Subtitle C and D Corporate Financial Test Analysis
Issue Paper
Market Effects of the Financial Test

Introduction

Several commenters on the proposed Subtitle D corporate financial test rule of October 12, 1994 expressed concerns that exempting only the largest firms from providing third-party financial assurance for closure and post-closure care would have a significant anti-competitive effect on the municipal solid waste landfill (MSWLF) industry. Specific issues raised by the commenters included:

- The proposed rule creates and maintains artificial barriers to entry, i.e., increased minimum financial size thresholds for entry into the MSWLF market.
- The presence of the financial test presents an unfair competitive advantage for large corporations over small businesses.

This issue paper analyzes the costs associated with third-party financial assurance and their effect on competition within the MSWLF industry. The key findings of this paper, in summary, are:

- Even if a larger landfill uses a third-party financial assurance mechanism rather than the financial test, the larger landfill will still face lower financial assurance costs per ton than the smaller landfill. For both large and small landfills, however, third-party financial assurance costs constitute only two to three percent of total costs.
- In the context of a host of other factors affecting tipping fees, including location, fixed costs, and pricing strategies, financial assurance costs are not likely to play a key role in competition within the MSWLF industry. In particular, costs to transport waste to a larger facility may more than off-set potentially lower tipping fees that the larger landfill might charge as a result of using the financial test to demonstrate financial assurance.

The remainder of this paper is divided into three sections. Section 1 provides estimates for the per ton cost of third-party financial assurance to MSWLFs. Section 2 presents financial assurance costs relative to the total costs associated with the development and operation of MSWLFs. Finally, Section 3 discusses financial assurance costs in the context of other factors affecting tipping fees and added transportation costs.

1. Estimated Per Ton Cost of Third-Party Financial Assurance to MSWLFs

The per ton cost of third-party financial assurance can vary significantly depending on the size of a landfill, as measured in tons per day (TPD) of municipal solid waste received. Column 5 of Exhibit 1 presents per ton third-party financial assurance costs (e.g., surety bond, letter of credit) for seven different MSWLF sizes.

Exhibit 1
Derivation of Financial Assurance Costs Per Ton

Column 1	Column 2	Column 3	Column 4	Column 5
MSWLF Size (Tons per Day)	**Closure and Post-Closure Care Costs ($) MM**	**Annual Cost of Third-Party Mechanism ($)**	**Tons of MSW per Year**	**Third-Party Mechanism Cost per Ton ($)**
10	1.1	16,500	2,600	6.14
25	1.9	28,500	6,500	4.30
75	3.2	48,000	19,500	2.50
175	5.5	82,500	45,500	1.82
375	8.8	132,000	97,500	1.35
750	12.3	184,500	195,000	0.94
1,500	26.1	391,500	390,000	0.99

Source: ICF analysis. Costs are stated in 1994 dollars.

The costs of financial assurance per ton were calculated using the following process:

- Using information presented in the background document to the proposed local government financial test, seven MSWLF size categories were identified, along with the estimated closure and post-closure care costs associated with each MSWLF size.[1] (See Columns 1 and 2.)

- The total annual cost of third-party financial assurance mechanisms (Column 3) was calculated for each size category by multiplying the closure/post-closure cost (in Column 2) by 1.5 percent. According to EPA estimates, the annual cost of third-party financial assurance mechanisms (e.g., letters of credit, surety bonds) is about 1.5 percent of the amount assured by the mechanism.[2]

[1] *Background Document for Local Government Financial Test Proposed Under 40 CFR Part 258 Subpart G*, U.S. Environmental Protection Agency, Office of Solid Waste, April 30, 1993, page B-5. The local government financial test background document estimates are consistent with the corporate financial test background document estimates. The latter document, however, provides cost estimates for only the three largest size categories. Closure and post-closure care costs were converted from 1987 dollars to 1994 dollars using an inflation factor. The inflation factor was derived by dividing the 1994 fourth-quarter implicit price deflator for gross domestic product (126.9) by the 1987 deflator (100.0). These figures were obtained from *Economic Indicators*, U.S. Department of Commerce, March 1995.

[2] "Costs of Financial Responsibility Instruments," ICF memorandum to Betsy Tam, EPA Office of Solid Waste, January 25, 1988.

- The number of tons per year of waste accepted by landfills in each size category (Column 4) was calculated by multiplying tons per day (in Column 1) by the assumed number of operating days in a year (260).

- To obtain the cost per ton of third-party financial assurance mechanisms (Column 5), the annual cost of third-party mechanisms (in Column 3) was divided by the number of tons of waste received by the landfill per year (in Column 4).

As shown in Exhibit 1, third-party mechanism costs range from $0.94/ton for 750 TPD landfills to $6.14/ton for 10 TPD landfills. This dramatic difference in cost per ton between small and large landfills results from economies of scale at larger landfills. Total annual third-party financial assurance costs are a direct percentage of a landfill's closure and post-closure care costs. Because annualized closure and post-closure care costs do not increase proportionally with a landfill's annual capacity, third-party financial assurance costs per ton decrease as the size of the landfill increases.[3] Therefore, even if a large landfill uses a third-party mechanism rather than the financial test, the larger landfill will still face lower financial assurance costs per ton than a smaller landfill.

2. Financial Assurance Costs Relative to Total Costs

Like third-party financial assurance costs, the total costs per ton associated with the development and operation of new landfills are significantly higher for smaller landfills. Data on total MSWLF costs per ton (including costs of site development, operations, closure and post-closure care, profit, and corporate overhead) are available from a graph presented in EPA's *Report to Congress on Flow Controls and Solid Waste.*[4] This graph, which is recreated below as Exhibit 2, shows the total cost per ton for new landfills designed to comply with Subtitle D regulations. (Similar data for existing landfills are not available.)

[3] Although final cover size is linked to landfill size, other closure and post-closure care costs such as ground-water monitoring do not increase proportionally with landfill capacity.

[4] *Report to Congress on Flow Controls and Solid Waste*, U.S. EPA, Office of Solid Waste, March 1995, page III-70.

Exhibit 2
Estimated Total MSWLF Costs Per Ton

EXHIBIT 2 COULD NOT BE ELECTRONICALLY REPRODUCED AND IS ONLY AVAILABLE IN THE PAPER DOCKET.

(Source: EPA's *Report to Congress on Flow Controls and Solid Waste*)

The curve's relatively steep downward slope demonstrates the economies of scale associated with the development and operation of large landfills. The development and expansion of small landfills involves many of the same substantial capital investments required for larger facilities, including site selection and preparation, excavation, and installation of a liner system. Therefore, although third-party financial assurance costs per ton are significantly greater for smaller landfills, financial assurance costs constitute an equal, or a smaller percentage of a small landfill's total costs. For example, based on the data presented in Exhibits 1 and 2, third-party financial assurance costs per ton for a very large landfill (1,500 TPD) are 2.8 percent of total costs per ton. This percentage decreases to about two percent for landfills accepting 750 TPD and less than two percent for a 100 TPD landfill.

3. Financial Assurance Costs Relative to Other Factors

As shown in Exhibit 1, even if a larger landfill uses a third-party financial assurance mechanism rather than the financial test, the larger landfill will still face lower financial assurance costs per ton than the smaller landfill. A host of other factors related to the size, age, and location of a landfill also affect landfill tipping fees. In the context of these other factors, financial assurance plays a very small role in competition between large and small landfills.

The estimated total MSWLF costs per ton for newly sited landfills, as presented in Exhibit 2, range between $36 for the largest landfills and $144 for the smallest landfills. Actual average tipping fees, as reported by *BioCycle Magazine*, however, vary significantly between regions (See Exhibit 3) and even between adjacent states.[5] For example, Maryland, Delaware, Virginia, and Pennsylvania have average tipping fees of 47, 58, 25, and 46 dollars per ton, respectively. In addition, although previous sections demonstrate economies of scale for larger landfills, tipping fees nationwide for larger landfills (>500 TPD) are approximately eight percent higher than for all landfills. (See Exhibit 3.)

Exhibit 3
Comparison of 1992 Tipping Fees at Large Facilities and All Facilities
($/ton)

Region	Larger Facilities (>500 TPD)	All Facilities
Northeast	59.81	51.63
South	25.34	22.71
MidWest	26.92	23.13
West	28.58	23.45
National	**31.51**	**29.00**

Sources: Larger facility fees from Solid Waste Digest, October 1992; all facility fees reported in "The State of Garbage in America," *BioCycle*, May 1993.

The wide variation in tipping fees is often related to the size and age of a facility. Large landfills tend to be newer and designed to spread the fixed costs of new environmental requirements over the life of the facility. Small landfills, on the other hand, tend to be older, having been established when the lack of rigorous environmental requirements encouraged small towns to have their own landfills to minimize waste transport costs. Older landfills generally have lower fixed costs due to lower historical land acquisition and site development costs compared to newer landfills.

Other factors affecting tipping fees relate to the recent implementation of Subtitle D regulations. Prior to the effective date for Subtitle D regulations, many older landfills had lower tipping fees that did not recover their full costs of operation; for example, they may not have covered costs such as proper closure and post-closure care. Some older landfills facing imminent closure also charged artificially low tipping fees in order to attract customers and use up remaining capacity. In the past, these factors contributed to smaller landfill tipping fees being significantly lower than larger landfill tipping fees. Since the implementation of general Subtitle D regulations, however, many of these smaller landfills have closed. Smaller landfills that have remained open have been forced to raise their tipping fees in order to cover the additional costs of regulatory compliance, including liner installation, groundwater monitoring, and closure and post-closure care.

Finally, the location of a landfill significantly affects its tipping fees. A landfill's close proximity to alternative MSW management facilities will force its tipping fees to be more competitively priced. In addition, a landfill located in a state with regulations more stringent than federal regulations will incur higher regulatory compliance costs. All of these various factors affecting landfill tipping fees and competition between landfills, including size, age,

[5] "The State of Garbage in America," *BioCycle Magazine*, April 1995.

regulation, and location, overshadow an increase of less than three percent of total costs associated with third-party financial assurance.

Even in the unlikely event that the only difference between two facilities' tipping fees is a direct result of different financial assurance costs, most waste generators will not choose to incur the costs of shipping waste to large, regional landfills simply to avoid the costs that financial assurance may add to a smaller, local landfill's tipping fees. Firms in the non-bankrupt firm sample generally own landfills accepting between 375 and 1500 TPD, with the majority accepting approximately 750 TPD. These firms are most likely to be able to use the financial test. As shown in Exhibit 1, if required to provide third-party financial assurance, these firms would pay between $0.94 and $1.34 per ton. Thus, by using the financial test to comply with financial assurance regulations, these firms could save $0.94 to $1.34 per ton. By comparison, one source estimates transportation costs to be $4.30 per ton for transfer facility costs, and an additional $4.30 to $7.50 per ton for every 100 miles for rail and truck hauling respectively.[6] Therefore, even if large firms do not provide third-party financial assurance and pass these costs savings directly to the consumer, the additional cost to a waste disposal consumer of transporting waste to a larger landfill with lower tipping fees would be more than three times any cost savings that the larger landfill could be passing on through the use of a financial test.

[6] Konheim and Ketcham, "Exporting Waste: A Report on Locations, Quantities, and Costs of Out-of-City/State Disposal of New York City Commercial Waste," April 1991. Transfer and Transportation costs were converted from 1991 dollars to 1994 dollars using an inflation factor. The inflation factor was derived by dividing the 1994 fourth-quarter implicit price deflator for gross domestic product (129.6 by the 1991 deflator (117.6). These figures were obtained from Economic Indicators, U.S. Department of Commerce, March 1995.