

mercury, and HCl for six of the nine subcategories. The selection of emission limitations as the format for the proposed rule provides flexibility for the regulated community by allowing a regulated source to choose any control technology or technique to meet the emission limits, rather than requiring each unit to use a prescribed method that may not be appropriate in each case. This is particularly relevant for boilers and process heaters, because they can burn many different types of fuels with greatly varying emission profiles and owners need flexibility to use the control devices that are best for their particular emission characteristics.

The EPA selected an outlet emission rate format because outlet data are available for boilers and process heaters that use the control techniques that provide the greatest reduction in HAP emissions. The individual limits reflect the achievable performance of boilers and process heaters using the appropriate controls for each type of emissions.

The EPA is proposing numerical emission rate limits as a mass of pollutant emitted per heat energy input to the boiler or process heater. The most typical units for the limits are pounds of pollutant emitted per million Btu of heat input. The mass per heat input units are consistent with other Federal and many State boiler regulations and allows easy comparison between such requirements. Additionally, the proposed rule contains an option to monitor inlet chlorine, mercury, and metals content in the fuel to meet outlet emission rate limits. This option can only be done on a mass basis.

The EPA considered percent reduction and outlet concentration as alternative formats for the pollutants regulated. However, an outlet concentration limit could not be accurately correlated to the chlorine content in the inlet fuel. An outlet concentration limit would also not be consistent with the format of other regulations. Affected units would already be complying with a mass per heat input limit, so EPA did not believe that a concentration limit would provide any additional benefits or flexibility. Additionally, data were insufficient to determine percent reductions that control devices achieve. Furthermore, a percent reduction requirement would limit the flexibility of the regulated community by requiring the use of a control device. Therefore, neither alternative was selected as the format for the proposed rule. The EPA requests comments on the appropriateness of percent reduction requirements and outlet concentration

limit requirements, and any data upon which those requirements could be based.

Boilers and process heaters can emit a wide variety of compounds, depending on the fuel burned. The boiler emissions test database lists over 100 possible HAP. Because of the large number of HAP potentially present and the disparity in the quantity and quality of the emissions information available, EPA grouped the HAP into four common categories: mercury, non-mercury metallic HAP, inorganic HAP, and organic HAP. In general, the pollutants within each group have similar characteristics and can be controlled with the same techniques. For example, non-mercury metallic HAP can be controlled with PM controls. The EPA chose to look at mercury separately from other metallic HAP due to its different chemical characteristics and applicable controls.

Next, EPA identified compounds that could be used as surrogates for all the compounds in each pollutant category. For the non-mercury metallic HAP, EPA chose to use PM as a surrogate. Most, if not all, non-mercury metallic HAP emitted from combustion sources will appear on the flue gas fly-ash. Therefore, the same control techniques that would be used to control the fly-ash PM will control non-mercury metallic HAP. Particulate matter was also chosen instead of specific metallic HAP because all fuels do not emit the same type and amount of metallic HAP but most generally emit PM that includes some amount and combination of metallic HAP. The use of PM as a surrogate will also eliminate the cost of performance testing to comply with numerous standards for individual metals.

However, the Agency is sensitive to the fact that some sources that burn fuels containing very little metals, but would have sufficient PM emissions to require control under the PM provisions of the proposed rule. In such cases, PM would not be an appropriate surrogate for metallic HAP. Therefore, the Agency is also proposing an alternative metals emission limit. A source may choose to comply with the alternative metals emissions limit instead of the PM limit to meet the proposed rule. The metals emission limit is for the sum of emissions of eight selected metals: arsenic, beryllium, cadmium, chromium, lead, manganese, nickel, and selenium. The eight represent the most common and the largest emitted metallic HAP from boilers and process heaters.

For inorganic HAP, EPA chose to use HCl as a surrogate. The emissions test information available to EPA indicate

that the primary inorganic HAP emitted from boilers and process heaters are acid gases, with HCl present in the largest amounts. Other inorganic compounds emitted are found in much smaller quantities. Also, control technologies that would reduce HCl would also control other inorganic compounds that are acid gases. Thus, the best controls for HCl would also be the best controls for other inorganic HAP that are acid gases. Therefore, HCl is a good surrogate for inorganic HAP because controlling HCl will result in a corresponding control of other inorganic HAP emissions.

For organic HAP, EPA chose to use CO as a surrogate to represent the variety of organic compounds, including dioxins, emitted from the various fuels burned in boilers and process heaters. Because CO is a good indicator of incomplete combustion, there is a direct correlation between CO emissions and the formation of organic HAP emissions. Monitoring equipment for CO is readily available, which is not the case for organic HAP. Also, it is significantly easier and less expensive to measure and monitor CO emissions than to measure and monitor emissions of each individual organic HAP. Therefore, using CO as a surrogate for organic HAP is a reasonable approach because minimizing CO emissions will result in minimizing organic HAP emissions.

In addition to meeting emission limits, today's proposal would also require sources to establish control device operating parameter limits and continuously monitor control device operating parameters. Each source would establish site-specific values for the relevant parameters during performance tests, and use the parameter values to demonstrate compliance with the emission limits. We selected different operating parameters for each type of potential control device. The parameters were selected because they are good indicators of proper control device operation and performance, are consistent with other standards, and are feasible to monitor. The operating limits reasonably assure that the control devices continue to operate in a manner that will achieve the same level of control as during the performance test.

#### *C. How Did EPA Determine the Proposed Emission Limitations for Existing Units?*

All standards established pursuant to section 112(d)(2) of the CAA must reflect MACT, the maximum degree of reduction in emissions of air pollutants that the Administrator, taking into consideration the cost of achieving such