

## 2.0 Solid Waste Disposal

This chapter discusses the solid waste disposal processes and their associated emissions and control technologies. Included in this chapter are: refuse combustion, automobile body incineration, conical burners, open burning, sewage sludge incineration, medical waste incineration, and municipal solid waste landfills. The first and last sections deal primarily with municipal solid waste (MSW) disposal. Automobile body incineration and conical burners are included in this chapter, but their use is no longer as common as it was in the past. Sewage sludge incineration and medical waste incineration operations deal with specific types of waste, often in specifically-designed units. Beside incineration, sewage sludge may also be disposed of by land application. Incineration is the primary disposal method for medical waste, primarily due to the often infectious nature of the waste.

Municipal solid waste generation in the U. S. has been steadily increasing, and will most likely continue to do so in the future. A study by the U. S. Environmental Protection Agency (EPA) indicates that between 1960 and 1988, per capita MSW generation increased from 1.2 to 1.8 kilograms (kg) (2.6 to 3.9 pounds [lb]) per person per day, and total MSW generation increased from 80 to 164 million megagrams (mg) (88 to 181 million tons) per year.<sup>1</sup> Waste generation estimates indicate that the historical trend will continue. Between 1995 and 2000, the MSW generation is predicted to increase from 1.9 to 2.0 kg/person/day (4.2 to 4.4 lb/person/day). This is equivalent to an increased generation rate of 182 million to 196 million Mg/yr (200 to 216 million tons/yr).

Municipal solid waste management in the U.S. consists largely of disposal in landfills, incineration, and recycling. In 1984, approximately 5 percent of the MSW stream was incinerated, while 85 percent was landfilled. Recycling was a minor component (10 percent) of MSW management.<sup>1</sup> In recent years, the U.S. has relied more heavily on incineration. In 1988, incineration accounted for 14 percent of MSW management. The amount of MSW that was recycled also increased, to 13 percent in 1988. These events, in turn, lead to a decrease in the use of landfills, with 73 percent of MSW being landfilled in 1988.<sup>1</sup> Projections for the future indicate a continuation of current trends, namely, an increase in incineration and recycling, with less reliance on landfills.<sup>1</sup>

Atmospheric emissions, both gaseous and particulate, result from solid waste disposal operations. Emissions from these operations cover a wide range because of their dependence upon the type and composition of the refuse, the method of disposal, and other factors.

### References For Section 2.0

1. U. S. Environmental Protection Agency. (1990). *Characterization Of Municipal Solid Waste in the United States: 1990 Update*. EPA-530/SW-90-042.