

RETROFIT OF THE McKAY BAY WASTE-TO-ENERGY FACILITY

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Abstract

This paper provides an overview of the City of Tampa's 1,000-TPD, four-unit McKay Bay Facility which began operations as an incinerator in 1967; was upgraded to a waste-to-energy (WTE) facility (using waste heat boilers) in 1985; and then again retrofitted during a 33-month design, procurement, and construction period, from 1999 to 2001. As the selected project developer for this recent retrofit, Wheelabrator McKay Bay, Inc. (WMBI) chose to design new chute-to-stack units within the space constraints of the existing refuse feed chutes, ground floor slab and bottom ash conveyors. This paper identifies key plant statistics and describes the project scope, schedule, controls, and safety issues. Results of acceptance testing, including air emissions, are reviewed and compared against contractual and permit requirements. The unique challenges faced by the operations staff during the retrofit are discussed in detail. Several examples of "lessons learned" regarding design and operations are given.

History

In 1965, after a long and increasingly difficult history of small landfill operation, the City of Tampa built an incinerator at McKay Bay to provide for waste reduction. The incinerator, operated by City of Tampa staff, was closed in 1979 at the request of USEPA due to air emission violations. Waste disposal was then handled via contracts with Hillsborough County in permitted landfills.

In 1979, the State of Florida mandated that the 19 urbanized counties investigate the feasibility of resource recovery; recovering energy and/or materials from solid waste. After studying the many alternatives available, the City of Tampa ultimately chose to retrofit the existing incinerator for energy recovery with improved air emission controls. After a competitive process, the City chose Waste Management Energy Systems to accomplish the retrofit and operate the rebuilt plant for a 20-year period. This first facility retrofit commenced operating in 1985. Tampa Electric Company (TECO) was and is the energy market for the power produced via a 20-year contract with a possible mutually agreeable extension to the year 2022.

The 1992 Clean Air Act amendments and new knowledge regarding air emissions made it clear that the plant would need an upgrading sooner than the contract end point. Anticipating a significant cost for any change in disposal alternatives, as well as a costly shutdown and retrofit, the City authorized an engineering study to analyze the long-term costs of