



**House
Legislative
Analysis
Section**

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MUNICIPAL SOLID WASTE ASH

House Bill 4311 (Substitute H-1)
First Analysis (3-20-89)

RECEIVED

MAY 23 1989

Sponsor: Rep. Michael J. Griffin

Committee: Conservation, Recreation, & Environment

Mich. State Law Library

THE APPARENT PROBLEM:

The recent closure of several landfills in the state and the difficulty encountered when municipalities have tried to establish new landfills have contributed to the increase in the popularity of municipal solid waste incinerators as a method of dealing with waste disposal problems. However, many municipalities have encountered unexpected costs associated with incineration, and the incineration of municipal solid waste has presented certain unexpected problems. Under the federal Resource Conservation and Recovery Act (RCRA), Subtitle C (the section regulating hazardous waste), it is clear that municipal solid waste is exempt from hazardous waste provisions and that incinerators are not deemed to be treating, storing, disposing of, or managing hazardous waste if they receive and burn only household waste and waste from commercial or industrial sources that does not contain hazardous waste, if they do not accept hazardous waste, and if owners and operators establish contractual requirements or other measures to assure that hazardous waste is not received at or burned in the incinerators. However, once nonhazardous waste is burned, toxic ash may result due to several factors, including the combination of wastes burned in the facility. Once municipal waste is incinerated, the ash is often tested for leachability in order to determine what toxins will readily leach from the ash into the environment and, thus, the potential toxicity of the ash. Lead and cadmium are two carcinogenic metals of particular concern in the testing of ash because of the harm that they can cause to humans and the environment.

There is mounting confusion concerning the rules and regulations under state and federal law for the handling and testing requirements regarding incinerator ash. Representatives of industry and other groups complain that incinerator ash is exempt from federal law, that ash should not be tested for toxicity, that the current protocol for testing is not applicable to the manner in which ash is currently handled, and that ash should be handled according to rules and regulations governing the management of solid waste. The Department of Natural Resources (DNR), environmentalists, and other groups maintain that both federal and Michigan law require operators of incinerators that burn nonhazardous commercial, industrial and household waste (municipal waste) to test the ash in accordance with protocols specified in state and federal rules and regulations. (The current protocol for testing is the use of the Extraction Procedure Toxicity Test, EP Tox. Test. The purpose of the test is to determine whether any metals, such as lead and cadmium, are present in ash and will leach out of the ash disposal area into the environment if the disposal area leaks. Normally, a solution containing acid is run through the ash to test for harmful metals because acid will often increase the solubility of certain metals.) According to testimony before the House Conservation, Recreation, and Environment Committee, some states have interpreted federal law to require testing and other states have not.

Michigan law has been interpreted to require testing of municipal solid waste incinerator ash. However, the results of the EP Tox. Test on incinerator ash often vary, and many times a battery of tests must be run to determine whether ash is nonhazardous.

When new incinerators have been opened in Michigan in recent years, operators have assumed that their incinerator ash would be managed as a solid waste because the waste that they planned to burn was managed in that manner. However, ash samples from several incinerators in Michigan have failed the EP Tox. Test. Owners and operators of incinerators are very concerned about the results of the tests because a determination of incinerator ash to be hazardous can dramatically increase the total costs of an incineration project. The costs of landfilling ash in a solid waste disposal area run between \$2 and \$10 per ton of ash, but landfilling ash in a hazardous waste disposal area may cost at least \$180 per ton. In addition, there are only approximately three hazardous waste disposal areas in operation in the state, so it is quite probable that if the majority of municipal ash was determined to be hazardous, those landfills would be filled to capacity in the near future. Ash at the incinerator in Jackson County failed the EP Tox. Test during August 1988, and the facility shut down on October 28, 1988 because operators knew that they could not afford the costs to landfill several tons of ash in a hazardous waste area. However, the community has a \$23 million bond and other loans that total a \$28 million investment in incineration. The plant is reportedly losing \$4,000 per day in revenue from the sale of steam and electricity, and the county will have to borrow money from another county fund to meet a \$1.2 million bond payment due next month. The situation in Jackson County is not unique. Municipal ash at the Grosse Pointe/Clinton Refuse Disposal Authority's incinerator failed the EP Tox. Test in December 1988, which led to the closing of the incinerator on December 28, 1988, the layoff of seventeen people, and a to-date loss of \$500,000. A recent battery of tests upon ash from the City of Detroit's incinerator in Sumpter Township show samples of ash failing the EP Tox. Test, and the city may be forced to spend approximately \$18 million per year to landfill the ash in a hazardous waste area. Representatives of incinerators that expect their incinerators to begin operation soon, such as operators in Kent County, are concerned about the way in which ash is to be handled.

Since there is considerable disagreement concerning the way in which municipal ash is to be handled and under which law the ash is to be managed, and because several communities have reached the point of financial crisis concerning their incineration projects and the disposal of their solid waste, legislation has been proposed to clarify the regulation of municipal ash.

THE CONTENT OF THE BILL:

The bill would amend the Solid Waste Management Act to create special provisions for the handling of municipal solid waste incinerator ash. The bill would specify that

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incinerator ash would be regulated under the act as a solid waste and would not be regulated under the Hazardous Waste Management Act.

Specifically, the bill would detail three types of disposal areas in which ash could be disposed of and would provide for alternative disposal areas. The three types of disposal areas would meet current requirements of the act and rules promulgated under the act. The first option would allow municipal ash to be disposed of in a disposal area with a design that included the following (in descending order according to their placement in the disposal area):

- a leachate collection system;
- a synthetic liner at least 60 mils thick;
- a recompacted clay liner of at least five feet and of a certain hydraulic conductivity;
- a leak detection and leachate collection system; and
- a recompacted clay liner at least three feet thick and of a certain hydraulic conductivity, other material that provided a performance equivalent, or a synthetic liner at least 40 mils thick.

The second option would allow the disposal of ash in a disposal area with a design that included the following, in descending order of their placement at the site:

- a leachate collection system;
- a synthetic liner at least 60 mils thick;
- a geotextile layer at least 100 mils thick;
- a synthetic liner at least 40 mils thick;
- a geotextile layer at least 100 mils thick;
- a leak detection and leachate collection system; and
- a synthetic liner at least 40 mils thick.

This second option would also require the disposal area to be capped following its closure with a cap that included a geomembrane infiltration system and either:

- met the Michigan Administrative Code rule requirements for a cover of at least two feet of compacted soil; or
- included the following in descending order: three inches of top soil with a vegetative cover, eighteen inches of sand, a synthetic liner at least 60 mils thick, eight inches of sand.

The third option would allow for ash disposal in a disposal area with a design that included the following in descending order of their placement at the site:

- a leachate collection system;
- a synthetic liner at least 60 mils thick;
- a leak detection and leachate collection system; and
- at least ten feet of either natural or compacted clay of a certain hydraulic conductivity.

The third option would also require the disposal area to be capped following its closure by all of the following in descending order:

- six inches of top soil with a vegetative cover;
- * two feet of recompacted clay of a certain hydraulic conductivity;
- an infiltration collection system;
- a synthetic liner at least 30 mils thick; and
- one foot of recompacted clay of a certain hydraulic conductivity level.

The bill would provide for a fourth type of disposal area approved by the director utilizing an alternative design that would prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as design options one through three. Under the bill, if leachate was collected from a disposal area,

the leachate would be monitored and tested in accordance with the act and the rules promulgated under the act.

As an alternative to disposal areas detailed in the bill, the owner or operator of a municipal solid waste incinerator could process municipal ash through mechanical or chemical methods, or both, to limit the leachability of constituents if the following occurred:

- processing was performed on the site of the incinerator or at the site of a disposal area described under the bill;
- the process had been approved by the director of the DNR; and
- the ash was tested after processing in accordance with a protocol approved by the director.

Ash processed through mechanical or chemical methods, as described above, could be disposed of in a Type II landfill (solid waste). If ash was processed in accordance with these specifications, but did not satisfy testing protocol, the ash would be disposed of in accordance with disposal methods outlined in the bill. The disposal of municipal incinerator ash within a disposal area described in the bill would not constitute a new proposal requiring a new construction permit under the act if a construction permit had previously been issued under the act for the disposal area. In addition, the bill would require municipal ash to be transported in covered, leakproof railroad cars if the ash were transported by rail.

Prior to and after the effective date of the bill, municipal ash could be stored on a temporary basis in a disposal area licensed under the act for no longer than nine months after an operating permit was approved for a disposal area described in the bill that allowed for the disposal of municipal incinerator ash at the site. This provision would apply only to disposal areas that were accepting municipal ash from municipal incinerators on the effective date of the bill. Following a period of temporary storage under the bill, municipal incinerator ash would be permanently disposed of in accordance with the bill. Temporary storage under this provision would provide for intermediate separation of municipal ash from other solid waste using at least two feet of compacted soil. The bill would require a disposal area that received municipal ash to be managed to control dust.

The bill would allow the Huron Quarry Landfill to continue to dispose of municipal ash for ten years after the effective date of the bill. The landfill could be upgraded to meet the requirements of the bill, but the upgrading would not constitute a new proposal for which a construction permit was required. In addition, the landfill could employ mechanical pumping as a means to control groundwater levels to achieve vertical isolation distances required under the rules promulgated under the act.

Under the act, the director of the DNR is prohibited from issuing a license to operate a disposal area unless the applicant has filed a bond to cover closure and postclosure monitoring and maintenance costs. Disposal areas created under the bill would be subject to current bonding provisions and would be required to provide a bond or letter of credit equal to \$20,000 per acre of the disposal area, up to a total of \$1 million. The bond or letter of credit would have to provide assurance for remedial action at the site until 30 years after the disposal area or any portion of the disposal area closed.

The act requires counties to develop solid waste plans with the approval of the director of the DNR. Under the bill, the director could not approve a plan unless the plan

contained an analysis or evaluation of the feasibility of source separation of materials that contained potentially hazardous components at disposal areas.

The bill is tie-barred to House Bill 4304, which would amend the Hazardous Waste Management Act to specify that the generation, transportation, treatment, storage, disposal, reuse, and recycling of municipal solid waste incinerator ash would be regulated under the Solid Waste Management Act.

MCL 299.405 et al.

FISCAL IMPLICATIONS:

According to the Department of Natural Resources, the bill would have no fiscal implications for the state. (3-14-89)

ARGUMENTS:

For:

Federal law has not been clear concerning management of incinerator ash. During the previous Congressional session, five bills were introduced to address ash management. During the current session two bills, reportedly Senate Bill 1894 and House Bill 4387, have been introduced to address the issue. All of the federal legislation has suggested creation of a "special waste category" for municipal incinerator ash. House Bill 4311 will follow the federal lead by addressing ash as a special waste and by requiring ash to be landfilled in monofills (disposal areas or cells with one type of waste) that are more secure than solid waste disposal areas but less secure than hazardous waste disposal areas. The bill will also clear up confusion as to whether municipal incinerator ash is to be regulated as a solid waste or a hazardous waste by specifying that ash will be regulated under the Solid Waste Management Act. Further, the bill will address some concerns regarding the handling of municipal ash and the limiting of public exposure to waste by requiring waste that is transported by rail to be covered in leakproof rail cars. Current laws would also affect the handling of the ash. For example, recently enacted truck safety legislation requires trucks to be securely covered to prevent their contents from blowing out. In addition, the truck safety laws detail further measures to be undertaken in order to prevent spillage during transportation. The bill will also address the testing protocol issue by specifying that municipal ash could be landfilled in a solid waste disposal area if the ash were processed in accordance with a protocol approved by the director of the DNR and if other measures detailed in the bill were taken to limit the leachability of toxins. If the bill is enacted, Michigan reportedly will have one of the toughest, if not the most stringent, laws concerning ash management in the United States.

Against:

The bill will allow waste that is hazardous to be stored in special disposal areas that are less secure than hazardous waste areas, thereby exposing the population and environment of the state to hazardous conditions, and constituting violation of the Resource Conservation and Recovery Act. The DNR, environmentalists and others have interpreted the federal law to require hazardous ash to be stored in hazardous landfills. Under RCRA any person is allowed to bring legal action to compel another person to comply with any provision of the federal act. Two suits have already been instituted in federal court:

Environmental Defense Fund (EDF), Inc. v. Wheelabrator Technologies, Inc. and Westchester RESCO, L.P., and EDF and Citizens for a Better Environment v. the City of Chicago. Both environmentalists and the DNR suggest that Michigan may be subject to a similar suit if the bill is enacted and interpreted to be less stringent than federal law.

Under the Hazardous Waste Regulatory Program of RCRA, states have the authority to run their hazardous waste programs in place of the federal program if they are at least as stringent as the federal law. Representatives of the U.S. Environmental Protection Agency (EPA) have stated that if the bill is interpreted to allow hazardous waste to be landfilled in a solid waste landfill, Michigan could jeopardize its authority under federal laws. In addition, the EPA has stated that state legislation such as House Bill 4311 is premature since federal legislation addressing the issue will probably be acted upon during the current Congressional session.

Response: Although legislation has been introduced at the federal level to address the municipal solid waste incinerator ash issue, there is no guarantee that the legislation will be enacted during the current Congressional session. Many Michigan communities face a potentially financially devastating problem concerning incineration projects, and the problem must be addressed quickly. The state cannot afford to wait for the eventual passage of federal laws to solve the problem. Further, the bill will address the issue in a manner consistent with the proposed federal legislation by establishing a special waste category for municipal ash. Once federal legislation has been enacted, the Michigan legislature may always reassess the issue if required.

Against:

If, as many argue, the bill's standards regarding the landfilling of municipal ash are lower than those in other states, resulting in costs for landfilling ash in Michigan that are less than costs in other states, other states will ship their ash to Michigan. The state already reportedly receives asbestos waste from New York and other types of waste from the City of Chicago. Representatives of the DNR and environmental groups warn that the bill will also provide a strong incentive for Michigan operators of municipal solid waste incinerator ash landfills to import ash. A representative of Senator Don Riegler's office has stated that the bill could be perceived to encourage the importation of ash and would be inconsistent with the intent of the senator's bill, S 269, to limit the interstate transport of waste. If ash was imported and landfilled in a special landfill, provisions would be needed to verify that the ash was, in fact, ash from the combustion of municipal waste. Reportedly, the DNR only has 75 percent of the staff required to sufficiently evaluate waste in disposal sites, and thus it is likely that the regulation of imported ash will pose a severe strain on the staff of the agency.

Response: The notion that the bill will provide an incentive for incinerator operators to import ash is utterly ridiculous. The state already effectively restricts importation of waste through requirements in the law concerning county solid waste management plans. In particular, all solid waste imported into a county must be identified in the county solid waste management plan. Therefore, ash could not be imported unless a county board approved the importation. In addition, one of the reasons that incineration projects are being developed in the state is that landfill space is limited. There is no need for solid waste disposal operators and owners to import waste

because the state already has more than enough waste to fill disposal areas.

Against:

The bill only addresses landfilling of ash and does not undertake measures to ensure recycling of waste. Although the bill prohibits the director from approving a county plan for solid waste management unless the plan includes analysis of the feasibility of source separation of materials containing hazardous compounds, the bill does not require source separation. If source separation of bottom ash from fly ash occurred, the possibility for recycling would be increased, as bottom ash can be used in asphalt and concrete, for fill and for other applications. However, bottom ash is often mixed with fly ash, which is usually highly toxic, in order to reduce the toxicity level of the ash aggregate, making chances for recycling slim.

Against:

The bill circumvents public participation provisions currently required for the siting of other disposal areas. Reportedly, Sumpter Township in Wayne County and Watertown Township in Clinton County were both recently successful in preventing the siting of hazardous waste landfills in their communities. Under the bill, hazardous waste in the form of municipal ash could be deposited in a solid waste landfill temporarily, or in a monofill that was an extension of a solid waste landfill permanently, without consideration of public input. Therefore, communities such as Sumpter Township and Watertown Township will not have the opportunity to comment on the siting of certain disposal areas in the future. When there is opportunity for public comment concerning solid waste and hazardous waste landfills, the DNR in many cases can address the problem. However the DNR will not be aware of the public's concerns if opportunities for public comment are not available.

Against:

The bill provides for the processing and testing of incinerator ash in accordance with a protocol approved by the director, and therefore, requires the use of the EP Tox. Test (the current the testing protocol used by the DNR and the U.S. EPA to determine leachability of ash samples). The EP Tox. Test simulates conditions that occur when ash is buried with other trash. However, since under the bill the ash would be monofilled and would not come into contact with other trash, the test would not be relevant. Several new tests have recently been developed to specifically determine the toxicity of ash under monofill conditions and should be used as the protocol for testing. However, there is no measure in the bill to ensure that the most relevant, technologically advanced testing system will be used by the DNR.

Response: The use of the EP Tox. Test to determine leachability may actually underrepresent the leachability risks. Many incinerators use lime in their scrubbing process as an environmental protection measure. Lime neutralizes acid and immobilizes certain ash metals. However, lime does not immobilize amphoteric metals (metals such as lead and cadmium that are highly soluble in acid and lime). If ash is mixed with lime, the lime can serve to neutralize the acid used in the test and may serve to initially show low levels of amphoteric metals. However, some data suggest that the rate of leaching of amphoteric metals is initially slow but increases at a faster rate with the passage of time. Therefore, initial EP Tox. Test results could give test analyzers a false sense of security.

Against:

Many groups have suggested that the bill does not contain sufficient measures to ensure the health and safety of the public and the environment. They point out the following problems with the bill:

- Although the bill does provide for additional assurances of clean up of disposal areas by providing for an additional letter of credit or bond, the \$1 million cap in the bill is not sufficient to protect the health and safety interests of the public and environment. The DNR recommended a \$3 million cap in its draft of the legislation. However, clean up costs at disposal areas have cost several millions of dollars, and some say that a \$5 million cap is the minimum amount of financial assurance for clean up that the state should accept.
- Although the different options for disposal site design require liners, and caps for certain designs, there is no guarantee that the liners and caps will ensure the stability of the disposal area for the duration of the housing of the ash. Reportedly, if synthetic liners have even the smallest of holes, the stability of the disposal area will be compromised. It is quite likely that a liner will develop a hole sometime during its life. Therefore, the bill should require two synthetic liners above a clay liner. However, these requirements are not made in two of the disposal area design options. Reportedly, if there is only one synthetic liner above a layer of clay and the liner leaks, the clay absorbs the leak and makes detection of a leak at the site very difficult until the clay is compromised.

Many consider caps to be the most important component of disposal area design, because the cap keeps water out of the site. However, if a cap is not sufficient, water will build up within the disposal area and increase pressure on its contents, thereby causing the contents of the site to leach out. The first disposal area design option does not require a cap, and the cap that is required for the second option simply provides for two feet of clay cover, which is insufficient for the purposes of the bill. In addition, the provision in the bill requiring two feet of soil between municipal ash and other solid waste refuse when the ash is temporarily stored in a solid waste landfill is insufficient, because it is highly probable that soil will not prevent the eventual mixture of the municipal ash and the solid waste. And, there are no provisions for daily cover of ash. Therefore, fugitive dust may be emitted from disposal sites, and although the bill requires ash incinerators to be managed to control dust, the bill does not detail exactly what steps should be taken to control dust.

- The bill does not specify how ash stored temporarily is to be handled upon its removal to a permanent storage area. No provisions are detailed to assure that the characteristics of the ash, such as fugitive dust emissions, are controlled when ash is being dug up and loaded for transport.
- Under the bill, if leachate is collected, it is to be monitored and tested in accordance with the Solid Waste Management Act. The bill creates a problem that it was intended to correct by requiring ash to be tested and not specifying what is to be done with the results. In addition, the bill does not specifically require the DNR to test leachate, and this omission will probably lead to complaints that the DNR has no legal basis to test ash samples, similar to complaints that are currently voiced by industry.

Response:

- The exact amount of money needed for future site clean up can never be exactly anticipated. However, the \$1 million will help ensure the safety of the environment and the health of the public without causing undue hardship upon owners and operators.
- The design options are very rigid, and in some cases could be considered overkill. Often in both hazardous and solid waste landfills a mixture of waste occurs which can lead to the rapid depletion of the liners surrounding the disposal area. Municipal ash is not as hazardous as waste required to be landfilled in a hazardous waste landfill. There are some reports that suggest that ash mixed with certain materials is no more harmful than ocean water. In addition, ash in monofills reacts differently than ash in regular disposal areas. Recommendations for disposal design options from several sources have been taken under consideration and it is felt that the design options listed in the bill will protect both the public's health and safety and the safety of the environment.
- It is not clear what precautions would be taken to address the removal of ash from temporary to permanent storage, or questions regarding testing. However, since the bill clearly states that ash is to be handled under the Solid Waste Management Act, it is probable that safety and testing measures under that act would apply.

The Mackinac Chapter of the Sierra Club opposes the bill. (3-14-89)

The Michigan Environmental Council opposes the bill. (3-14-89)

The Sierra Club opposes the bill. (3-14-89)

Against:

House Bill 4311 is tie-barred to House Bill 4304, which is still before the House Conservation, Recreation and Environment Committee. Therefore, House Bill 4311 cannot become a law until its companion is acted upon or the tie-bar is broken. However, breaking the tie-bar would result in regulation of ash under both the Hazardous Waste Management Act and the Solid Waste Management Act.

Response: The House Conservation, Recreation, and Environment Committee is scheduled to address House Bill 4304 this week.

POSITIONS:

Jackson County supports the bill. (3-14-89)

Kent County supports the bill. (3-14-89)

Ogden Martin Systems, Inc. supports the bill. (3-16-89)

Geo Dynamic Consultants, Inc. supports legislation to deal with municipal solid waste incinerator ash. (3-14-89)

Granger Waste Management supports the concept of the bill. (3-15-89)

The Greater Detroit Resource Recovery Authority believes that House Bill 4311 (substitute H-1) is a reasonable response to the concerns that have been raised and will completely protect the health, safety and welfare of citizens. (3-14-89)

The Department of Natural Resources supports the concept of legislation to clarify the regulation of municipal incinerator ash, but does not support House Bill 4311 (H-1). (3-17-89)

The American Lung Association of Michigan opposes the bill. (3-14-89)