

since the regulations were promulgated in 1991. Fourth, we previously have considered the attenuative properties of liners in prior listing determinations for surface impoundments (e.g., see the proposal for listing paint manufacturing wastes at 66 FR 10108, February 13, 2001), as well as in the Guide for Industrial Waste Management. Finally, we now have data describing infiltration rates through various liner systems, allowing us to build distributions reflective of real landfills. For these reasons, we believe it is now appropriate to assess the impact of liners on the attenuation of toxicants in waste management units, where such liners are widely used for the disposal of the wastes of interest. We request comments on this approach.

Available data suggests that a relatively small portion of the nonwastewaters from dyes and/or pigments production are combusted and, consequently, that combustion is a plausible management method. We chose not to model combustion. In past listing determinations where we have attempted to assess risks from incineration, we found that the potential risks from the release of constituents through incineration would be at least several orders of magnitude below potential air risks from releases from tanks or impoundments (see listing determination for solvent wastes at 63 FR 64371, November 19, 1998). Further, it is difficult to model what goes into combustion units in relation to the residual constituents that are released from the combustion unit either in ash or air.²³ We believe the existing and proposed air regulation can effectively regulate these combustion units, as described in section II.E.

Furthermore, we did not model management in Subtitle C landfills. Subtitle C modeling is unnecessary, since we modeled a less protective MSWLF scenario. Finally, we also did not model management scenarios that involved recycling. We had no information to lead us to believe that such practices involved land placement. As explained below, we modeled air releases from wastes in tanks and found no risks warranting listing. We think secondary materials stored in tanks prior to recycling would pose similarly low risks.

3. Selection of Waste Management Scenarios for Risk Assessment Modeling of Dyes and/or Pigments Production Wastewaters

As delineated in section III.D, the publicly available data showed a number of management scenarios of interest for wastewaters from production of dyes and/or pigments: management in tanks or surface impoundments prior to discharge to a POTW or under an NPDES permit; incineration; and fuel blending in industrial furnaces.

We modeled two scenarios: (1) Onsite treatment of wastewater in tanks, and (2) onsite management of wastewaters in clay-lined and synthetic-lined surface impoundments. As described in the previous section, currently operating organic dyes and/or pigments production facilities manage their wastes in these types of units. We also modeled unlined surface impoundments, although we did not use these results as the basis for our listing determination. We believe unlined impoundments are unlikely to be utilized for untreated wastewater, not only because our data do not indicate that such units are currently in use, but also because storage or treatment in an impoundment without any kind of liner seems unlikely.

For surface impoundments, EPA has recently relied on the effectiveness of liners in deciding not to list wastewaters from paint manufacturing.²⁴ Although we did not try to model liner performance for paint wastewaters, we assumed that composite liners provide significant protection during the relatively short operational life of an impoundment (30 to 50 years). As noted in the final determination for paint manufacturing wastes, we believe that the level of protection afforded by a liner system would be significant (67 FR 16267). Furthermore, if leaks occurred during its operating life, the unit can be drained and repaired. Since we do not have data on infiltration rates for lined surface impoundments, we used calculated infiltration rates. This is the same approach used for the IWEM guidance, referenced above for lined landfills; see the Risk Background Document for today's proposal for more discussion.

We believe it is appropriate to consider liners in modeling surface impoundments in today's listing determination for reasons similar to those noted for landfills in the above section. Specifically, our data indicate

that the untreated wastewaters in scope are not (and are not likely to be) managed in impoundments without liners. Industry groups (ETAD and CPMA) have confirmed that there are no active unlined surface impoundments at operating dyes and/or pigments production facilities that receive untreated in-scope wastes. We believe it is less likely that unlined landfills would be in operation in the future, given liability concerns. Also, we are using an approach similar to that we used for describing infiltration rates through various liner systems for the IWEM guidance. We request comments on this approach.

We did not assess discharges of wastewaters by dye and/or pigment facilities under NPDES permits or discharges to POTWs. The discharges to surface waters are regulated under the Clean Water Act by means of NPDES permits or national pretreatment standards. Many of these discharges are excluded from RCRA hazardous waste regulation. See 40 CFR 261.4(a)(1) and (2). We also chose not to model combustion of wastewaters in incinerators, cement kilns or industrial furnaces. In the previous section on nonwastewaters, we explain the Agency's rationale for not modeling combustion or fuel blending. That rationale applies equally to wastewaters.

F. What Factors Did EPA Incorporate Into Its Quantitative Risk Assessment?

In making listing determinations, the Agency considers the listing criteria set out in 40 CFR 261.11. The criteria provided in 40 CFR 261.11(a)(3) include eleven factors for determining "substantial present or potential hazard to human health and the environment." Nine of these factors, as described generally below, are incorporated into EPA's risk assessment for the wastes of concern:

- Toxicity (§ 261.11(a)(3)(i)) is considered in developing the health benchmarks used in the risk assessment modeling.
- Constituent concentrations (§ 261.11(a)(3)(ii)) and the quantities of waste generated (§ 261.11(a)(3)(viii)) are combined in the calculation of mass loading levels that pose a hazard.
- Potential to migrate, persistence, degradation, and bioaccumulation of the hazardous constituents and any degradation products (§§ 261(a)(3)(iii), 261.11(a)(3)(iv), 261.11(a)(3)(v), and 261.11(a)(3)(vi)) are all considered in the design of the fate and transport models used to determine the concentrations of the contaminants to which individuals are exposed.

²³ While other products of incomplete combustion may present possible risks, it is difficult for us to assess this potential for the chemicals of concern.

²⁴ See the proposed rule at 66 FR 10108 (Feb. 13, 2001) and the final rule at 67 FR 16267 (Apr. 4, 2002).