

from other (fossil fuel burning) solid fuel units, to warrant additional subcategorization. Nonetheless, we believe, for purposes of today's proposal, that it is appropriate to treat wood burning and non-wood burning solid fuel units as a single category. We believe, given the available data, that this approach most reasonably accounts for variations in emissions that can occur as a result of different fuels and/or fuel combinations, and changes in fuel use over time, and that it provides a reasonable basis for establishing an appropriate standard.

However, if we were to create a separate subcategory for wood burning units, we would establish MACT in a manner consistent with the approach taken for other solid fuel units. We would identify the types of emission control used by the best controlled source (and the top 12 percent of units in the subcategory), and we would estimate the performance of the best controlled units by looking at representative emission test data and applying an appropriate variability factor. A preliminary review of the wood burning units in the database suggests that the MACT floors for such units would probably be related to the performance of ESP and/or scrubbers.

The EPA requests comments on whether additional or different subcategories should be considered. Comments should include detailed information regarding why a new or different subcategory is appropriate (based on the available data or adequate data submitted with the comment), how EPA should define any additional/different subcategories, how EPA should account for varied or changing fuel mixtures, and how EPA should use the available data to determine the MACT floor for any new or different categories.

#### *G. How Did EPA Determine the Proposed Emission Limitations for New Units?*

All standards established pursuant to section 112 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 emissions reductions, and any nonair quality health and environmental impacts and energy requirements, determines is achievable for each category. The CAA specifies that MACT for new boilers and process heaters shall not be less stringent than the emission control that is achieved in practice by the best-controlled similar source—this minimum level of stringency is the MACT floor for new units. However, EPA may not consider costs or other

impacts in determining the MACT floor. The EPA must consider cost, nonair quality health and environmental impacts, and energy requirements in connection with any standards that are more stringent than the MACT floor (beyond-the-floor controls).

#### *H. How Did EPA Determine the MACT Floor for New Units?*

Similar to the MACT floor process used for existing units, we considered several approaches to identifying MACT floors for new industrial, commercial, and institutional boilers and process heaters. First, we considered using only the emission test data from boilers and process heaters to set the MACT floor. However, as discussed previously in this preamble, we determined that it was inappropriate in the proposed rulemaking to develop MACT floor emission limits based on HAP emissions test information alone.

We then considered using HAP emission limits contained in State regulations and permits as a surrogate to actual emission data in order to identify the emissions levels from the best performing units in the category for purposes of establishing MACT standards. However, we found no State regulations or State permits which specifically limit HAP emissions from these sources.

Consequently, we concluded that the most appropriate approach for identifying the top performing units in each subcategory of boilers and process heaters is to look at the control technologies used by the units within each subcategory. Information was available on the add-on control technologies employed by the population of boilers identified by the EPA. We considered several possible control options (*i.e.*, factors that influence emissions), including fuel substitution, process changes and work practices, and add-on control technologies.

We considered first whether fuel switching would be an appropriate control option for sources in each subcategory. We considered the feasibility of both fuel switching to other fuels used in the subcategory and to fuels from other subcategories. This consideration included determining whether switching fuels would achieve lower HAP emissions. A second consideration was whether fuel switching could be technically achieved by boilers and process heaters in the subcategory based on design considerations. We also considered the availability of various types of fuel.

As discussed previously in this preamble, we determined that fuel

switching was not an appropriate control technology for purposes of determining the MACT floor level of control for any subcategory. This decision was based on the overall effect of fuel switching on HAP emissions, technical and design considerations discussed previously in this preamble, and concerns about fuel availability. Additional discussion of fuel switching is presented previously in this preamble and in the memorandum "Development of Fuel Switching Costs and Emission Reductions for Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants" located in the docket.

Based on the data available in the emissions database, we determined that while fuel switching would decrease some HAP, emissions of some organic HAP would increase, resulting in uncertain benefits. We believe that it is inappropriate in a MACT rulemaking to consider as MACT a control option that potentially will decrease emissions of one HAP while increasing emissions of another HAP. A detailed discussion of the consideration of fuel switching is discussed previously in this preamble.

We also concluded that process changes or work practices were not appropriate criteria for identifying the MACT floor level of control for units in the boilers and process heaters category. The HAP emissions from boilers and process heaters are primarily dependent upon the composition of the fuel. Fuel dependent HAP are metals, including mercury, and acid gases. Fuel dependent HAP are typically controlled by removing them from the flue gas after combustion. Therefore, they are not affected by the operation of the boiler or process heater. Consequently, process changes would be ineffective in reducing these fuel-related emissions.

On the other hand, organic HAP can be formed from incomplete combustion of the fuel. Combustion is defined as the rapid chemical combination of oxygen with the combustible elements of a fuel. The objective of good combustion is to release all the energy in the fuel while minimizing losses from combustion imperfections and excess air. The combination of the fuel with the oxygen requires temperature (high enough to ignite the fuel constituents), mixing or turbulence (to provide intimate oxygen-fuel contact), and sufficient time (to complete the process), sometimes referred to the three Ts of combustion. Good combustion practice, in terms of boilers and process heaters, could be defined as the system design and work practices expected to minimize organic HAP emissions. The GCP control