

# Refurbishment of an Existing 1000 TPD MSW Facility Using Modern State of the Art Equipment

**Craig Gillum**  
Staff Engineer  
Babcock Borsig Power  
5 Neponset Street  
PO Box 15040  
Worcester, Massachusetts 01615-0040

**Arthur Cole**  
Vice President  
Wheelabrator Technologies  
4 Liberty Lane West  
Hampton, New Hampshire 03842

**Roger Anderson**  
Director of Engineering  
Wheelabrator Technologies  
4 Liberty Lane West  
Hampton, New Hampshire 03842

## ABSTRACT

This paper discusses the design, startup and operation of four rebuilt and redesigned 250 TPD MSW combustion trains located at the McKay Bay Waste to Energy Facility in Tampa Florida. Each independent MSW train consists of a new steam generator, reciprocating grate stoker, ash handling and air pollution control system.

The new steam generators are built on the footprint of the original units, which were removed in their entirety leaving only the lower foundation steel. The refurbishment was accomplished in two stages to permit the facility to remain in operation.

The new steam generators are designed to minimize fouling, maximize the amount of operating time between cleaning cycles and maintain steam temperature. Evaluation of startup and operating data demonstrates that the units exceed their planned operating time between cleaning cycles and will provide consistent reliable performance over the service life of the facility.

## 2. Background

The McKay Bay Waste to Energy Facility is located in Tampa Florida. The facility processes a total of 1000 TPD of MSW through four separate trains. Steam from the four boilers is supplied to a common turbine generator rated at 22.7 MW.

The original facility had four boilers furnished with rotary kiln combustors. Over the years, unit reliability deteriorated to unacceptable levels. The boiler experienced excessive fouling of the convective surfaces. This led to short operating cycles with the boilers taken down frequently for cleaning. The boilers also began to experience frequent forced outages due to superheater tube failures. There were problems with the combustion system as well. Clinkers would form in the rotary kiln combustor. To clear the clinkers from the combustion chamber, boiler load often had to be reduced.

In 1997 the City of Tampa requested bids for the replacement of the four individual waste combustion streams. The retrofit design for each waste processing train (grate, furnace, boiler, air pollution control equipment, and ash handling system) is based on the following specifications: