

multimedia filtration. EPA was able to evaluate these candidate technologies for facilities with subcategory A and/or C operations and for facilities with subcategory B and/or D operations by estimating costs and pollutant removals on a plant-by-plant basis. The design parameters and other engineering assumptions for these cost and pollutant removal estimates applicable to both A and/or C and B and/or D facilities are explained in Section 10 of the TDD. Section 7 of the TDD also discusses EPA's evaluation and selection of the various candidate BCT technologies. The Agency solicits comment on the above described candidate technologies, and other candidate technologies that might be more cost-effective than multimedia filtration, polishing ponds, or the combination thereof. See Section XIV of this preamble, solicitation number 30.0.

EPA found that all candidate technology options failed the BCT cost test in the two subcategory groups (A and C, and B and D). As a result, EPA is today proposing to set BCT equal to proposed BPT in these two subcategory groups. See the Section 14 of the TDD for a complete discussion of the BCT methodology as applied in each of the subcategories.

b. *Alternative methodology for developing BCT limits.* EPA performed an alternative BCT analysis, in addition to the foregoing. This alternative analysis is based on the possibility that, notwithstanding today's proposal, BPT limits for this industry ultimately are not revised. In performing this analysis, EPA considered four candidate technology options for facilities with subcategory A and/or C operations and two candidate technology options for facilities with subcategory B and/or D operations. The technologies identified above plus advanced biological treatment is the first candidate technology option in each case. The analysis also uses, as its baseline, the level of control equal to the discharge allowed under the existing BPT regulations. This baseline was used in the development of the 1986 BCT limitations for the pharmaceutical manufacturing industry. EPA concluded from this alternative analysis that all candidate technology options fail the BCT cost test using the baseline for the 1986 analysis. Section 14 of the TDD provides more discussion of all BCT cost test analyses.

### 3. BAT

a. *Introduction.* EPA today is proposing both new and revised BAT effluent limitations guidelines based on the Best Available Technology

Economically Achievable (BAT) for four subcategories (A, B, C, and D) of the pharmaceutical manufacturing industry. The BAT effluent limitations proposed today would control certain priority and nonconventional pollutants discharged from plants in these subcategories at an end-of-pipe location. In developing these proposed effluent limitations, EPA identified technologies appropriate for individual priority and nonconventional pollutants.

b. *Establishing BAT limits.* EPA has identified 56 pollutants for possible control by BAT limitations for facilities with subcategory A and/or C operations. The proposed BAT limitations for these subcategories for cyanide and COD are identical to those established under BPT. EPA also is proposing limitations for ammonia for facilities with subcategory A and/or C operations based on incidental removal through steam stripping and advanced biological treatment. Of the remaining 53 priority and nonconventional pollutants for which limitations are being proposed today for facilities with subcategory A and/or C operations, 45 are volatile organic pollutants, which are treatable by steam stripping and steam stripping with distillation technologies. For facilities with subcategory A and/or C operations, EPA is today proposing BAT limitations for those pollutants based on steam stripping technology followed by end-of-pipe advanced biological treatment. The remaining eight pollutants are nonstrippable organic compounds, which are biodegradable. Consequently, EPA is proposing advanced biological treatment as the basis for BAT limitations for these pollutants for facilities with subcategory A and/or C operations.

For facilities with subcategory B and/or D operations, EPA has identified 54 pollutants for control by the proposed BAT limitations based on advanced biological treatment (the technology selected as the basis for the proposed BPT). As discussed under BPT, cyanide is not a pollutant of concern for subcategory B and/or D operations and EPA is proposing to repeal the current BAT limitations for cyanide for facilities with subcategory B and/or D operations. EPA also has determined that ammonia is not a pollutant of concern for these subcategories. EPA is proposing to set BAT limitations for COD for facilities with subcategory B and/or D operations at the levels achieved by compliance with the proposed BPT limitations.

c. *Rationale for BAT limitations by subcategory.* Section V.A.1 summarizes the factors to be considered in establishing the BAT level of control. In general, BAT represents the

performance of the best available technology economically achievable among plants with shared characteristics. Where existing pollution control technologies are uniformly inadequate, BAT may be transferred from a different subcategory or industrial category. BAT limitations may be based upon process changes, as well as upon measures that are not common industry practice.

The Agency is today proposing BAT effluent limitations for facilities with subcategory A, B, C, and D operations. The rationale for the proposed effluent limitations in each subcategory is presented in the following paragraphs.

#### (1) Fermentation and Chemical Synthesis Subcategories, Subparts A and C

The technology basis for the current BAT limitations is cyanide destruction plus end-of-pipe biological treatment.

In establishing the proposed BAT effluent limitations, EPA considered four regulatory options to reduce the generation of priority and nonconventional pollutants by facilities with subcategory A and/or C operations. These options are as follows:

*Option (1)—In-plant cyanide destruction plus advanced biological treatment with nitrification.*

This option is identical to the technology selected as the basis for the proposed BPT limitations for facilities with subcategory A and/or C operations, except that provisions for nitrification are added.

*Option (2)—In-plant cyanide destruction and steam stripping plus advanced biological treatment.*

This option adds in-plant steam stripping to the technology described in option 1 for the purpose of removing strippable volatile organic pollutants prior to dilution from commingled wastestreams and air stripping in treatment basins and impoundments at the end of the pipe. Steam stripping will also remove ammonia, thereby obviating the need to add nitrification to end-of-pipe biological treatment.

*Option (3)—In-plant cyanide destruction and steam stripping with distillation plus advanced biological treatment.*

This option adds in-plant fractional distillation to the technology described in Option 2 for the fractional purpose of achieving greater removal of difficult to strip volatile organic pollutants (such as methanol) prior to dilution from commingled wastestreams and air stripping in treatment basins and impoundments at the end of the pipe.

*Option (4)—In-plant cyanide destruction and steam stripping with*