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BILL ANALYSIS

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Senate Bill 473 (as reported without amendment) *(as passed by the Senate)*
Sponsor: Senator Phil Pavlov
Committee: Natural Resources, Environment and Great Lakes

Date Completed: 9-13-11

RATIONALE

In 2005, legislation was enacted to allow the use of liquid waste in a particular landfill, subject to specific criteria, including the use of a secondary liner system. As discussed below, it has now been suggested that a double liner is unnecessary.

Traditional landfills are designed to limit the amount of liquid entering a landfill in order to minimize the quantity 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.

Several years ago, an alternative known as a bioreactor landfill was proposed at the Smiths Creek landfill, which is operated by St. Clair County. The proposal called for the addition of liquid waste to the landfill in order to spur more rapid decomposition. It was suggested that doing so could lengthen the life of landfills and allow for more stable postclosure periods. It also was 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. In addition, 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. When the project was proposed, however, the Natural Resources and Environmental Protection Act prohibited the disposal of liquid waste in a landfill. In 2005, an amendment was enacted to permit the disposal of liquid waste in landfills and authorize the Smiths Creek bioreactor landfill project.

Due to Michigan's location among the Great Lakes and because of the new technology associated with the project, the amendment included a requirement that the landfill have a secondary liner and leachate system to monitor the effectiveness of its primary liner. Based on information from the Smiths Creek landfill over the last several years, as well as research from several other sites around the country, some people believe that a single liner system is adequate to control leachate volumes and prevent harm to the environment. It has been suggested that the requirement for a double liner system be eliminated.

CONTENT

The bill would amend Part 115 (Solid Waste Management) of the Natural Resources and Environmental Protection Act to eliminate a requirement that a landfill research, development, and demonstration project (RDDP) have a secondary liner and leachate collection system.

Under Part 115, "RDDP" means a research, development, and demonstration project for a new or existing type II landfill unit, or for a lateral expansion of such a unit. (A type II landfill unit accepts municipal solid waste.) A person may submit to the Department of Environmental Quality (DEQ) a project abstract for an RDDP. If the DEQ Director determines that the RDDP will provide beneficial data on alternative landfill design, construction, or operating methods, the person may apply for a construction permit authorizing the establishment of the RDDP.

Part 115 requires an RDDP to include a secondary liner and leachate collection system to monitor the effectiveness of the primary liner. The bill would delete this requirement.

MCL 324.11511 & 324.11511b

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

The Smiths Creek bioreactor RDDP has been successful, and benefits the public in a number of ways. 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. The added weight of the liquid can further increase settlement, which makes room for more waste, extending the life of the landfill.

According to CTI, the company responsible for the RDDP's design, construction, and operation, the project occupies less than 10% of the landfill's space but produces nearly 40% of the landfill's gas. The company estimates that with this increased production, the gas from the landfill can generate enough energy to power 1,900 homes. In addition, the Smiths Creek facility receives more than 600,000 gallons of septage waste every year. Diverting the waste stream in this way is more cost-effective than the wastewater treatment process and avoids the problems associated with land application.

Currently, the Smiths Creek RDDP consists of 3.5 acres. Reportedly, if allowed by the Federal government, CTI would like to expand the operation to maximize the project's benefits. The cost associated with Michigan's requirement for a secondary liner and leachate collection system, however, is prohibitive. The double liner evidently costs about $30,000 more per acre than a single liner system. In light of the data from the three years of operation of this RDDP, as well as years of landfill research by the U.S. Environmental Protection Agency (EPA), suggesting that a secondary liner is not necessary to control leachate and gas, the added cost associated with this requirement is not justified. Furthermore, the geology of the landfill's location serves to mitigate the risk to the environment. Only one liner is required for the facility's traditional landfill operations due to the underlying layer of relatively impermeable clay, and the quality of the leachate from the bioreactor project is comparable to that of the leachate from the rest of the facility.

Also, Michigan's requirement for a second liner goes beyond the Federal regulations for this type of project. A more stringent rule made sense before it was known how a single liner would react to the introduction of bulk liquids, but now that three years have passed and the single liner has been proven effective, there is no need to maintain such a strict standard.

Currently, Federal authorization to put bulk liquids into a landfill is limited to a research capacity. Eliminating the State's requirement for a secondary liner system would position the Smiths Creek RDDP to be expanded as quickly as possible if the EPA opts to give such operations more latitude. In addition, the bill would increase alternative energy production, divert more septage waste, and delay the need to construct new landfills.

Opposing Argument

Being surrounded by the Great Lakes, Michigan has much at stake with regard to stewardship of water resources. The requirement for a secondary liner system was adopted in response to past experience with leaking landfills. The secondary system serves as a backup in case the primary system does not function properly. The Smiths Creek bioreactor RDDP has been operational for only three years; there is simply not enough information to justify elimination of the secondary liner at this time. While the secondary liner system might be expensive, the cost of failing to implement adequate measures to protect the environment and public health could be much greater. Furthermore, while the Smiths Creek facility currently is the only permitted bioreactor RDDP, the bill would apply to any similar projects developed in the future. For the present, it would be prudent to retain the secondary liner requirement to ensure that septage waste does not get into the State's waterways.

Legislative Analyst: Julie Cassidy

FISCAL IMPACT

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

Fiscal Analyst: Josh Sefton

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