



The regulation of municipal waste incineration ash: A legal review and update

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Abstract

After years of legal debate, the nation's highest court has finally decided that ash generated by municipal waste incineration (MWI ash) must be regulated under the federal statutory provisions governing the generation, handling and disposal of hazardous waste. This paper will examine the legislative history of the federal statutory provision at the center of the decade-long debate. It will also discuss the judicial, regulatory and legislative developments concerning the regulation of ash from municipal waste incineration.

Keywords: Hazardous waste; Ash; Incineration; Regulation

1. Introduction

For nearly a decade, there has been an ongoing debate over the proper classification of ash produced by resource recovery facilities under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA) [1]. Following conflicting decisions by two federal appellate courts, the US Supreme Court issued the definitive ruling on the subject in May 1994 [2]. Faced with the Court's decision that MWI ash is not exempt from hazardous waste regulation, local governments, the solid waste industry, and federal and state regulatory agencies are now grappling with the issue of how to implement it.

2. The federal hazardous waste regulatory program

2.1. Regulation of hazardous waste

Subtitle C of RCRA [3] establishes 'a 'cradle to grave' regulatory scheme governing the treatment, storage, and disposal of hazardous waste' [4]. The US

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Environmental Protection Agency (EPA) is authorized to delegate regulatory authority to individual states, provided the state's hazardous waste regulatory program is at least as stringent as RCRA Subtitle C. Most states have received approval from EPA to implement and enforce their own hazardous waste regulatory scheme.

Pursuant to its rule-making authority under RCRA, EPA has also adopted literally hundreds of pages of regulations, which classify wastes as either hazardous or non-hazardous [5]. Certain wastes are listed as per se hazardous [6], while others are deemed such only if they exhibit certain characteristics [7] and are not otherwise exempt [8]. Hazardous waste is essentially a subset of solid waste, which is regulated under Subtitle D of RCRA [9].

Subtitle D requirements are considerably less stringent than Subtitle C, but more exacting than those in place 20 years ago. One need only look to the Final Solid Waste Disposal Facility Criteria [10], adopted by EPA on 9 October 1991, to recognize that the requirements applicable to solid waste facilities are catching up with those applicable to facilities handling and disposing hazardous waste. For example, municipal solid waste landfills are now subject to minimum national standards, which include location restrictions, strict design and operating criteria, and requirements for groundwater monitoring, corrective action, financial assurance, and closure/post-closure care. The days of open dumping are long gone.

Notwithstanding the rapid evolution of solid waste regulation, solid waste is not regulated as stringently as hazardous waste, nor should it be. Facilities which treat, store or dispose of hazardous waste (TSD facilities) are subject to far more exhaustive siting, permitting and operational requirements than solid waste disposal facilities. As a result, the cost of hazardous waste treatment or disposal remains substantially higher, despite claims that overcapacity has driven down hazardous waste costs in many areas of the country.

However, the difference in disposal and treatment costs is not the only economic byproduct of the difference between the two regulatory schemes. Hazardous waste generators, for example, are also subject to a morass of burdensome and costly requirements, including:

- (1) obtaining an identification number from EPA before engaging in the treatment, storage, transportation or disposal of hazardous waste;
- (2) shipping wastes pursuant to a hazardous waste manifest;
- (3) using licensed hazardous waste transporters to transport their wastes;
- (4) observing a myriad of packaging, labeling, marking and placarding requirements in handling their wastes;
- (5) disposing of their wastes at licensed hazardous waste treatment, storage or disposal (TSD) facilities;
- (6) storing their wastes in approved containers and in compliance with time and volume limitations on accumulation; and
- (7) complying with strict record-keeping and filing requirements.

These requirements are labor-intensive, but manageable. For all waste generators, the primary difference between generating solid waste and hazardous waste is the cost of transportation, treatment and disposal.

2.2. *The original household waste exclusion*

Recognizing the high costs of hazardous waste disposal, EPA adopted a so-called 'household waste exclusion' in May 1980. That provision excludes from the definition of hazardous waste 'household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (e.g., refuse-derived fuel) or reused' [11].

While the original version of RCRA did not contain an explicit exclusion, the Senate Report accompanying the 1976 legislation stated that Congress did not intend to regulate 'general municipal wastes' as hazardous waste [12]. Relying upon that legislative history as support for its household waste exclusion, EPA stated: '[s]ince household waste is excluded in all phases of its management, residues remaining after treatment (e.g., incineration, thermal treatment) are not subject to regulation as hazardous waste' [13].

2.3. *RCRA Section 3001(i): Clarifying the exclusion*

In 1984, Congress amended RCRA [14] to clarify the applicability of the household waste exclusion to municipal solid waste (MSW), including non-hazardous industrial and commercial waste. It enacted Section 3001(i) [15] which provides:

A resource recovery facility recovering energy from the mass burning of municipal solid waste shall not be deemed to be treating, storing, disposing of, or otherwise managing hazardous wastes for the purposes of regulation under this subchapter if –

- (1) such a facility –
 - (A) receives and burns only –
 - (i) household waste (from single and multiple dwellings, hotels, motels and other residential sources), and
 - (ii) solid waste from commercial or industrial sources that does not contain hazardous waste identified or listed under this section, and
 - (B) does not accept hazardous waste identified or listed under this section, and
- (2) the owner or operator of such a facility has established contractual requirements or other appropriate notification or inspection procedures to assure that hazardous wastes are not received at or burned in such a facility.

The legislative history behind Section 3001(i) is replete with references [16] to Congress' intention to exempt all waste management activities of resource recovery facilities, including the generation, transportation, handling and disposal of wastes by such facilities, from the regulatory ambit of Subtitle C. The exemption applied, provided that the facility does not accept hazardous waste for incineration and has in place the appropriate mechanisms for ensuring that such waste is not accepted.

According to the petition for certiorari filed by the City of Chicago in its appeal to the US Supreme Court, the financial stakes are high:

For example, charges for disposing of a ton of waste at a Subtitle D landfill in the Midwest averaged \$23.15 per ton... A conservative 1990 average cost for required stabilization and disposal of waste at a Subtitle C landfill is \$210 per

ton, nearly ten times as much... For the City's Northwest Facility, which must dispose of between 110 000 and 140 000 tons of ash annually..., the increased cost for disposal alone could amount to more than \$20 million each year. In addition, the City almost certainly would have to shoulder increased costs for transportation of the ash because transporters would have to comply with Subtitle C requirements [17].

3. Clean air act amendments of 1990

In late 1990, Congress adopted extensive amendments to the Clean Air Act, which were signed by President Bush on 15 November 1990. Section 306 of the amendments temporarily defused the ash management dispute by imposing a two year moratorium on new efforts by EPA to regulate ash until November 1992 [18].

At the time the 1990 Clean Air Act Amendments were enacted, two appeals were pending before the Second Circuit Court of Appeals and the Seventh Circuit Court of Appeals regarding the regulation of ash as a hazardous waste. Congress thus intended to prevent EPA from issuing further interpretations of Section 3001(i), or otherwise imposing additional regulatory requirements on ash, until such time as the court cases were finally resolved or until Congress took up the ash issue during its next RCRA reauthorization debate.

4. Federal appellate court cases

The first case to decide the ash issue was *Environmental Defense Fund, Inc. v. Wheelabrator Technologies, Inc. (Wheelabrator)* [19]. In this case, the Environmental Defense Fund (EDF) argued that Section 3001(i) does not exempt resource recovery facilities from those regulations governing the *generation* of hazardous waste, but merely from those regulations concerning the *management* of hazardous waste. In other words, resource recovery facilities would be exempt from regulation as a hazardous waste TSD facility. However, since Section 3001(i) does not specifically mention either the term 'generation' or ash residues, EDF argued that those residues that exhibit a hazardous waste characteristic are not exempt from the regulations governing the generation and disposal of hazardous waste.

The federal district court reviewed Section 3001(i) and its legislative history at length, and concluded that Congress intended to exempt ash from regulation as a hazardous waste. It was persuaded by the fact that when Section 3001(i) was enacted in 1984, it was explicitly termed a clarification of the 1980 household waste exclusion, which clearly applied to incinerator ash. On appeal, the US Court of Appeals for the Second Circuit summarily affirmed the district judge's opinion. The US Supreme Court refused to review that decision.

A day after its petition to the Supreme Court was denied, EDF won a victory on the ash issue in the US Court of Appeals for the Seventh Circuit in *Environmental Defense Fund, Inc. v. City of Chicago* [20]. The Court refused to accept the City's assertion that the terms 'otherwise managing' and 'generating' were co-extensive. It

looked to the individual definitions in RCRA, noting that the term ‘management’ is defined as the ‘collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste’ [21]. The Court also examined the definitions of ‘treatment’ [22] and ‘disposal’ [23], neither of which include the term ‘generation’ (which is separately defined in RCRA as the ‘act or process of producing hazardous waste’ [24]). Concluding that there is no overlap between ‘management’ and ‘generation’, the Court held that the plain language of Section 3001(i) limited the exclusion to ‘management’ activities of resource recovery facilities, thus subjecting the generating activities of such facilities to Subtitle C regulation. In other words, while resource recovery *facilities* might be exempt from the requirements applicable to hazardous waste TSD facilities, they are not exempt from the requirements applicable to the *wastes* (i.e., ash) they generate.

While the City of Chicago’s petition for review was still pending before the US Supreme Court, EPA issued one of its many interpretations of Section 3001(i). In an 18 September 1992 memorandum to his regional administrators, then EPA administrator William K. Reilly announced the agency’s decision to treat MWI ash as exempt from hazardous waste regulation [25]. In response to urging by the Solicitor General, the US Supreme Court vacated the Seventh Circuit’s ruling and remanded the matter for further consideration.

The Seventh Circuit, however, did not share the Solicitor General’s or the solid waste industry’s enthusiasm for the EPA memorandum. In a terse opinion issued on 12 January 1993, the Seventh Circuit stood by its 1991 decision and issued a new opinion [26].

The City of Chicago and the waste-to-energy industry perceived the US Supreme Court’s previous decision to remand the case as reassuring. Some felt that the Court, by not deciding the issue at the time the EPA memorandum was issued, was sending a signal to the Seventh Circuit that its 1991 decision would be reversed. It, therefore, came as a surprise when, after agreeing to review the case, the Court affirmed the decision [27].

The City’s references to the legislative history behind Section 3001(i) fell on deaf ears. Like the Seventh Circuit, the Court based its decision solely on the statutory language, which ‘is the authoritative expression of the law, and the statute prominently *omits* reference to generation’ [28]. Agreeing that Section 3001(i) exempts a resource recovery facility’s management activities from Subtitle C regulation, the Court was not willing to extend the exemption to the facility in its capacity as a generator. The Court’s decision, holding that ash is not statutorily exempt from Subtitle C regulation, became effective on 27 May 1994.

Curiously, the Court declined to express any opinion on the validity of EPA’s household waste exclusion, prior to the enactment of Section 3001(i):

We express no opinion as to the validity of EPA’s household waste regulation as applied to resource recovery facilities *before* the effective date of Section 3001(i). Furthermore, since the statute in question addresses only resource recovery facilities, not household waste in general, we are unable to reach any conclusions concerning the validity of EPA’s regulatory scheme for household wastes *not* processed by resource recovery facilities (emphasis in original) [29].

That reference thus left open the possibility that EPA could subject municipal waste incinerators that are not resource recovery facilities to regulation as well. However, on 17 August 1994, EPA clarified its position that the Supreme Court's decision and EPA's strategy in implementing that decision did not extend to ash from combustors that do not recover energy, provided they accept only household waste [30].

5. Practical effects of the Supreme Court's decision

5.1. The impact on enforcement

Following the decision, EPA denied requests to allow owners and operators of municipal waste incinerators a six-month grace period for implementing the testing protocols and other changes necessary to comply with RCRA Subtitle C. EPA has not extended the compliance dates for any Subtitle C regulatory requirements, except the Part A permitting requirement applicable to the facilities which choose to treat, store or dispose of hazardous ash (see Section 5.3).

With respect to its enforcement efforts, however, EPA's Assistant Administrator for Enforcement issued an implementation strategy [31] calling for the regions to focus their resources on:

- (1) facilities which manage their ash in a manner posing an imminent and substantial endangerment pursuant to RCRA Section 7003 [32];
- (2) facilities which fail to implement appropriate testing methods for determining whether their ash is hazardous;
- (3) facilities which fail to control fugitive emissions during the transportation or storage of hazardous ash; and
- (4) facilities which reuse ash that exhibits hazardous characteristics.

5.2. The impact on resource recovery facilities

EPA has taken the position that ash from resource recovery facilities becomes subject to Subtitle C regulation when it exits the combustion building (including connected air pollution control equipment). That is the point at which a hazardous waste determination should be made and, in the future, at which RCRA's land disposal restrictions (LDRS) will begin to apply (see Section 5.3) [43]. To assist the facilities and state regulatory agencies in designing sampling and analysis strategies, the agency issued a draft guidance document on 20 May 1994. The final guidance document became available on 13 July 1995 [33].

The document discusses the design of sampling plans, the use of the Toxicity Characteristic Leaching Procedure (TCLP) to determine whether the ash exceeds toxicity limits, and the criteria for determining whether the ash passes or fails the toxicity test. EPA recommends that, where possible, facilities design their own facility-specific plans [34]. It also recommends that ash be recharacterized whenever the facility suspects that waste composition changes,

plant modifications, or operating changes may have a significant effect on the ash's leachability [35].

Some members of the solid waste industry have expressed concern over the legality of EPA's decision to require the use of TCLP in testing MWI ash. When the TCLP test was first proposed by EPA in 1986, many commenters questioned whether it was appropriate for determining the toxicity of ash. Those comments were not addressed by EPA before the rule was finalized in 1990. Notwithstanding those objections, however, most of the states that mandated the testing of ash prior to the Supreme Court's decision require that TCLP be used. In apparent response to those concerns, EPA published a notice announcing the availability of the guidance document for public review and comment [36]. The public comment period ended on 21 September 1994, and EPA issued the guidance in final form in July 1995.

Meanwhile, the Integrated Waste Services Association (IWSA) has filed suit in the US Court of Appeals for the District of Columbia, challenging EPA's requirement that resource recovery facilities whose ash tests positive for hazardous characteristics apply for RCRA permits for the handling and storage of hazardous waste [37]. Several parties, including the US Conference of Mayors and various municipal solid waste authorities, have sought to intervene in that action on IWSA's behalf. Although EPA has filed a motion to dismiss part of that case, no decisions have been issued and the case is still pending.

Facilities generating MWI ash continue to explore their options, including (1) treatment processes for rendering the ash non-hazardous, (2) construction of source separation facilities, and (3) segregation of fly ash, which comprises approximately 20–25% of the total ash produced [38] but which typically contains higher levels of heavy metals, from bottom ash. In the meantime, however, ash which tests out as hazardous must either be (1) disposed of in a TSD facility permitted under RCRA Subtitle C, or (2) treated to remove its hazardous characteristics prior to its disposal in Subtitle D-regulated landfills. According to the IWSA, major landfill operators across the United States are rejecting ash shipments which have not been treated or which have not been certified as non-hazardous [39].

5.3. Impact on municipal waste landfills

Municipal landfills have accepted ash for disposal in ash monofills, in dedicated cells and on a commingled basis for years prior to the US Supreme Court's decision. Understandably, the decision has also given them cause for some alarm. For example, landfill owners and operators, whether or not they wish to continue accepting untreated or hazardous ash, face several issues, including:

- (1) whether they must apply for 'interim status' under RCRA Subtitle C for the ash already disposed of in the facility;
- (2) the requirement that they apply for 'interim status' under RCRA Subtitle C, if they wish to accept untreated, untested or hazardous ash;
- (3) the need to ensure that ash is properly tested and treated before acceptance, and that hazardous ash is not accepted, at the landfill;
- (4) the potential for citizen suits under RCRA [40]; and

- (5) the threat of future liability if the Supreme Court's decision is retroactively applied.

On 7 June 1994, EPA announced that it would extend the permit application deadline for facilities which wish to continue treating, storing or disposing of ash that exhibits a characteristic of hazardous waste [41]. Those facilities were required to file a 'Part A' (or interim status) application anytime before 7 December 1994. Applications were required to be filed with EPA's regional offices or with the state, depending upon whether the state has been authorized to implement the toxicity characteristic and the TCLP testing procedure. However, if the state is so authorized, then EPA's extension for submitting permit applications would have had no effect. Permittees were required to obtain an extension or other relief from the state.

EPA also addressed the issue of how RCRA's land disposal restrictions (LDRs) will affect ash qualifying as hazardous waste. LDRs prohibit the disposal of certain hazardous wastes in landfills unless they are first treated to substantially reduce their toxicity or to reduce the mobility of the wastes' hazardous constituents [42]. To allow sufficient time to promulgate treatment standards, EPA has designated ash as a 'newly identified' waste. Those standards have not yet been proposed.

5.4. Impact on state regulatory programs

While awaiting a final decision on the Federal regulation of ash, most states moved ahead with their own ash management standards. For example, in May 1990, the Washington State Department of Ecology adopted one of the more stringent regulatory programs for 'special incinerator ash' [44]. Those regulations impose numerous requirements and standards, including monitoring and sampling; disposal in specially designed monofills with a prohibition against co-disposal; ash management plans; siting, operational, treatment, closure and post-closure standards; ash utilization standards; and financial assurance. However, even the State of Washington withheld final judgment on the ash issue. The regulations specifically do not address ash residues that are classed as hazardous waste under federal regulations 'unless [EPA] decides such wastes are not subject to [RCRA] Subtitle C' [45].

While the approaches taken vary, a survey conducted by the National Solid Wastes Management Association (NSWMA) in 1989 found that 90% of the states had some type of ash management guideline. 80% required that ash be tested prior to disposal, and 74% had ash-specific landfill design criteria [46].

An informal survey done in April 1992 of nine states (Florida, Massachusetts, Michigan, Minnesota, New Jersey, New York, Oregon, Pennsylvania, and Wisconsin) indicated that seven of the states characterized the ash as solid waste regulated under Subtitle D. Oregon and New Jersey, however, characterized the ash based upon TCLP results. In addition, all nine states had ash-specific landfill design criteria, leachate management provisions, and, with the exception of Minnesota, ash utilization provisions [47].

Given the proliferation of state regulatory programs dealing with ash in one form or another, the US Supreme Court's decision may have less impact than some believe over the long term. However, those states with ash exemptions that were not

authorized by EPA will be forced to revise their laws and regulations to eliminate those provisions which are less stringent than RCRA Subtitle C. Where states enacted special legislation to address the ash issue, the status of those provisions is an issue of state law and their validity, therefore, remains an open question [48]. One solution could come by way of federal legislative relief, but on what time frame is anyone's guess.

6. RCRA reauthorization

Depending upon the political clout wielded by the organizations representing the interests of local governments and the waste-to-energy and solid waste disposal industries, Congress may amend Section 3001(i) to insert the language found lacking by the Supreme Court. Efforts to comprehensively address RCRA and other major environmental statutes will not be renewed until 1995. However, discussions over more targeted legislation are likely to produce proposals for consideration by the 104th Congress.

Parties affected by the Supreme Court's decision are exploring opportunities for the designation of MWI ash as a 'special waste'. Most recently, the EDF and representatives of local governments and the combustion industry reached a tentative compromise over the creation of special ash management standards. Those standards would subject ash disposal to tight regulation under Subtitle D. Ash would still be subject to certain inspection, monitoring and other requirements, including disposing of ash in monofills or monocells and limiting reuse until such time as EPA promulgates ash reuse regulations. Many of these requirements would be implemented in phases. Unfortunately, the year-end schedule faced by members of Congress in 1994 and concerns expressed over the limited reuse provisions killed the compromise, at least for the time being [49].

7. Conclusion

Given the inherent delays in the political process, owners and operators of municipal waste incinerators will not be relieved of their obligations to comply with RCRA Subtitle C anytime soon. Meanwhile, the states which took the matter into their own hands now must reconcile their state law requirements with those established under federal law. What could be lost in the ensuing confusion is the opportunity for establishing a clear and practical federal ash management standard. Even more distressing, however, is the nagging thought that the omission of the word 'generating' from Section 3001(i) could well have been a 'scrivener's error', with 10 years of wasted litigation the only result.

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