

technologies in reducing mercury emissions.

b. **Small Units—Heat Inputs Less than or Equal to 10 MMBtu/hr.** The MACT floor for this subcategory is no emission reductions. To control non-mercury metallic HAP and mercury, we analyzed the beyond-the-floor option of a fabric filter which was identified, generally, as the most effective control device for non-mercury metallic HAP and mercury. To control inorganic HAP such as HCl, we analyzed the beyond-the-floor option of a wet scrubber since it was identified as the least cost option.

The total annualized cost of complying with the fabric filter option was estimated to be 10 million dollars, with an estimated emission reduction of 1.9 tons per year of non-mercury metallic HAP and 0.003 tons of mercury. The annualized cost of complying with the wet scrubber option was estimated to be 11 million dollars, with an emission reduction of 48 tons per year of HCl. The results of this analysis indicated that while additional emissions reductions could be realized, the costs would be too high to consider them feasible options. Therefore, we did not select these controls as MACT. Nonair quality health, environmental impacts, and energy effects were not significant factors.

c. **Limited Use Units—Capacity Utilizations Less than or Equal to 10 Percent.** The MACT floor level for this subcategory for non-mercury metallic HAP control is 0.2 lb PM/MMBtu (this level of control can generally be achieved by using an ESP or fabric filter). Although fabric filters were identified as being more effective, many ESP can achieve similar levels. Any additional emission reduction from using a fabric filter would be minimal and costly considering retrofit costs for existing units that already have ESP. Therefore, a beyond-the-floor option for metallic HAP was not analyzed in detail. However, a beyond-the-floor option based on the level of performance of a fabric filter was analyzed for mercury control. The total annualized costs of the fabric filter option was estimated to be an additional 21 million dollars, with an estimated emission reduction of 0.04 tons of mercury.

The MACT floor for inorganic HAP in this subcategory was no emission reductions. For beyond-the-floor control of inorganic HAP, we analyzed the level of performance generally achievable by a wet scrubber since it was identified as the least cost option. The total annualized costs of the wet scrubber option was estimated to be 49 million

dollars, with an estimated emission reduction of 463 tons per year of HCl.

The results of the beyond-the-floor analyses indicated that while additional emissions reductions could be realized, the costs would be too high to consider them feasible options. Therefore, we did not select these controls as MACT. Nonair quality health, environmental impacts, and energy effects were not significant factors.

2. Existing Liquid Fuel Units

The MACT floor for each liquid fuel subcategory is no emission reductions. For beyond-the-floor options for the liquid subcategory, EPA identified several PM controls (*e.g.*, fabric filters, ESP, and venturi scrubbers) that would reduce non-mercury metallic HAP emissions. For the beyond-the-floor analysis, we analyzed the cost and emission reduction of applying a high efficiency PM control device, such as a fabric filter, since these would be more likely to be installed for units firing liquid fuel. We identified wet scrubbers as a technology beyond-the-floor option for reduction of inorganic HAP, such as HCl. We identified fabric filters as a beyond-the-floor technology option for reduction of mercury. Consequently, EPA analyzed the emissions reductions and additional cost of applying high efficiency PM controls and wet scrubbers on liquid fuel-fired units. The additional total annualized cost of a high efficiency PM control device (such as a fabric filter) was estimated to be 460 million dollars, with an additional estimated emission reduction of 1,500 tons per year for non-mercury metallic HAP and 3 tons per year for mercury. The annualized cost of a wet scrubbers was estimated to be an additional 480 million dollars, with an additional HCl reduction of 30 tons per year. The results indicated that while additional emissions reductions would be realized, the costs would be too high to consider them feasible options. Nonair quality health, environmental impacts, and energy effects were not significant factors. Therefore, EPA chose to not select these controls as MACT for existing liquid units.

3. Existing Gas-Fired Units

The MACT floor for each gaseous fuel subcategory is no emission reductions. The great majority, if not all, of the emissions from gas-fired units are organic HAP. As discussed previously in this preamble, CO monitoring and emission limits were considered as a beyond-the-floor option, but were not selected as MACT given the costs and uncertain HAP reductions achieved. Therefore, no beyond-the-floor control

technique was analyzed for organic HAP, and MACT is no emission reduction of non-mercury metallic HAP, mercury, inorganic HAP, and organic HAP.

4. Fuel Switching as a Beyond-the-Floor Option

For the solid fuel and liquid fuel subcategories, fuel switching to natural gas is a regulatory option more stringent than the MACT floor level of control that would reduce mercury, metallic HAP, and inorganic HAP emissions. We determined that fuel switching was not an appropriate beyond-the-floor option for the reasons discussed previously in this preamble. For example, natural gas supplies are not available in some areas, and supplies to industrial customers can be limited during periods when natural gas demand exceeds supply. Furthermore, in some cases, organic HAP would be increased by fuel switching. Additionally, the estimated emissions reductions that would be achieved if solid and liquid fuel units switched to natural gas were compared with the estimated cost of converting existing solid fuel and liquid fuel units to fire natural gas. The annualized cost of fuel switching was estimated to be \$12 billion. The additional emission reduction associated with fuel switching was estimated to be 1,500 tons per year for metallic HAP, 11 tons per year for mercury, and 13,000 tons per year for inorganic HAP. Additional detail on the calculation procedures is provided in the memorandum "Development of Fuel Switching Costs and Emissions Reductions for Industrial, Commercial, and Institutional Boilers and Process Heaters National Emission Standards for Hazardous Air Pollutants" in the docket.

F. Should EPA Consider Different Subcategories for Solid Fuel Boilers and Process Heaters?

The boilers and process heaters source category is tremendously heterogeneous. The EPA has attempted to identify subcategories that provide the most reasonable basis for grouping and estimating the performance of generally similar units using the available data. We believe that the subcategories we selected are appropriate, given the variety and combination of fuels that sources in the category burn and the fact that any individual unit may use a different combination of fuels over time.

However, among the solid fuel units, the available emission test data could suggest that units burning only wood might perform sufficiently similar to each other, and sufficiently differently