

PROJECT facts

DEVELOPING INNOVATIVE TECHNOLOGIES AND PROCESSES FOR MANAGING MUNICIPAL SOLID WASTE

PRIMARY PROJECT PARTNERS

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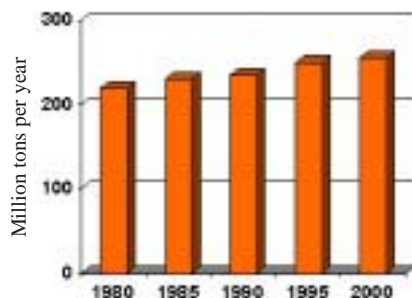
**Department of Energy
Savannah River Site**
Aiken, SC

Project Background

Municipal solid waste (MSW) is a growing national concern. The Environmental Protection Agency (EPA) reports that in 1970, 123 million tons of MSW were generated in the United States. In 1994, the MSW increased to 209 million tons with the projection that 223 million tons per year would be discarded by the turn of the century. The EPA continued its projections to the year 2010 at an increase of 3.3 tons per year. In 2010, this amounts to 4.8 pounds of MSW per person per day. The question is: how will this waste be managed?

There are three common methods of waste handling: recycling, recovery, and disposal. Recycling, common through the country, attempts to reduce the volume of the landfilled waste by reusing components of the MSW. Recycling has had wide acceptance, but the price of recycling fluctuates widely, causing some to question its value. The value of curbside residential recycling has come under the greatest scrutiny. Recovery of MSW focuses on the use of MSW for other applications, such as waste-to-energy plants that convert MSW through incineration to thermal energy. With an average heating value of 4800 BTU/lb, MSW is a viable fuel alternative. The most common method of waste handling is disposal, most often in landfills. Currently, the majority of all waste is landfilled. However, the traditional landfills have been closing at an extremely rapid rate. Also, the more modern and expensive Subtitle D landfill is extremely difficult to site. With land at a premium, and the amount of waste increasing, landfilling is becoming a more expensive and less attractive option. Years ago, tipping fees were near \$20 per ton, now fees in excess of \$100 are common. Clearly, methods must be developed to efficiently and effectively counteract the growth in municipal solid waste.

Waste Generated in the U.S.



Average Consumption

Municipal solid waste is a heterogeneous mixture of many varying components with different energy contents.

WASTE TECHNOLOGY PROGRAM

Component	Percent	BTU/lb
paper, plastics, etc	50	7635
food and garden wastes	27	2356
metals	9	267
glass	8	60
wood	2	8000
other	4	3000

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It can be seen that separation of portions of the MSW proves beneficial. For instance, there is a substantial market for glass and metal to be recycled. Paper, plastics, and wood wastes can either be recycled or used as a fuel source. *There are options to landfilling.*

Solid Waste Technology Program

The South Carolina Institute For Energy Studies through a cooperative agreement with the Department of Energy (DOE), managed the Solid Waste Technology Program (WTP). The program was designed to assist in the development and demonstration of technologies and processes that efficiently and effectively recycle, recover, and reuse municipal solid waste (MSW). Examples of technologies that may be advanced under the auspices of the WTP range from state-of-the-art composting to innovative conversion processes to power generation.

The WTP was based with the Environmental Management (EM) activities at the National Energy Technology Laboratory (NETL) and at the DOE's Savannah River Site (SRS). The program was a "leveraged" activity tied closely with the Subtitle D landfill that is under construction at the SRS. Plans were to utilize the landfill to dispose of MSW generated in the nine counties comprising the Three Rivers Solid Waste Authority (TRA), as well as waste generated at the SRS. The landfill, by providing a MSW feedstream, afforded the opportunity for research, development, and demonstrations (RD&D) aimed at innovative waste management/treatment alternatives.

The program was to be implemented through a partnership with the federal and state government, universities, and private industries. Improved land-use practices, reduced MSW disposal/treatment costs, and enhanced groundwater protection strategies were projected results from widespread deployment of the program's technologies/processes, as the quantity of MSW destined for landfills will be significantly decreased. Ultimately, the WTP was to demonstrate that MSW is not a zero-valued material, but rather an exploitable asset.