United States General Accounting Office

GAO

Report to Congressional Requesters

June 1990

TRUCK TRANSPORT

Little Is Known About Hauling Garbage and Food in the Same Vehicles

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Resources, Community, and
Economic Development Division

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June 28, 1990

The Honorable Glenn M. Anderson, Chairman
The Honorable Bob McEwen, Ranking Minority Member
The Honorable William F. Clinger, Jr.
Subcommittee on Investigations
and Oversight
Committee on Public Works
and Transportation
House of Representatives

In response to your July 26, 1989, letter and as agreed in subsequent meetings with your offices, we have examined the practice of transporting municipal solid waste in multipurpose trucks that may also be used to carry consumer goods, such as food. Specifically, this report addresses the geographic area where "cross-hauling" may be occurring; the types of trucks, waste products, and foodstuffs involved; related environmental, economic, and health issues; and applicable federal laws and enforcement authorities.

Unless you publicly release its contents earlier, we will not make this report available to interested parties until 7 days after the date of this letter. At that time, copies of the report will be sent to the appropriate congressional committees; the Secretaries of Transportation, Health and Human Services, and Agriculture; the Administrator of the Environmental Protection Agency; the Chairman, Interstate Commerce Commission; the Commissioner of Food and Drugs; and the Directors, Centers for Disease Control and National Institutes of Health. We will also make copies available to others upon request.

This work was performed under the direction of Kenneth M. Mead, Director, Transportation Issues, (202) 275-1000. Other major contributors to this report are listed in appendix I.

J. Dexter Peach
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Executive Summary

Purpose

Press accounts in spring 1989 first alerted the public that some trucks that hauled garbage from the New York/New Jersey area to midwestern landfills were then used to carry meat, poultry, and produce. Concerned over the food contamination risk of alternately hauling, or "cross-hauling," garbage and foodstuffs, the Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, investigated and held hearings, concluding that the practice was occurring. The Subcommittee then asked GAO to examine the (1) geographic area where this may be occurring and the conditions fostering it; (2) types of trucks involved; (3) foodstuffs and types of garbage being transported; (4) associated health, economic, and environmental issues; and (5) federal laws, regulations, and enforcement tools available to address the practice. As agreed with the Subcommittee, this report does not discuss the transport of commodities in tank trucks.

Background

Traditionally, "garbage trucks" collect municipal waste (garbage), which includes household and commercial nonhazardous waste, and transport it to local landfills. In the Northeast, many landfills have closed and others are near capacity, leading some communities—from Connecticut to New Jersey—to ship garbage to distant landfills in multi-purpose trucks (closed, open top, and flat bed) that, at other times, may carry many different commodities. The Environmental Protection Agency (EPA) expects that, by 1991, 40 percent of our nation's 6,000 plus landfills will close, providing added incentive to ship garbage.

The food industry has primary responsibility for safe food transport. It carries out the Food and Drug Administration's (FDA) and the Department of Agriculture's (USDA) regulations related to food wholesomeness. EPA regulates environmental issues; the Department of Transportation (DOT) and the Interstate Commerce Commission (ICC) regulate trucking safety; and the Centers for Disease Control (CDC) and the National Institutes of Health (NIH) oversee health issues. FDA, CDC, and NIH are part of the Department of Health and Human Services.

Results in Brief

Transporting food in a truck that previously hauled garbage inspires high emotions in many individuals regardless of whether it presents a real or perceived problem. GAO found only limited, anecdotal information on the extent that food is being transported in trucks that previously carried garbage; the types of trucks that are doing so; or the foodstuffs carried. It is clear, however, that long-distance transport of garbage is on the increase and that it primarily originates in certain

northeastern communities that generate more garbage than they can dispose of locally. In these communities, the arrival of consumer goods, including food, by truck exceeds the quantity of goods leaving; garbage has become a paying trucking commodity on what might otherwise be an empty return trip. Each week, for example, about 9,000 truckloads of garbage from northern New Jersey and the New York City area are hauled for disposal to landfills from western Pennsylvania to Michigan. GAO visited four landfills and observed closed, open top, and flat bed trucks—the types of trucks that can also be used to transport consumer goods. The extent that the same trucks will subsequently carry food—or the types of food they would carry—is not known because federal regulations do not require this type of recordkeeping.

The contents of a truckload of garbage will vary and can include such diverse substances as discarded food, yard wastes, soiled disposable diapers, pesticides, and cleaning solvents. As a result, many people consider it disgusting and health endangering that such garbage might be hauled in a truck that later carries the food they eat. According to federal health and food safety experts, no research has been done to determine the risk of such transport-related food contamination. These experts also contend, however, that no food contamination in the United States has been linked to cross-hauling garbage and then food.

The food industry is responsible for ensuring that the trucks they use meet FDA's and USDA's cleanliness regulations, which do not include specific truck-cleaning procedures or require records to be maintained that could identify trucks that have also hauled garbage. According to FDA and USDA officials, the agencies' inspection resources are used where contamination is known to occur, such as in food preparation. Their inspectors do not test trucks for bacterial or chemical residues that may remain in a vehicle after it has carried garbage because such tests would be too costly, complex, and time-consuming and because they have found no instances of contamination from cross-hauling. Both federal and food industry inspectors rely on sensory inspection—if a truck looks, smells, and feels clean, it is considered safe for food transport.

Principal Findings

Long-Distance Garbage Transport Is Increasing

New Jersey, where several major landfills have closed due to capacity or environmental concerns, transported an estimated 195,000 truckloads of garbage to out-of-state landfills in 1989. New York also sent about 195,000 truckloads of garbage out of state, while Pennsylvania sent

about 65,000 truckloads. The quantity of New York/New Jersey garbage shipped out of state increased from less than 2 million tons in 1987 to about 9 million tons in 1989. Although long-distance transport of garbage now originates largely from Northeast urban centers, EPA and the disposal industry expect other urban areas, such as Chicago, to have similar landfill capacity problems that may force them to export garbage in the near future.

Limited Information on Trucks, Foods, and Wastes Involved

The extent that the same trucks carrying garbage may later carry food and the type of food they may carry is unknown because records are not required. Also, while the composition of individual truckloads of garbage will vary, estimates reported by EPA indicate that up to 1 percent of garbage contains hazardous material such as pesticides. Over a 58-hour period, GAO observed 157 multipurpose trucks—81 closed trailers; 53 open tops; and 23 flat beds—entering 4 landfills that accept Northeast garbage. The same types of trucks transport about 85 percent of all meat and fresh fruits and vegetables consumed in the United States. GAO spoke to 84 drivers at 2 of the landfills. All said they would next haul nonfood items, such as coal or machinery; none disclosed plans to haul food.

Health, Environmental, and Economic Issues

According to CDC and NIH officials, the two institutions are aware of no incidents of food contamination in the United States from cross-hauling garbage and then food nor any research to determine the potential risk or nature of such contamination. CDC is responsible for monitoring and investigating outbreaks of illness, and, according to CDC officials, its monitoring system has not detected any illness caused by cross-hauling. However, CDC officials acknowledge that the vast majority of food-borne illnesses are not reported to CDC and few reported cases are traced to their sources. Thus, while federal health experts may believe that the risk of food contamination from cross-hauling with garbage is low, they know neither the extent nor nature of the potential health risks.

Fostered by continuing environmental and economic concerns, such as decreasing disposal capacity and high disposal costs in certain areas (about $3,000 per truckload in New York City vs. $450 at some rural landfills), long-distance garbage transport is likely to increase in quantity and expand geographically. As the number of multipurpose trucks engaged in long-haul garbage transport increases, the likelihood that food will subsequently be carried in the same trucks also increases.

Federal Oversight

FDA requires that food be protected against physical, chemical, and microbial contamination during transport and USDA requires that vehicles used to transport meat and poultry be free of chemical residue and foreign matter. According to USDA and FDA officials, because they have found no instances of transport-related contamination, their inspectors do not test trucks for contaminants; moreover, such testing would not be practicable because so many possible contaminants exist and tests are lengthy and expensive. Inspectors focus where experience has shown that food contamination is likely to occur, such as in food preparation, and would test a truck only if contamination were linked to the truck.

The food industry will continue to be primarily responsible for the safe transport of food. Currently there are no federal requirements that truckers maintain records of commodities carried to alert food shippers to more closely inspect a truck or reject its use for "high risk" foods, such as fresh produce. Also no federal standards or guidelines exist for truck cleaning. GAO believes that, as a minimum, the food industry needs better recordkeeping by truckers to identify commodities hauled in trucks and standards and guidelines for truck cleaning if it is to provide reasonable assurance that food is being safely transported.

Recommendations

GAO recommends that the Secretary of Transportation take the steps needed, including seeking authorizing legislation, if necessary, to develop regulations requiring that truckers maintain specific records of commodities carried in trucks that carry food.

GAO also recommends that the Secretaries of Agriculture and Health and Human Services, in consultation with the Secretary of Transportation and the Administrator, EPA, develop standards and guidelines for truck cleaning.

Agency Comments

GAO discussed the information presented in this report with officials from CDC, DOT, EPA, FDA, NIH, and USDA and incorporated their comments where appropriate. The officials agreed with the factual information as presented and the report's conclusions. As directed by the requester, GAO did not obtain official comments on a draft of this report.

Contents

Abbreviations

AIDS	acquired immunodeficiency syndrome
CDC	Centers for Disease Control
DOT	Department of Transportation
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
FSIS	Food Safety and Inspection Service
GAO	General Accounting Office
HHS	Department of Health and Human Services
ICC	Interstate Commerce Commission
NIH	National Institutes of Health
NSWMA	National Solid Waste Management Association
OTA	Office of Technology Assessment
USDA	U.S. Department of Agriculture

Introduction

Historically, garbage has been a local, short-haul commodity, transported in traditional "garbage" trucks designed to facilitate garbage pickup in the neighborhood and dumping at a nearby landfill. Today, however, some communities, particularly in the Northeast, are generating more garbage than they can dispose of locally. To address this problem, long-haul, multipurpose tractor trailer trucks are being used to transport garbage to distant landfills. In 1989, the media reported, and various federal officials and two trucking firm owners confirmed, that some trucks were alternately hauling garbage and food.

Background

The trucking industry is composed of more than 260,000 firms and accounts for 77 percent of all freight transportation revenues in this country. Each year over 1 million private and commercial trucks are used in interstate transportation of industrial, commercial, and consumer goods. Open top, flat bed, and closed trailers (referred to as "dry vans" in the trucking industry) are the most common long-haul multipurpose trucks. Open top trucks generally haul bulk-type commodities, such as gravel, coal, or grain, and can be raised up to dump their loads. Flat beds carry bulky items, such as machinery or crated produce, and the loads are often exposed to the elements. Dry vans, which include refrigerated trucks, may be used to transport any number of commodities including manufactured goods, processed foods, and fresh produce and meat.

These trucks typically transport a variety of loads from point to point regionally or cross-country. For example, a dry van might carry crated machine parts from Chicago, Illinois, to Buffalo, New York; cases of boxed cereal from Buffalo to Richmond, Virginia; bound reams of fabric from Richmond to Baltimore, Maryland; and loose tires from Baltimore to Chicago. Carrying various products in alternating loads—machine parts, cereal, fabric, and tires in the example—is referred to as "cross-hauling."[1]

Since passage of the Motor Carrier Act of 1980, the number of firms in the trucking industry expanded and trucking became more competitive. When the Congress passed the Motor Carrier Act of 1935, it gave the Interstate Commerce Commission (ICC) authority to regulate the trucking industry. From 1935 until 1980, the ICC controlled entry, routes, services, and rates for motor carriers. The 1980 act changed the

[1]This practice is also referred to as "back-hauling," when the truck has a paying load on its return trip.

statutory requirements for entry, eliminated routing and service restrictions, and provided carriers with greater freedom to set rates.

Garbage and Long-Distance Transport

Municipal Solid Waste/ Garbage

The Environmental Protection Agency (EPA) is responsible for establishing guidelines for planning and developing environmentally sound waste management practices. The actual planning and implementation of waste programs, including disposal options, are state and local functions.

Municipal solid waste, which we generally refer to as "garbage" in this report, is generated at residences; commercial establishments, such as offices, retail shops, and restaurants; and institutions, such as hospitals and schools. As table 1.1 shows, municipal waste consists of paper, glass, metal, plastic, food, yard, and other wastes. While municipal waste is considered nonhazardous—disposal of hazardous waste is regulated separately—estimates reported by EPA indicate that up to 1 percent of municipal waste, such as cleaning solutions, drain openers, and pesticides, meet the definition of hazardous waste.

Table 1.1: Composition of Municipal Solid Waste/Garbage

Type of waste	Percentage by weight
Paper and paperboard	41.0
Yard wastes	17.9
Metals	8.7
Glass	8.2
Rubber, leather, textiles, wood	8.1
Food wastes	7.9
Plastics	6.5
Miscellaneous inorganic wastes	1.6

Source: "The Solid Waste Dilemma: An Agenda for Action," EPA, Office of Solid Waste, Feb. 1989

EPA reported that, in 1988, the nation generated about 160 million tons of garbage, of which 128 million tons was disposed of in landfills. EPA estimates that, by 1991, one-third of the nation's 6,000 plus landfills will be full while disposal needs continue rising. The problem is most acute in heavily populated Northeast metropolitan areas where landfill

capacity is insufficient to meet disposal needs. For example, because of the closure of major landfills in northern New Jersey, the amount of garbage disposed of in New Jersey's landfills dropped from 9.2 million tons in 1987 to 5 million tons in 1988, requiring New Jersey to find alternate disposal sites.

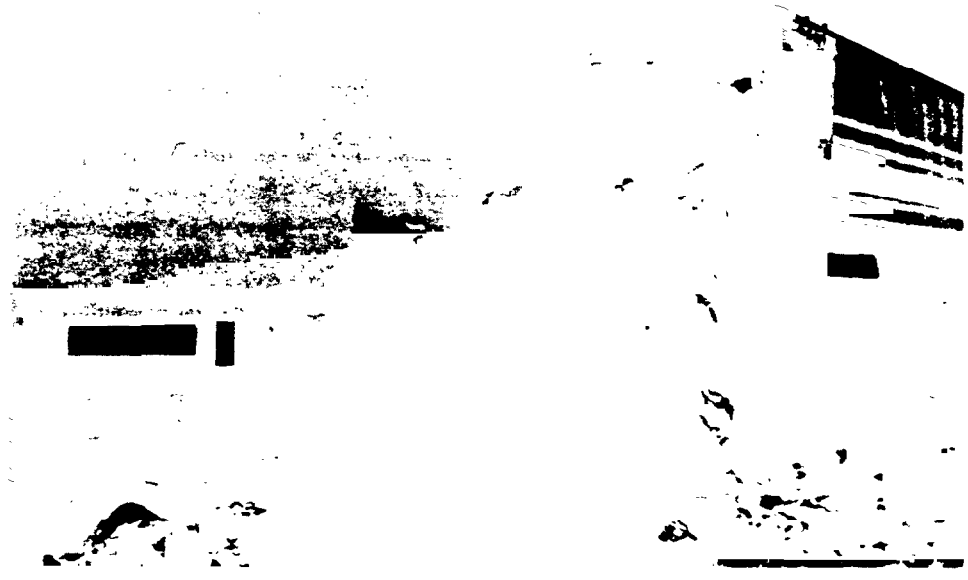
Many cities are having difficulty obtaining community approval to build new landfills or incinerators because people are concerned over potential danger to human health and the environment from contaminated groundwater and toxic combustion emissions, which have occurred at many disposal sites. Communities also resist the nuisance factors, such as noise, odors, and truck traffic, often associated with disposal facilities. This disposal "crisis" has led some cities to send their trash to other states in long-haul, multipurpose trucks.

Long-Haul Garbage Transport

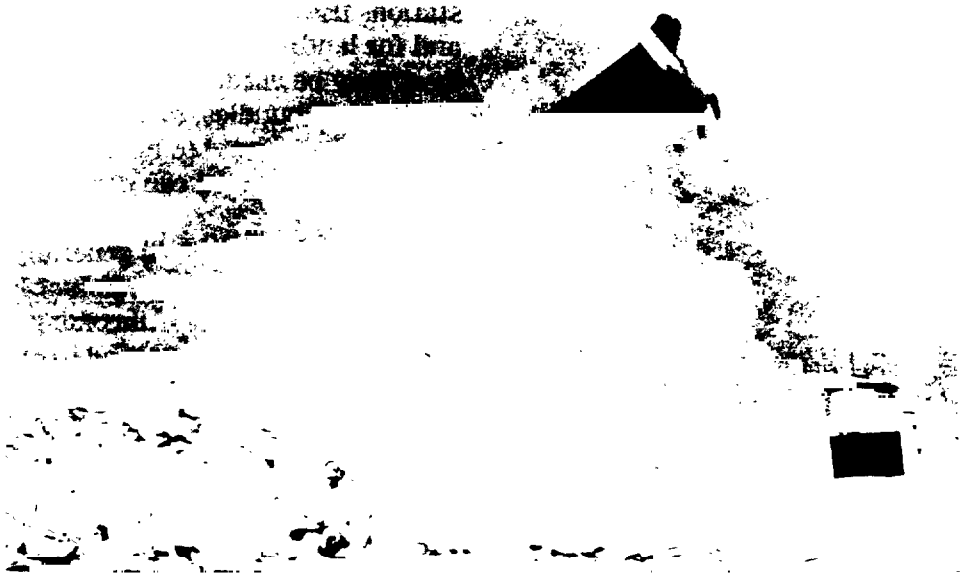
According to congressional testimony from trucking industry officials, an imbalance exists in freight movements in and out of certain Northeastern cities. Because these densely populated cities consume more than they produce, greater numbers of trucks are needed to meet the demand for food and other consumer goods traveling inbound than are needed to carry the limited freight hauled back to the South or Midwest. Many of these communities are the same communities that have a shortage of local landfill capacity. As a result, garbage has become a viable paying trucking commodity option to truckers facing the prospect of downtime or an empty return trip. Figure 1.1 consists of four photographs taken by ICC's Office of Compliance and Consumer Assistance in July 1989. They depict closed, open top, and flat bed trucks loaded with garbage.

Figure 1.1: Multipurpose Trucks Haul Garbage

Bales of garbage being loaded onto a flat bed trailer.



Bales of garbage being dragged by a towline out of a dry van.



Open top truck raised to dump a load of garbage.

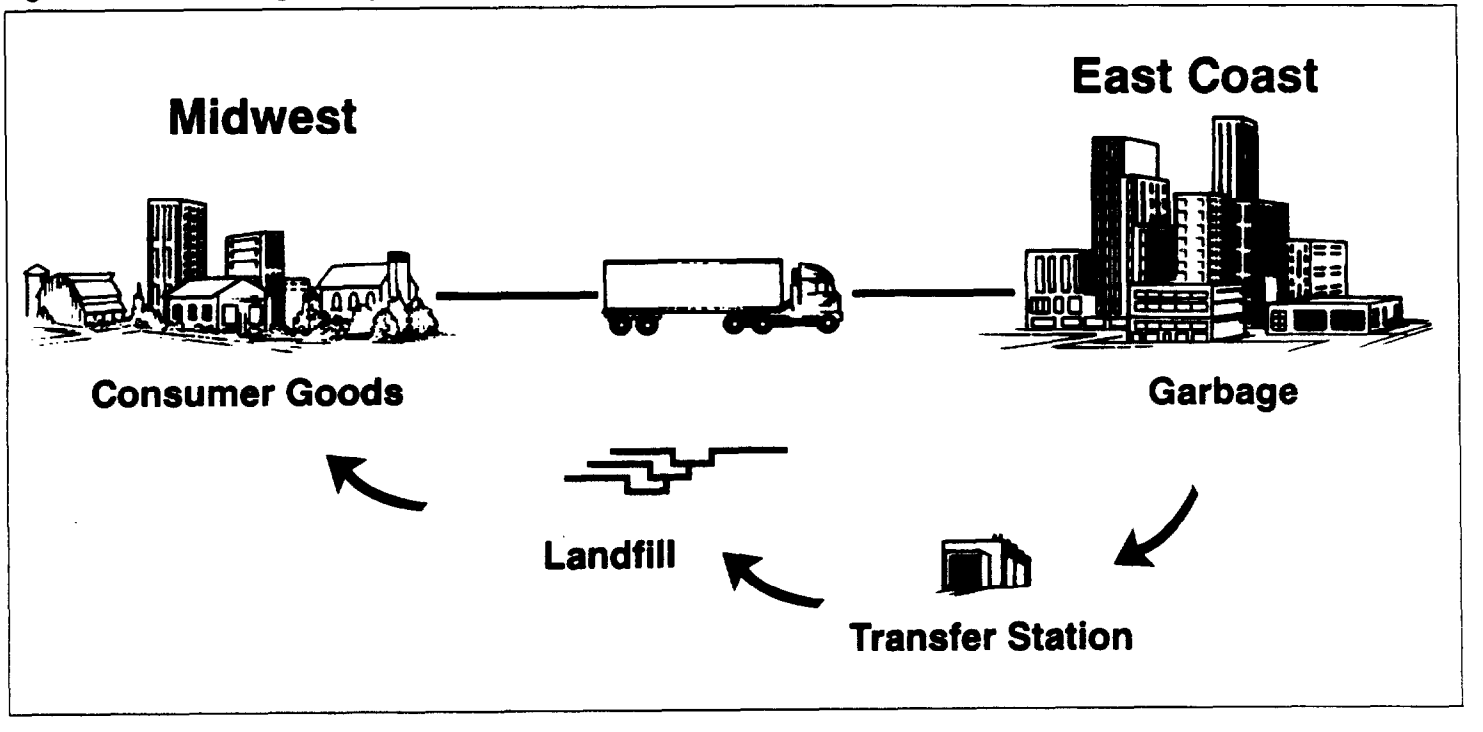
Open top trucks, flat beds, and dry vans form separate lines at landfill entrance because a different procedure is used to unload garbage from each type of truck.
Source: Interstate Commerce Commission.

Communities that export a portion of their garbage out of state generally use facilities called transfer stations for receiving waste collected by local garbage trucks and loading it onto long-haul trucks. The transfer

stations use brokers to arrange for long-haul trucks to transport garbage and for landfills to accept the truckloads of waste. Specialized equipment may be used, such as a baler, which compresses garbage into 1-ton wire-bound bundles, maximizing truck capacity. Crane and lift machinery are used to load and unload bundled garbage. A dry van, open top, or flat bed can carry 20-23 tons of garbage.

The transfer station will generally hire a broker to arrange for the trucks and contract with distant landfills to accept the truckloads of garbage. Truckers with incoming loads may be contacted by brokers or see advertisements directing them to the transfer stations. The broker contracts to pay the independent truckers or trucking companies and the landfills to dispose of the garbage. Figure 1.2 depicts the trucking cycle for cross-hauling garbage and consumer goods.

Figure 1.2: Cross-Hauling Garbage and Consumer Goods in Multipurpose Trucks



Federal Oversight Roles

Five federal agencies have regulatory responsibilities, as summarized below, for the environment, the wholesomeness of food, or truck transportation. Two of the agencies—the Food and Drug Administration and Department of Agriculture—have regulations applicable to the cross-hauling of food and municipal waste.

- Environmental Protection Agency (EPA). EPA is responsible, under the Resource Conservation and Recovery Act of 1976, as amended, for municipal (nonhazardous) waste and hazardous waste issues. EPA's role in municipal waste management includes establishing national minimum criteria for landfills and providing technical assistance to the states. EPA regulations address the transport of hazardous waste but do not address the transport of municipal waste. Primary responsibility for municipal waste management rests with the states.
- Food and Drug Administration (FDA). The Secretary of Health and Human Services (HHS) is responsible for administering the Federal Food, Drug, and Cosmetic Act, as amended (21 U.S.C. secs. 301-393). The Secretary's authority has been delegated to the Administrator, FDA. The act prohibits the adulteration of food, which includes food held in unsanitary conditions where it may become contaminated with filth or may be rendered injurious to health. Further, FDA requires that finished food be transported under conditions that protect it from physical, chemical, and microbial contamination as well as from deterioration of the food or the container. FDA has authority to conduct compliance inspections where food is prepared, processed, stored, or transported.
- U.S. Department of Agriculture (USDA). Sections 463 and 624 of Title 21 of the United States Code provide USDA with authority to inspect trucks that transport meat and poultry in commerce. USDA regulations require that vehicles used to transport meat and poultry be reasonably free of foreign matter, such as dust, dirt, and rust, and free of chemical residues. USDA's Food Safety and Inspection Service (FSIS) has been delegated responsibility for these activities and has authority to inspect vehicles used to transport meat and poultry.
- Interstate Commerce Commission (ICC). Although the ICC has authority over many aspects of truck transportation, the Congress has specifically exempted the transport of agricultural commodities from the Commission's jurisdiction.
- Department of Transportation (DOT). The Hazardous Materials Transportation Act, as amended, gives DOT responsibility to regulate the transportation of hazardous materials. DOT does not have the statutory authority to regulate the transportation of municipal solid waste.

In addition, the Centers for Disease Control (CDC), within HHS, maintains nationwide surveillance of many illnesses, including salmonellosis (a common type of food poisoning caused by salmonella bacteria), measles, and tuberculosis. CDC also investigates the cause of unusual illnesses, such as it did when AIDS first appeared, and unexplained increases in incidents of monitored illnesses. CDC does not identify potential sources

of illness and would not investigate the source of an illness until after an outbreak actually occurred.

Six bills have been introduced in the 101st Congress that address concerns about the cross-hauling of garbage and food. On March 27, 1990, the House passed H.R. 3386, which, as written, instructs the Secretary of Transportation to issue regulations covering the transportation of food and nonfood products in the same vehicle. At a minimum, these regulations must prohibit the cross-hauling, in refrigerator and tank food trucks,[2] of nonfood products that would make food products unreasonably dangerous to human health. Additionally, the regulations must require that asbestos and other products that present an extreme hazard to human health be carried in trucks dedicated to that purpose. This legislation has been referred to the Senate Committee on Commerce, Science, and Transportation.

Objectives, Scope, and Methodology

In a July 26, 1989, letter, the Chairman, the then Ranking Minority Member, and a member of the Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, asked us to examine several aspects of the food/garbage truck transport issue to supplement the Subcommittee's investigation. Following Subcommittee hearings on August 2 and October 5, 1989, and in subsequent meetings with the requesters' offices, we agreed to examine the

- geographic area where food/garbage cross-hauling may be occurring and the conditions fostering it,
- types of trucks involved,
- foodstuffs and nonhazardous wastes being transported,
- health, economic, and environmental issues associated with food/garbage cross-hauling, and
- federal laws, regulations, and enforcement tools available to address food/garbage cross-hauling.

As agreed with the Subcommittee, this report does not discuss the transport of commodities in tank trucks.

To determine the geographic areas involved, types of trucks involved, and the foodstuffs and nonhazardous wastes being transported, we interviewed officials and representatives from (1) EPA, ICC, FDA, USDA, and DOT; (2) the National Solid Waste Management Association, which

[2]Tank trucks were excluded from this review.

represents the waste disposal industry; (3) the American Trucking Association and Interstate Truckload Carriers Conference, which represent trucking firms and independent truckers; and (4) transportation and environmental programs in New Jersey, New York, Pennsylvania, and Ohio. We also interviewed the owners of two trucking firms who have transported garbage in multipurpose trucks. We reviewed documents, reports, and regulations supplied by the officials and representatives, including an ICC limited field study; reports of truck inspections conducted in June and July 1989, by ICC, USDA, FDA, and the Pennsylvania Department of Agriculture, at food warehouses and distribution centers; and an October 1989 Office of Technology Assessment (OTA) report entitled Facing America's Trash: What Next for Municipal Solid Waste?

We also visited a garbage transfer station in northern New Jersey and four landfills—two in Ohio and one each in Indiana and Virginia—to observe the types of trucks entering and leaving these facilities. We selected these landfills because they were identified by New York, New Jersey, or Pennsylvania officials as accepting out-of-state garbage. We excluded short-haul garbage trucks from our observations, which averaged 15 hours at each landfill. We interviewed the transfer station operator and 2 Ohio landfill operators and spoke to 84 truck drivers entering those 2 landfills to determine their knowledge and experiences regarding garbage/food cross-hauling. At the request of state officials, we did not enter the landfills in Virginia and Indiana; therefore, we did not speak to the operators or the truck drivers at those facilities.

To determine the health issues associated with cross-hauling garbage and food, we met with officials from the National Institutes of Health (NIH), CDC, FDA, USDA, and state health officials from New Jersey and Pennsylvania. We reviewed CDC's studies and reports monitoring foodborne diseases.

To determine the economic and environmental conditions that gave rise to long-haul garbage transport, we (1) interviewed officials on EPA's Municipal Solid Waste Program Task Force and reviewed OTA and EPA municipal waste studies, regarding the problems associated with land disposal, short-term and long-term trends in waste generation and disposal capacity, and options to landfills and (2) reviewed testimonies by trucking companies and associations and interviewed representatives of the American Trucking Association, regarding economic issues relating to why truckers are transporting garbage in long-haul, multipurpose trucks. We also reviewed environmental and trucking laws and EPA's

April 1987 report entitled "Study of Joint Use of Vehicles for Transportation of Hazardous and Nonhazardous Materials."

To determine existing federal regulations and enforcement tools that could apply to cross-hauling food and garbage, we reviewed laws and regulations and discussed with officials from DOT, ICC, EPA, FDA, and USDA, the agencies' responsibilities for transportation, the environment, and ensuring the wholesomeness of the food supply.

Our work was performed from August 1989 through May 1990 in accordance with generally accepted government auditing standards. DOT, EPA, FDA, ICC, and USDA officials and representatives of the food, trucking, and disposal industries testified on this issue at one or more of several congressional hearings held between August 1989 and March 1990. We have incorporated agency and industry views, as expressed in the testimonies, where appropriate. In addition, we discussed the information presented in this report with officials from CDC, DOT, EPA, FDA, NIH, and USDA who agreed with the factual information as presented and with the report's conclusions. DOT expressed concern that it does not have the technical expertise to develop safe food transport regulations as required in pending legislation. USDA and FDA officials emphasized the complexity and high cost that would be involved if trucks had to be tested for bacterial and chemical residues. As directed by the requesters, we did not obtain official comments on a draft of this report.

Long-Haul Transport of Garbage—A Limited but Growing Activity

Long-haul truck transport of garbage is currently expanding in certain Northeast cities where local landfill capacity is rapidly declining. In 1989, for example, approximately 460,000 truckloads of garbage—about 10.6 million tons[1]—was transported from New York, New Jersey, and Pennsylvania to out-of-state landfills. By comparison, in 1987 state records indicate that these states exported less than 2 million tons of garbage to distant landfills. Although a few other states, including Ohio and Illinois, are transporting garbage out of state, the practice appears to be concentrated in the Northeast.

Landfills in states from Virginia to Michigan have accepted garbage from New Jersey and other northeastern states. We visited 4 such landfills and observed 157 multipurpose trucks—81 dry vans, 23 flat beds, and 53 open tops—from out of state, entering the landfills during 58 hours of observation time.

In Northeast urban centers, where garbage disposal problems are most acute and the demand for consumer goods entering the area exceeds the shipment of goods leaving, garbage has become a competing long-haul trucking commodity. Food is another such commodity. However, the extent that the same trucks will alternately haul garbage and then food in the Northeast and elsewhere is unknown.

Environmental concerns and economic conditions encourage the expansion of long-haul garbage transport. Stringent landfill design and operation criteria required by EPA, which include such environmental aspects as groundwater monitoring, are costly. In the absence of local landfill space or to counter the higher cost of dumping at nearby landfills that are still open—about $3,000 per truckload in the New York City area—some communities transport garbage by truck to midwestern landfills where dumping fees are about $450 per truckload. Truckers also benefit economically when otherwise empty trucking miles are converted into revenue-paying miles. These environmental and economic factors, in turn, increase the likelihood that food will be cross-hauled in the trucks that previously carried garbage.

[1]Number of truckloads multiplied by an average load of 23 tons per truck, the average amount of garbage carried by a long-haul multipurpose truck, according to garbage shippers and landfill operators.

Northeast Garbage Transported in Multipurpose Trucks

Over the past 2 years, municipalities in the Northeast have dramatically increased the amount of waste sent by truck to out-of-state landfills. In densely populated Northeast communities, garbage generation is increasing, local landfills are reaching capacity and closing, remaining disposal capacity is becoming increasingly expensive, and new disposal facilities are not being built quickly enough to keep up with demand. New York and New Jersey are facing what their officials consider a disposal crisis. We estimate that, in 1989, these states shipped over 395,000 truckloads, or 9 million tons, of garbage to out-of-state landfills. Southeast Pennsylvania, which also has a severe landfill capacity problem, sent approximately 65,000 truckloads of garbage out of state. A few other states, in and outside the Northeast region, are exporting some of their garbage, although to a much lesser degree.

New York

In its latest Solid Waste Management Plan, New York concludes that most of its 253 landfills will close by 1995 because they will reach capacity or they will violate state environmental standards such as those for ground- or surface water protection. In 1987, New York transported 0.5 million tons of garbage out of state. New York estimated that, in 1989, the amount of garbage transported out of state had grown to 4.5 million tons. Most of the garbage comes from commercial transfer stations in New York City and surrounding municipalities on Long Island and is transported by truck to landfills mainly in Ohio and Pennsylvania.

New Jersey

According to the New Jersey Department of Environmental Protection, New Jersey is facing a disposal crisis because it generates more garbage than it can dispose of in-state. In previous years New York and Pennsylvania had sent truckloads of garbage to New Jersey's landfills until, in 1988, New Jersey legally stopped this practice. In addition, New Jersey has closed a number of major landfills and now must export much of its garbage. As recently as 1987, New Jersey disposed of 9.2 million tons of garbage in its own landfills. By 1988 the amount of garbage disposed of in-state had dropped to 5 million tons. New Jersey attributed the decrease to its closing of several major landfills that either had reached capacity or did not meet environmental standards. In 1989, New Jersey shipped about 4.5 million tons of garbage out of state. Almost all of New Jersey's northern counties send their locally collected garbage to transfer stations where it is loaded onto flat beds, open top trucks, or dry vans for out-of-state disposal in Illinois, Indiana, Kentucky, Michigan, Ohio, Pennsylvania, Virginia, and West Virginia.

Pennsylvania

In 1989, Pennsylvania disposed of 4.3 million tons of non-Pennsylvania garbage, primarily from New Jersey and New York, in Pennsylvania landfills, while at the same time exporting approximately 1.5 million tons of garbage for disposal out of state. The majority of garbage hauled out of Pennsylvania comes from commercial transfer stations in and around Philadelphia. According to a Pennsylvania Department of Environmental Resources official, landfills in the Philadelphia area have set daily capacity limits on the quantity of garbage they will accept in an effort to prolong the remaining life of the landfills. Because the daily limits are below the quantity of garbage that the Philadelphia area generates, it is sending the excess, by truck, to landfills in Indiana, Kentucky, Ohio, and West Virginia.

Other States

We found only sketchy, mostly anecdotal information regarding the extent to which other locations may be shipping garbage by truck to distant landfills. As we note below, we spoke with two drivers of dry vans dumping at an Ohio landfill who told us they were carrying garbage from West Virginia and Connecticut. A third driver told us his load originated from within Ohio. According to an October 1989 OTA report, Illinois, Missouri, Ohio, and Wisconsin are exporting garbage, at least to some extent, to other states.[2] The report notes that, while interstate transport of garbage appears to have increased, little concrete information is available.

Multipurpose Trucks Haul Garbage to Distant Landfills

New Jersey reports that at least 32 out-of-state landfills (in Pennsylvania, Ohio, Illinois, Indiana, Michigan, Virginia, West Virginia, and Kentucky) have accepted truckloads of New Jersey garbage. Ohio's waste management plan acknowledges that 30 of its 130 landfills accepted out-of-state garbage in 1988. Also, Pennsylvania reports 21 of its 71 landfills accepted garbage from New Jersey or New York during 1989. However, according to state officials, none of the landfills maintain records on the types of trucks transporting garbage.

We visited four of the landfills that reportedly have accepted truckloads of out-of-state garbage—two in Ohio and one each in Virginia and Indiana. At the request of state officials, we did not enter the Virginia and Indiana landfills; therefore, we did not speak with the operators or

[2]Facing America's Trash: What Next for Municipal Solid Waste?, OTA-O-424, Oct. 1989

truck drivers at these facilities. The two landfill operators we interviewed in Ohio told us they do not maintain records on the types of trucks dumping at their facilities.

At the first of the two Ohio landfills, the facility operator told us that the landfill receives about 40 percent of its garbage from out of state. The operator pointed out, however, that the facility does not have the special equipment necessary to unload dry vans and flat bed trucks; therefore all of the out-of-state garbage was shipped in open top trucks. We spoke to 29 drivers of out-of-state trucks at the first Ohio landfill. Ten of the drivers told us they planned to next haul commodities such as coal, stone, and concrete. Nineteen planned to return empty to the East Coast. None said they would haul food next. As table 2.1 shows, the drivers reported that the garbage originated in New York, New Jersey, and Pennsylvania.

The second Ohio landfill, according to its operator, received approximately one-third of its garbage from out of state. That landfill does have equipment to unload dry vans and flat bed trucks. Of 55 out-of-state truck drivers we spoke to, 20 operated dry vans, 18 operated open top trucks, and 17 operated flat bed trucks. Most of the drivers said they planned to haul commodities, such as steel and motor oil on their next load. None of the drivers told us they would use their truck next to carry a shipment of food. As table 2.1 shows, the 55 drivers told us the garbage came from New York, New Jersey, Pennsylvania, West Virginia, Connecticut, and Ohio.

Table 2.1: Origin of Garbage Hauled by Drivers Spoken to in Ohio

	Number of truckloads	
Origin of waste	**First landfill**	**Second landfill**
New York	10	31
New Jersey	14	14
Pennsylvania	5	7
Ohio	0	1
West Virginia	0	1
Connecticut	0	1
Total	**29**	**55**

At private landfills in Virginia and Indiana, we observed that the trucks entering the facilities were almost exclusively long-haul (from their license plates) multipurpose trucks. However, because we did not speak to the drivers, we were unable to determine the origin of their loads In

Virginia, we observed 30 trucks entering the landfill: 18 were dry vans, 6 open top, 6 flat beds. In Indiana, we observed 43 trucks entering the landfill: all were dry vans.

Overall, 157 long-haul multipurpose trucks entered the four landfills during the 58 hours of our observations. Table 2.2 shows that 51 percent were dry vans, 34 percent were open top trucks, and 15 percent were flat beds. However, records were not maintained by landfill operators or state officials regarding the type of commodities—such as food—that the trucks would carry next.

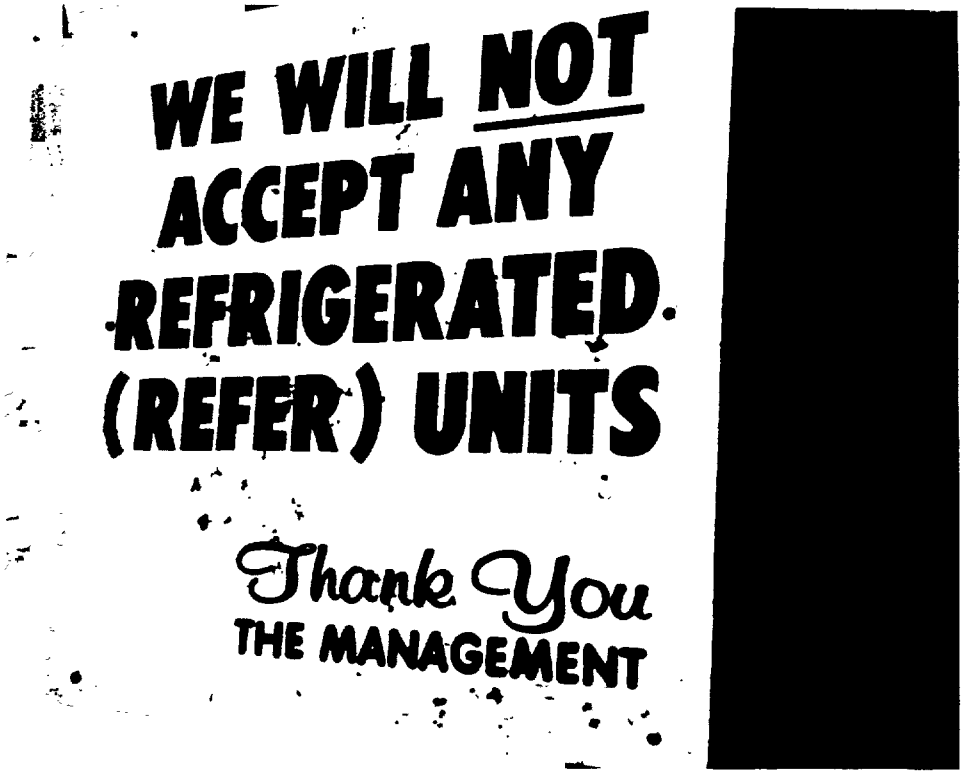
Table 2.2: Types of Long-Haul Multipurpose Trucks Observed Entering Four Landfills

	Landfills					
Truck type	Ohio—first	Ohio—second	Virginia	Indiana	Total	Percent by truck type
Dry van	0	20	18	43	**81**	51
Open top	29	18	6	0	**53**	34
Flat bed	0	17	6	0	**23**	15
Total	**29**	**55**	**30**	**43**	**157**	

Special attention was given by the media and at the congressional hearings on the use of refrigerated trucks to haul garbage, especially since these trucks frequently carry perishable foods. We observed two refrigerated trucks entering landfills—one in Virginia and one in Indiana. However, since we were asked not to enter these landfills, we were unable to interview the drivers in an attempt to determine if these trucks cross-haul food.

At both of the Ohio landfills we visited, the operators stated that, since the summer of 1989, they had not permitted refrigerated trucks to dump in their facilities. The owner of these two landfills, a major waste management corporation, testified that because of adverse publicity over cross-hauling, reputable brokers do not want to use refrigerated trucks to transport garbage. Figure 2.1 shows a sign referring to refrigerated trucks at the entrance to one of the Ohio landfills.

Figure 2.1: Sign Outside Ohio Landfill



Extent of Garbage/Food Cross-Hauling Unknown

Multipurpose trucks transport about 85 percent of all meat and fresh fruits and vegetables consumed in the United States.[3] The extent to which the same trucks cross-haul garbage remains unclear. However, testimony by truckers engaged in garbage/food cross-hauling, investigations by ICC and others, and anecdotal information from trucking firms confirm that the practice is occurring.

Documented Examples of Garbage/Food Cross-Hauling Limited

We spoke with officials of a Pennsylvania-based trucking firm and a West Virginia-based trucking firm. Each uses dry vans to transport garbage. One official told us his company does not transport food. The other acknowledged that his firm uses the same trucks to transport packaged food but emphasized that they do not carry perishable food products.

[3]Taff, Charles A., Ph.D., Commercial Motor Transportation, 7th ed. (Centerville, Md: Cornell Maritime Press, 1986).

None of the 84 truck drivers we spoke to at the two Ohio landfills told us that they transport food in the same truck used to haul garbage. Because drivers are not required to keep a specific record of the nonhazardous commodities they transport, we were unable to verify their responses.[1] Considering the media attention that cross-hauling food and garbage has received and concern that the practice might not be completely legal, the drivers' responses were not surprising.

In response to media attention regarding cross-hauling, several teams of federal agents from FDA, ICC, and USDA, together with officials from the Pennsylvania Department of Agriculture, inspected 300 trucks during June and July 1989. These inspections were conducted at food distribution centers in Philadelphia, Pennsylvania; a grocery warehouse in Pittsburgh, Pennsylvania; and cold storage warehouses in Wilmington, Delaware. The inspectors were unable to determine if any of the trailers had previously been used to transport garbage. During interviews with over 50 drivers, 2 of the drivers admitted to the federal inspectors that they had hauled garbage in food trucks for former employers.

The ICC was able to document one case of garbage/food cross-hauling by reviewing a trucking firm's records after one of the firm's refrigerated trucks was observed by ICC agents unloading garbage at a landfill in Ohio. ICC determined that the trailer had been loaded 29 times from March 10 through June 30, 1989. During that period, the trailer carried 8 loads of fresh meat, 6 loads of garbage, and 15 other miscellaneous shipments.

Pennsylvania Prohibits Garbage/Food Cross-Hauling

With limited knowledge of the extent of garbage/food cross-hauling but in apparent response to public concern about the practice, on March 13, 1990, Pennsylvania became the first state to ban the knowing use of the same truck to carry garbage in one load and food in the next. The new law subjects first-time violators to a fine of $1,000 to $10,000. A second violation carries a fine of $5,000 to $25,000 or a possible 1-year suspension of the truck driver's license. The law also deems any truck used in committing the offense to be contraband and, therefore, allows the state to confiscate it. Pursuant to the law, Pennsylvania state police will set up a toll-free phone number for the public to use to report violators.

[1]Federal regulations require truck drivers to maintain a log of such activities as driving, sleeping, and off-duty times.

Pending Legislation Addresses Cross-Hauling at Federal Level

As we noted in chapter 1, six bills have been introduced in the 101st Congress that address concerns about the cross-hauling of garbage and food. On March 27, 1990, the House passed H.R. 3386, and referred it to the Senate. As written, H.R. 3386 requires the Secretary of Transportation to issue regulations covering the transportation of food and nonfood products in the same vehicle. These regulations must, at a minimum, prohibit nonfood products that make food unreasonably dangerous to human health from being cross-hauled in refrigerated and tank food trucks. The regulations also must require that asbestos and other products that present an extreme hazard to human health be carried in trucks dedicated to that purpose. DOT officials expressed concern to us that they do not have the technical expertise that will be needed to develop the safe food transport regulations required in pending legislation. In their view, agencies such as FDA and USDA are more knowledgeable and better able, technically, to address safe food transport issues.

Environmental and Economic Conditions Foster Long-Haul Garbage Transport

As the number and capacity of local landfills decrease, the demand for long-distance transport of garbage increases, and with it the likelihood of cross-hauling food and garbage. Both environmental and economic conditions contribute to the demand for long-haul transport of garbage in multipurpose tractor trailer trucks.

Environmental Factors

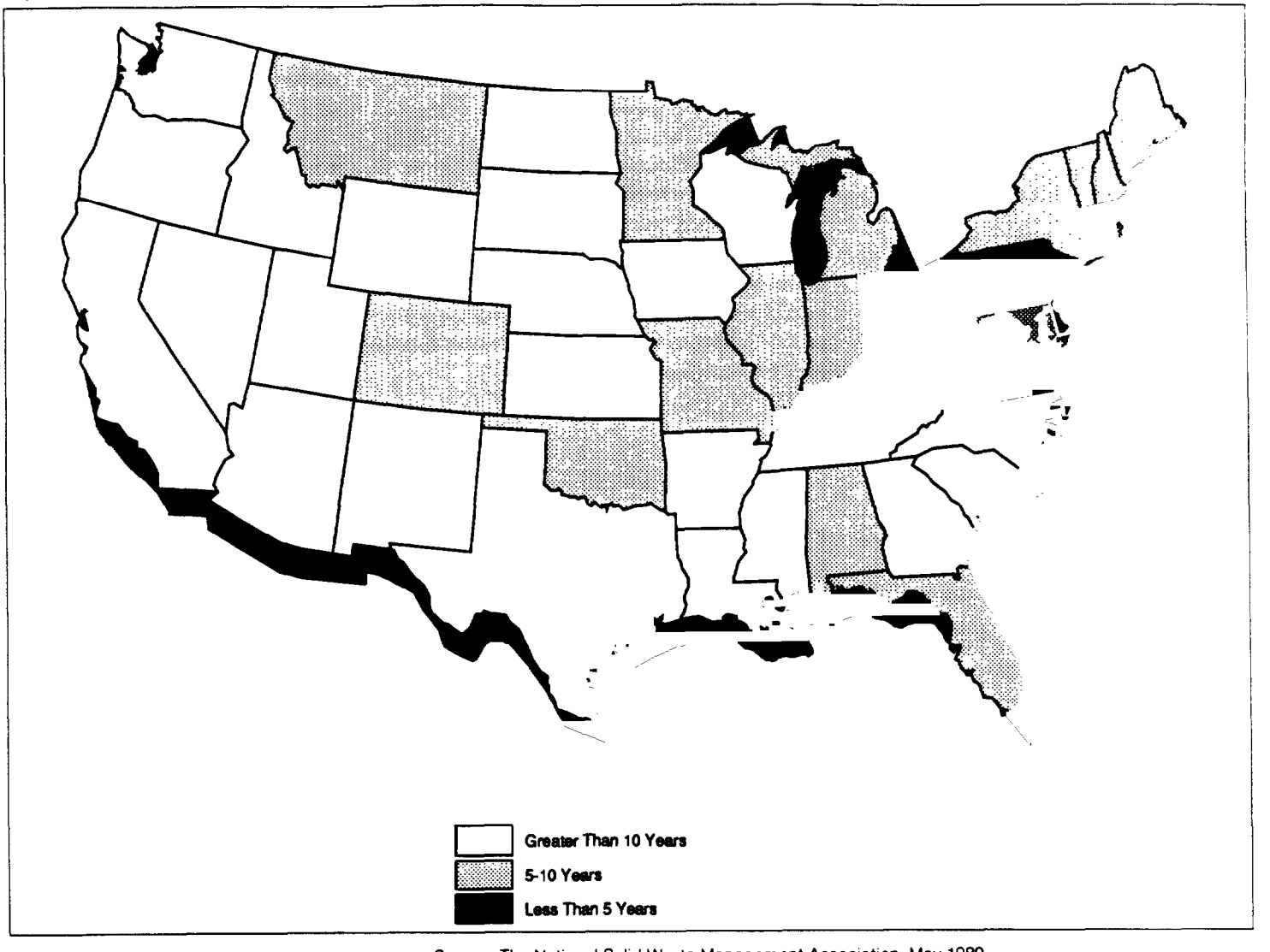
EPA estimates that over one-third of the nation's approximately 6,000 municipal solid waste landfills will reach capacity and close by 1991. While this does not equate to a similar reduction in disposal capacity—newer landfills in some cases are much larger—total disposal capacity is declining and new landfills are not being built quickly enough to replace capacity at closing facilities. According to representatives of EPA and the disposal industry, a major obstacle to building new disposal facilities, which on average take 5 years to locate and build, has been the difficulty in finding environmentally suitable locations that are also acceptable to community residents.

In August 1988, EPA proposed regulations placing more stringent criteria on the design and operation of municipal landfills. States will have 18 months to implement the new standards, which EPA expects to issue in June 1990. These more environmentally protective criteria include, among other things, new groundwater monitoring and landfill lining requirements. EPA officials expect that at least some landfills that are nearing capacity will close before they are full rather than incur the

expense to bring the facilities into compliance with the new requirements. The criteria also set construction standards for new landfills.

According to a task force official, capacity problems are most acute along the East Coast (the New York City/New Jersey/Philadelphia metropolitan area) and in population centers in the Midwest (particularly Chicago) and on the West Coast (particularly Los Angeles and Seattle). In May 1989, the National Solid Waste Management Association (NSWMA), a trade association representing 2,700 waste service companies including landfill operators and garbage transportation and disposal firms in the United States and Canada, reported that a number of states would exhaust their landfill capacity in the next 5 to 10 years (see figure 2.2) and more and more communities may turn to exporting their waste over that time.

Figure 2.2: Years to Depletion of State Landfill Capacity



Source: The National Solid Waste Management Association, May 1989.

Alternatives to landfills, such as incineration and recycling, have, thus far, proven to be less than ideal. The former, because of the public's concern over the effects of incinerator emissions on the atmosphere; the latter, because it requires community cooperation and markets for the recycled materials, to be fully effective.

EPA estimates that about 160 incinerators are currently in operation; and communities in all geographic areas, especially in the Northwest and

along the West Coast, have implemented some type of recycling program. Also, according to EPA officials, new incinerator regulations, proposed in December 1989, establish strict criteria aimed at minimizing incinerator emissions and call for continuous emissions monitoring on all new incinerator construction begun after the date that these regulations were proposed. With the new regulations, both landfills and incinerators are going to be much more expensive to construct and operate, according to EPA's Municipal Solid Waste Program Task Force. Using long-haul, multipurpose trucks to transport garbage to distant landfills where capacity is available is a relatively simple, possibly even cost-saving, option available to municipal planners when compared with the cost of constructing new disposal facilities. In May 1989, NSWMA estimated the cost of a new landfill at about $87 million.[5]

Economic Factors

Long-haul transport of garbage has become a more practical economic alternative because recent landfill capacity problems have resulted in insufficient local landfill space and higher disposal charges in areas where landfill space is scarce. Landfill capacity is depleted more quickly and tipping fees[6] are generally higher in heavily populated areas where disposal demand is the greatest. Heavily populated areas also have a greater demand for the types of consumer goods and commodities that travel by long-haul trucks—but these communities may not generate enough goods to fill those trucks on the return trip. This scenario—not enough local disposal space or the likelihood of higher local disposal cost for communities and the promise of a paying load vs. an empty trailer for truckers—is one in which garbage becomes a viable long-haul trucking commodity, as it has in New York City. To the extent that this scenario is repeated, long-distance transport of garbage will likely increase.

In 1988, NSWMA surveyed tipping fees at landfills and transfer stations across the country. As figure 2.3 shows, tipping fees in the New York metropolitan area, as well as in nearby New Jersey and Pennsylvania, were among the highest in the nation—up to $132 per ton—as compared with $20 or less in many rural Midwest locations.[7] This means that a truck loaded with 23 tons of garbage—an average load according

[5]Cost in 1988 dollars including land acquisition.

[6]A tipping fee is the price per ton that a landfill or transfer station charges for accepting garbage.

[7]The NSWMA survey was based on a judgmental rather than a random sample and may not accurately estimate true averages of all tipping fees across the country.

to communities exporting the garbage—would be charged $3,036 to dump in a New York City area landfill but only $460 to dump in a rural Midwest landfill.

The economic incentive for communities to transport their garbage long distances might be mitigated to some degree if the cost of disposal at distant landfills increases. Municipalities that export garbage will have the option of paying higher disposal costs to use landfills closer to them or paying higher transportation costs to haul the garbage to even more distant facilities. Communities may respond to these cost-based incentives by turning toward incineration or other alternative methods of disposal.

Figure 2.3: Landfill and Transfer Station Tipping Fees in 1988

Location	Price Per Ton
ALABAMA	
Huntsville	$10.50
ARKANSAS	
Fayetteville	24.00-27.00*
N. Little Rock	6.75*
CALIFORNIA	
Long Beach	17.00(T)[1]
Los Angeles	
	no fee; municipal access only
Richmond	31.24
Sacramento	8.00
	22.50(T)
San Diego	10.00
San Francisco	45.20(T)
COLORADO	
Boulder	10.50*
Denver	10.65*
CONNECTICUT	
Hartford	35.00
New Milford	66.00
DELAWARE	
Kent County	24.82
New Castle County	37.30
Sussex County	22.80
FLORIDA	
Broward County	32.00
Dade County	27.00
	32.00(T)
Tampa	27.40
	56.40(T)
GEORGIA	
Atlanta	13.50*
HAWAII	
Honolulu	13.00
ILLINOIS	
Bloomington	13.20*
Chicago	19.20*
Macomb	9.00*
Ottawa	14.70*
INDIANA	
Fort Wayne	21.00-24.00*
Indianapolis	15.15*
KANSAS	
Wichita	4.07-4.64*
LOUISIANA	
New Orleans	9.75*
MARYLAND	
Baltimore County	40.00
Montgomery County	46.00(T)
Prince George's County	35.00
MASSACHUSETTS	
Fall River	75.00
Haverhill	65.00
Plainville	55.00-75.00
	(under contract only)
MICHIGAN	
Detroit	26.00
Jackson County	32.00
Kent County (Grand Rapids)	23.60
Lansing	14.55
MINNESOTA	
Dakota County (St. Paul)	40.06
MISSOURI	
Kansas City	13.00
St. Joseph	8.55*
St. Louis	13.50*
NEBRASKA	
Lincoln	8.00
NEVADA	
Las Vegas	6.00*
	9.00*(T)
NEW JERSEY	
Atlantic County	60.78*
Burlington County	31.53*
Camden County	41.97
Cape May County	41.05
Essex County (Newark)	101.65(T)
Gloucester County	48.57
Mercer County	77.49(T)
NEW YORK	
Islip	40.00
New York City	120.00*
	132.00*(T)
Rochester	30.00-40.00
	40.00(T)
NORTH DAKOTA	
Bismark	9.00
OHIO	
Cincinnati	15.51*
Cleveland	22.50*
Lorain County (Elyria)	15.51*
Youngstown	12.51*
OKLAHOMA	
Tulsa	12.75*
PENNSYLVANIA	
Chester County	25.00
Erie	19.80*
Northampton County	60.00
Philadelphia	65.00(T)
Pittsburgh	30.00
	(under contract only)
RHODE ISLAND	
Providence	49.00
	(11.00 to municipalities)
Warwick	60.00(T)
	(21.35 to municipalities)
SOUTH CAROLINA	
Spartanburg County	4.75
TENNESSEE	
Memphis	7.50*
Nashville	9.00
TEXAS	
Austin	7.50*
Clute	10.50*
Dallas	7.00-9.24*
San Antonio	9.35
VIRGINIA	
Fairfax County	24.00
	24.00(T)
	(14.00 to D.C. govt.)
Prince William County	18.50
Henrico County (Richmond)	23.00
Suffolk	25.00
WASHINGTON	
King County (Seattle)	42.00
	47.00(T)
WISCONSIN	
Green Bay	9.55
Madison	12.50
Germantown	14.25-23.10*
SAMPLE AVERAGE	
Landfills:	**$26.93/ton**
Transfer:	**$51.68/ton**

(T) denotes transfer station.
* Per-ton price derived from cubic yard charge.

Source: National Solid Waste Management Association, 1988.

From the perspective of the trucking industry, the economic incentive to transport garbage out of the Northeast is very real: it turns otherwise empty miles into revenue miles, thereby reducing the need to recover all costs from revenue gained carrying goods (including food) into the Northeast. As we noted earlier, the demand for products carried into these communities by truck exceeds the demand for goods moving out of these areas. For example, the ICC reports that large food markets at locations such as Hunts Point in New York City or one of the many supermarket distribution centers scattered throughout the Northeast and Mid-Atlantic states receive hundreds of truckloads of food daily from Midwest producers. Once unloaded, the trucks may sit idle for days or even weeks waiting for a return load.

Allowing trucks that carry food to haul garbage on return trips can also benefit the food purchaser. If trucking companies can earn revenue hauling garbage, competition among the companies may lead to lower costs for shipping food. Depending on market conditions, this may in turn lead to lower food prices for consumers. If trucking companies are legally restricted from earning revenue from hauling garbage, they will need to earn more revenues from transporting other commodities to stay in business. Such restrictions, therefore, might raise food shipping costs and food prices, although these price increases could be quite small.

If certain trucks were dedicated to transporting a particular commodity exclusively—in this case garbage or food or both—society would have to expend more resources moving its commerce. Greater investment in dedicated truck and trailer capacity would be needed if the same trucks could not be used for multiple purposes. In addition, more total miles would be required to haul the same set of commodities, imposing the extra costs on society associated with faster highway deterioration, more traffic congestion, and more pollution.

Conclusions

Economic and environmental factors have encouraged the long-haul transport of garbage in multipurpose trucks from New York, New Jersey, and Pennsylvania. Multipurpose trucks also carry consumer goods and food into these areas. However, only limited, mostly anecdotal, information exists on the extent that the same trucks carrying garbage are subsequently used to carry food. To the extent that garbage can be safely cross-hauled with other commodities, it appears to be an economically viable business practice that provides a waste-disposal alternative for urban centers, a means to avoid "running empty" on return trips for truckers, and lower commodity and disposal costs to

consumers. As the number of multipurpose trucks engaged in long-haul garbage transport increases, to a large part because of the economic and environmental factors, the likelihood that food will be carried in the same trucks also increases.

Experts Do Not Know Potential Food Contamination Risks From Cross-Hauling Garbage and Food

Both FDA and USDA have general cleanliness standards applicable to vehicles used to transport food and certain other consumer goods. However, because no instances of transport-related contamination have been reported, FDA and USDA officials said that these regulations, as applied, are limited to sensory—visual, smell, and touch—inspection. The two agencies, according to officials, focus their inspection resources in areas such as food preparation, where experience has shown that food contamination is most likely to occur.

With regard to multipurpose trucks that haul garbage and other commodities, the federal government does not require that (1) standard cleaning procedures be used before hauling food or (2) drivers keep records on the commodities they haul or trucks be identified in any way to focus attention on trucks that may need close scrutiny. A professor of food science at Pennsylvania State University, who supports banning the hauling of food after garbage in the same truck, testified that truck beds could harbor bacteria that current variable cleaning methods may not destroy.

According to officials of the Centers for Disease Control (CDC) and National Institutes of Health (NIH), the two institutions have no knowledge of any documented contamination having occurred in the United States from transporting food in trucks that previously carried garbage. Using multipurpose trucks to carry garbage, according to these officials, is a relatively new activity; and detectable adverse health effects may not have emerged. In addition, no research has been performed to determine microbial or chemical contamination that might remain in a vehicle after it has carried garbage or the risk of contamination to a subsequent load of food.

Limited Inspection of Trucks That Transport Food

Within the federal government, FDA and USDA are tasked with ensuring the wholesomeness of the nation's food supply. Both agencies have specific regulations that apply to the conditions for transporting certain foods. USDA and FDA officials informed us that they are aware of no instances of food contamination in the United States traced to food being transported in a truck that had carried garbage. FDA and USDA rely extensively on the food industry to implement their regulations and ensure the safe transport of food.

Federal Inspection Tools

USDA's Food Safety and Inspection Service (FSIS) is responsible for the safe handling of meat and poultry products. FSIS regulations include the following vehicle sanitation requirements.

"...[T]he means of conveyance shall be reasonably free of foreign matter (such as dust, dirt, rust, or other articles or residues), and free of chemical residues, so that [a meat or poultry] product placed therein will not become adulterated. Such means of conveyance onto which [a meat or poultry] product is loaded...shall be subject to inspection.... The decision whether or not to inspect a means of conveyance in a specific case, and the type and extent of such inspection, shall be at [FSIS's] discretion and shall be adequate to determine if [a meat or poultry] product in such conveyance is, or when moved could become, adulterated.... Any means of conveyance found upon such inspection to be in such condition that [a meat or poultry] product placed therein could become adulterated shall not be used until such condition that could cause adulteration is corrected...."[1]

FDA, an agency within HHS, has a broad mandate under the Federal Food, Drug, and Cosmetic Act to ensure that food is produced and distributed under sanitary conditions and is safe to eat. The act specifically prohibits

- the introduction, or delivery for introduction, into interstate commerce of any adulterated food;
- the adulteration of any food in interstate commerce; and
- the receipt in interstate commerce of adulterated food.

A food is adulterated "if it has been prepared, packed, or held [in a truck, for example] under insanitary conditions whereby it may have become contaminated with filth or rendered injurious to health." According to FDA testimony, this means that, to become adulterated, a food does not actually have to be contaminated but only to have been held in an environment where it could become contaminated. FDA regulations that provide general guidance for food processors to prevent adulteration stipulate that transportation of food be done under "conditions that will protect the food against physical, chemical, and microbial contamination, as well as against deterioration of the food and the container."

Both FSIS and FDA inspectors rely on their senses of sight, smell, and touch to detect unsanitary conditions. The agencies' officials agreed that such superficial inspections may not detect chemical contaminations and

[1]9 C.F.R. Section 325.1(c).

would not detect microbial contamination. Inspectors do not collect samples from truck floors and walls to test for chemical or bacterial residues. Because inspectors do not document truck inspections, FDA and FSIS officials were unable to tell us the number and frequency of truck inspections but said that not all trucks are inspected. They were also unable to tell us the number of trucks that their inspectors rejected as unclean for food transport but stated that they believed that number to be small.

According to FDA and USDA officials, it would be prohibitively expensive and not practicable to test a truck for every conceivable bacterial and chemical residue that might remain after it had carried garbage. Each truck tested would be idle for days or weeks waiting for results of countless, complex, costly tests with no assurance that all potential risk would be eliminated. These officials questioned whether the science even exists to test for every possible contaminant. They also noted that, even if a testing system could be devised, it may only result in a marginal risk reduction.

Both FDA and USDA officials told us that their regulations allow inspectors to use their own judgement as to whether they should inspect the inside of a truck when visiting a food plant or warehouse. The officials contended that most food is now protected through wrappings and containers that would isolate the food from contaminants during transport. Officials at both agencies told us that, because they have found no instances of contamination associated with cross-hauling food and garbage, they believe that the practice does not pose a serious contamination risk and that current food inspection procedures are adequate. These officials said that FDA and FSIS use their inspection resources in areas such as food handling and preparation, where experience has shown them that contamination is likely to occur.

Prompted by media reports that food might be transported in trucks that had carried garbage, both FDA and FSIS have taken certain additional precautionary measures. For example, in June 1989, FSIS issued a notice to its inspectors-in-charge at federally inspected meat and poultry plants, directing them to carefully inspect trucks at the loading docks and to advise plant managers and operators of the risks associated with cross-hauling. FSIS also sent letters to 22 transport company associations alerting them that cross-hauling meat or poultry with garbage presents risks of product adulteration and that the carrier could face penalties if adulteration occurred. FDA issued a notice to 100 food processing and

distribution trade associations, in June 1989, alerting them of the cross-hauling of food and garbage and the potential risks of contamination.

In March 1990, an FSIS official testified before the Subcommittee on Surface Transportation, Senate Committee on Commerce, Science, and Transportation, that an ad hoc interdepartmental group, with representatives from FDA, USDA, EPA, DOT, and ICC, had been formed to evaluate the situation. While the group had not been able to develop an estimate of how widespread garbage/food cross-hauling is geographically or how often it occurs, it had determined that no confirmed incidents of adulteration of meat or poultry or other foodstuffs had been attributed to this practice, according to the official.

Food Industry Inspection Activities

According to FDA and USDA officials, they rely extensively on the food industry to self-regulate transportation activities to ensure the cleanliness of the trucks used. However, no federal requirements exist stating that trucks used to carry garbage be so identified or that truck drivers document their previous loads, although such requirements could facilitate food industry decisions about which trucks to use to transport food. Moreover, the food industry, like FDA and USDA, also depends on a sensory inspection to determine if a truck is clean.

An official from the National Food Processors Association, which represents 600 companies that process, prepare, and package food, stated the food industry is not relying on the federal government to monitor garbage/food cross-hauling. Aware of the public's perception that food/garbage cross-hauling is undesirable and because the food industry is concerned about ensuring that the trucks it uses are clean, many association members have issued warnings that they will not use trucking firms that allow their trucks to carry garbage. Representatives of food companies testified that they now require carriers to disclose the commodities transported in previous loads and/or certify that the truck is not used to haul garbage. According to representatives of the two large food processors we visited, they have quality control programs for inspecting every truck they use. One of the companies requires each trucking firm they do business with to sign a statement that the firm will not also haul garbage.

No federal procedures exist for washing trucks, nor do regulations require trucks to be washed between loads, even between such seemingly incompatible loads as garbage and fresh produce. While some trucking firm owners testified that they clean their trucks after each

load of garbage using steam or a high pressure cold water hose, a representative from the Owner-Operator Independent Drivers Association, Inc., testified that steam-cleaning a truck was the exception rather then the rule. This representative stated that frequent cleaning would be both an expensive and time-consuming proposition. The downtime and travel associated with going to a truck wash, waiting while the cleaning process goes on, and then driving to pick up the next load discourage truck washing on a regular basis.

The professor of food science from Pennsylvania State University told us that metal truck beds can become scratched or etched, which would allow the harboring of bacteria. He also testified that a metal truck is more easily cleaned than one with a wooden body and it is easier to rid a truck of chemical substances than of bacteria, viruses, molds, and yeast, which multiply easily in the right conditions. Whether wooden or metal, according to his testimony, it is "impossible—or at least forbiddingly expensive—to make a garbage container compatible with food." In his opinion, the effectiveness of truck cleaning is variable, and no research exists as to how trucks should be cleaned or sanitized. He also pointed out that plastic liners, which some transfer stations place in dry vans before loading compressed bundles of garbage, can tear and also provide conditions favorable to bacteria growth. As figure 3.1 depicts, a truckload of loose garbage is a disgusting sight.

Figure 3.1: Dry Van Hauling Loose Garbage

Source: The Interstate Commerce Commission.

No Research on Potential Food Contamination From Cross-Hauling Garbage, but Federal Health Experts See Risk as Minimal

CDC maintains nationwide surveillance of diseases through epidemiologic and laboratory investigations and data collection. CDC's information on disease outbreaks usually comes from reports from other federal, state, and local health agencies. However, the likelihood of an outbreak coming to the attention of health authorities is dependent on individuals' and physicians' awareness, their interest, and their motivation to report a disease incident. In addition, CDC's involvement is retrospective—CDC would investigate the cause of an illness only after an outbreak had occurred. The only circumstance in which CDC would conduct bacterial or other contaminant tests on a truck would be if its surveillance identified a disease outbreak and its investigation pointed to the truck as the likely source of the outbreak.

Clearly, garbage contains many harmful components. Disease-producing organisms, known as pathogens, include bacteria, viruses, molds, and yeasts that come from, among other things, decomposing food wastes, fecal matter in used disposable diapers, discarded syringes, and sickbed wastes. In addition, the insecticides, pesticides, cat litter, cleaning agents, and solvents, which may be found in garbage, contain toxic chemicals and poisons, many of which may cause acute or chronic health problems.

According to CDC officials, the potential types of health effects from garbage/food cross-hauling would most likely be either bacterial type illness, such as salmonella, or toxic chemical poisoning. CDC officials acknowledge that CDC receives reports of only a small fraction of the total number of outbreaks of foodborne disease and that the vast majority of outbreaks are never traced to their source of contamination. In a January 1989 report[2] on salmonella—a major source of foodborne disease—CDC stated that only 1 percent of the actual number of salmonella cases were reported. In addition, CDC officials told us that low-dose chemical poisoning is difficult to diagnose and often not reported to CDC.

CDC's Director, Center for Environmental Health and Injury Control, told us that, even though reporting of foodborne illness is low, he is confident that CDC's surveillance system could detect a problem caused by cross-hauling garbage and then food from a small number of illnesses. He noted that he was not aware of any research to determine chemical or bacterial contaminants left in trucks that haul garbage and, although he did not rule out a potential health risk, he believed the risk to be

[2]An Atlas of Salmonella in the United States Serotype—Specific Surveillance 1966-1986. Division of Bacterial Diseases, Center for Infectious Diseases, Centers for Disease Control, Jan 1989

negligible. He said that the only situation that he might find objectionable would be the transport of bulk fresh produce after a load of pesticides in a truck that had not been cleaned out. He also noted that he, like many people, personally finds garbage/food cross-hauling aesthetically objectionable and, for that reason, he would favor a thorough cleaning with soap, water, and steam for such trucks before they carry food.

The Director, Division of Safety, NIH, held similar views. He told us he was not aware of any incidents of illness from cross-hauling garbage and food. That, the Director told us, led him to believe that very little health risk occurs from using the same trucks to transport food and garbage. He noted that if a procedure were used to decontaminate the truck before it carried food, only a minimal risk, if any, would probably accrue from cross-hauling. Decontamination, according to the Director, could be accomplished by washing the truck out with a bleach solution.

According to the federal health officials and our literature searches, no studies or reports have been conducted to determine the potential health risks of transporting food in the same trucks used to haul garbage. Furthermore, according to officials from CDC, FDA, and USDA, garbage contains such a varied amount of potential contaminants that they would not know what items to test for. A separate, lengthy test is often needed to detect the presence of an individual contaminant, such as a chemical ingredient in a pesticide or a disease-carrying bacteria in a soiled disposable diaper.

While federal health and food safety experts have found no instances of food contamination illness in the United States from transporting food in trucks that had previously carried garbage, food contamination has occurred from cross-hauling hazardous materials and food.[3] In 1987, EPA issued a study on the cross-hauling of hazardous and nonhazardous materials in trucks and the potential for contamination.[4] The study identified 18 cases of transportation-related contamination of nonhazardous goods by hazardous material over a 30-year period. Six of the cases occurred in the United States. None of the incidents involved the transportation of municipal waste. Also, CDC officials told us they were aware of four food contamination cases that occurred outside the United States

[3]Cross-hauling hazardous material and food is not illegal. However, as of May 1990, bills regulating, and in prescribed instances prohibiting, such cross-hauling were pending in both the Senate and the House of Representatives.

[4]"Study of Joint Use of Vehicles for Transportation of Hazardous and Nonhazardous Materials" (EPA/540/01-87/001, Apr. 1987). EPA concluded that insufficient information existed to recommend that special safeguards be taken to minimize threats to public health and the environment.

when food came into contact with chemicals spilled in trucks. However, none of the four involved the transport of garbage and no similar problems have occurred in this country.

In general, the food science professor from Pennsylvania State University disagrees with federal health experts on the potential risks of garbage/food cross-hauling. He testified that the loading of dangerous wastes onto food trucks has the potential to contaminate food. He stated that objective, scientific, factual data could be generated to show the dangers of mixing garbage and food; however, no such studies have been conducted.

Conclusions

Garbage has many potentially health-threatening components, ranging from bacteria-laden used disposable diapers to cancer-causing chemicals in household pesticides. While federal health and food safety experts contend that the risk of food contamination from cross-hauling with garbage is relatively low, they know neither the extent nor nature of the potential health risks. Also, while federal regulations require safe food transport, federal agencies do not plan to use their available resources to implement the complex, expensive system that they believe would be necessary to test trucks for contaminants. Moreover, no research has been conducted to determine the potential for food contamination from transporting food in trucks used to haul garbage or the extent and nature of the health risks in the event of such contamination. We, along with the federal regulators and health experts, believe that current information is not adequate to rule out health risks in transporting food in these trucks.

Food shippers who implement the federal regulations cannot be certain that the trucks they use are free of invisible bacterial or chemical residues that may remain in a truck after it has hauled garbage. As a minimum, the food industry needs better recordkeeping by truckers to identify commodities hauled in trucks and standards and guidelines for truck cleaning if it is to provide reasonable assurance that food is being safely transported.

Recommendations

We recommend that the Secretary of Transportation take the steps needed, including seeking authorizing legislation if necessary, to develop regulations requiring that truckers maintain specific records of commodities carried in trucks that carry food. This recordkeeping could help food shippers identify trucks that may need more thorough inspections

and facilitate any future research that the Congress may require into the extent and nature of health risks.

We also recommend that the Secretaries of Agriculture and Health and Human Services, in consultation with the Secretary of Transportation and the Administrator, EPA, develop standards and guidelines for truck cleaning. These measures would help minimize the potential risk of food contamination.

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