

WHERE DOES IT GO? **A History of Solid Waste Disposal, Flow Control, and Recycling**

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1. Waste Management Regulation

Taking waste “out” has been a feature of human settlements as long as there have been human settlements. So, for example, Deuteronomy records a requirement that the Israelites locate latrines outside the encampment and that the army, when in the field, carry with it latrine-digging tools. Deut. 23:13-14. More recently and locally, in 1769 the Pennsylvania General Assembly prohibited distillers, soapmakers, and chandlers from discharging “any . . . foul and nauseous liquor aof any kind whatsoever into or upon any adjacent ground, or into any well, vault, or sink within” Philadelphia or the then-suburbs of Southwark and Northern Liberties. 1769 Pa. Laws chap. 7, § 40. Similarly, section 43 of the same statute provided:

If any person or persons shall, after the publication her of, presume to cast, carry, draw out, or lay any dead animal or other dead carcase [*sic*] of cattle, sheep, hog, or dog or any excrement or filth from vaults, privies, or necessary-houses and shall leave such carcase, carrion, or filth without buryingthe same a sufficient depth in the ground, on any part of the commons of [Philadelphia and its suburbs], every person or persons so offending and being convicted thereof before any justice of the peace of the city or county of Philadephia [shall pay a fine].

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A statute of 1771 made it illegal to throw “rubbish, dirt, or filth” from any carriage or waggon “in any public street, lane, or alley of the city of Philadelphia” unless the location was specifically designated for the purpose. 1771 Pa. Laws chap. 7, § 30.

In the early 19th century, the Philadelphia Waterworks were installed at the base of Fairmount, the hill at the top of which the Philadelphia Museum of Art now sits. Initially, steam engines pumped water from the Schuylkill River to the top of the hill, and it flowed by gravity into the city to the east. Later, the dam was installed, and water power pumped clean water to the top of the hill. An 1803 ordinance prohibited disposing of “any kind of filth” into the basin and canal feeding the pumps. Ultimately, the City established Fairmount Park -- the largest urban park in the United States -- to protect the purity of the water supply.

An ordinance of 1818 authorized the Philadelphia Board of Health to enter into a house to correct an offensive privy. An ordinance of 1878 specifically addressed solid waste transportation providing that:

no person or persons shall collect or remove kitchen garbage and offal from any dwelling, hotel, restaurant, or any of the streets, alleys, lanes, courts, or alleys of the same except though be collected or removed in water-tight carts, wagons, or other vehicles, and securely covered so that none of the contents shall fall, leak, or spill therefrom or be exposed to public view

Phila. Ordinance of Dec. 31, 1878, § 1.

These statutes and ordinances presage more modern solid waste management regulation. In essence, they all elaborate on the common law of public nuisance. They prohibit actions or maintenance of conditions that (a) interfere with a water supply or (b) cause offense by odor or otherwise. What has changed over time is our ability to detect interferences with water supplies and our sensitivity to offenses.

The Refuse Act of 1899, *as amended*, 33 U.S.C. § 407, for example, prohibited deposition of solid material -- as opposed to any liquid sewer discharges -- to navigable waters of the United States. State statutes began to impose controls on upland disposal of wastes in the mid-20th century. For example, in Pennsylvania, Act 241 of 1968 first enacted the Solid Waste Management Act, which was later repealed and replaced by Act 97 of 1980, Pa. Stat. Ann. tit. 35, §§ 6018.101 to .1003. At the federal level, Congress first enacted the Solid Waste Disposal Act in 1976, *as amended*, 42 U.S.C. §§ 6901-92k. Those federal amendments primarily focused on hazardous waste management through the Resource Conservation and Recovery Act in 1979 and the Hazardous and Solid Waste Amendments of 1984.

Mid-century solid waste management regulation primarily addressed disease and odor vectors. The federal statute prohibited the maintenance of an “open dump.” 42 U.S.C. § 6945. The Environmental Protection Agency promulgated criteria for classification of facilities as “open dumps” and practices as “open dumping.” 40 C.F.R. pt. 257, subpt. A. While the federal government never brought much enforcement litigation under those provisions, some private citizen suits were successful at enforcing them. *See, e.g., O’Leary v. Moyer’s Landfill, Inc.*, 523 F. Supp. 642 (E.D. Pa. 1981). The open dumping criteria emphasized regular cover, litter control, the avoidance of open fires, and discharges of leachate to surface waters.

Discharges of leachate to *surface* water would typically require a permit under section 402 of the federal Clean Water Act, 33 U.S.C. § 1342. So, for example, when the State of New Jersey, various municipalities, and certain environmental groups sought to force modification to the City of New York’s marine solid waste operation by which the City transported solid waste from the four other boroughs to Fresh Kills Landfill Staten Island by barge, losing tons of solid waste in the process, they invoked the Clean Water Act in *Township of*

Woodbridge v. City of New York, No. 2:79-cv-01060-FSH (D.N.J.). That theory still survives.
Reynolds v. Rick's Mushroom Service, Inc., 246 F. Supp.2d 449 (E.D. Pa. 2003).

At the state level, state statutes have prohibited maintenance of conditions on land that cause pollution or a threat of pollution for a very long time. In Pennsylvania, those portions of the Cleans Streams Law, *see esp.* Pa. Stat. Ann. tit. 35, §§ 691.316, .401, were enacted in the 1930s to address discharges from coal mining. *See, e.g., Commonwealth v. Barnes & Tucker Co.*, 319 A.2d 871 (Pa. 1974).

Federal law did not so clearly address groundwater contamination. Landfill standards sought to protect groundwater resources using engineering controls. However, until the late 1970s, soils seemed to be very good at filtering landfill leachate and protecting groundwater quality. Certainly soil stops a can from migrating downward. It also seemed to filter metals -- the contaminants of concern at the time -- because metal ions would bind to the soils. Volatile organic compounds, which are non-polar and therefore do not readily bind to the soils, could not be detected at concentrations below parts per thousand. Accordingly, they did not appear to be present. Landfill design standards relied upon "natural renovation" technology, requiring a certain depth of soil between the bottom of the waste and the top of the water table. Only in the late 1970s did regulations change to require lining of non-hazardous waste landfills. *See Franklin Township Bd. of Supervisors v. Dept. of Env'tl. Resources*, 1992 Pa. E.H.B. 266.

More recent regulations have mandated both lining and capping non-hazardous waste landfills under part 257 of title 40 of the Code of Federal Regulations. That presents a problem for landfill designs that rely upon degradation to reduce volume or that seek to exploit production of methane gas.

In addition, more recent additions to the solid waste regulatory scheme have addressed waste that is offensive for reasons other than odor, vectors, or water contamination. For example, in the 1980s, but the federal and state statutory schemes began to regulate medical waste. While this waste in fact has lower microbial content than much municipal solid waste, it frightened many in the wake of beach washups during the summer of 1988. Subchapter X of the Solid Waste Disposal Act established a demonstration medical waste tracking program. 42 U.S.C. §§ 6992-92k. States adopted statutes like the Pennsylvania Infectious and Chemotherapeutic Waste Disposal Act; Pa. Stat. Ann. tit. 35, §§ 6019.1-.6.

As waste management regulation has become more sophisticated, regulators have identified wastes in an intermediate status between clean fill and municipal solid waste, like construction and demolition debris. Other wastes have been regulated as intermediate between municipal solid waste and hazardous waste. In Pennsylvania, all non-hazardous industrial waste is specially regulated as “residual waste.” Wastes containing asbestos or polychlorinated biphenyls are also given separate and special treatment.

As the result, the non-hazardous, solid waste management regulations applicable to generators, transporters, and disposal facilities fill hundreds of pages in Pennsylvania. Detailed rules can give rise to significant enforcement. Rules can conflict with sensible operations. To take one example, in Pennsylvania, putrescible waste may not be stored for more than 24 hours except over a weekend in a transfer facility. That typically requires the facility to be clean to the floor before closing for the night. But every large municipality requires at least one transfer facility that remains open 24/7, or else street cleanups, hospitals and other 24-hour institutions, and similar operations cannot obtain proper service. Assuring that a facility that never closes is clean to the floor once daily can prove to be a difficult task.

While in any given case the original rationale for any of these rules may seem lost, in almost every instance, the regulations seek to do the same things that the 18th century rules sought: to protect water supplies and to guard against offensive conditions. The difficult task ahead is to revise the now complicated rules to accommodate disposal technologies that rely upon degradation, and do not seek solely to isolate waste from the environment in a plastic liner.

2. Waste Flow Control

The earliest forms of municipal regulation of waste disposal were, in fact, nothing more than what we would recognize as waste flow controls -- laws designating the locations where citizens were required to dispose of their refuse. Three hundred and fifty years ago, in New York City (then, of course, New Amsterdam), “[t]he burgomasters and schepens ordained that all such refuse be brought to dumping-grounds near the City Hall and the gallows or to other designated places.” Maud W. Goodwin, *Dutch and English on the Hudson* 105 (1919). While it is ordinarily favored in modern times to haul garbage *away from* City Hall rather than *towards* it, there are numerous examples that demonstrate that waste disposal regulation was at its very inception not about *how* waste was disposed, as it largely is today, but rather about *where* waste was disposed. The inevitable nuisance posed by a growing population’s waste disposal was managed by assuring that it was concentrated in certain locations, selected either for their isolation or, as in the case of Philadelphia’s artificial riverfront, to achieve some civic purpose.

In the modern era, the focus of waste regulation is primarily on the manner of disposal, with less emphasis on the location of the disposal. This transition was logical; since the only purpose of regulating disposal was to ensure that the nuisance posed by waste was

minimized. Environmental protection regulations came into effect not only prescribing technical standards, such as landfill liners, but also mandating certain disposal practices, such as recycling.

These environmental regulations, however necessary and well-intentioned they may have been, had two important effects on the market for solid waste disposal services. First, they created very significant price differentials between disposal sites. New facilities, be they landfills or “resource recovery facilities,” were (and remain) very expensive to build, and their owners were compelled to charge much higher prices to recover these higher costs. Yet, new solid waste facilities were required to address a growing capacity crisis in many regions. In many cases, purchasers of disposal services could choose between older, grandfathered landfills at a very low cost, and newer environmentally compliant facilities at a much higher cost. Private purchasers overwhelmingly chose the cheaper option, leaving the new facilities without an adequate customer base to support operations and more importantly, to make loan payments.

Second, a combination of market stimulation from government incentives and reawakened Yankee frugality fostered the recognition that solid waste, for all of its negative characteristics, actually possesses value in the form of recyclable materials, especially aluminum and other metals. While this value may not be enough to offset the cost of collecting the waste, removing the recyclables and disposing the residue (in which case we should all be paid for allowing our waste to be collected), a waste hauler proficient at extracting this value, and at the same time reducing the volume of waste to be landfilled, could claim for itself a meaningful economic benefit.

In the late 20th Century, then, waste flow control reemerged not as a technique for confining waste disposal nuisances in a “trash ghetto,” but as a means to assure that new solid waste facilities, as expensive as they were to build and to use, would have an adequate supply of

waste to generate the revenue necessary to pay for the facilities, and to sustain operations. In a typical arrangement, a municipal sponsor of a new waste facility would issue bonds to finance the construction of a facility, and lend the bond proceeds to the project developer, who would build the facility. The revenue generated by the facility's operations would be pledged to repay the bonds. In order to guarantee that the revenue stream would be sufficient, the municipality would commit to adopt a waste flow control ordinance requiring disposal of all waste generated within the municipality to the new facility.

Not surprisingly, waste haulers, competing disposal facilities and other groups often objected. In 1993, the case of *C&A Carbone, Inc. v. Town of Clarkstown (NY)*, reached the Supreme Court of the United States. Opponents of waste flow control argued that the market for waste disposal transcends state boundaries, and therefore, under a legal doctrine known as the "dormant Commerce Clause," can only be regulated by the federal government. Therefore, they argued, municipalities, and even states, lack the constitutional authority to adopt waste flow control regulations. In its landmark decision, the Supreme Court agreed, ending waste flow control as a tool for locking up waste supplies, jeopardizing the assumptions of waste facility financiers across the country, and in some cases, plunging brand new facilities into bankruptcy.