, though regulations that reflect the difference are entirely appropriate.
4. The increasing cost and new technology of landfill development and operation under the Solid Waste Management Regulations will require operating personnel who are well trained.

C. Recommendations

The Board of Commerce, in coordination with the Department of Waste Management, recommends that the General Assembly consider legislation for a training and licensure program for key operating personnel at landfills and waste management facilities.

Each permitted facility should be required to have a minimum of one state licensed employee on the premises during all operating hours. The legislation should allow for different levels of training and licensure which would be commensurate with the type of facility.

VI. APPENDICES

- A. Senate Joint Resolution 124
- B. Permitted Solid Waste Management Facilities Table
- C. Ownership of Solid Waste Management Facilities Table
- D. Suggested Outline of Skills for Operators
- E. List of Public Hearing Participants
- F. List of Written Comments
- G. Survey of Landfill Permit Holders with Results
- H. Survey of Cities/Counties with Results
- I. Survey of Other States with Results

APPENDIX A

SENATE JOINT RESOLUTION NO. 124

Requesting the Board of Commerce, in cooperation with the Department of Waste Management, to study the need for regulating operators of landfills and waste management facilities.

Agreed to by the Senate, February 8, 1990

Agreed to by the House of Delegates, March 9, 1990

WHEREAS, the citizens of the Commonwealth are becoming more aware of the environment and the need to conserve Virginia's natural resources; and

WHEREAS, as the population of Virginia continues to increase, the effective management of Virginia's landfills and waste management facilities becomes of major importance in order to manage increasing amounts of unrecyclable waste and to protect the public health, public safety, the environment, and natural resources; and

WHEREAS, the careful and skilled management of such facilities is imperative in order to control leachate, waste, debris and other pollutants resulting from the operation of landfills and waste management facilities; and

WHEREAS, the management of such facilities requires comprehensive knowledge of waste disposal science and engineering and many complex state and federal laws and regulations; and

WHEREAS, it appears that some present-day owners and operators of landfills and waste management facilities have been reported to lack the necessary knowledge and skills to competently manage such facilities, thereby creating a risk to the public health, public safety, the environment, and natural resources; and

WHEREAS, the Board of Commerce is authorized by § 54.1-310 of the Code of Virginia to evaluate professions and occupations not regulated in the Commonwealth for consideration as to whether such professions and occupations should be regulated and to make recommendations as the public interest requires to the General Assembly concerning regulation; now, therefore, be it

RESOLVED by the Senate, the House of Delegates concurring, That the Board of Commerce, in cooperation with the Department of Waste Management, is requested to study the need for regulating landfill and waste management facility operators in the Commonwealth.

The Board shall submit its findings and recommendations to the Governor and the 1991 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for processing legislative documents.

Table 1
 PERMITTED SOLID WASTE MANAGEMENT FACILITIES³

TYPE OF SOLID WASTE FACILITY	NUMBER
Sanitary Landfills	149
Construction/Demolition/Debris Landfills	27
Industrial Landfills	30
Incinerators / Waste Heat Recovery Units ⁴	12
Transfer Stations	15
Other	5
TOTAL	238

³ Includes those permitted by the Department of Waste Management but not those considered to have a permit by rule such as hospital infectious waste incinerators or yard waste composting.

⁴ Includes infectious waste incinerator

Table 2
Ownership of Solid Waste Management Facilities

TYPE SOLID WASTE MANAGEMENT FACILITIES	OWNERSHIP	
	% PRIV	% GOV
Sanitary Landfills	9	91
Industrial Waste Landfills	83	17
Construction / Demolition / Debris landfills	56	44
Incinerators and Waste Heat Recovery	33	67
Transfer Stations	6	94
Other	60	40
TOTAL	25	75

APPENDIX D

Suggested Outline of Operator Skills Department of Waste Management September 1990

LANDFILL OPERATORS

The knowledge and skills for operators or supervisors may be outlined as follows:

- Waste placement techniques in working areas.
- Compaction of paced solid wastes to prevent facility subsidence.
- Application of daily cover.
- Recognition and receipt of authorized wastes to include the exclusion of prohibited hazardous wastes.
- Records and reports.
- Gas monitoring.
- Groundwater sampling and evaluation of monitoring results. Since the regulations require implementation of contamination studies and corrective action plans, the operator must be knowledgeable on making that determination and implementing appropriate plans.
- Controlling insect and rodent vectors of disease.
- Heavy equipment operation and maintenance.
- Maintaining working and finished grades and slopes.
- Application of intermediate and final closure caps of clay or synthetic membrane.
- Determination of final elevations and contours consistent with permit and regulatory conditions or limits.
- Fire control requirements and procedures in the event of landfill fires.
- Leachate monitoring, collection, storage, treatment if required, and disposal.
- Erosion control.
- Management of surface waters.
- Seeding and maintenance of completed areas.
- Maintaining site security.
- Controlling and eliminating bird hazard potentials.
- Knowledge of regulations and all permit conditions, designs, operational procedures, closure plans and post-closure requirements.
- The handling and disposal of special wastes within special authorizations for waste such as asbestos and petroleum contaminated soils. These may require special on-site management in receipt, placement, and disposal.
- Site management.

INCINERATOR/WASTE HEAT RECOVERY OPERATORS

The knowledge and skills for operators or supervisors may be outlined as follows:

- Site management.
- Knowledge of regulations and all permit conditions, designs, operational procedures, closure plans and post-closure requirements.
- Maintaining site security.
- Recognition and receipt of authorized wastes to include the exclusion of prohibited hazardous wastes.
- Records and reports.
- Knowledge of regulations and all permit conditions, designs, operational procedures, and closure plans.
- Operation and maintenance of combustion equipment.
- Residue management.
- Operation and control of air quality control equipment.
- Noise and odor control.
- Heavy equipment operation and maintenance.
- Private facilities require knowledge and implementation of financial assurance requirements for proper closure and post-closure care.

OTHER SOLID WASTES MANAGEMENT FACILITY OPERATORS

The knowledge and skills for operators or supervisors may be outlined as follows:

- Maintaining site security.
- Recognition and receipt of authorized wastes to include the exclusion of prohibited hazardous wastes.
- Records and reports.
- Knowledge of regulations and all permit conditions, designs, operational procedures, and closure plans.
- Operation and maintenance of combustion equipment.
- Noise and odor control.
- Heavy equipment operation and maintenance.
- Special requirements appropriate to the type of facility such as composting.
- Site management.

APPENDIX E

Public Hearing ParticipantsRoanoke, May 18, 1990

<u>Speaker</u>	<u>Affiliation</u>	<u>Position</u>
Steve Via	New River Valley Planning Commission	Staff supports certification of supervisory personnel according to the type of waste management facility. Also supports adequate training/education program.
Bill Rutherford	Member, Virginia Biological Farmers Group	Supports conversion of organic wastes to compost fertilizer.
Charles Maus	New River Resource Authority	Supports certification of solid waste management operators; similar to water and wastewater treatment operators.
Jim Fender	City of Salem	Existing regulatory agencies should have necessary enforcement arms. Localities hire consultants to develop a state approved landfill and these people provide ongoing technical assistance. Certification won't eliminate problems.
Ted Jett	Merck & Company	Concern that industrial landfills need a different type of regulation, if any at all.
John Cutlip	Shenandoah Co. Administrator	Opposes any grandfather provision. State established new regulations but doesn't provide funding to localities for compliance.

<u>Speaker</u>	<u>Affiliation</u>	<u>Position</u>
Carl Newby	City of Lynchburg	Doesn't want to see overkill of regulations, but we need to assure neighbors of landfills that we have an on-site person who is properly trained and qualified according to state standards.

Richmond, May 24, 1990

Lanier Hickman, Jr.	Executive Director, Government Refuse Collection & Disposal Association	Strongly supports any effort to advance professionalism. First priority should be to train and certify the principal manager.
John Holsten	City of Harrisonburg	Endorses the certification program with different criteria for different types of facilities.
Leon Whittaker		Supports any effort to prevent Virginia from becoming a garbage dump.
John MacIlroy	Virginia Manufacturers Association	Further regulation of of captive landfills at industrial facilities is inappropriate.

Falls Church, June 1, 1990

Vic Arthur	Virginia Waste Industries Association	Supports regulatory program which would focus on persons with direct on-site supervisory responsibilities. Also supports the Dept. of Waste Management being involved in any such regulatory program.
Bill Brawer	Loudon County Dept. of Engineering	Supports certification of persons with on-site responsibility for daily operations.

Falls Church, June 1, 1990

<u>Speaker</u>	<u>Affiliation</u>	<u>Position</u>
Burwin Reed	Landfill Manager	Doesn't support certification of laborers at landfill, managers should be sufficient.
Jeff Smithberger	Fairfax County Dept. of Public Works	Supports landfill manager certification. Also supports additional staff for the Dept. of Waste Management to implement any new regulatory program.
Jim Bannwart	Upper Occoquan Sewage Authority	Training programs specific to the type of facility should be implemented.

**SUMMARY OF WRITTEN COMMENTS SUBMITTED
TO BOARD OF COMMERCE
SENATE JOINT RESOLUTION 124**

Southwest VA Solid Waste Management Association - Resolution proposing standardized testing for different levels in lieu of certification or licensing.

William J. Skrabak, Alexandria Health Department - Proposed EPA regulations would require operators at municipal waste combustors to be regulated by the State. Health Department strongly supports such action. The operators would be certified by the American Society of Mechanical Engineers.

Mary Sue Terry, Virginia Attorney General - Improperly trained personnel at waste management facilities can pose potential adverse impact on public health, safety and welfare (Kim Stan, Inc.). Regulation is important to assure the public of their protection.

Jeffrey C. Southard, Browning-Ferris Industries - Supports regulation of operators with various levels of regulation based on the demands of a particular facility (landfills, composting operations, etc.). Government and captive facilities should be included in such regulation, with a lesser degree where appropriate.

Glenn G. Wilson, Mount Rogers Planning District Commission - Commission does not feel the operation of landfills would be improved by certification program. No historical problematic basis to justify the additional expenditure by local governments. Opposes certification program.

David W. Clark, James City Service Authority & President of VA-GRCDA - Strongly supports certification. Increased sophistication of landfill operations and new regulations make it imperative that operators be competent. Supports program for all "chief operators".

B.M. Marshall, P.E., Virginia Power - Supports regulation of operators at certain classifications of landfills. Certified operators, however, should not be required for coal combustion by-products disposed in mono-landfills operated by electric utilities. EPA found that the risk to the environment from coal combustion ash is quite low.

John B. Connor, Attorney representing Rainwater Concrete Co., Inc. - Rainwater Concrete Co., Inc., operates a debris landfill in Fairfax Co. No further regulation is necessary. Current Waste Management Act fully regulates operators. In fact, the industry is over-regulated, which is forcing private landfills out of business. The effect will be continued escalation of costs for waste disposal.

Edward F. Harrington, Westvaco Corporation - Regulation would be unnecessary burden on the operations. Additional regulation would increase skyrocketing administrative costs and burden without decreasing risk to public health, safety or welfare. If regulation is approved, certification of on-site landfill supervisor would be most reasonable.

**SUMMARY OF WRITTEN COMMENTS SUBMITTED
TO BOARD OF COMMERCE
SENATE JOINT RESOLUTION 124
(continued)**

John W. Daniel, II, Browder & Russel, representing Waste Management of North America, Inc. - Owns and operates 120 landfills in North America, none in Virginia at this time. Urge Board not to overlook new regulations and the effect they will have, as well as the effort by the waste industry to be responsive to public concern. Any regulation should focus on the on-site supervisor. Encourages examination of existing in-house training programs.

John W. MacIlroy, Virginia Manufacturers Association - Environmental issues are adequately addressed by current Department of Waste Management regulations. Primarily opposed to regulation of operators at captive landfills. Personnel at such landfills are those trained in day to day operations; professional environmental/engineering staff; and outside consultant. Licensing could also adversely affect employment patterns.

Roger Diedrich, VA Chapter of Sierra Club - New landfill regulations will present new rules and standards for operators to follow and therefore require education and certification. Municipal solid waste facilities and waste incinerators are highly technical. Suggests three level certification procedures for personnel at such sites.

Robert J. Robinson, Appalachian Power Company - Regulation of landfill operators at utility power plants is unnecessary. EPA report found management at coal combustion waste sites to be adequate for protecting human health and the environment.

Alvin W. Singleton, INTERMET - Additional requirements for operators of industrial waste landfills, particularly "captive" facilities would be both unnecessarily burdensome and counterproductive.

William Shoemaker, Director of Public Works, County of Prince George - Equipment operators at landfills are very knowledgeable in relation to their machine and the daily compaction and covering of waste. However, many lack education and may not pass examination. Certification for management may be good idea. Time needed for employees to become certified may also place burden on small municipalities and counties who do not have the staff to keep operating within permit parameters.

Kenneth G. Picha, Jr., Professional Engineer - No federal agency regulates operators of resource recovery facilities. Suggests that chief facility operators and shift supervisors obtain certification from American Society of Mechanical Engineers.

Richard D. Olin, Department of Air Pollution Control - Municipal Waste Combustors are waste management facilities that are currently regulated, in part, by a program administered by Department of Air Pollution Control. EPA has issued proposed regulations that require chief operators and shift supervisors at MWC's to be certified by the American Society for Testing and Materials.

**SUMMARY OF WRITTEN COMMENTS SUBMITTED
TO BOARD OF COMMERCE
SENATE JOINT RESOLUTION 124
(continued)**

Matthew A. Carr, P.E., County of Charles City - New waste facilities will use technology to minimize environmental impact and such technology requires knowledgeable operators. Certification program should be a multi-level system, have centralized testing and continuing education. GRCDA testing is inadequate in its present format.

Barbara F. Buck, Citizens Against Polluting the Peninsula - Supports regulation of operators. Recommend a minimum of six months training for landfill operators and one year of training for trash combustor operators.

Neal Evans, Lee County Board of Supervisors - Supports regulation with a program similar to water and waste treatment plant operators. Concern about counties where economic conditions tend to put a lid on salaries; after paying for training they could lose employees.

Steven G. Finn, Senior Zoning Inspector, Chesterfield County Planning Department - Supports minimum training requirements for landfill employees. Training should be on a site-by-site basis. Supports licensing and regulating of landfill facilities.

George A. Beadles, Jr., Chesterfield County Landfill - Training program for landfill operators should be centered around the operations manual of the facility where the operators work.

Delegate William Roscoe Reynolds, representing Patrick County Board of Supervisors - Issued opposition to additional regulations being imposed upon localities.

APPENDIX G

Surveys sent: 276
 Completed surveys returned: 117

SURVEY OF LANDFILL PERMIT HOLDERS

1. What category best describes the landfill facility for which you hold a permit from the Virginia Department of Waste Management?

<u>66.7%</u>	Sanitary landfill
<u>17.1%</u>	Industrial waste landfill
<u>12.0%</u>	Demolition/debris landfill
<u>3.4%</u>	Other
<u>.9%</u>	Missing

2. Approximately how many tons of solid waste does this landfill receive per day?

0 - 50 tons	<u>47.2%</u>
50 - 200 tons	<u>32.0%</u>
200 - 500 tons	<u>17.3%</u>
over 500 tons	<u>3.6%</u>

3. How many people are employed at your solid waste landfill facility?

FULL - TIME EMPLOYEES

PART - TIME EMPLOYEES

0 full time employees	<u>23.1%</u>	0 part time employees	<u>52.1%</u>
1 full time employee	<u>18.8%</u>	1 part time employee	<u>15.4%</u>
2 full time employees	<u>13.7%</u>	2 part time employees	<u>17.1%</u>
3-7 full time employees	<u>32.4%</u>	over 3 part time employees	<u>15.5%</u>
over 7 full time employees	<u>12.3%</u>		

4. Please identify these employees according to the position or type of work they perform at your landfill.

MANAGERS

SUPERVISOR(S)

EQUIPMENT OPERATORS(S)

OTHERS

0 - 51.3%	0 - 52.1%	0 - 14.5%	0 - 47.9%
1 - 46.2%	1 - 37.6%	1 - 35.0%	1 - 22.2%
2 - 1.7%	2 - 4.3%	2 - 17.9%	2 - 11.1%
- -	over 2 - 6.2%	3 - 10.3%	2 - 500 - 19.0%
		4 - 5.1%	
		5 - 3.4%	
		6 - 6.8%	
		10 - 3.4%	
		over 10 - 3.5%	

5. How many of your employees have received training in the operation of landfills and who provided the training? List the appropriate numbers of employees in training column.

	<u>FORMAL TRAINING</u>	<u>ON-JOB TRAINING</u>
MANAGER(S)	0 - 70.1% 1 - 25.6% 2 - 1.7% 10 - 1.7% 200 - .9%	0 - 70.1% 10 - 26.5% 20 - 1.7% 100 - .9% 1001 - .9%
SUPERVISOR(S)	0 - 86.3% 1 - .9% 10 - 12.0% 100 - .9%	0 - 59.8% 1 - 1.7% 10 - 31.6% 20 - 2.6% 30 - 1.7% 100 - 2.6%
EQUIPMENT OPERATOR(S)	0 - 87.2% 1 - .9% 10 - 6.0% 20 - 1.7% 30 - 2.6% 40 - 1.7%	0 - 29.9% 1 - 1.7% 2 - .9% 10 - 37.6% over 10 - 30.0%
OTHERS	0 - 94.9% 10 - 2.6% over 10 - 2.7%	0 - 6.8% 1 - 6.3% 2 - 54.7% 11 - 2.6% 12 - 13.7% over 12 - 15.7%

6. Are any of your employees certified or licensed as landfill operators?

<u>.9%</u>	yes
<u>.9%</u>	no
<u>98.3%</u>	missing

7. n/a

8. What are the average number of years of landfill operating or supervising experience in each of the employee categories?

<u>MANAGER(S)</u>	<u>SUPERVISOR(S)</u>	<u>EQUIPMENT OPERATOR(S)</u>	<u>OTHER</u>
0 - 43.6%	0 - 49.6%	0 - 18.8%	0 - 67.5%
1-5 - 20.7%	1-10 - 32.5%	1-5 - 29.9%	1-5 - 20.6%
5-10 - 10.2%	over 10 - 18.0%	5-10 - 26.6%	5-10 - 7.8%
over 10 - 25.9%		over 10 - 25.0%	over 10 - 4.5%

9. Please feel free to make any general comments and/or recommendations to the Board of Commerce regarding the regulating of this occupation.

General Comments:

- Supports mandatory certification or licensing for landfill supervisors because of increased potential liability, cost of landfill development and operation, and complexity of new landfill technology and regulations.
- Supports regulation but urges Board to give employees plenty of time to receive the necessary education and training.
- Regulation is not necessary; training programs should be established instead. More participation in training programs and more staff at DWM for enforcement is needed instead.
- Need to be better informed about regulatory changes.
- Company trains employees to operate landfills in full compliance with the regulations.
- Recommends a source of on-the-job training be provided for operators.
- This would be another bureaucratic method of attaching more cost to already overburdened local governments.
- Supports regulation in terms of keeping employees up to date with regulations.
- A hands-on type course with classroom update on new regulations would be good, but no need to demand a degreed engineer since they are consulted on daily operation.
- In small counties, the county administrator may be the only person totally responsible for certification.
- Company operates with routine, detailed input by top management in regard to daily operation so operational personnel make few decisions on established operating procedures.
- All employees should understand a landfill, either by formal education or on-the-job training.
- Such regulation is a reasonable expectation and means to insure competency.
- Believe that field supervisors should be certified just as waste water plant operators.
- Industrial waste landfill with materials that can't decompose should not need certified operator.

- Support certification in the interest of good economics (space and materials conservation).
- Each local jurisdiction should be responsible for ensuring that all personnel are qualified.
- Bigger and more complicated type landfills may need such regulation; please make allowance for smaller landfills.
- Equipment operators may find it difficult to understand training courses.
- It appears redundant to regulate the operators. Another level of regulation won't necessarily lead to a greater degree of compliance with regulations. Most landfill operators depend on professional engineering firms and testing labs for expertise in design, construction and operation. These people are already regulated. People testifying in favor of such regulations are those who stand to gain personally from the proposal. Our company does 10 year employment history on each employee and holds bi-monthly safety and training sessions.

Surveys sent: 128
 Surveys returned: 74

CITY/COUNTY SURVEY

1. Does the city/county own its own landfill?
 82.4% Yes 17.6% No

2. How is your city/county landfill operated?
 59.5% by city/county employees
 20.3% by contract
 8.1% by service authority
 4.1% by incineration
 6.8% by other jurisdictions or facilities

3. Is your city/county solid waste facility funded by:
 51.4% tipping fees
 73.0% general revenue

4. Do you perceive that unregulated operators of landfills and waste management facilities pose a threat to the public health, safety or welfare? Please explain.
 56.8% Yes 39.2% No 4.1% Missing

5. Is there public demand in your area for more regulation at landfills and waste management facilities?
 31.1% Yes 64.9% No 4.1% Missing

6. What are the most frequent complaints your office receives about local operators of landfills and waste management facilities?
 - Complaints by users regarding restrictions imposed by the regulations.
 - Complaint that operators don't have time or expertise to monitor what's going on in landfill.
 - Complaints about tipping fees.
 - Private citizens feel unsafe in operating fill areas.
 - Most frequent complaint is about "green box" collection.
 - Daily cover not maintained properly.
 - Improper dumping, smell, traffic.
 - Cost, odor, dumpster locations.

- Blowing trash and birds.
 - Most complaints are not about permitted landfills, but illegal dumps.
 - Denying land clearing debris and construction demolition.
 - Operators are viewed as too stringent regarding interpretation of regulations.
 - Confusion about the regulations - no direction about disposal of household hazardous waste.
 - Hours of operation.
 - New regulations are far too costly.
 - Verbal abuse from personnel operating equipment.
 - Concern about groundwater/wells in surrounding areas.
7. Please offer comments you may have regarding the need for regulation and training of landfill and waste management facility operators:
- Adequate regulations and training already exist.
 - Licensing not necessary but training in local areas at reasonable cost is a good idea.
 - Complex engineering background not necessary for operating a landfill; engineering firms will bring landfills into compliance with new regulations.
 - Support some certification in interest of environmental protection.
 - Any regulations should be phased in with grandfather clause.
 - Supports type of training like Waste Water Control Board.
 - Training necessary but regulatory agents (inspectors) should also be trained on the practical and workable methods of operating a landfill.
 - Such training and certification is unwarranted. If problems exist, Waste Management should identify, correct and enforce violations. Another costly item is not necessary. Who operates the landfill when these people are in training?
 - Understaffed Department of Waste Management is already a problem - no new programs needed.
 - GRCDA training has been very helpful.

- No need for state interference with local governments.
- Training requirement should be considered only for those facilities which are receiving unsatisfactory inspection reports from Waste Management.
- Great idea for job protection and public safety.
- Increasing liability makes regulation of operators necessary.
- We are being regulated to death! New regulations if enforced should detect any problems.
- On-the-job training is the best.
- Enforcement division says they are here to help enforce regulations but no one is here to help us comply - training is necessary.
- Good idea but don't include all levels of landfill employment.
- No need to regulate operators at government operated landfills.
- Good idea if it brings more professionalism. Majority of equipment operators at landfills have minimum literacy skills. Public will be complaining of higher tax rates which will result from implementation of new solid waste regulations. It will be politically impossible to initiate a program then. If licensing is to be undertaken, it should be now.

Surveys sent: 49
 Completed surveys returned: 31

STATE SURVEY

1. Does your state regulated solid waste management facility operators such as sanitary landfill operators?

40.0% Yes 60.0% No

2. Does your state propose to regulate solid waste facility operators?

32.3% Yes 35.5% No 32.3% Missing

3. If you answered yes to the first question, do you require one or more of the following:

32.3% mandatory operator training
25.8% certification of operators
3.2% licensure of operators

4. Which of the following groups of operators do you regulate by the above mechanisms?

35.5% site managers
25.5% supervisors
9.7% equipment operators
9.7% others

5. To which of the following does your regulation apply:

48.4% landfills
29.0% incinerators or waste heat recovery units
22.6% materials recovery facilities
22.6% transfer stations
16.1% others

Would you please share any comments or recommendations based on your experiences with implementation and management of and training, certification or licensure of solid waste operators that would assist in our study.

Wyoming - every permitted facility must have "qualified manager" which can be defined by the applicant for the permit

Washington - developing program with help from GRCDA for owner or operator in responsible charge

North Carolina - 1989 Session passed bill; by Jan. 1, 1996, all operators must have completed an operator training course approved by the Department (only training so far)

South Carolina - will require mandatory training and certification for site managers and supervisors (will use GRCDA)

North Dakota - will soon regulate site managers, supervisors and equipment operators

Arkansas - voluntary certification program has not been effective; mandatory licensing is drafted for Jan. 1991 legislature

Iowa - in regulatory process right now to require that certified operators be at site whenever it's open

Texas - law "encourages" owner or operator to employ as site manager a solid waste technician holding a letter of competency from Department.

New Hampshire - programs start August 1; mandatory training and certification with four levels of solid waste operators

New Jersey - has mandatory operator training, but moving towards even more regulation/certification and licensing of all solid waste facilities

Florida - Jan. 1, 1990 had to complete operator training course

Kentucky - certification program since 1982 and found it very beneficial

New York - has mandatory operator training and is in process of implementing certification of operators and licensure of operators

Missouri - mandatory training and certification (warns that we should limit certification to people actually working in facility)

Louisiana - mandatory training and certification of operators

Ohio - mandatory operator training and certification passed in 1988

Illinois - have contracted with a University to pilot test and validate their test questions

Idaho - have considered the recommendation that all operators attend GRCDA courses, but no certification required

South Dakota - regulations require solid waste operational personnel to be trained by the facility operator