

**APPENDIX K**  
**LANDFILL CAPACITY**



## APPENDIX K – LANDFILL CAPACITY

*The New York Times*

### **Waste Yes, Want Not; Rumors of a Shortage of Dump Space Were Greatly Exaggerated**

By JEFF BAILEY (NYT)

Published: August 12, 2005

Workers at a landfill in Orange County, Calif. -- as if tamping down the contents of a wastebasket -- regularly pile one million cubic yards of dirt atop a football field-size section of the giant dump. Six months later, the workers scrape the dirt aside and the dump's surface has fallen 30 to 40 feet, making space for yet more trash.

"It's just amazing," said Mike Giancola, deputy director of the county's waste agency.

Orange County's method is part of a remarkable productivity story playing out in the trash business, quietly saving consumers, businesses and municipalities billions of dollars a year. It is an unlikely industry for such a leap in efficiency.

Simply put, operators of garbage dumps are stuffing more waste than anyone expected into the giant plastic-lined holes, keeping disposal prices down and making the construction of new landfills largely unnecessary.

The clearest winner in this development is the City of New York, which exports 25,000 tons of trash a day to other cities and states, making it the waste industry's biggest customer. But the benefits stretch coast to coast and will continue for years to come.

The productivity leap is the second major economic surprise from the trash business in the last 20 years. First, it became clear in the early 1990's that there was a glut of disposal space, not the widely believed shortage that had drawn headlines in the 1980's. Although many town dumps had closed, they were replaced by fewer, but huge, regional ones. That sent dumping prices plunging in many areas in the early 1990's and led to a long slump in the waste industry.

Since then, the industry and its followers have been relying on time -- about 330 million tons of trash went into landfills in the United States last year alone, according to Solid Waste Digest, a trade publication -- to fill up some of those holes, erase the glut and send disposal prices skyward again. Instead, dump

capacity has kept growing, and rapidly, even as only a few new dumps were built.

How could that be? Waste companies and municipalities have fit much bigger dumps than originally permitted onto existing acreage, piling trash deeper and steeper, and vastly expanding permitted capacity. They are burying trash more tightly, so that each ton takes up less space, increasingly using giant 59-ton compacting machines guided by global positioning systems that show the operator when he has rolled over a section of the dump enough times. They cover trash at the end of the day, to keep it from blowing away, with tarps or foam or lawn clippings instead of the thick layers of soil that formerly ate up dump capacity.

Some operators are blowing water and air into landfills to hasten rotting and thus the shrinkage of buried garbage piles, creating more capacity.

Each practice is fairly prosaic, and many operators have yet to adopt the improved methods, but taken together the waste industry is in the early stages of the kind of increase in efficiency more typically seen in technologies like computer chips and turbines that generate electricity.

A well-run dump, tightly packed and using minimal dirt as cover, can hold 30 percent or so more trash than a poorly run site, said Thomas M. Yanoschak, a senior project manager at Camp Dresser & McKee, an engineering firm that advises waste sites. "Operators are much better now," he said.

The change is shown in the published disposal records of the three largest waste haulers -- Waste Management, Allied Waste Industries and Republic Services -- which combined handle more than half the nation's trash. In the last four years, they buried 882 million tons of waste. But the remaining permitted capacity of their combined 410 dumps did not shrink. It expanded over those four years by more than one billion tons. The three companies now expect expansions of another 1.8 billion tons. At that level, their combined capacity could handle the nation's trash sent to dumps for about 26 years.

Smaller companies and municipalities possess huge capacity, too. Taken together, the oversupply is a damper on prices. The nation's average gate rate, the price dumps post publicly, has lagged inflation, rising just 21 percent from 1992, when the original disposal glut first became widely known, to last year, climbing to \$35 a ton from \$29, according to Solid Waste Digest. Most businesses pay haulers directly for disposal. Many consumers pay through property taxes.

At \$35 a ton, the 330 million tons buried nationally cost \$11.6 billion. (Actual prices are typically lower than gate rates.) Had rates merely kept pace with inflation, disposal in dumps would average \$39 a ton, or a collective \$12.9 billion

a year. And the annual cost would be \$16.5 billion had prices, as widely predicted years ago based on an expected shortage, hit \$50 a ton.

Dennis Pantano, chief operating officer at Regus Industries, a regional waste company based in West Seneca, N.Y., and a former executive at a national waste company, said he had expected "at least \$45 to \$50" by now. Instead, he said, "In Ohio we're still beating our heads against each other to get \$18, \$20 a ton -- \$25 in western New York. It really hasn't gone up in 10 years. That's obviously because of capacity."

Environmental regulations, which many feared would cause a disposal shortage, actually helped encourage the glut. The Resource Conservation and Recovery Act, passed in 1976 but put into effect over more than a decade, requires that liners be used to protect groundwater and that systems to extract water and methane be installed. The cost of all that forced thousands of small dumps to close and encouraged huge new landfills that could pile trash hundreds of feet deep to maximize the return on investment.

A 10,000-ton-a-year dump would cost \$83 a ton to operate, estimates Solid Waste Digest, while a 300,000-ton-a-year site's cost would be \$14 a ton. Dumps taking a million or more tons a year have even lower per-ton costs.

So, new replacement landfills were on average 25 times the size of the small ones that were closing, according to Solid Waste Digest. And even though the 8,000 dumps in 1988 fell to fewer than 1,800 today, according to the Environmental Protection Agency, capacity ballooned. Transfer stations, where trash is emptied from local collection trucks and reloaded onto bigger long-haul trucks or onto trains for transport to a dump, now number 3,700 nationally, a vast network extending the reach of giant disposal sites.

The nation's 25 biggest dumps, which are beginning to resemble operations in other more efficient and consolidated industries, account for about 24 percent of total capacity, Solid Waste Digest estimates, and that concentration will probably continue. Already, the Republic Services landfill in Las Vegas has more than 200 million tons of space, as does Waste Management's site in Arlington, Ore. And a desert site yet to begin accepting trash, owned by the Sanitation Districts of Los Angeles County, can hold more than 600 million tons, or enough to take 20,000 tons a day for 100 years.

Also, investment in railroad cars and containers for trash, still in its infancy, could further reduce transport costs and smooth out pricing disparities among regions. At present, disposal prices in the Northeast average about 2.5 times the cost to dump in the arid and little-populated Western states.

Owners of a recently built 210 million-ton-capacity landfill in Idaho are proposing to use barges to ship much of Hawaii's trash to the West Coast and transport it

by rail the remaining distance. Idaho Waste System's gate rate is just \$16.50 a ton, said Grant Gauthier, a vice president, and its permit has no daily limit. The company is seeking to expand its permit to 420 million tons, even though it currently takes in just 800 tons a day.

If the glut depresses prices, why do waste companies keep expanding their dumps? One reason, for the companies with publicly traded stock, is an accounting rule. Companies must write off, or depreciate, their landfill investments based on the percentage of a site's capacity filled up each year. A dump costing \$100 million to build, filled 10 percent, would require \$10 million of depreciation, reducing pretax profit by that amount. They set aside funds for post-closing environmental monitoring on a similar as-used schedule.

So, the more capacity that can be permitted at each dump, the less depreciation and other costs recorded per ton, lifting reported profits. Waste Management, of course, suffered an accounting scandal in the late 1990's, in part over landfill accounting, and was forced to take a \$3.5 billion charge against earnings to clean up its books.

Once glamour stocks, waste companies have mostly been mediocre performers in recent years and the growing glut could prolong their problems, especially as municipalities and other major customers become more aware of the oversupply.

Indeed, the City of New York does not have a disposal problem. Initial bids to handle the trash hauled by the city for 20 years include per-ton prices at dumps in Virginia, South Carolina and Georgia of the mid-\$20's to the mid-\$30's, said Harry Szarpanski, assistant sanitation commissioner.

The problem is transportation. Shifting from trucks to rail and barges to reduce traffic, New York is taking on huge costs to develop a network of new transfer stations. That could increase prices to \$90 a ton or so, Mr. Szarpanski said.