

d. Determination of performance level defining BPT. EPA used 1989 and 1990 data supplied in the response to the 1990 detailed questionnaire regarding BOD₅, TSS, and COD effluent and effluent concentrations and loadings in order to calculate long-term average concentrations for BOD₅, TSS, and COD. EPA then used this information to determine the performance level defining proposed BPT for BOD₅, TSS, and COD. EPA has determined that the level of performance necessary for a plant to be considered as a best performer with respect to advanced biological treatment was full compliance with the existing BPT limitations.

In order to develop BPT limitations for BOD₅, TSS, and COD for facilities with subcategory A and/or C and B and/or D operations, EPA first identified those plant datasets that indicated full compliance with the 1983 BPT regulation. BPT in the 1983 regulation was based on activated sludge treatment, which is considered a principal component of advanced biological treatment. Under the intent of the 1983 regulation, facilities with subcategory A and/or C operations must achieve long-term average reductions of 90 and 74 percent in BOD₅ and COD, respectively, and average TSS concentrations equal to 1.7 times their average influent BOD₅ concentrations. As an initial matter, EPA did not consider plants for this rulemaking unless they were consistently achieving such long-term BOD₅ and COD percent reductions and related TSS concentrations.

Having identified the plants that are complying with the 1983 BPT requirements, EPA then undertook to determine which could be considered best performers in the two subcategory groups. To do this, EPA usually develops editing criteria to analyze available performance data. EPA concluded that no such editing criteria were necessary in this case, however, because performance data for the plants employing advanced biological treatment to fully comply with the intent of the 1983 BPT regulation showed that all were achieving similar good performance. Five thus emerged as best performers among facilities with subcategory A and/or C operations; for facilities with subcategory B and/or D operations, EPA identified two as best performers. The Agency then calculated long-term average performance concentrations for BOD₅, TSS, and COD using datasets from the best performing A and C and B and D plants. The limitations derived from these concentrations represent the "average of

the best" performance with respect to advanced biological treatment in the pharmaceutical manufacturing industry.

With respect to the development of the BPT cyanide limitations for facilities with subcategory A and/or C operations, EPA identified ten facilities that used some form of cyanide destruction technology to destroy or oxidize the cyanide in their waste streams. The existing BPT limits for CN were based on alkaline chlorination technology. After evaluating the performance data characteristic of the various cyanide destruction technologies employed, EPA concluded that hydrogen peroxide oxidation appeared to meet the statutory requirements for BPT most effectively. In reaching this decision, EPA used influent and effluent cyanide data from one of these facilities to determine the effectiveness of this form of treatment in reducing cyanide concentrations. This facility achieved substantially more effective treatment than the other two facilities that used the same cyanide destruction technology. As a result, the proposed cyanide limitations for facilities with subcategory A and/or C operations are based on the performance of hydrogen peroxide oxidation technology. EPA is proposing to repeal the current BPT limitations for cyanide for facilities with subcategory B and/or D operations because cyanide is not a pollutant of concern for those operations. See Section 9 of the TDD for discussion of the cyanide content of raw wastewaters generated by facilities with subcategory B and/or D operations.

The development of the variability factors used to determine BPT effluent limitations for BOD₅, TSS, COD, and cyanide from the LTA is discussed in section IX.F below. A detailed explanation of the development of the proposed BPT effluent limitations is found in Section 2.2 of the statistical support document. Additional discussion of the basis for developing treatment effectiveness data for cyanide destruction is presented in Section 8 of the TDD.

2. BCT

a. Methodology for determining revised BCT limits. EPA is today proposing revised BCT effluent limitations guidelines based on the Best Conventional Pollutant Control Technology (BCT) for four subcategories (A, B, C, and D) of the pharmaceutical manufacturing industry. These proposed guidelines, for the conventional pollutants BOD₅ and TSS, are based on the average performance of the best plants in these subcategories that employ advanced biological treatment (the technology basis of the

proposed BPT limitations). In developing and proposing revised BCT limits, EPA considered whether there are technologies that achieve greater removals of conventional pollutants than the proposed BPT, and whether those technologies are cost-reasonable according to the BCT cost test. In the four subcategories for which EPA proposes revised limitations today, EPA identified no technologies that achieve greater removals of conventional pollutants than those associated with the proposed BPT limits that are also cost-reasonable under the BCT cost test, and accordingly proposes BCT limits equal to the proposed BPT limits for those subcategories. The technologies considered for facilities with subcategory A and/or C operations included effluent filtration, polishing ponds, and the combination of effluent filtration and polishing ponds. EPA considered only effluent filtration for facilities with subcategory B and/or D operations.

EPA's analysis had several steps. First, EPA considered how best to define the BPT "baseline" for these purposes. In performing the BCT cost tests, the BPT baseline serves as the starting point against which more stringent technologies are analyzed. EPA considered three possible baselines: (i) the revised BPT limits proposed in today's notice; (ii) the actual long-term average discharge of conventional pollutants from plants in this industry, based on EPA's 1990 survey data; and (iii) a level of control equal to the amount of discharge allowed under existing BPT regulations. Of these, the first is the most stringent and the third is the least stringent level of control. EPA has selected the proposed revised BPT limits because the revised BPT limitations reflect the average performance of the best facilities in the industry as required by the Clean Water Act. Moreover, dischargers would be required to meet these limitations irrespective of the BCT analysis and hence they provide a more realistic starting point against which to analyze potentially more stringent candidate BCT technologies.

As the second step in determining whether to revise BCT limits, EPA identified candidate BCT technologies. Three candidate technologies were identified for facilities with subcategory A and/or C operations. Each incorporates advanced biological treatment plus one of the following: (1) Multimedia filtration; (2) polishing ponds; or (3) polishing ponds followed by multimedia filtration. The only option evaluated for facilities with subcategory B and/or D operations was