



Innovative Garbage-to-Energy Solution to Benefit Milwaukee

**Owner: Milwaukee Metropolitan Sewage District
Contractor: Meade Electrical**

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INNOVATIVE GARBAGE-TO-ENERGY SOLUTION TO BENEFIT MILWAUKEE

A 19-mile "green pipeline"
will make it possible

By Jeff Winke

How to save \$25 million to \$65 million over the next 20 years? For the Milwaukee Metropolitan Sewerage District (MMSD), the answer is: Create a local source of renewable energy — essentially an alternative energy source.

The idea is to convert methane-rich gas from a landfill into energy, thereby reducing the amount of electricity and natural gas MMSD purchases in order to clean the city's drinking water.

Landfill gas is created when garbage decomposes. The methane gas will be captured using a series of pipes or wells and a vacuum system. Currently, valuable landfill gas is burned off into the air.

In the near future, the landfill gas at Veolia Environmental Services' Emerald Park Landfill in Muskego, will instead go to specialized equipment that will clean and prepare it for a 19-mile-long underground journey through MMSD's soon-to-be-constructed, low-pressure pipeline to the Jones Island Water Reclamation Facility. At Jones Island, three new turbines will convert the gas into energy.

The contractor for the nearly \$17 million project is Meade Electric, McCook, Ill. The project is to be completed within 751 calendar days after the notice to proceed.

For most of the route, some 13.7 miles, new 16-inch diameter HDPE pipeline will be installed by open cut, horizontal directional drilling, and jack and bore. The pipeline will be placed underground at an average depth of six- to 10-ft. MMSD plans to connect the new pipeline to an existing six-mile-long pipeline that runs from College Avenue, north to Jones Island.



Landfill gas pipeline was installed by open cut as well as horizontal directional drilling and jack and bore.

What's Going On?



There are times when after staring at a blank computer screen for awhile it suddenly starts filling itself with words of wisdom, profound thoughts, deep insights into the future, but not this time. Two questions race back and forth through the canyons of my mind: What will happen in the November elections? When will the domestic economy start growing?

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The job includes approximately eight miles of horizontal directional drilling.

Left: Vermeer's huge D330x500 was one of the directional drilling machines used.

The new equipment at Jones Island will transform the landfill gas captured from the decomposition of garbage into electricity, allowing MMSD to significantly reduce the amount of electricity and natural gas purchased to clean wastewater at the district's downtown facility. Landfill gas contains between 50 percent and 55 percent methane.

Veolia Environmental will remove water vapor and trace contaminants before it is piped to Jones Island. The Emerald Park Landfill currently produces enough landfill gas to meet approximately 50 percent of MMSD's current fuel needs at Jones Island. The landfill will be able to supply all MMSD fuel needs by 2025.

The "green" pipeline will move landfill gas to Jones Island with a low pressure flow – under 100 lbs. per sq. inch (psi). By comparison, bicycle tires are generally inflated to 95–135 psi. Gas grill tanks hold propane at a range of 60–120 psi. Water comes out of your shower or faucet at a range of 50–60 psi.



(left to right) Richard Schluge, James Hironimus operating the HDD machine for Meade, and Chris Certa, project manager-estimator for Meade.



The ends of the pipe are fused together.

Page 3: More than 14 miles of pipe will be used on this project.

