

the commenter opposed), the commenter noted the following concerns with the analysis: (1) Solvent recovery is not feasible because the condensed solvent is contaminated with condensed water vapor (and must be disposed of as hazardous waste); (2) the amount of coolant piping and valves per condenser is underestimated; (3) baghouses will be needed upstream of the condenser to remove particulate if solid materials are added to the process vessel; (4) two-stage rather than single stage condensers will be required to operate at the model operating temperature of 32°F; (5) the refrigeration unit needs to be large enough to service 75 percent of the facility's condensers; and (6) costs are needed for foundations and supports, electrical components, instrumentation, insulation, site preparation, and buildings.

The commenter also stated the analysis understates the incremental cost effectiveness relative to the floor because it used uncontrolled emissions rather than baseline emissions; the condenser count is incorrect for more than 30 facilities; the costs for covers were not included for the vessels that do not currently have them; the results reported in \$/Mg are actually in \$/ton; and the saturation toluene concentration is 37,370 ppmv, not 40,000 ppmv. Based on a sensitivity analysis that incorporates some of these suggested changes and looks at a range of emission stream flows, HAP concentrations, and control devices, the commenter estimated that costs are at least 5 to 20 times higher than our estimate. The commenter noted that these estimates are conservatively low because they do not include costs for chemical reaction tanks, raw material addition equipment, and fire safety equipment; they also do not consider the impact of using a less volatile surrogate HAP on emission reductions. Even without changing the elements in the analysis, the commenter stated that we should consider the average facility cost effectiveness value rather than the nationwide value because a majority of the facilities in the analysis have incremental costs above \$3,500/Mg; typically, these facilities are small or produce predominately water-based coatings.

Response: We agree that the EIIP guidance is appropriate for use in estimating emissions from coating manufacturing process sources. We did not use EIIP models because we did not have the level of detail required to conduct emission estimates from the facilities in our database. We considered the 1 to 2 percent solvent throughput values contained in the Chapter 5 AP-42 documentation to be adequate in

characterizing the level of emissions for nationwide impacts. And, although one commenter indicated that the EIIP methodology would result in HAP emissions between 0.2 and 0.6 percent of HAP throughput for his facilities, this commenter also calculated a loss of 1.3 percent for one facility due to more conservative assumptions associated with that facility's operations. While our 1 percent factor may be conservative, it was a reasonable value for the impacts analysis. The commenters noted that the AP-42 VOC emission factor is inappropriate because, typically, half or less than half of the VOC is HAP; however, because the factor is based on HAP throughput, only the portion of solvent that is HAP is considered, and therefore, basing the emissions on HAP throughput appropriately limits the estimates to HAP, not VOC. Regarding the comment that our baseline emissions estimate exceeds facility-wide TRI emissions, we note that one commenter indicated that baseline HAP emissions total 6.3 million pounds for all 127 facilities in the database, as compared to our estimate of 13.5 million pounds, roughly a factor of two. Because of the uncertainty associated with estimation methods, and varying operational practices from site to site, these estimates are reasonable.

Regarding assumptions made in our cost analysis of the regulatory alternative for stationary process vessels, we note that the low overall control efficiency (75 percent) enables numerous control scenarios for achieving compliance, including those scenarios where air flows are increased to enable proper capture of emissions from opening in vessels. While we did not cost out this alternative for presentation of impacts, it would likely be a scenario employed by owners and operators. As discussed previously, the two predominant types of control devices are condensers and thermal incinerators. Therefore, to further examine the cost effectiveness of the regulatory alternative, we evaluated the cost effectiveness of applying a capture and control system using thermal incineration. We started with the analyses generated by one commenter, which are based on EPA's COST-AIR control cost spreadsheets for regenerative thermal oxidizers and included the commenter's estimated installation costs for ductwork, auxiliary equipment, vapor collection systems and lids for tanks. The commenter also noted that cost calculations did not include chemical reaction type tanks to approach 100 percent capture, automatic cleaning systems, raw

material addition equipment, baghouses or fire control system costs. We also excluded chemical reaction tanks and raw material feed equipment because they would not be needed when high air flow rates and a capture system are used to collect and route emissions from the existing tanks to a thermal incinerator.

The commenter apparently generated an industry-wide cost effectiveness estimate for thermal oxidizers from average flow and concentration value ranges. The commenter did not provide enough information to methodically step through the procedure to arrive at the resulting value of \$16,138/Mg. In fact, it was not clear whether the commenter selected ranges of concentrations and flowrates corresponding to 36 stack test data points and then calculated cost effectiveness values from the midpoints of these ranges or whether the commenter calculated the cost effectiveness of 36 stack test data points and developed an arithmetic average. We note that the table supplied by the commenter identifying concentration and flowrate ranges indicates that flowrates and concentrations were considered to be independent of each other and produced a counterintuitive result that flowrate and concentrations would be directly proportional, as opposed to inversely proportional. For example, the low flow rate range midpoint values were listed as 300 cubic feet per minute (cfm) and 50 ppmv, while the high flowrate range midpoints were listed as 7,500 cfm and 1,750 ppmv. We would expect that as flowrates increased, concentrations would decrease, and we concluded that an analysis resulting from the use of these ranges would likely not represent the actual emission stream characteristics. Further, we estimated the cost effectiveness of incinerator controls for these 5 ranges and obtained values ranging from \$290,000/Mg for the 300 cfm, 50 ppmv concentration stream to \$400/Mg for the stream with 7,500 cfm and 1,750 ppmv, indicating a wide range of cost effectiveness.

We reasoned that a more representative evaluation would be based on a selected model emission stream. This model stream was based on a common value resulting from the histogram presented by the commenter; we selected as model emission stream characteristics a flowrate of 5,000 standard cubic feet per minute (scfm) waste gas and a concentration of 500 ppmv. Our analysis indicated that the cost effectiveness value for this model stream would be \$2,200/Mg, assuming only 75 percent reduction of potential HAP emission was achieved. Based on