

the fugitive emissions estimated using the worst-case factor, had been overestimated. As a point of comparison, we obtained the 2001 chlorine releases from the Toxic Release Inventory (TRI) for all ten sites for which fugitive emissions were estimated using the worst-case factor. We found that nine of the ten plants had total chlorine fugitive releases reported in TRI that were less than the those used in the risk assessment. For instance, the PPG facility in Lake Charles, Louisiana, reported 8,000 lb/yr of fugitive chlorine releases for the entire site (a very large chemical complex). We estimated 31,178 lb/yr using the worst-case emission factor. We concluded that it was overly conservative to use these estimates in light of the TRI information and in fact, we likely overestimated the fugitive emissions for these plants. Therefore, in the revised modeling for this final action for chronic chlorine exposures, we used the total chlorine fugitive releases from TRI in the revised assessment for eight plants. That is still conservative as these TRI values represent chlorine fugitive releases from all processes at the site, not just the non-mercury cell chlorine production processes. For two plants, company representatives provided a breakdown of the portion of the TRI emissions that were from the non-mercury cell chlorine production processes, and those values were used in the re-assessment.

*Comment:* One commenter stated that all chlorine emissions from non-mercury chlorine production facilities that are collocated with other source categories need to be reviewed as a whole when evaluating public health risk, adverse environmental effects, and possible control strategies. The commenter stressed that other sources of chlorine and HCl should be included in the risk assessment under CAA section 112(d)(4). The commenter was concerned that not accounting for all chlorine and HCl emissions from a facility would provide the community with a false sense of assurance of protection, and is not consistent with the legislative intent of the CAA to consider cumulative HAP exposure issues through an integrated approach under CAA sections 112(d), 112(f), and 112(k). Therefore, the commenter requested that EPA evaluate the potential for adverse health and environmental impacts using conservative risk assessment methodology that incorporates all known chlorine and HCl emissions from a contiguous facility.

*Response:* Section 112 of the CAA requires us to list categories and subcategories of major sources and area

sources of HAP, and to establish NESHAP for the listed source categories and subcategories. In directing us how to establish MACT emission limits, section 112(d)(3) of the CAA requires us to set the emission limitation at a level that assures that all major sources achieve the level of control at least as stringent as that already achieved by the better-controlled and lower-emitting sources in each source category or subcategory. Therefore, the entire MACT program is structured on a source category-specific basis. All MACT standards developed to date have addressed emissions from specific source categories.

There are instances where non-mercury chlorine production facilities are collocated with other source categories. However, based on the risk assessment for chlorine and HCl emissions from chlor-alkali plants, the predicted impacts from chlorine and HCl at these chlor-alkali plants are extremely low. We believe that the human health and environmental impacts from all sources in the category even when collocated with other chlorine and HCl emissions will still be within an ample margin of safety to protect the public health, and will not cause adverse environmental effects. Moreover, as indicated in the preamble to the proposed rule, most major processes at the sites where non-mercury cell chlorine production facilities are located are subject to, or will be subject to, NESHAP to reduce HAP emissions (67 FR 44714, July 3, 2002). Therefore, it would not be appropriate to include emissions from those sources in an assessment for the non-mercury cell chlorine production source category conducted under the authority of CAA section 112(d)(4).

*Comment:* Two commenters stated that the environmental effects analysis was not adequate. One commenter stated that potential ecological effects of HCl emissions have not been properly referenced. One commenter stated that EPA's proposed action falls short of its obligation to protect against environmental effects. According to the commenter, EPA has understated its statutory obligation in the proposed action. The commenter referred to the legislative history, which indicates that CAA section 112(d)(4) requires standards that "would not result in adverse environmental effects which would otherwise be reduced or eliminated." The commenter listed the several shortcomings in the EPA's environmental assessment.

The commenter concluded that although EPA acknowledged that it had an obligation to ensure that any

standards set under CAA section 112(d)(4) did not have any adverse environmental effects, the Agency did not properly consider the issue. Therefore, commenter stated that they believed that EPA could not promulgate standards under CAA section 112(d)(4) without contravening the CAA.

*Response:* While CAA section 112(d)(4) makes no mention of environmental effects, we took the potential of such adverse effects into account when we issued our proposed action. In addition, CAA section 112(c)(9)(B)(ii), which is the authority we are citing in today's final action to delete this subcategory, does require that we show there are no adverse environmental effects from emissions from the subcategory.

The level of our analysis at proposal was adequate to satisfy the requirements of CAA section 112(c)(9)(B)(ii). The commenters did not suggest that they believed there was the potential for adverse environmental effects from HCl or chlorine emissions from non-mercury cell chlorine production plants. Were there any evidence that such adverse effects were likely, or even possible, we would have conducted a more intensive ecological risk assessment.

The commenters are correct, however, that we did not discuss the ecological effects of chlorine. That was because, as was stated in the proposal preamble, we did not perform a separate evaluation of chronic chlorine exposure because chlorine is converted to HCl in the atmosphere so rapidly. Following is a brief summary of the environmental effect of chlorine.

Atmospheric exposure is the primary pathway for environmental effects from chlorine emissions. However, since most chlorine is converted to HCl, studies have focused on the effects of HCl on vegetation. Although plant exposures to elevated levels of chlorine can cause plant injury, it tends to be converted to other, less toxic forms rather rapidly in plants, and may not result in the direct accumulation of toxic pollutant residuals important in the food chain.

Plant studies have found foliar damage due to chlorine emissions and foliar damage, decreased levels of chlorophyll a and b, decreased leaf areas, obvious chlorosis, and a decline in fruit production due to chlorine emissions.

There is evidence of effects to animals due to accidental and/or catastrophic exposures, but the chlorine concentrations of these exposures are unknown. However, there is no data on exposure to historic or atmospheric concentrations.