pollutants through biological treatment, fail to remove metals associated with these organic wastes.

The poor pollutant removal performance observed generally for discharging CWT facilities is not unexpected. As pointed out previously, these facilities are treating highly concentrated wastes that, in many cases, are process residuals and sludges from other point source categories. EPA's review of permit limitations for the direct dischargers show that, in most cases, the dischargers are subject to "best professional judgment" concentration limitations which were developed from guidelines for facilities treating and discharging much more dilute waste streams. EPA has concluded that treatment performance in the industry is widely inadequate and that the mass of pollutants being discharged is unacceptably high, given the demonstrated removal capability of treatment operations that the Agency reviewed.

(i) Subcategory A—Metals Subcategory. The Agency is today proposing BPT limitations for the Metals Subcategory for 22 pollutants. EPA considered three regulatory options to reduce the discharge of pollutants by centralized waste treatment facilities. For a more detailed discussion of the basis for the limitations and technologies selected see the Technical Development Document.

The three currently available treatment systems for which the EPA assessed performance for the Metals Subcategory BPT are:

• Option 1—Chemical Precipitation, Liquid-Solid Separation, and Sludge Dewatering. Under Option 1, BPT limitations would be based upon chemical precipitation with a lime/ caustic solution followed by some form of separation and sludge dewatering to control the discharge of pollutants in wastewater. The data reviewed for this option showed that settling/clarification followed by pressure filtration of sludge vields removals equivalent to pressure filtration. In some cases, BPT limitations would require the current treatment technologies in-place to be improved by use of increased quantities of treatment chemicals and additional monitoring of batch processes. For metals streams which contain concentrated cyanide complexes, BPT limitations under Option 1 are based on alkaline chlorination at specific operating conditions prior to metals treatment. As previously noted, without treatment of the cyanide streams prior to metals treatment, metals removal are significantly reduced.

• Option 2—Selective Metals Precipitation, Pressure Filtration, Secondary Precipitation, and Solid-Liquid Separation. The second option evaluated for BPT for centralized waste treatment facilities would be based on the use of numerous treatment tanks and personnel to handle incoming waste streams, and use of greater quantities of caustic in the treatment chemical mixture. (Caustic sludge is easier to recycle.) Option 2 is based on additional tanks and personnel to segregate incoming waste streams and to monitor the batch treatment processes to maximize the precipitation of specific metals in order to generate a metal-rich filter cake. The metal-rich filter cake could possibly be sold to metal smelters to incorporate into metal products. Like Option 1, for metals streams which contain concentrated cyanide complexes, under Option 2, BPT limitations are also based on alkaline chlorination at specific operating conditions prior to metals treatment.

• Option 3—Selective Metals Precipitation, Pressure Filtration, Secondary Precipitation, Solid-Liquid Separation, and Tertiary Precipitation. The technology basis for Option 3 is the same as Option 2 except an additional precipitation step at the end of treatment is added. For metals streams which contain concentrated cyanide complexes, like Options 1 and 2, for Option 3, alkaline chlorination at specific operating conditions would also be the basis for BPT limitations.

The Agency is proposing to adopt BPT effluent limitations based on Option 3 for the Metals Subcategory. These limitations were developed based on an engineering evaluation of the average of the best demonstrated methods to control the discharges of the regulated pollutants in this Subcategory.

EPA's decision to base BPT limitations on Option 3 treatment reflects primarily an evaluation of three factors: the degree of effluent reduction attainable, the total cost of the proposed treatment technologies in relation to the effluent reductions achieved, and potential non-water quality benefits. In assessing BPT, EPA considered the age, size, process, other engineering factors, and non-water quality impacts pertinent to the facilities treating wastes in this subcategory. No basis could be found for identifying different BPT limitations based on age, size, process or other engineering factors. Neither the age nor the size of the CWT facility will directly significantly affect either the character or treatability of the CWT wastes or the cost of treatment. Further, the treatment process and engineering aspects of the technologies considered have a

relatively insignificant effect because in most cases they represent fine tuning or add-ons to treatment technology already in use. These factors consequently did not weigh heavily in the development of these guidelines. For a service industry whose service is wastewater treatment, the most pertinent factors for establishing the limitations are costs of treatment, the level of effluent reductions obtainable, and non-water quality effects.

Generally, for purposes of defining BPT effluent limitations, EPA looks at the performance of the best operated treatment system and calculates limitations from some level of average performance of these "best" facilities. For example, in the BPT limitations for the Organic Chemicals, Plastics, and Synthetic Fibers Point Source Category, EPA identified "best" facilities on a BOD performance criteria of achieving a 95 percent BOD removal or a BOD effluent level of 40 mg/l. 52 FR 42535 (November 5, 1987). For this industry, as previously explained, EPA concluded that treatment performance is, in virtually all cases, poor. Without separation of metal-bearing streams for selective precipitation, metal removal levels are uniformly inadequate across the industry. Consequently, BPT performance levels are based on data from the one well-operated system using selective metals precipitation that was sampled by EPA.

The demonstrated effluent reductions attainable through the Option 3 control technology represent the BPT performance attainable through the application of demonstrated treatment measures currently in operation in this industry. The Agency is proposing to adopt BPT limitations based on the removal performance of the Option 3 treatment system for the following reasons. First, these removals are demonstrated by a facility in this subcategory and can readily be applied to all facilities in the subcategory. The adoption of this level of control would represent a significant reduction in pollutants discharged into the environment.

Second, the Agency assessed the total cost of water pollution controls likely to be incurred for Option 3 in relation to the effluent reduction benefits and determined these costs were economically reasonable.

Third, adoption of these BPT limits could promote the non-water quality objectives of the CWA. Use of the Option 3 treatment regime—which generates a metal-rich filter cake that may be recovered and smelted—could reduce the quantity of waste which are being disposed of in landfills.