DOUBLE-DUTY DIGESTERS
State-Of-The-Art Technology Serves Needs Of Organics Management And Renewable Energy

COMPOST TEA FOR GOLF COURSES • MANAGING SWINE MANURE • SOIL QUALITY FUNDAMENTALS ENERGY UPDATE: MANDATES, LANDFILL GAS CONVERSION, WASTEWATER BIODIESEL
In addition to the five-acre composting facility that processes yard trimmings and manure in Plainville, Massachusetts, the Lorusso Corporation also operates a 5.6 megawatt electricity generation facility powered by landfill gas (LFG). When captured and used, LFG can be an economic and environmental asset. In contrast, when LFG is allowed to escape or simply flared, it is only an environmental liability.

The company's involvement with LFG began years ago with its asphalt production plant. The plant was located next to the Plainville landfill, which had been closed. The Lorusso Corp. was purchasing the LFG to supply heat to the asphalt production process and for space heating in a large vehicle maintenance garage.

However, the asphalt plant and garage could use only a portion of the available LFG, and then only seasonally. The remainder was being flared. Lorusso began entertaining the idea of producing electricity from the LFG, given the incentives being considered to promote "green" energy. In 1999, the company committed itself to the project, submitted a permit to the state of Massachusetts, received conditional approval in December and negotiated to purchase the gas on a long-term basis.

Lorusso established a separate company to develop and operate the power plant, the Plainville Generating Company. Through several stages of business development, regulatory approval, renewable energy incentives, and finally construction, the power facility went on line in late March 2003. The power plant, located on Lorusso Corp. property next to the landfill, was constructed by the company itself and incorporates much of the piping and equipment already in place for serving the asphalt plant.

**Majority of Gas Used**

The plant now takes a majority of the gas collected at the landfill, at an average rate of over 2,500 cubic feet per minute (CFM). In the winter, some gas is still being used to heat the maintenance garage and some continues to be flared at the landfill (the asphalt plant has since been sold and dismantled). The generating system includes seven Caterpillar 3516 reciprocating engines that each drive a 800 kW generator, for a combined capacity of 5.6 MW. "We generally have been operating at better than 90 percent capacity since April," reports Henry Grilli, the Chief Financial Officer for Plainville Generating Company and Lorusso Corp. Before being burned in the engines, the LFG is treated to remove moisture and particulates.

One of the advantages of producing electricity from LFG is that LFG is considered a renewable energy source. Electric companies are mandated to include a certain percentage of renewable energy or "green" power in their total power supply. Thus green power electricity often brings a premium price. All of the electricity generated by the Lorusso facility is sold to the local power company and other retail power suppliers, depending on the demand and need for power.

The total capital cost of developing the power-generating facility was approximately $6 million, from permitting through construction including "hard and soft" costs, says Grilli. The power plant is expected to operate at or near full capacity for the next 17 years and then gradually decrease output thereafter as the landfill gas is depleted.

— R.R. ■

**Methane Recovery at Landfills**

**Private Firm Converts Landfill Gas to Energy**

Massachusetts company finds that producing electricity from LFG fits in well with its other recycling/composting projects.