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BILL ANALYSIS

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Senate Bill 747 (Substitute S-2 as reported)
House Bill 5148 (Substitute S-1 as reported)
House Bill 5149 (Substitute H-4 as reported without amendment)
Sponsor: Senator Jud Gilbert, II (S.B. 747)
Representative Phil Pavlov (H.B. 5148)
Representative Daniel Acciavatti (H.B. 5149)
House Committee: Natural Resources, Great Lakes, Land Use, and Environment
Senate Committee: Natural Resources and Environmental Affairs

Date Completed: 10-25-05

RATIONALE

Traditional landfills are designed to limit the amount of liquid entering a landfill in order to minimize the amount of leachate and gas produced by the decomposing waste. (Leachate is liquid that has soaked through the landfill and carries suspended and dissolved materials from the waste.) In the past, landfill liners were prone to leakage, and by minimizing the amount of leachate produced in a landfill, designers hoped to reduce strain on the liners and prevent the leachate from seeping into the groundwater. Because of the limited moisture content in traditional landfills, they are sometimes referred to as "dry tomb" landfills. In a dry tomb landfill, the waste decomposes very slowly, over decades or centuries. Some believe that raising the moisture content of the waste by adding liquid would allow the waste to decompose more quickly, lengthening the life of landfills and allowing for more stable postclosure periods.

It also has been pointed out that adding liquid waste, including septage waste, to a landfill could not only accelerate decomposition of the solid waste, but also avoid the need to dispose of the waste in another manner, such as land application. A project to implement this has been proposed for a landfill site in St. Clair County, but the Natural Resources and Environmental Protection Act prohibits the disposal of liquid waste in a landfill. It has been suggested that statutory amendments should permit the addition of liquid waste to a landfill and allow the proposed project.

CONTENT

Senate Bill 747 (S-2) would amend Part 115 (Solid Waste Management) of the Natural Resources and Environmental Protection Act (NREPA) to do the following:

- Allow the disposal of liquid waste in landfills under certain conditions.
- Delete a provision that allows the disposal of green glass in landfills until June 1, 2007.
- Prohibit the disposal of yard clippings in an incinerator, unless they were diseased or infested.

House Bill 5148 (S-1) would amend Part 115 of NREPA to do the following:

- Provide for the permitting and operation of landfill Research, Development and Demonstration Projects (RDDPs), if the Department of Environmental Quality (DEQ) determined that an RDDP would provide beneficial data on alternative landfill design, construction, or operating methods.
- Allow the DEQ to authorize the addition of liquids such as septage waste or other liquid waste to RDDPs to accelerate or enhance the biostabilization of the solid waste.
- Require an RDDP permit application to contain specified information, including the RDDP's goals, and identify how the RDDP would meet certain requirements.

- **Require an RDDP's owner or operator to submit an annual progress report to the DEQ.**
- **Allow the DEQ Director to order termination of an RDDP's operations or order other corrective measures if the goals of the RDDP were not being achieved.**

House Bill 5149 (H-4) would amend the definition of "receiving facility" in Part 117 (Septage Waste Servicers) of NREPA to include a structure designed to receive waste for treatment at an RDDP.

The three bills are tie-barred to each other.

Senate Bill 747 (S-2)

Part 115 prohibits a person from delivering to a landfill for disposal, and prohibits an owner or operator of a landfill from permitting the disposal of, liquid waste as prohibited by the Administrative Code. The bill, instead, would prohibit the delivery and disposal of bulk or noncontainerized liquid waste or waste containing free liquids, unless the waste was one of the following:

- Household waste other than septage waste.
- Leachate or gas condensate approved for recirculation.
- Septage waste or other liquids that would be approved for beneficial addition under Section 11511b (which House Bill 5148 would add).

Part 115 also prohibits a person from knowingly delivering to a landfill for disposal, or an owner or operator of a landfill from knowingly permitting disposal in the landfill of more than a de minimus amount of open, empty, or otherwise used beverage containers, but provides an exception allowing the disposal of green glass beverage containers before June 1, 2007. Under this part, the DEQ must convene a task force to make recommendations to the Legislature on the special recycling problems posed by green glass containers, and to determine whether the June 1, 2007, date for ending the exception for green glass beverage containers should be changed. The task force was required to issue its recommendations by December 31, 2004.

The bill would remove the requirement for the task force, and would delete the provision allowing the disposal of green glass beverage containers before June 1, 2007.

The bill also would prohibit a person from knowingly delivering to a municipal solid waste incinerator for disposal, or an owner or operator of a municipal solid waste incinerator from permitting disposal in the incinerator of more than a de minimus amount of yard clippings, unless they were diseased or infested. The DEQ would have to post, and a solid waste hauler that disposed of solid waste in a municipal solid waste incinerator would have to give each of its customers, notice of the prohibition, as required in Section 11527a. (That section requires the DEQ to post on its website a list of materials prohibited from disposal in a landfill and appropriate disposal options for them. Solid waste haulers must notify their customers annually of the prohibited materials and the appropriate disposal options.)

(Part 115 defines "yard clippings" as leaves, grass clippings, vegetable or other garden debris, shrubbery, or brush or tree trimmings, less than 4 feet in length and 2 inches in diameter, that can be converted to compost humus. "De minimus" means incidental disposal of small amounts of these materials commingled with other waste.)

In addition to prohibiting the landfill disposal of more than a de minimus amount of used beverage containers, Part 115 prohibits a person from knowingly delivering to a landfill for disposal, or an owner or operator of a landfill from knowingly permitting disposal in a landfill, any of the following:

- Medical waste, unless it has been decontaminated or is not required to be decontaminated.
- More than a de minimus amount of whole motor vehicle tires.
- More than a de minimus amount of yard clippings, unless they are diseased or infested.

If the DEQ determines that a safe, sanitary, and feasible alternative does not exist for the disposal of any of those items, then the Department must submit a report setting forth that determination and the basis for it to the appropriate standing committees of the Senate and House of Representatives.

The bill would require the DEQ also to submit a report if it determined that a safe, sanitary, and feasible alternative did not exist for the disposal of yard clippings in an incinerator.

House Bill 5148 (S-1)

Under the bill, a person could submit to the DEQ a project abstract for an RDDP. If, based on the project abstract, the DEQ Director determined that the RDDP would provide beneficial data on alternative landfill design, construction, or operating methods, the person could apply for a construction permit, including the renewal or modification of a construction permit, authorizing him or her to establish the RDDP. The bill would define "RDDP" as a research, development, and demonstration project for a new or existing type II landfill unit or for a lateral expansion of a type II landfill unit. (The Administrative Code defines a Type II landfill as a landfill that receives household waste or municipal solid waste, and that is not a land application unit, surface impoundment, injection well, or waste pile.)

Except as provided in the bill, an RDDP would be subject to the same requirements as apply to other Type II landfills or landfill units under Part 115 and the rules promulgated under it, including requirements for permitting, construction, licensing, operation, closure, postclosure, financial assurance, fees, and sanctions.

Part 13 (Permits) states that the DEQ may extend the processing period for a permit by a maximum of 20% if requested by the permit applicant. Under the bill, an extension of the processing period for a RDDP permit would not be subject to the 20% limitation.

An RDDP construction permit application would have to include, in addition to the required information for other Type II landfill construction permit applications, all of the following:

- A description of the goals of the RDDP.
- Details of the design, construction, and operation of the RDDP as necessary to ensure protection of human health and the environment. The design would have to be at least as protective of human health and the environment as other designs that are required under Part 115.

- A list and discussion of the types of waste that would be disposed of, excluded, or added, including the types and amounts of liquids that would be added and how their addition would benefit the RDDP.
- A list and discussion of the types of compliance monitoring and operational monitoring that would be performed.
- Specific means to address potential nuisance conditions, including odors and health concerns as a result of human contact.

The DEQ could authorize the addition of liquids, including septage waste or other liquid waste, to solid waste in an RDDP if the applicant had shown that the addition was necessary to accelerate or enhance the biostabilization of the solid waste. The DEQ also could require that the added septage or other liquid waste originate in the county where the RDDP was located or any contiguous county.

If an RDDP were intended to accelerate or enhance biostabilization of solid waste, the construction permit application also would have to include all of the following:

- An evaluation of the potential for a decreased slope stability of the waste caused by the increased presence of liquids, the accelerated degradation of the waste, increased gas pressure buildup, or other factors.
- An operations management plan that would include: a description of and the proportion and expected quantity of all components needed to accelerate or enhance biostabilization of the waste; a description of any solid or liquid waste that could be detrimental to the biostabilization of the solid waste or to the RDDP goals; and an explanation of how such detrimental waste would be kept out of the RDDP.
- Parameters such as moisture content, stability, gas production, and settlement, to be used by the DEQ to determine when it would authorize postclosure of the RDDP.
- Information to ensure that the RDDP would meet the requirements described below.

An RDDP would have to meet all of the following requirements:

- Ensure that added liquids were evenly distributed and that side slope breakout of liquids was prevented.
- Ensure that daily cover practices or disposal of low permeability solid wastes did not adversely affect the free movement of liquids and gases within the waste mass.
- Include a means to monitor the moisture content and temperature within the waste.
- Include a secondary liner and leachate collection system to monitor the effectiveness of the primary liner. The leachate collection system would have to be of adequate size for the anticipated increased liquid production rates, and the design factor of safety would have to take into account the anticipated increased operational temperatures and other appropriate factors.
- Include a means of monitoring the depth of leachate on the liner.
- Include an integrated active gas collection system of adequate size for the anticipated methane production rates and to control odors. The gas collection system would have to be operational before the addition of any material to accelerate or enhance biostabilization of the solid waste.

At least every 12 months the owner or operator of an RDDP would have to submit to the Director of the DEQ a report on the progress in achieving the goals of the RDDP, including a summary of all monitoring and testing results, as well as any other information specified by the Director.

A permit for an RDDP would have to specify its term, which could not exceed three years. The owner or operator of an RDDP could apply for an extension of the term of the permit, subject to the following requirements:

- The DEQ would have to receive the application at least 90 days before the permit's expiration date.
- The application would have to include a detailed assessment showing the progress of the RDDP in achieving its goals, a list of problems with the RDDP and progress toward resolving them, and other information that the DEQ Director determined was necessary.
- If the DEQ failed to make a final decision within 90 days of receiving an administratively complete application, the

term of the permit would be considered to be extended for three years.

- An extension could not exceed three years, and the total term of the permit with all extensions could not exceed 12 years.

The DEQ Director could order immediate termination of all or part of the operations of an RDDP or other corrective measures if he or she determined that the overall goals, including protection of human health or the environment, were not being achieved.

The postclosure period for an RDDP would begin when the DEQ determined that the unit or portion of the unit where the RDDP was authorized had reached a condition similar to that which non-RDDP landfills would reach before postclosure. The permit would have to specify the parameters, such as moisture content, stability, gas production, and settlement, to attain this condition. The perpetual care fund required under Section 11525 would have to be maintained for the period after final closure of the landfill as specified in that section. (Section 11525 requires a landfill owner or operator to establish and maintain a perpetual care fund for 30 years after final closure. The owner or operator must deposit into the fund a specified amount per ton of solid waste or certain other materials disposed of in the landfill.)

The Director could authorize the conversion of an RDDP to a full-scale operation if the owner or operator of the RDDP demonstrated to the Director's satisfaction that the goals of the RDDP had been met and the authorization did not constitute a less stringent permitting requirement than otherwise would be required under Federal law.

House Bill 5149 (H-4)

Part 117 defines "receiving facility" as a structure designed to receive septage waste for treatment at a wastewater treatment plant to which the structure is directly connected, and that is available for that purpose as provided for in an ordinance of the local unit of government that operates the wastewater treatment plant or in an operating plan. Under the bill, a receiving facility would be located either at a wastewater treatment plant or at a research, development, and demonstration project (as proposed under House Bill 5148). The bill

would require that a receiving facility be provided for in an ordinance of the local unit of government where the structure was located or in an operating plan.

Under the bill, the septage waste servicing license and septage waste vehicle license requirements under Part 117 would not be applicable to RDDPs. (Part 117 prohibits a person from engaging in septage waste servicing except as authorized by a septage waste servicing license and a septage waste vehicle license.)

Part 117 requires that, before beginning construction of a receiving facility, the owner have a permit authorizing the construction of the facility. Under the bill, if the proposed receiving facility would be part of an RDDP that would be permitted under Part 115, then the permit issued under that part would satisfy the permitting requirement.

MCL 324.11514 (S.B. 747)
Proposed MCL 324.11511b (H.B. 5148)
MCL 324.11701 et al. (H.B. 5149)

ARGUMENTS

(Please note: The arguments contained in this analysis originate from sources outside the Senate Fiscal Agency. The Senate Fiscal Agency neither supports nor opposes legislation.)

Supporting Argument

Bioreactor landfills may offer some very promising benefits over traditional landfills. Adding liquid to the solid waste in a landfill can increase the rate of decomposition of the waste, so that it arrives at a stable state more quickly. Traditional landfill designs limit the entry of liquid into the landfill, slowing the rate of decomposition of the waste. Because the waste is not fully decomposed, if any moisture does enter the landfill, the rate of decomposition can spike sharply, resulting in increased leachate and landfill gas production. This is particularly problematic if the leak occurs after the landfill is capped and closed, when it is not as closely monitored, and when the problem might escape immediate detection. A bioreactor landfill allows the waste to decompose over a shorter period of time, arriving at a stable state in years, rather than decades or even a century, resulting in a more stable postclosure period.

The addition of liquid to the solid waste in a landfill also encourages greater settlement

of the waste, allowing for a larger total capacity and longer life for the landfill. As the waste rapidly decomposes, it is compacted, taking up less space. The liquid also can increase waste settlement by acting as a lubricant in the waste mass, allowing greater settlement. The added weight of the liquid can further increase settlement, which makes room for more waste, extending the life of the landfill.

Additionally, traditional landfills produce methane slowly over the life of the landfill and during the postclosure period. By accelerating the decomposition of solid waste, a bioreactor landfill produces natural gas or methane at a higher rate compared with traditional landfills. The methane from the landfill can be captured and used to generate electricity. By one estimate, the proposed RDDP in St. Clair County could produce enough energy to heat 800 houses for 10 years.

The potential benefits of alternative landfill designs appear to be promising. The bills would authorize RDDP landfills that would provide the DEQ with additional data on the potential benefits or shortcomings of these designs. The DEQ would have the authority to limit the number and kinds of projects authorized under the bills to encourage innovative designs or disposal methods, and the authority to deny projects that were similar to others that had already been implemented. Over time, RDDP landfills could lead to important improvements in landfill design, reducing the environmental risk of solid waste landfills while increasing landfill capacity.

Supporting Argument

One project that could be authorized under the bills is the proposed RDDP in St. Clair County, which would introduce septage waste into the landfill, providing beneficial effects on the solid waste in the landfill, and allowing for the disposal of a projected 12 million gallons of septage. The disposal of septage waste is becoming an increasingly significant problem in the area. Macomb and St. Clair Counties currently produce about 9.5 million gallons of septage from septic tanks per year, and St. Clair County does not have a waste water treatment plant that treats septage. One current method of disposing of septage is to spread it onto land at licensed sites, but the septage is not always totally absorbed into the land, particularly in the winter when the

ground is frozen. The septage can collect on the surface and be carried into the water supply by seasonal runoff, potentially contaminating surface water and groundwater. Improper disposal of septage and failing septic systems have been identified as sources of water contamination in Lake St. Clair. The proposed RDDP in St. Clair County would be a more environmentally sound way of treating the septage, helping to alleviate the septage treatment problem in the county without the expense of building a waste water treatment plant.

Supporting Argument

The Senate bill would remove a current exemption allowing the disposal of green glass in landfills until June 1, 2007. That exemption is no longer needed. The task force convened by the DEQ examined the problems associated with the recycling of green glass, and found that there is a market for green glass that will keep it out of the landfills. Evidently, the recycling problems posed by green glass containers have been resolved, and green glass containers can be treated the same as other glass beverage containers are treated. The bill would allow green glass to be recycled rather than being sent to landfills.

Opposing Argument

Landfills are often prone to leakage, and the addition of septage waste into a landfill could increase the amount of leachate it produced, putting added pressure on the liner and risking leaks that could contaminate the groundwater. In addition, any heavy metals such as mercury that were present could be carried out of the landfill in the leachate or the gas condensate. Although heavy metals and toxic substances are prohibited in type II landfills, common items such as batteries and household cleaners often are mixed in with the municipal waste. These substances could cause significant harm if they were carried by the leachate into the groundwater.

Response: Studies have shown that despite the increased addition of liquid, bioreactor landfills produce approximately the same amount of leachate as traditional landfills produce. Since the added liquid is absorbed by the waste, there should be no added pressure on the landfill liner. Also, an RDDP would be required to have a double liner, with a leachate detection system in between the two liners, so if a leak did occur in the primary liner, the landfill operator

would be able to take corrective action while the leachate was still contained by the secondary liner.

Legislative Analyst: Curtis Walker

FISCAL IMPACT

Senate Bill 747 (S-2)

The bill would have no fiscal impact on State or local government.

House Bills 5148 (S-1) and 5149 (H-4)

The bills would result in negligible administrative costs to the State. The Department would be required to review and address permit applications for landfill demonstration projects and provide for inspections and enforcement actions in the same manner as required for full-scale landfills. Existing resources would be used to cover the additional expenses.

Fiscal Analyst: Jessica Runnels

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This analysis was prepared by nonpartisan Senate staff for use by the Senate in its deliberations and does not constitute an official statement of legislative intent.