incinerators. Today's action proposes standards and guidelines for new and existing MWI's under section 129.

Current methods of medical waste incineration cause the release of a wide array of air pollutants, including several pollutants of particular public health concern. In September of 1994, EPA released a review draft of a report reassessing the health effects associated with dioxin, which suggests that dioxin exposure can result in a number of cancer and noncancer health effects in humans. In the report, MWI's are identified as the largest known source of dioxin emissions, emitting more than municipal waste combustors, hazardous waste incinerators, and cement kilns. Because of this, the reduction of dioxin emissions from all sources is one of the Administrator's highest air quality protection priorities. Consequently, the development of MWI regulations has received increased attention.

In addition to dioxin, MWI's also emit significant quantities of heavy metals including lead, cadmium, and mercury. Once again, MWI's have been identified as the largest known source of mercury emissions, emitting more than municipal waste combustors and coalfired electric utility boilers. The MWI's also emit nitrogen oxides (a contributor to ozone smog), particulate matter, sulfur dioxide, and other acid gases.

Several States, including New York, California, and Texas, have adopted relatively stringent regulations in the past few years limiting emissions from MWI's. The implementation of these regulations has brought about very large reductions in MWI emissions and the associated risk to public health in those States. It has also significantly reshaped how medical waste is managed in those States. Many facilities have responded to the State regulations by switching to other medical waste treatment and disposal options to avoid the high cost of add-on air pollution control equipment. The two most commonly chosen alternatives have been off-site contract disposal in larger, commercial incinerators dedicated to medical waste, and on-site treatment by other means (e.g., steam autoclaving). Other alternatives include chemical treatment and microwave irradiation. The availability of alternatives to onsite incineration has mitigated the economic impacts that might have been associated with the State regulations.

Today EPA proposes nationally applicable emission standards and guidelines for MWI's that build on the experience of these leading States. Like the State regulations, the standards and guidelines proposed today are based on

the use of add-on air pollution control systems.

These standards and guidelines will implement the first phase requirements of section 129, described above.

The commercial medical waste disposal industry has indicated that sufficient commercial medical waste disposal capacity is available to handle the amount of waste that would no longer be treated onsite. In addition, as mentioned earlier, onsite alternatives are available for facilities that choose to treat their medical waste onsite. In fact, even in the absence of Federal regulations, most facilities that generate medical waste do not operate onsite MWI's. This indicates that there currently are viable alternatives to onsite incineration.

As described in detail below, section 129, like section 112, of the Clean Air Act instructs the Agency to set performance standards that challenge industry to meet or exceed the pollution control standards established by better controlled similar facilities. In this way, the overall state of environmental practice is raised for large segments of industry, a basic level of health protection is provided to all communities, situations in which uncertainty about total risk and hazard result in no protection for the exposed public are avoided, and yet the cost of pollution control to industry is constrained to levels already absorbed by similar operations. Eight years later, in a second phase, EPA must evaluate whether the residual public health risk warrants additional control.

For new MWI's, the proposed emissions standards would reduce nationwide emissions of dioxins/furans by 99 percent; PM, CO, HCl, Pb, and Cd by greater than 95 percent; and Hg by 92 percent. In addition, the standards would achieve an emission reduction of about 25 percent for SO₂ and NO_x. Because wastewater, solid waste, and energy requirements associated with implementation of the proposed standards are not significant, adverse water, solid waste, or energy impacts are not anticipated.

The nationwide annual costs associated with the proposed standards for new MWI's will increase by approximately \$74.5 million/yr from the regulatory baseline cost of \$63.3 million/yr. This results in an increase in the cost of waste incineration per unit of waste treated of approximately \$177/Mg (\$161/ton) compared to the regulatory baseline cost of \$150/Mg (\$136/ton).

The results of the economic impacts analyses for new MWI's indicate that no medical waste-generating industry would need to be significantly reconstructed (e.g., through closures or consolidations) as a result of the proposed standards. The market price increase resulting from the standards is relatively small for each industry. The corresponding decreases in output, employment, and revenue were also low, never exceeding 0.05 percent.

With regard to existing MWI's, an estimated 3.4 million tons of waste are produced annually by medical waste generators in the United States. The EPA believes that approximately 3,700 MWI's are currently burning waste generated at health care facilities. The proposed guidelines for existing MWI's would reduce nationwide emissions of dioxins/furans and Pb by 99 percent; PM, CO, and HCl by 98 percent; Cd by 97 percent; and Hg by 94 percent. The guidelines would also achieve an overall emission reduction of 37 percent for both SO₂ and NO_x. Because wastewater, solid waste, and energy requirements associated with implementation of the proposed guidelines are not significant, adverse water, solid waste, or energy impacts are not anticipated.

The nationwide annual costs associated with the proposed guidelines for existing MWI's will increase by approximately \$351 million/yr from the regulatory baseline cost of \$265 million/yr. This results in an increase in the cost of waste incineration per unit of waste treated of approximately \$245/Mg (\$222/ton) compared to the regulatory baseline cost of \$185/Mg (\$168/ton).

The results of the economic impacts analyses for existing MWI's indicate that no medical waste-generating industry would need to be significantly restructured (e.g., through closures or consolidations) as a result of the proposed emission guidelines. The market price increase resulting from the emission guidelines is relatively small for each industry. The corresponding decreases in output, employment, and revenue were also low, never exceeding 1 percent.

Considering the benefits to be gained from the reduction of air pollution from MWI's along with the availability of alternative treatment methods and the clear Congressional intent, these proposed standards and guidelines are considered reasonable.

This preamble will:

- 1. Summarize the important features of the proposed standards and guidelines;
- Describe the environmental, energy, and economic impacts of these standards and guidelines;