



Honey Monster septage receiving station at Smiths Creek Landfill, MI.

Monster Solutions

Monster Helps Landfill Produce More Methane Gas for Clean, Green Energy

Researchers in Michigan are trying to determine if liquid septage can super-charge the breakdown of garbage inside landfills. Is septage the secret ingredient needed to turn a regular landfill into a bioreactor landfill – producing more biogas and freeing up space for even more garbage?

Starting in 2005 the research team associated with Smiths Creek Landfill in Michigan constructed a septage receiving area to screen septage, store it and then pump it into infiltration pipelines buried in one portion of the landfill.

The first step is the Honey Monster receiving station from JWC Environmental of Costa Mesa, California. The system monitors, grinds, screens, cleans and removes unwanted trash and solids as septage is unloaded from tanker trucks (known as honey wagons in the industry). Haulers swipe their access card to activate the system, connect a discharge hose to a 4" (100mm) cam lock connector and start the flow from their truck.

Once finished the system calculates the total volume and prints a receipt for the driver. This data is later downloaded by the billing office so they can send the hauler an invoice. The Honey Monster also performs a wash down cycle to ensure it is ready to go for the next load that arrives.

"The Honey Monster is working as advertised - no complaints," said Matt Williams, Manager of the landfill. "The drivers unload in about 5-6 minutes and everything is working fine. We simply check it once a day."

One of the project designers, Xianda Zhao PE of CTI & Associates, is watch-

PROJECT: Bioreactor landfill

APPLICATION: Septage receiving

SOLUTION: Honey Monsters®

CONSULTANT: CTI & Associates

ing the injection process very closely and feels it is still too early to judge whether the bioreactor landfill is viable.

"The Honey Monster removes the bigger solids and it's working fine," said Xianda. "We're collecting a large amount of gas, but we're not certain yet how much more gas compared to traditional decomposition."

The Michigan Department of Environmental Quality (MDEQ) is phasing out land application of septage so the Honey Monster at Smiths Creek Landfill is a convenient location for St. Clair County septage haulers. The landfill expects to receive 23,000 gallons per day on average.

Once the Honey Monster screens out trash the septage flows into two holding tanks where material further settles. It is then pumped through piping and injected into gravel beds deep inside the landfill where it percolates through the compacted garbage. The mixture of garbage and septage starts a biological chain reaction – speeding up decomposition.

According to Matt there are two key benefits of a bioreactor landfill:

- 1) More biogas in a quicker amount of time
- 2) Increased settlement of garbage means more landfill capacity

"It certainly helps with decomposition of trash and is a very cool system," said Matt. "But we don't know yet if this is commercially viable. What we're doing is a research project."





Improper disposal of septage is a problem everywhere. Michigan lawmakers now require haulers to use receiving stations such as the one at Smiths Creek Landfill (photo from St. Clair County)

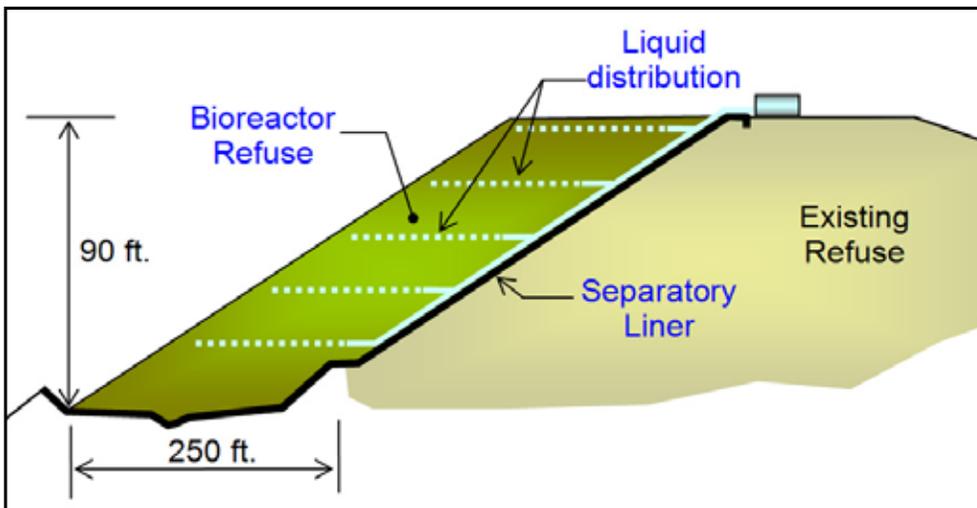
The bioreactor cell covers roughly 7 acres and septage passes through 700,000 cubic yards of garbage. The landfill owner, Saint Clair County, invested roughly \$1.5 million over the last three years into the project and charges septage haulers \$0.05 per gallon—an average fee for the region. Septage bioreactor cells are also certified and licensed by MDEQ.

“What we’re doing is a pilot project - it’s still too early to tell,” said Xianda. “The one thing we know - the septage has not caused any problems in the landfill.”

The landfill is more convenient for local haulers than the nearest wastewater treatment plant which is 25 miles away.

“We hope this project will prove that a bioreactor is an environmentally safe way to handle septage, since the injected liquid is contained in the cell,” said Matt.

The landfill is in the process of selecting a developer who can generate electricity from all the additional methane gas produced inside the landfill.



The “bioreactor landfill” - septage from local homes is screened by the Honey Monster then allowed to filter through the garbage to boost decomposition (diagram from St. Clair County)

Also available

JWC Environmental also offers the **Drumscreen Monster®** – an internally fed fine screen which can remove hair from wastewater, sludge and septage. For extremely sensitive processes such as wastewater, sludge or septage injection, JWC recommends the Drumscreen Monster with woven wire screening panels.



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