

support documents for the new IRIS file and will assist us in decisionmaking regarding contaminant asbestos.

As part of the response to the findings in Libby, the Agency has developed an action plan which identifies steps necessary to gather the information needed to decide whether regulations for sources of contaminant asbestos emissions are warranted. The action plan specifies vermiculite mining and processing operations as the first area of focus. Contrary to one commenter's assertion, the action plan also includes plans to assess emissions, exposure and risk associated with asbestos that occurs as a contaminant from other mining and processing operations, including taconite ore mining and processing. That assessment will inform decisions on specific risk-based regulation of asbestos that occurs as a contaminant in taconite ore mining and processing. Specific risk-based emission limitations for asbestos are not included in the technology-based final rule.

In addition, an International Fiber Symposium was held in St. Paul, MN in April 2003. The papers presented at the symposium are in a peer-review process and will then be published. Once the proceedings are published, the Minnesota Department of Health (MDH) will determine if they can conduct a risk assessment for fibers or if they can draw any conclusions about the potential health impacts from fibers. Based on MDH's findings, the MPCA and Minnesota Department of Natural Resources may make policy changes with respect to fibers. Until then, MPCA will continue to regulate airborne fibers from Northshore as required by the court who deemed the fibers a health concern.

Finally, we note that Northshore is in fact controlling emissions of its fibers in part with baghouses, which are the optimum control technology for air emission of fibers (a point made, among other places, in the *Reserve Mining* decision itself). Since the *Reserve Mining* decision, ambient air monitoring around the plant has demonstrated a significant reduction in fiber emissions through the installation of high efficiency baghouses on ore crushing and handling emission units and wet ESP on the indurating furnace exhaust stacks. Baghouses are not a control option for indurating furnaces due to the high moisture content (10 to 15 percent) in the exhaust gases. The high moisture content causes PM to cake and plug the filtering material causing filters to be ineffective. In addition, further reductions in fiber emissions are expected through compliance with the PM emission standards in the final rule.

Representatives at Northshore have indicated that existing emission units equipped with multiclones are likely to be replaced with more efficient PM control devices in order to comply with the PM emission standards in the final rule. Northshore representatives provided us with the estimated costs for such an equipment upgrade, and these control costs are reflected in our revised cost impacts for the final rule.

Formaldehyde

Comment: One commenter stated that EPA has a statutory obligation to set emission standards for formaldehyde. The commenter asserted that the standard for formaldehyde must be at least as stringent as the average formaldehyde emission level of the five best performing plants. The commenter stated that whether or not there are feasible control technologies for formaldehyde is irrelevant.

Response: As EPA stated at proposal, formaldehyde (and other organic HAP) are emitted in very low concentrations by taconite processing indurating furnaces, not because these organic HAP are contained in feed or fuel input to the process, but rather as products of incomplete combustion (PIC) necessarily generated when fossil fuels are burned (in any type of process, not just in indurating furnaces) (67 FR 77570). Formaldehyde from indurating furnace emissions has been measured through stack testing at concentrations that are typically less than 1 part per million (ppm).

The EPA stated somewhat inaccurately at proposal that formaldehyde emissions from indurating furnaces are currently uncontrolled. It is clear from context that we meant that there are no current "at-the-stack" controls for formaldehyde (and other PIC) emissions from these furnaces, although control of the combustion process minimizes PIC (including formaldehyde) formation and hence PIC emissions. We reiterate that at-the-stack controls in place to control PM emissions have no effect on PIC emissions. We also know of no feasible at-the-stack control technology for reducing formaldehyde emissions at these extremely low concentrations and at the exhaust gas temperatures typically encountered at indurating furnaces.

The only known technology for the control of formaldehyde emissions at concentrations of less than 1 ppm is thermal catalytic oxidation, in which formaldehyde is contacted with a precious metal catalyst in the presence of oxygen and high temperature (650 to 1,350 °F) to yield carbon dioxide and

water. Destruction efficiencies of 85 to 90 percent have been demonstrated on formaldehyde emissions contained in the exhaust gas from stationary combustion turbines at concentrations in the parts per billion range and temperatures of 1,000 °F or higher. Destruction efficiencies, however, decrease exponentially at reaction temperatures below 650 °F, reaching less than 10 percent at exhaust gas temperatures of 300 °F or lower, which is typical of most indurating furnaces. Burning large quantities of additional fuel, such as natural gas, to heat the exhaust gases to the desired temperature would generate large additional quantities of carbon dioxide (a gas potentially connected to global climate change) and NO_x (ozone precursors). As at proposal, given the significant issues of technical feasibility and adverse environmental impacts associated with use of this technology, it is not the proper basis for MACT standards (67 FR 77571).

We also reiterate that fuel switching is not a justifiable means of control. Most indurating furnaces currently utilize natural gas as a fuel, and PIC emissions are higher for natural gas than for coal, but switching to coal would increase emissions of HAP metals in much larger amounts than the minimal PIC emissions attributable to natural gas burning. See S. Rep. 101-228, 101st Cong. 1st sess. at 168 ("In cases where control strategies for two or more different pollutants are in actual conflict, the Administrator shall apply the same principle—maximum protection of human health shall be the objective test.")

Consequently, the only form of control currently used and feasible to minimize formaldehyde emissions is the proper and efficient operation of an indurating furnace with GCP. It is clear from the low measured levels of formaldehyde emitted from these furnaces that this means of control is highly effective.

In general, good efficiency of a combustion device is governed by time, temperature, and turbulence, the three "T's" of combustion. Efficient combustion is achieved when a selected fuel reaches an optimum temperature for a minimum residence time with sufficient turbulence to allow oxidation of all organic compounds to completely react to the products of combustion—water and carbon dioxide. However, there are many phenomena associated with combustion that lead to the formation of PIC. Examples of possible phenomena include: Unburned fuel, quenches or cool zones in the combustion area, fuel rich zones, low