

controls against technical considerations and the section 112(d)(2) factors, we do not feel that a beyond-the-floor standard for mercury is warranted.

One commenter indicated that different handling practices for captured dust from indurating furnaces, as discussed in a report by the Minnesota Department of Natural Resources (Berndt, 2002), would be a good method for controlling mercury. The control option investigated in the report involves placing magnetite dust collected by the wet scrubbers, which was found to be high in mercury, into the waste stream rather than recycling the dust back to the indurating furnace. A review of the report cited by the commenter reveals that, for the two taconite plants studied, the costs of this approach ranged from \$28 to \$254 million per ton of mercury removed (\$14,000 to \$127,000 per pound of mercury removed). This high cost results from the loss of over \$1 million of magnetite dust product (\$25 per long ton) to prevent approximately 30 pounds of mercury emissions. The study concludes that "due to the high cost of this emission control method, the large uncertainty in the cost estimates, and the limited amount of emission reduction, it appears that more research is needed before mercury emission control methods can be put into practice in taconite processing facilities." We believe that the high cost, the small reduction in HAP emissions, and increased waste disposal do not justify this beyond-the-floor alternative at this time.

Other potential mercury controls cited by the commenters include: wet flue gas desulfurization (FGD), baghouses, activated carbon injection, activated carbon/baghouse system (COHPAC), corona discharge, electro-catalytic oxidation, and injection of copper-coated magnetic taconite concentrate.

Ninety seven percent of the mercury emitted from taconite plants is emitted from the indurating furnaces. The mercury emitted from the taconite indurating furnaces is primarily elemental mercury. Wet scrubbing systems, such as wet FGD, "are very effective at removing soluble ionic mercury, but are not very effective at removing insoluble elemental mercury" (NESCAUM, 2000). Therefore, wet FGD systems were not considered to be a technically viable beyond-the-floor option.

Baghouses and control systems that utilize them, such as the COHPAC system, cannot be used on taconite indurating furnace stacks due to the high moisture content of the exhaust

gas. The high moisture content of the exhaust gas causes plugging problems that make the baghouses ineffective. Therefore, baghouses and control systems based on baghouse technology were not considered to be a technically viable beyond-the-floor option.

In pilot scale studies at several electricity generating boilers, carbon injection has provided up to a 90 percent reduction in mercury emissions. Estimated costs for installing activated carbon injection systems on electricity generating boilers range from \$10 to \$140 million per ton of mercury removed (\$5,000 to \$70,000 per pound of mercury removed) (NESCAUM, 2000; USDOE, 2002). Activated carbon injection has been demonstrated to provide 95 percent control of mercury emissions for municipal waste combustors (NESCAUM, 2000). Costs for installing activated carbon injection for municipal waste combustors range from \$0.4 to \$1.74 million per ton of mercury reduced (\$211 to \$870 per pound of mercury reduced). However, NESCAUM points out that "this working experience with small sources is not directly transferable to large coal-fired boilers because of their different flue gas characteristics" (NESCAUM, 2000). The cost per pound of mercury removed for this industry with activated carbon injection would be considerably higher than the estimated cost for a utility boiler because the capital and fixed operating costs would be similar while these plants have very low mercury emissions. The high cost, small reduction in HAP emissions, increased energy usage, and additional waste generation do not justify this beyond-the-floor alternative at this time.

The corona discharge, electro-catalytic oxidation, and copper-coated magnetic taconite concentrate injection control technologies are describe by the commenter as "emerging technologies * * * that could potentially be applied to the taconite sector as they mature and become more cost-effective." Based on the commenter's own description, these technologies are not currently ready for application to the taconite industry. Therefore, these technologies were not considered in the beyond-the-floor analysis.

In evaluating these potential beyond-the-floor options, we were unable to identify any viable control technologies or operating practices for achieving reductions in mercury emissions from taconite iron ore plants. Consequently, we chose the floor level of no emissions reduction as MACT.

Since specific controls for mercury are not currently present in the industry and operating practices that effectively

reduce mercury emissions have not been identified, we are selecting no emissions reduction as new source MACT.

Asbestos

Comment: Seventeen commenters stated that EPA should set a limit for asbestos emissions from taconite plants as is required by the CAA. One commenter stated that asbestos is designated as a HAP by the CAA. The commenter reasoned that if asbestos is emitted by the taconite industry, the statute requires that EPA set a standard for asbestos fibers. Based on the decision in *Reserve Mining Co. v. EPA*, 514 F.2d 492, 526 (1975), the commenter contends that the EPA must consider asbestos to be a HAP emitted by the taconite industry. One commenter contended that "lack of information" about asbestos emissions is an invalid reason for not setting standards.

Two commenters asserted that 30 years ago, EPA stated that it intended to regulate asbestos emissions from the taconite industry. The same commenter stated that the 1973 asbestos NESHAP had excluded "mineral processing operations that may contain asbestos as a contaminant." The commenter further pointed out the Congress rejected this approach when it passed the CAA Amendments of 1990.

One of the commenters pointed out that in a 1975 *Reserve Mining* decision, the U.S. Court of Appeals for the Eighth Circuit stated in regard to emissions from the Co. plant (now operated by Northshore) that "Reserve discharges fibers substantially identical and in some instances identical to fibers of amosite asbestos." The trial court heard extensive evidence as to the chemistry, crystallography, and morphology of the cummingtonite-grunerite present in the mined ore. This evidence demonstrated that, at the level of the individual fiber, a portion of Reserve's cummingtonite-grunerite cannot be meaningfully distinguished from amosite asbestos. Reserve attempted to rebut this testimony by showing that the gross morphology of the two minerals differed and the characteristics of the two minerals varied when considered in crystal aggregations. Since, according to the opinions of some experts, the individual fiber probably serves as a carcinogenic agent, the district court viewed the variations in mineralogy as irrelevant and determined that Reserve discharges fibers substantially identical and in some instances identical to amosite asbestos.

One commenter stated that it should be noted in the proposal preamble that only one mine remains operating at the