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### BENCHMARKING MASS BURN WTE FACILITY PERFORMANCE HOW DOES YOUR FACILITY MEASURE UP?

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#### ABSTRACT

Owners and operators of waste-to-energy (WTE) facilities have a keen interest in the performance of their facilities since it drives the overall success and cost effectiveness of their projects. There are a number of parameters that are commonly used to gauge the performance of a WTE facility and, in many cases, the contract operator. This paper compares historical data from a number of mass burn WTE facilities to establish benchmarks for various performance criteria. This paper also discusses how these benchmarks compare with performance standards that were used as the basis of design for the existing generation of mass burn WTE facilities and operating contracts and discusses how to set performance expectation levels for new projects.

#### INTRODUCTION

There are approximately 90 waste-to-energy (WTE) facilities currently in operation in North America. The most common combustion technology used in these facilities is referred to as mass burn waterwall (MBWW) units. MBWW combustors are field erected units consisting of a stoker grate and integral waterwall boiler. MBWW facilities account for approximately 60

percent of the operating facilities in North America and are regarded by most experts as the most tried and proven method of combusting municipal solid waste (MSW) and recovering its energy. Other types of technologies currently in use in North America but to a much more limited extent include mass burn rotary units, mass burn refractory units, mass burn modular units and refuse derived fuel (RDF) units.

The financial success of a WTE facility depends on whether it can consistently achieve certain expected performance levels; primarily waste throughput and energy production. Most of the MBWW facilities currently operating in North America were constructed in the late 1980s and early 1990s and the expected performance levels for these facilities were based on either no operating facilities or a very limited number of operating facilities with only a few years of operating history at the time. This added a certain measure of uncertainty to the expected long-term performance of MBWW facilities. Despite the lack of long-term data, some parameters were included in the operating agreements as performance guarantees in order to provide some financial control for the owner or contract community. Most of these guarantees have proven to be very