ADDRESSES: The workshop will be held at the EPA National Vehicle and Fuel Emissions Laboratory, 2565 Plymouth Road, Ann Arbor, Michigan 48105, telephone (313) 668–4200.

FOR FURTHER INFORMATION CONTACT: William Rutledge, Technical Support Branch, Manufacturers Operations Division (6405J), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. Telephone: (202) 233–9297.

SUPPLEMENTARY INFORMATION:

I. Background

On April 21, 1993, EPA published final Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses (58 FR 21359). The retrofit/rebuild program, intended to reduce the ambient levels of particulate matter (PM) in urban areas, is limited to 1993 and earlier model year (MY) urban buses operating in metropolitan areas with 1980 populations of 750,000 or more, whose engines are rebuilt or replaced after January 1, 1995. Operators of the affected buses are required to choose between two compliance options: Option 1 sets particulate matter emissions requirements for each urban bus in an operator's fleet whose engine is rebuilt or replaced; Option 2 is a fleet averaging program that sets out a specific annual target level for average PM emissions from 1993 and earlier MY urban buses in an operator's fleet.

A key aspect of the program is the certification of retrofit/rebuild equipment. Emissions requirements under either of the two options depend heavily on the availability of retrofit/rebuild equipment certified for each engine model. To be used for Option 1, equipment must be certified as meeting a 0.10 g/bhp-hr PM standard or as achieving a 25 percent reduction in PM. Equipment used for Option 2 must be certified as providing some level of PM reduction that would in turn be claimed by urban bus operators when calculating their average fleet PM levels attained under the program. Technology must be certified in order for urban bus operators to take credit for a reduction in PM provided.

The certification process outlined in the retrofit/rebuild rule is based on existing regulations for aftermarket parts certification for light-duty vehicles and trucks. However, in order for equipment to be a trigger under Option 1 for an engine model, additional information regarding cost must be submitted in the application for certification. The certifier must guarantee that the equipment will be offered for sale under an appropriate life cycle cost ceiling to all affected urban bus operators for which the equipment is certified to be a trigger under Option 1.

In order to provide sufficient lead time for urban bus operators to make plans and procure retrofit/rebuild equipment, it is important to have certified equipment available to urban bus operators as soon as possible. For this reason, and because most potential certifiers have had no previous experience with the similar aftermarket parts certification program or the life cycle cost requirements, EPA feels it would be worthwhile to provide and explain standardized formats for meeting the rebuild/retrofit equipment certification requirements as quickly and efficiently as possible.

II. Workshop Structure

EPA will arrange the workshop agenda to provide an overview of the retrofit/rebuild program followed by a detailed explanation of the equipment certification program and the standardized certification application formats. Ample time will be allowed for questions. Specific written questions or suggestions are encouraged to be provided in advance to the Contact Person. Further, all those planning to attend are requested to notify the Contact Person in advance to facilitate our planning.

Robert D. Brenner,

Acting Assistant Administrator for Air and Radiation.

[FR Doc. 93–16312 Filed 7–8–93; 8:45 am]

BILLING CODE 6560–50–P

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40 CFR Part 414

[FRL–4610–7]

RIN 2040–AB65

Organic Chemicals, Plastics and Synthetic Fibers Category; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is promulgating amendments limiting effluent discharges to waters of the United States and the introduction of pollutants into publicly owned treatment works (POTWs) by existing and new sources in the organic chemicals, plastics, and synthetic fibers (OCPSF) point source category.

EPA is adding Subpart J limitations based on the Best Available Technology Economically Achievable (BAT) and New Source Performance Standards (NSPS) for 19 additional pollutants as well as Pretreatment Standards for Existing Sources (PSES) and Pretreatment Standards for New Sources (PSNS) for 11 of these 19 pollutants. These amendments respond to the U. S. Fifth Circuit Court of Appeals' remand decisions on the OCPSF regulation, *Chemical Manufacturers Association* v. *U.S. EPA.*

EPA is also correcting the criteria for designating "metal-" and "cyanide-bearing" waste streams, and is adopting two nonsubstantive formatting changes.

DATES: These regulations are effective August 23, 1993. In accordance with 40 CFR 23.2 , this regulation shall be considered promulgated for purposes of judicial review at 1 p.m. Eastern time July 23, 1993.

The compliance date for PSES is as soon as possible but no later than July 23, 1996. The compliance dates for NSPS and PSNS is the date the new source begins operation. Deadlines for compliance with BAT are established in permits.

Under section 509(b)(1) of the Clean Water Act, judicial review of this regulation can be had only by filing a petition for review in the United States Court of Appeals within 120 days after the promulgation date of today's regulation for purposes of judicial review. Under section 509(b)(2) of the Clean Water Act, the requirements in this regulation may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: The supporting information and all comments and responses on this amendment to 40 CFR part 414 will be available for inspection and copying at the EPA Water Docket, room L–102, Waterside Mall, 401 M Street SW., Washington, DC 20460. For access to Docket materials, call (202) 260–3027 between 9 a.m. and 3:30 p.m. for an appointment. The basis for this amendment is detailed in the supplement to the OCPSF record which is also in the Water Docket. For additional information contact George M. Jett, Project Officer, Chemicals Branch, Engineering and Analysis Division (WH–552), Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460.

FOR FURTHER INFORMATION CONTACT: George M. Jett, (202) 260–7151, for information regarding the technical data, and Debra Nicoll, (202) 260–5386 for information regarding the economic data. Copies of the supplemental development document and

supplemental economic analysis may be obtained by writing or calling Mr. George Jett or Ms. Debra Nicoll, respectively, Engineering and Analysis Division (WH–552), U.S. EPA, 401 M Street SW., Washington, DC 20460.

SUPPLEMENTARY INFORMATION:

Organization of this Document:

I. Legal Authority

The amendments to 40 CFR part 414 described in this notice are promulgated under authority of sections 301, 304, 306, 307, 308, and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972, as amended (33 U.S.C. 1251 et seq.)), also referred to as "the Act" or "CWA."

II. Background and Rationale for Amendments

EPA's explanation of the background and rationale for today's amendments are contained in the December 6, 1991 proposal (56 FR 63897), the January 21, 1992 extension of comment period and correction notice (57 FR 2238), and the December 1, 1992 notice of availability and request for comments (NOA) (57 FR 56883), as supplemented by the information and references in the following sections of this preamble and by the rulemaking record.

Briefly, these amendments respond to the U.S. Fifth Circuit Court of Appeals' remand decisions on the November 5, 1987 OCPSF regulation, *Chemical Manufacturers Association* v. *U.S. EPA*, 870 F.2d 177 (5th Cir.), modified, 885 F.2d 253 (5th Cir. 1989), *cert. denied, PPG Industries, Inc.* v. *U.S. EPA*, 495 U.S. 910 (1990). The Court remanded three aspects of the OCPSF guideline: the New Source Performance Standards (NSPS) and the Pretreatment Standards for New Sources (PSNS) for consideration of whether zero discharge limits would be appropriate for new plants in the OCPSF industry based on recycle of wastewater; the subcategorization of the industry into two subcategories imposing differing limitations based on Best Available Technology Economically Achievable (BAT), on the ground that the Agency did not provide sufficient notice of the scheme; and limitations for 19 of the 20 BAT Subpart J pollutants that were based upon in-plant biological treatment technology (and the corresponding New Source Performance Standards (NSPS) for these pollutants, as well as 13 corresponding Pretreatment Standards for Existing Sources and Pretreatment Standards for New Sources (PSES and PSNS respectively)), on the ground that the model treatment systems used to estimate the cost of compliance had shorter detention times than the systems on which the limitations were based.

In reconsidering new source performance standards, EPA has decided not to revise the NSPS and PSNS standards that were promulgated in the OCPSF guideline because, among other things, EPA's database does not demonstrate that total recycle is a demonstrated technology.

EPA also has decided not to revise the BAT subcategorization scheme for Subpart I and Subpart J. The Agency concluded that this is the most appropriate approach for the OCPSF industry.

EPA is promulgating the same numerical effluent limitations and standards that were proposed on December 6, 1991 for the 19 remanded BAT Subpart J and NSPS pollutants and for 11 of the 13 corresponding PSES and PSNS pollutants based on revised estimates for the cost of compliance derived from revised model in-plant biological treatment system designs. Pretreatment standards for phenol and 2,4-dimethylphenol are not being promulgated because, based on the revised pass-through methodology presented in the December 1, 1992 NOA, EPA has concluded they do not pass through POTWs.

These amendments also correct the criteria for designating "metal-" and "cyanide-bearing" waste streams, and adopt two nonsubstantive formatting changes. These actions do not arise out of the litigation; rather, they result from independent EPA review of the regulation.

III. New Source Performance Standards and Pretreatment Standards for New Sources

In the 1987 OCPSF promulgation, the Agency promulgated NSPS for all direct discharging sources based on the best available demonstrated technology, as required by CWA section 306 (52 FR at 42545). NSPS was established for the three conventional pollutants regulated under the OCPSF guideline on the basis of BPT model treatment technology, and for the 63 OCPSF-regulated priority pollutants on the basis of BAT model treatment technology. The numerical standards are equivalent to the BPT and the BAT limitations (52 FR 42545). EPA also promulgated PSNS on the same technology basis as PSES; the numerical standards for 47 priority pollutants that were determined to pass through or otherwise interfere with the operation of publicly owned treatment works (POTWs) are equivalent to the PSES standards (52 FR 42549).

The Natural Resources Defense Council (NRDC) challenged the final NSPS and PSNS standards arguing, in part, that the Agency failed to give adequate consideration to better pollution control technologies that could be used by new sources.

On March 30, 1989, the Fifth Circuit rejected all but one of NRDC's challenges to the NSPS standards and remanded the NSPS standards to EPA "for consideration of whether zero discharge limits would be appropriate for new plants in the OCPSF industry because of the existence of recycling" (870 F.2d at 264). However, the Court left the standards in place during the Agency's response to the remand (870 F.2d at 266).

The Agency has reconsidered the issues related to establishing new source zero discharge standards based on process wastewater recycle and, as proposed, has decided not to revise the existing NSPS and PSNS standards. EPA received comments from NRDC urging EPA to promulgate zero discharge standards based on recycle of process wastewater, and numerous industry comments supporting EPA's proposal to retain the existing NSPS and PSNS standards. As explained more fully in Section VIII.B., below, the Agency has concluded that it has no basis to impose a zero discharge technology-based NSPS standard on any OCPSF source, and that, even if it were to undertake an extensive data collection and technical development effort, it is unlikely EPA could impose a zero discharge standard

on more than a few of the 25,000 product/processes in the OCPSF industry. First, the "concentration-based" approach which forms the framework of the OCPSF guideline limits the opportunities for the promotion of recycling and re-use of wastewater through a national guideline, in contrast to the "mass-based" approach adopted in other guidelines. The Agency explicitly recognized this limitation during the guideline development process, but opted for this approach nonetheless because it provided the basis for a guideline with more expansive coverage. This was a rational regulatory decision made by the Agency. Moreover, because the OCPSF record was imprecise with regard to its use of the term "recycle," both NRDC and the Fifth Circuit in its remand order misinterpreted the support in the database for zero discharge through recycling. In fact, the record contains very few reports of complete recycle and does not demonstrate that recycle is a demonstrated technology on which EPA can base a zero discharge standard.

IV. BAT Subcategorization

The original OCPSF guideline had two technology-based BAT subcategories for the control of toxic pollutants: one for any direct discharge point source that uses end-of-pipe biological treatment or installs end-of-pipe biological treatment to comply with BPT effluent limitations (Subpart I, § 414.90), and one for any direct discharge point source that does not use end-of-pipe biological treatment or does not install end-of-pipe biological treatment to comply with BPT effluent limitations (Subpart J, § 414.100). Subparts I and J set limits for 63 and 59 pollutants, respectively. Of the 59 Subpart J Maximum for Monthly Average limitations, 9 are identical to, 20 are more stringent than, and 30 are less stringent than the corresponding Subpart I limitations.

As explained in the proposal, EPA established this scheme based, in part, on its conclusion that there are plants in the OCPSF industry whose wastewaters have such low levels of Biochemical Oxygen Demand (BOD) that they will not be able to operate biological treatment systems effectively and do not need biological treatment systems to comply with the BPT BOD effluent levels (56 FR at 63899). Biological treatment systems rely on microorganisms to biodegrade or "eat" the organic pollutants in the wastewater. BOD, a measure of the organic pollution strength in water or wastewater, is determined by measuring the oxygen used by microorganisms to oxidize or "eat" the organic contaminants of a sample. Consequently, BOD measures the amount of substrate or "food" available for the survival of microorganisms (*id.*). Biological treatment systems therefore require sufficient BOD levels to operate (*id.*).

NRDC challenged the BAT subcategorization scheme in the litigation over the OCPSF guideline, arguing that the Agency had failed to present its BAT subcategorization scheme for comment and also asserting that this type of BAT subcategorization violated the CWA because it allowed a discharger who chooses not to employ end-of-pipe biological treatment to be subject to fewer and less stringent BAT Subcategory J limitations, rather than the more stringent Subcategory I limitations which apply to plants with end-of-pipe biological treatment systems. NRDC also argued that, if it had had an opportunity to comment, it would have urged EPA to establish a raw waste BOD "floor" above which plants would not be able to qualify for Subpart J, or to limit the applicability of Subpart J to those categories of OCPSF production that tend to have low raw waste BOD levels (NRDC 6/30/88 Brief at 54).

On March 30, 1989, the Fifth Circuit Court of Appeals, without ruling on NRDC's substantive arguments, remanded the BAT subcategorization of the industry for notice-and-comment proceedings. The Court left the scheme in effect pending further rulemaking, reasoning in part that the notice-and-comment proceedings may disclose that the BOD floor urged by NRDC is neither necessary nor feasible (870 F.2d at 236).

The Agency has reconsidered the issues related to revising the BAT subcategorization scheme or otherwise limiting the applicability of Subpart J and has decided not to revise the existing scheme. The scheme accommodates the complexity of the industry and encourages source control and rational waste management decisions. In addition, EPA does not believe revision of the scheme is necessary. Plants must comply with low BPT limits, and plants that need to achieve significant BOD reductions will generally install biological treatment because other treatment alternatives are significantly more expensive. EPA does not believe plants' treatment decisions will be motivated by the desire to be subject to Subpart J. In any event, Subpart J is not significantly less stringent than Subpart I.

Moreover, the Agency does not have a technical basis to determine which plants can sustain biological treatment because of the lack of a theoretical BOD floor for sustaining biological treatment and the great variability of OCPSF production and wastewater characteristics. For these reasons, as explained more fully in response to NRDC's comments, below, in the 1991 proposal, and in the rulemaking record, the Agency has decided not to establish a BOD floor or otherwise limit the applicability of Subpart J.

V. BAT Subpart J and Corresponding Amendments

A. Background

In the 1987 OCPSF guideline, EPA promulgated toxic pollutant effluent limitations based on the two subcategory scheme described in Section IV above. Subpart J established direct discharge toxic pollutant limitations for plants that comply with BPT limitations without the use of end-of-pipe biological treatment or contract hauling. The Subpart J toxic pollutant numerical limitations were based on the performance of in-plant wastewater treatment technology including steam stripping to remove volatile priority pollutants, chemical precipitation for metals, alkaline chlorination for cyanide, and in-plant biological treatment for removal of selected priority pollutants including polynuclear aromatics, phthalate esters, acrylonitrile, phenol, and 2,4-dimethylphenol (52 FR 42538—45; Final "Development Document for Effluent Limitations Guidelines and Standards for the Organic Chemicals, Plastics, and Synthetic Fibers Point Source Category," (EPA 440/1–87/009), October 1987 (hereafter referred to as 1987 DD), Vol. I, pp II–8 to 11).

Numerical standards for 20 of the Subpart J pollutants were based on the performance of three biological treatment systems with detention times of 1.6, 3.5, and 17.2 days. In contrast, detention times between 1 and 2.1 days were used to estimate the costs of compliance based on the model in-plant biological treatment systems (1987 DD, p VIII–189; R.93970–4020; EPA 9/23/88 Response Brief at 244–59).

The Chemical Manufacturers Association (CMA) challenged the Subpart J limitations based on in-plant biological treatment arguing, in part, that the plants used by EPA to derive the limitations based on in-plant biological treatment have more treatment in place than EPA's model treatment technology used to estimate costs of compliance and that EPA therefore significantly underestimated the costs of installing in-plant biological

treatment (CMA's 4/25/88 Brief at 58–76).

After the Fifth Circuit initially upheld these Subpart J limitations (870 F.2d at 240–42), CMA petitioned for reconsideration, again arguing, in part, that the Agency underestimated the costs of compliance due to the differences between the detention times of the plants that provided the basis for the numerical standards and the detention times of the model technology that provided the basis for estimating the engineering costs of compliance (CMA's 5/3/89 Brief on Petition for Rehearing, pp 8–11). The Court concluded that the detention time was a key variable in determining the effectiveness of biological treatment and that EPA had failed to demonstrate a reasonable basis to conclude that biological systems with a 1 or 2.1 day detention time would control pollutants as effectively as the biological systems with the 3.5 and 17.2-day detention times (885 F.2d at 265).

The Court remanded limitations for the Subpart J pollutants based on the two plants with these longer detention times. In a June 29, 1990 revocation notice (55 FR 26691), the Agency withdrew the BAT limits for the 19 of the 20 Subpart J limits that were based on these two plants. EPA left in effect the limitations for acrylonitrile, which were based upon the treatment system with the 1.6 day detention time. In this notice EPA also withdrew the 19 corresponding NSPS standards, and the 13 corresponding PSES and PSNS standards that were based on the remanded Subpart J limits.

The remand was based on the discrepancy between the detention times of the systems that provided the technical basis for the Subpart J limits and the detention times of the costed model in-plant systems, and not on the technical achievability of the limits generally. EPA therefore proposed on December 6, 1991 and January 21, 1992 the same numerical standards with revised estimates of costs of compliance. The revised compliance costs were based on revised model in-plant biological treatment systems with increased detention times as a function of reported or projected raw waste toxic pollutant concentrations.

A large number of the comments on the proposal challenged EPA's determination in the original 1987 OCPSF promulgation that phenol—one of the 13 pollutants for which pretreatment standards were remanded—passes through POTWs. Several comments raised the same issue with respect to 2,4-dimethylphenol—another of the 13 pollutants. Based on EPA's assessment that these comments had merit, EPA announced in a notice of availability (NOA) published in the **Federal Register** on December 1, 1992, that it was considering revising its determination that phenol and 2,4-dimethylphenol pass through POTWs, based on a proposed modification to the Agency's traditional pass-through methodology (57 FR 56883). The revised methodology as proposed applied scientific and engineering judgment in conjunction with biological treatment performance data to determine that phenol and 2,4-dimethylphenol do not pass through POTWs.

EPA collected additional POTW phenol removal data and reviewed it in conjunction with the data that EPA used in the 1987 pass through analysis, and performed a chemical and engineering assessment of the fate of phenol and 2,4-dimethylphenol in biological treatment systems. EPA has concluded that these pollutants are highly biodegradable and that the removals of these pollutants achieved by POTWs are essentially equivalent to those achieved by direct dischargers. In addition, since phenol and 2,4-dimethylphenol are low volatility pollutants, the removals achieved by POTWs do not simply result from the transfer of the pollutants to the air.

Based on these conclusions, today's amendments are based on revised engineering costs of compliance and pollutant loading reductions for 11 of the 13 remanded pollutants. Final pretreatment standards for phenol and 2,4-dimethylphenol are not being promulgated today because the Agency has concluded they do not pass through POTWs.

B. Final Regulatory Amendments

As explained above, EPA is adding PSES and PSNS standards for 11 additional pollutants in the table appearing in the new § 414.111 (see Section VII). The 11 pollutants are acenaphthene, anthracene, bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, diethyl phthalate, dimethyl phthalate, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene.

EPA is adding BAT and NSPS limitations and standards for 19 additional pollutants in the table in § 414.101. The 19 pollutants are acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, 3,4-benzofluoranthene, benzo(k)fluoranthene, chrysene, 2,4-dimethylphenol, phenol, and the 11 pollutants listed in the previous paragraph.

C. Basis for Economic Analysis

The economic analysis of today's final BAT and PSES limitations is based on revised compliance costs for the same BAT numerical limitations and, with the exception of phenol and 2,4-dimethylphenol, for the same PSES numerical standards that were promulgated in 1987 and proposed in December 1991. Phenol and 2,4-dimethylphenol are not regulated under PSES because EPA has determined that they do not pass through POTWs (see Section V.A.).

EPA has revised its costing analysis in response to comments by CMA that the Agency underestimated the costs of compliance because the technical data base was not revised to reflect the information gathered in EPA's April 1991 survey of the 84 direct discharge plants that did not report the use of end-of-pipe biological treatment in the original OCPSF CWA Section 308 survey. The principal changes based on the April 1991 survey reflect the shift in discharge status for 14 plants from direct to indirect discharge and the revised projection that 47 rather than 23 plants are subject to the BAT Subpart J limitations (May 1993 Supplement to the Development Document for Effluent Limitations Guidelines and Standards for the Organic Chemicals, Plastics and Synthetic Fibers Point Source Category, (EPA 821–R–93–007)). These changes are reflected in the economic analysis performed by EPA, described below. The changes do not materially affect EPA's analysis, nor do they affect the determination that today's rule is economically achievable.

In response to the remand of the Subpart J limitations, EPA considered whether the limitations are economically achievable given the revised compliance costs. The Agency's analysis of the revised costs parallels the economic analysis conducted for the 1987 rulemaking. The methodology for that analysis was described in the preamble to the 1987 final rule (52 FR 42550) and in the Agency's economic impact analysis that was published in support of that rule ("Economic Impact Analysis of Effluent Limitations Guidelines and Standards for the Organic Chemicals, Plastics and Synthetic Fibers Industry," (EPA 440/2/87–007), September 1987). The economic analysis for today's final rule is documented in a report: "Re-Evaluation of the Economic Impact Analysis of Effluent Limitations Guidelines for the Organic Chemicals, Plastics, and Synthetic Fibers Industry," May 1993. This report is available from

EPA; see the contacts identified at the beginning of this notice.

EPA undertook a revised plant impact analysis, a revised regulatory flexibility analysis, and a revised cost-effectiveness analysis to evaluate the effects of the final compliance costs. The plant impact analysis is the primary basis for evaluating economic achievability. The regulatory flexibility analysis provides information to determine whether small plants are disproportionately affected by the revised costs. The cost-effectiveness analysis provides information about the relative efficiency of the control option selected for reducing pollutant discharges.

The methodology for assessing plant impacts is the same as was used for the 1987 final rule. The impact of the compliance costs on OCPSF plants was evaluated using the following criteria: total annualized cost of the treatment technology, potential plant closures, potential product line closures, significant sales or profit impacts, and the job losses associated with closures. Additional information regarding the calculation of these impact measures and their significance is found in the economic impact analysis prepared for the 1987 final rule.

D. Summary of Economic Impacts

The costs used to evaluate today's final rule are based on the capital and annual operating costs of the model treatment technology, as described in the May 1993 final "Supplement to the Development Document for Effluent Limitations Guidelines and Standards for the Organic Chemicals, Plastics and Synthetic Fibers Point Source Category." In the following discussion, all cost estimates are reported in 1986 dollars to facilitate comparisons to the 1987 promulgated rule. Cost estimates in that preamble were reported in 1986 dollars.

For approximately 265 direct dischargers for which EPA has estimated compliance costs, the total annualized costs of the OCPSF guideline, as amended, are $231.1 million. This is a $6.9 million (3.1 percent) increase over the cost of the rule as promulgated in 1987. However, today's rule results in fewer incremental impacts (i.e., plant closures, product line closures, or employment losses) than those estimated for the 1987 promulgation. Two of the plants that were projected to close under BAT in 1987 were among the 14 plants that switched their discharge status to indirect and are now projected to close as indirect discharge plants under today's rule. The Agency estimates that 9 OCPSF direct discharging plants or product lines may close as a result of the compliance costs imposed by today's rule. These closures represent 3 percent of all direct discharging plants. For the 1987 rule and the 1991 proposal, the Agency estimated that 11 OCPSF plants or product lines would close as a result of the compliance costs. The employment reduction associated with the closures for today's rule is 1,060 (0.6 percent of total OCPSF employment).

For approximately 380 indirect dischargers for which EPA has estimated compliance costs, the total annualized costs of the OCPSF guideline, as amended, are $254.4 million. This is a $50.1 million (24.5 percent) increase over the cost of the rule as promulgated in 1987. Today's final cost estimate is $7.0 million (2.8 percent) higher than the costs estimated for the December 1991 proposed rule; the net change in estimated costs reflect the shift in discharge status for 14 plants that were direct discharge facilities in 1987 but now discharge to POTWs, and the exclusion of phenol and 2,4-dimethylphenol in the final pretreatment standards. Overall, plant impacts for indirect dischargers increase slightly when compared to the 1987 and 1991 results. Sixty (60) plant and product line closures are projected to result from compliance with the OCPSF guideline as amended by today's rule. As originally promulgated, the number of plant and product line closures was 52. For the 1991 proposal, the estimate of plant and product line closures was 56. (Two of the additional four closures over the 1991 estimate result from the switch to indirect discharge status of two direct discharging plants that were projected to close.) When expressed in percentage terms (relative to the number of indirect dischargers), the closure rate for today's final pretreatment standards is 16 percent; at promulgation in 1987, the closure rate for indirect dischargers was 14 percent. The employment reduction associated with the closures for today's rule is 2,946, which is an increase (of 0.4 percent of total OCPSF employment) from 2,190 at the 1987 promulgation.

The Agency finds that the impacts imposed by the revised compliance costs for both BAT and PSES are not significantly different from the impacts projected in 1987, and that today's amendment is economically achievable.

In addition, EPA received comments that its approach understates the actual cost of compliance with today's rule. EPA disagrees and believes the costs it has presented are an accurate industry-wide estimation of compliance costs. However, EPA has conducted two sensitivity analyses examining the projected impacts of increased compliance costs with today's rule, one which doubled the projected costs of compliance, and one based on assignment to individual plants of additional treatment unit operations that commenters claimed would be required (see Response to Comments Section of the Public Record). These highly conservative sensitivity analyses project one additional and four additional plant closures, respectively, which EPA finds would still be economically achievable. EPA believes that the closures estimated using the sensitivity analyses overstate the actual closures that will result from compliance with today's rule.

E. Small Plant Analysis

A regulatory flexibility analysis addresses the burden of regulatory actions on small entities. For today's final regulation, as in the 1987 final rule, the regulatory flexibility analysis examined whether small plants, as defined by a plant production threshold of 5 million pounds, were disproportionately affected by the regulation. The assessment includes consideration of plant and product line closures and profit and sales impacts. The assessment reflects the shift in discharge status for 14 plants, the revised compliance costs, and, for indirect discharge plants, the exclusion of phenol and 2,4-dimethylphenol from the PSES standards, as explained in Section V.C., above.

In the 1987 final rule, based on its small plant analysis, EPA set BAT equal to BPT for plants whose annual OCPSF production is less than or equal to 5 million pounds (52 FR 42539); EPA did not establish different PSES for any sector of indirect dischargers (52 FR 42548).

At promulgation in 1987, the Agency projected that 79 percent of the small direct discharging plants would be affected by plant or product line closures or profit or sales impacts; for today's rule, 77 percent of the small direct discharging plants are projected to be affected.

At promulgation in 1987, 61 percent of the small indirect discharging plants were projected to be affected; for today's rule, 63 percent of the small indirect discharging plants are projected to be affected by plant or product line closures or profit or sales impacts.

These plant impacts on small direct and indirect dischargers are not significantly different from the impacts evaluated for the 1987 final rule, and the basis for establishing BAT and PSES, as presented in the 1987 final

rule, is unchanged by the revised economic analysis. Thus, there is no change in the small plant analysis findings.

F. Cost-Effectiveness Analysis

EPA conducted a cost-effectiveness analysis for the 1987 final rule and reported the results in the preamble and in supporting documents. EPA's cost-effectiveness analysis compares the incremental cost of a control option (in 1981 dollars) to the pounds of pollutants removed by the control option, where those pounds are weighted by their relative toxicity. Additional descriptions of the cost-effectiveness methodology are found in the preamble to the 1987 final rule (52 FR 42552) and in a document included in the administrative record for that rule: "Cost-Effectiveness Analysis for the Organic Chemicals, Plastics, and Synthetic Fibers Industry," September 1987 (R. Sec. VI–11, pp 5155 to 98).

For today's final rule, EPA recalculated the cost-effectiveness ratios for BAT and PSES using the revised compliance costs and revised pollutant removal data to account for the exclusion of phenol and 2,4-dimethylphenol in the final pretreatment standards. The cost-effectiveness of the OCPSF BAT limitations, as amended, is $4 per pound equivalent removed. The cost-effectiveness of the OCPSF PSES standards, as amended, is $39 per pound equivalent removed.

The cost-effectiveness of the BAT limitations as amended is virtually the same as the result reported for the 1987 final rule. The notice of proposed rulemaking in December 1991 stated that as part of the assessment for publishing the final rule, EPA would consider the cost-effectiveness ratio of BAT Subpart J (56 FR 63905). The result of that calculation is a cost-effectiveness ratio of $6 per pound equivalent removed for the final BAT limitations for Subpart J direct dischargers. The cost-effectiveness ratio for Subpart I direct dischargers is, when examined separately, $4 per pound equivalent removed.

The cost-effectiveness ratio of PSES, as amended, is $39 per pound equivalent removed; this result is comparable to the $38 cost-effectiveness ratio reported in the December 1991 proposal. The result reported for the 1987 final rule was $34 per pound equivalent removed. The cost-effectiveness of PSES as amended is not significantly different from the cost-effectiveness of PSES as originally promulgated.

VI. Correction of Criteria for Designating "Metal-" and "Cyanide-Bearing" Waste Streams

To control chromium, copper, lead, nickel, zinc, and total cyanide, the 1987 OCPSF guideline established concentration-based limitations that apply only to metal-bearing or cyanide-bearing waste streams. Other waste streams have a zero discharge allowance for these pollutants. EPA listed the product/processes considered to have metal-bearing or cyanide-bearing process wastewater in Appendix A of the regulation. However, EPA recognized that at some sites process wastewaters not listed in Appendix A may contain significant levels of metals or cyanide. In such cases, EPA intended for the regulations to authorize the permit writer or control authority to designate such waste streams as "metal-bearing" or "cyanide-bearing" on a case-by-case basis and to apply the concentration limitations set forth in the regulation to these waste streams.

The 1987 final regulation included language intended to require separate treatment of Appendix A waste streams and waste streams designated as metal-bearing or cyanide-bearing on a case-by-case basis, unless combination of such waste streams prior to treatment would result in substantial reduction of the metals or cyanide contained in the waste streams. The requirement was intended to prevent facilities from combining waste streams containing different metals prior to treatment, thereby complying, in whole or in part, with the promulgated limits through dilution rather than through treatment. However, as promulgated, the regulation incorrectly provided that a non-Appendix A waste stream, even if it contained significant quantities of metals or cyanide, could not be designated as metal-bearing or cyanide-bearing unless the combination of such waste stream with an Appendix A waste stream prior to treatment would result in substantial reduction of the pollutants. In other words, the prohibition against combined treatment inadvertently appeared as an independent restriction on the designation of non-Appendix A waste streams as "metal-bearing" or "cyanide-bearing," rather than a restriction on how those streams must be treated once they have been determined to be metal- or cyanide-bearing. The Agency did not intend to narrow the scope of waste streams that can be designated as metal- or cyanide-bearing, and intends that any waste streams with significant levels of metals or cyanide should be regulated as metal-bearing or cyanide-bearing, respectively. The Agency is adopting the proposed revision that correctly reflects EPA's intent to restrict combined treatment, rather than to narrow the scope of metal-bearing and cyanide-bearing waste streams.

VII. Nonsubstantive Format Changes

The Agency is adopting the two nonsubstantive formatting changes that were proposed to improve the organization and utility of 40 CFR part 414 (56 FR 63904). First, the Agency is revising the order of the toxic pollutant listings in the regulatory tables to list the limitations and standards alphabetically by pollutant name. Second, the Agency is deleting multiple listings of the same table. With the exception of the footnotes for the zinc pretreatment standards in the tables for §§ 414.25 and 414.35, each of the tables in §§ 414.25, 414.35, 414.45, 414.55, 414.65, 414.75, and 414.85 is identical. To consolidate the regulation, the Agency is adding Subpart K to list the pretreatment standards in one table with introductory text and an appropriate footnote for zinc (identical to Footnote 2 to the table in § 414.101), and deleting the tables of pretreatment standards and a portion of their introductory text from §§ 414.25, 414.35, 414.45, 414.55, 414.65, 414.75, and 414.85. Appropriate references to Subpart K are replacing the tables in §§ 414.25, 414.35, 414.45, 414.55, 414.65, 414.75, and 414.85. EPA is making corresponding changes to §§ 414.26, 414.36, 414.46, 414.56, 414.66, 414.76, and 414.86, so that both the PSES and PSNS regulations correctly refer to the consolidated table, rather than to the former, separate tables.

VIII. Public Participation and Summary of Selected Responses

The Agency received comments from 28 separate commenters on the December 6, 1991 proposal and January 21, 1992 extension of the comment period. These included three trade associations, two POTWs, 22 individual companies, and NRDC. The Agency received comments from 26 separate commenters on the December 1, 1992 NOA. These included four trade associations, four POTWs, the City of Philadelphia, and 17 individual companies.

The Agency's responses to comments are contained in the "Comment Summary and Response" section of the rulemaking docket. This section presents the Agency's responses to the principal comments relating to the remand issues. In addition, this section provides guidance in response to two

general OCPSF implementation issues raised in the public comments.

A. Scope of the Remand

Contrary to the assertions of CMA and other commenters (including ICI Americas, Inc., the Eastman Chemical Company (Kodak), Union Camp Corporation, and Allied-Signal, Inc.), EPA believes it correctly interpreted the Fifth Circuit's remand as limited to the re-costing of in-plant biological treatment systems based on the detention times used by the end-of-pipe systems on which the Subpart J limitations and corresponding pretreatment standards were based, and to the land availability issues associated with the larger systems EPA has costed (56 FR at 63903). The Court originally upheld the limits based on in-plant biological treatment, rejecting all of CMA's and other petitioners' arguments and concluding that the petitioners "have failed to demonstrate that end-of-pipe biological treatment systems are *sufficiently different* to make EPA's reliance on end-of-pipe data irrational" (*CMA* v. *EPA*, 870 F.2d at 240 (emphasis added)). As explained in Section V.A., above, the Court remanded 19 of the 20 BAT Subpart J limits on rehearing, based on the fact that the two plants used to derive those 19 limits had treatment systems with detention times that were significantly longer than the detention times of the model in-plant systems costed by EPA (*CMA* v. *EPA*, 885 F.2d at 265). The Court concluded that EPA had not adequately demonstrated that variation of other features of a plant's biological treatment system, such as the concentration of biodegrading organisms (MLVSS), could compensate for the shorter detention times. On this basis, the Court concluded that EPA "failed to demonstrate a reasonable basis for its conclusion that in-plant treatment can eliminate pollutants as effectively as the end-of-pipe systems of Plants 1293T and 948F [the two plants with the long-detention-time treatment systems]" (*id.*). EPA has fully addressed the remand by recosting the limits in question by projecting the cost of installing in-plant biological systems with the same detention times as the end-of-pipe systems on which the limits were based.

The commenters argue that the Court's remand requires a broader examination and demonstration of the technical achievability of the limits. First, they point out that the Court's remand language was not expressly limited to cost, but rather stated that EPA "failed to demonstrate" that in-plant biological treatment systems "can remove pollutants as effectively as the end-of-pipe systems of Plants 1293T and 948F" (*see, e.g.*, CMA comment at 15). The commenters thus conclude that the Court's remand re-opened the general issue of whether EPA rationally relied on data from end-of-pipe biological treatment systems to establish limits for which the model treatment technology is in-plant biological treatment (*id.* at 16). Commenters raise numerous arguments related to the technical achievability of the limits generally, focusing largely on purported differences between the in-plant model technology and the end-of-pipe systems on which the limits are based, and on the purported differences between in-plant and end-of-pipe waste streams (*see, e.g., id.* at 16–38).

The commenters' reading of the remand is wrong. The Court remanded only the limitations based on the two plants with the end-of-pipe treatment systems that had significantly longer detention times (3.5 and 17.2 days) than the model systems costed by EPA. The Court left in place the limitations for acrylonitrile, which were based on the end-of-pipe biological treatment system with the shorter detention time (1.6-day) that was within the range of detention times (1–2.1 days) used to estimate the cost of compliance for the model treatment systems (885 F.2d at 253; *see also* January 3, 1990 Settlement Agreement between CMA and EPA (agreeing that remand left in place limitations for acrylonitrile)). Had the Court generally rejected EPA's approach of establishing limits based on end-of-pipe treatment systems, it would have remanded all of the Subpart J limits and analogous pretreatment standards. It is clear from the scope of the remand and the Court's discussion that it remanded the 19 Subpart J limits and 13 analogous PSES standards based solely on the discrepancy in detention times between the costed model treatment systems and the two end-of-pipe systems. That is to say, the Court concluded that EPA had not demonstrated the achievability of the limits only in the sense that EPA had not demonstrated that the short-detention-time systems it costed could achieve the same removals as the longer-detention-time systems on which it based the limits. The Court's remand based on the limited issue of detention time did not otherwise negate its earlier determination that in-plant and end-of-pipe systems were not "sufficiently different" to make EPA's approach irrational (870 F.2d at 240). By recosting the model in-plant technology based on the longer detention times employed at Plants 1293T and 948F, EPA has fully addressed the only basis for the remand.

CMA in addition argues that the Court's remand should be interpreted as re-opening the technical achievability of the limits generally on the ground that CMA's challenges to the limits in comments during the original OCPSF rulemaking and in litigation raised issues relating to technical achievability generally (CMA Comments at 13–15). CMA points out, among other things, that it cited in litigation a number of concerns regarding the feasibility and effectiveness of in-plant biological treatment (*id.* at 13). However, the scope of the Court's remand, of course, is determined by the Court's decision, not by the issues raised by the litigants. The Court considered CMA's arguments and rejected them on the grounds that in-plant and end-of-pipe biological systems are not appreciably different (270 F.2d at 240). On reconsideration, the Court remanded the limits based solely on the discrepancy in detention times (285 F.2d at 265). It is clear that, aside from this single issue, the Court considered and rejected the range of arguments raised by CMA.

CMA and a number of other commenters raise essentially the same achievability arguments in this rulemaking as they had raised in their challenge to the 1987 OCPSF guideline. In addition to pointing out the discrepancy in detention times between the costed and the end-of-pipe systems, CMA argued extensively before the Fifth Circuit that the end-of-pipe systems involved more extensive treatment (including pre- and post-biological treatment and equalization for flow and concentration) than the costed system (e.g., CMA Brief at 51–60), and that the influent to in-plant biological systems would have different characteristics (specifically, that it would have higher influent concentrations) than the influent to end-of-pipe systems (CMA Reply brief at 58 n.108, 62 n.13).

In addition, CMA and other commenters raise in comments now the same kinds of costing issues arising from their technical critique as they did in their challenge to the 1987 OCPSF guideline (*see, e.g.*, CMA Brief at 56 n.94, CMA Reply Brief at 61 n.112 (EPA has grossly underestimated cost of compliance and economic impacts because it did not cost sufficiently extensive treatment systems)). These issues have been litigated and decided in EPA's favor, and were not re-opened by the Court's remand. Rather, the issues opened by the remand are whether EPA has accurately re-costed the model in-plant technology to reflect the longer detention times assigned to the plants and whether EPA has

adequately accounted for land availability.

EPA has exhaustively addressed the technical and related costing issues raised by the commenters during the OCPSF rulemaking and litigation. Nevertheless, EPA has again addressed these issues raised by CMA and other commenters in the response to comments document accompanying today's rule, but it does not thereby concede that the issues raised are within the scope of the Court's remand or waive its position that the issues addressed are not open to further challenge in future litigation (*see Natural Resources Defense Council, Inc.* v. *Thomas*, 838 F.2d 1224, 1252 (D.C. Cir. 1988)).

B. Appropriate Technology Basis for New Source Standards

NRDC in its comments challenges the sufficiency of EPA's response to the Court's remand of NSPS. Contrary to NRDC's suggestion, EPA did take a "hard look" at the practicability of imposing a zero discharge NSPS and concluded that the administrative record for the guideline does not support recycle as a demonstrated technology for the promulgation of a technology-based NSPS zero discharge standard within the OCPSF industry. Simply put, recycle of wastewater is not a zero discharge technology. It is a water conservation method that may be implemented on a plant-by-plant basis—and is widely used in the OCPSF industry—but rarely, if ever, results in zero discharge.

EPA thoroughly reviewed its database and performed a detailed technical analysis of the potential candidates for zero discharge standards, and identified only three products—out of 25,000 in the industry—that held the potential to achieve zero discharge based on total recycle of process wastewater. (Technically, even for these products, EPA does not believe that zero discharge can be based on recycle *alone* since, as explained in the proposal, wastewater that is vacuum stripped from the reaction vessels must be partially evaporated before it can be recycled back to the reaction vessel (56 FR 63909)). As EPA explained, the record does not disclose the means actually employed to achieve zero discharge at the plants reporting zero discharge for these products (*id.*). Thus, even for these three products, EPA does not have a technical basis to impose a zero discharge NSPS.

Overall, NRDC faults EPA for not undertaking a major new data collection and technical development effort in response to the remand. The commenter argues that EPA improperly rejected the imposition of zero discharge NSPS on the ground that it was impracticable for EPA to develop such standards, whereas the proper inquiry, they assert, is the practicability to the industry of achieving zero discharge. However, NRDC ignores EPA's point that, within the OCPSF industry, recycle is not a "technology" that can be applied across a range of OCPSF production, but, rather, is the result of a range of water use practices and process modifications that are practicable to a greater or lesser extent for individual product/processes (56 FR at 63907).[1] Recycle can be broadly divided between general water conservation practices—such as recycle of vent or air scrubber water—and recycle of water that is actually used in or generated from chemical reactions at a plant. This latter category can be further divided into recycle within individual processes and recycle of combined waste streams back into one or more processes (*id.*). Water in the first category is generally used to remove a substance from a medium, e.g., in an air pollution control device, to remove hydrochloric acid from the emissions from a reactor vessel. This type of recycle never results in zero discharge because the recycled water becomes progressively more saturated with the by-products or contaminants it is removing and must be released through a "blowdown" and replaced by clean water in order to perform its function (*id.*). The frequency of blowdown and quantity released is highly dependent on the specific process and the function of the water.

The second general category of recycle will seldom, and only under plant-specific circumstances, achieve zero discharge. Wastewater virtually always contains contaminants that, except in very rare cases, will prevent complete recycle (*id.* at 63908–09). As water is recycled, it becomes progressively more contaminated and, in almost all circumstances the Agency is aware of, will have to be released and replaced periodically or progressively. The extent to which recycle can be employed, and the frequency and quantity of discharge, will vary greatly from one product/process to another, depending on the types and amounts of contaminants in the wastewater, the sensitivity of the product/process to contamination, the grade of product required by a manufacturer's customers (the more contaminated the water input to a process, the lower the grade product that will be produced), and other factors (*id.*)

In general, OCPSF products are produced through chemical reactions in reaction vessels that are carefully maintained to maximize production of the desired product. Chemical processes almost never convert 100 percent of raw materials into the desired product; they inevitably result in the manufacture of by-products because there are a variety of "reaction pathways" which result in a variety of outputs of the chemical reaction. Depending on the nature of the by-products produced and a given facility's operations, the facility may be able to use some of the by-products in other processes or sell them; some of the by-products may need to be disposed of. In order to minimize production of undesirable by-products, as well as low grade products and "off-spec" products that may require disposal, OCPSF facilities typically "fine tune" the operations of reaction vessels by controlling the purity of raw material inputs, the physical condition of the chemical species (gas, liquid, or solid state), method of adding and mixing the reactants, temperature, pressure, the mix and quantities of solvents and catalysts, and the configuration of the process equipment. The appropriate balance of these factors will favor a particular reaction pathway and maximize the conversion of the raw materials into the desired product, thus minimizing the amount of raw material that is wasted or used inefficiently by being converted into undesirable by-products.

The chemical reactions used to produce the 25,000 OCPSF products are extremely complex and varied, and the complexity increases as the purity of the raw material inputs decreases (e.g., through recycle of concentrated, contaminated wastewater). The addition of impurities can affect chemical processes in ways that are difficult to predict. As explained in the proposal, the attempt to develop a zero discharge NSPS would require a detailed study and technical development effort on a product/process-by-product/process basis to determine the feasibility and effects of wastewater recycle. This type of major research and development effort is far beyond the scope of what EPA can practicably accomplish, and far beyond the inquiry into available technologies that EPA has taken in past guideline development efforts.

[1] In this respect, EPA disagrees with industry commenters who suggested that total recycle is not demonstrated because it is used by only 0.012% of the industry, e.g., CMA at 52. The application of a technology by a single industry plant, or even a pilot plant, might well provide a demonstrated basis for NSPS. EPA has concluded that total recycle is not demonstrated not simply because there are so few examples of it, but because the few examples are not transferable to the manufacture of other products.

Moreover, virtually all chemical reactions will reach a tolerance level for accumulated contaminants in recycled wastewater and will require a discharge at some point, unless the contaminated water can periodically be incorporated directly into the facility's product. This will result in lower grade product, and the ability of individual facilities to do this will depend on customer demands. Since most OCPSF products are sold as intermediate products that will in turn be part of the raw material for a consumer product, customer demands vary greatly, depending on the purity of the raw material needed for the manufacture of the consumer product. In addition, although it is possible that individual facilities may be able to adjust other variables in their chemical processes to compensate to some extent for increased impurity from recycled wastewater, these adjustments would be highly facility-specific and would likely not reduce the production of by-products and/or off-spec products to the levels that could be achieved without the added contamination from the recycled wastewater. Some of the resulting by-product and off-spec product would likely be hazardous and require treatment and disposal under Subtitle C of the Resource Conservation and Recovery Act. Again, even if zero discharge were attainable, the extent to which the imposition of a zero discharge standard would result in non-water quality environmental impacts, and how those impacts would compare to the reduction of pollutant loadings to receiving waters, could only be evaluated on a product/process-by-product/process basis. (*See* Rohm and Haas Co. Comment at 2 (identifying non-water quality impacts that could result from total recycle, including impacts from increased use of solvents to replace water in cleaning operations and energy consumption resulting from evaporation or off-site transfer of wastewater, as well as from increased production of off-grade material requiring disposal)).

In the case of the three products identified in EPA's technical analysis as potential zero discharge candidates—melamine, phenolic, and urea resin—water that is produced in the process can be removed, partially evaporated to raise the concentration of raw materials, and reintroduced to the reactor vessel (56 FR 63909). (Again, even for these products, zero discharge is not achievable through recycle alone, but requires an evaporation step.) Even in this situation, the concentration of contaminants in the water will build as it is recycled and evaporated, and the need to discharge (or otherwise dispose of) the wastewater could be eliminated only if the partially-evaporated water or "syrup" could be periodically incorporated directly into the facility's product (*id.*). This incorporation would result in lower grade product (which may or may not be saleable, depending on customer demands), and possibly off-spec product that would have to be disposed of. Therefore, EPA does *not* consider these products to be good candidates for a national zero discharge standard; rather, they are the only products EPA is aware of that appear to hold the potential to achieve zero discharge through "total" recycle under particular circumstances. Moreover, EPA believes that the potential for these products to be manufactured without wastewater discharge based on total recycle is limited by the unique process chemistry involved and would not be transferable to other industry product/processes (*id.* at 63909).

In addition, even if EPA were to study the plants that reported zero discharge based on recycle for these products, the most EPA could do would be to develop a technical basis for a zero discharge standard for the particular chemical processes employed by these plants to produce these products. The three products in question are produced through a variety of processes. The OCPSF rulemaking record identified six reaction pathways or process routes for the manufacture of melamine resins, eight process routes for urea resin manufacture, and 14 process routes for the manufacture of phenolic resins. With respect to new sources, this list of processes is almost certainly not a comprehensive list of possible processes; there are numerous ways to make most OCPSF products, and companies often choose or develop specific processes to maximize the use and re-use of raw materials and to respond to customer specifications. For example, a company may produce a product through a process that creates a by-product that can be used as an input for the manufacture of another product; the use of this by-product as an input would dictate the range of process options for production of the second product. Similarly, a plant may choose to employ a particular process to make a given product because the process creates a by-product that the plant can sell or use in another process. The development of new, valuable products through the beneficial use of by-products has been characteristic of the development of the OCPSF industry in this century (1983 DD, pp III–1 to 2).

Each of the processes used to manufacture the three candidate resins differs significantly in terms of the raw material inputs to the reaction vessels, and likely differs significantly in terms of other variables associated with reactor vessel conditions. Even if EPA could determine that zero discharge was demonstrated for a particular process used to manufacture urea resin for example, that would not demonstrate that the manufacture of the same product through a different chemical process could achieve zero discharge, and would not provide the technology basis to impose a zero discharge standard on new plants using different processes to manufacture urea resin. It is entirely possible that no new plant will ever manufacture any of the three candidate products through the specific processes used by the plants identified in EPA's database. For EPA to go further and impose a zero discharge standard on manufacture of the product itself, without regard to process, would likely significantly constrict the manufacturing options open to future plants. EPA would be extremely reluctant to do this, given the flexibility that has characterized the development of the OCPSF industry and the inability to project the impacts of such a constriction, including non-water quality environmental impacts.

Kodak supports EPA's conclusions. Kodak states that the principal technical constraints on complete recycling include product specifications that require the use of very pure water, chemical reactions that generate water, and the need to eliminate from the water recycle loop trace contaminants that accumulate to undesirable concentrations when water is continually recycled and evaporation concentrates the contaminants. Kodak also notes that very few chemical processes share the necessary characteristics that might permit total recycle of wastewater—" * * * processes where any process wastewater and associated contaminants can be contained in the products and byproducts without infringing on product quality, and * * * processes in which all excess process water is evaporated * * * " (Kodak Comments at 3–4).

CMA in its comments also states, "The need for blowdown (a wastewater discharge) is characteristic of all recycle processes—accumulation of contaminants present in the process feedstocks and catalysts, generated by the chemical reactions, or brought in with the makeup water will eventually accumulate to unacceptable levels and adversely affect the product. The only time a process is truly zero discharge is when the blowdown is accomplished by

letting contaminants leave with the products. For basic organic chemicals, plastics, and synthetic fibers, this is rarely an acceptable approach" (CMA Comments at 50).

EPA cannot rule out the possibility that the manufacture of one or more of the remaining 25,000 products in the industry could achieve zero discharge through recycle, but EPA believes the number would be very small and the investment in resources to develop the technology basis would be enormous. As explained, it would require a detailed technical study of individual product/processes, treating separate product/processes as separate subcategories, and then determining the feasibility of total recycle and establishing design and operating parameters for each subcategory (56 FR 63906–07). EPA rejected this product/process-by-product/process approach as unworkable in the 1983 proposal that formed the basis for the entire OCPSF regulation, deciding to regulate the OCPSF industry through concentration-based rather than mass-based limits due to the complexity and variable production within the industry (*id.* at 63907). EPA recognized at the time that the concentration-based approach involved a trade-off, permitting broader industry coverage but diminishing the opportunity to promote recycle on a national level. This diminished opportunity arises because the concentration-based approach does not focus on specific product/processes but regulates through end-of-pipe limits imposed on broad, general subcategories of production (*id.*). EPA concluded at the time, and continues to believe, that the attempt to regulate the OCPSF industry through the analysis and regulation of individual product/processes is simply infeasible.

As EPA has explained, the concentration-based approach did not mean that recycling and reuse of wastewater would not be encouraged at individual plants. Rather, the guideline is structured so that recycling and reuse evaluations will be made on a facility-by-facility basis (which is the only way they can be made) by the permit writer or control authority, rather than through the national guideline (*id.*). In both the Development Document accompanying the final OCPSF guideline and in subsequent guidance, EPA provided guidance to permit writers in using flow reduction as the basis to set permit limits (*id.*). Elsewhere in today's preamble, EPA discusses this guidance further and urges permit writers to carefully evaluate the opportunities for wastewater recycle and reuse at individual plants.

EPA believes the detailed technical review it has performed fully complies with the Fifth Circuit's remand and the Clean Water Act. EPA developed a 600,000-page record for the OCPSF rule and, based on this record, has determined that the potential opportunity for total recycle in the OCPSF industry is extremely limited.[2] In this situation, EPA believes it has discretion to determine the utility of undertaking extensive additional data collection and technical analyses and, in this sense, believes it is appropriate to consider the "practicability" to the Agency of developing the technology bases for zero discharge standards. The Fifth Circuit, based upon its understanding of the OCPSF administrative record, ordered EPA to reconsider the appropriateness of zero discharge standards through recycling. EPA has done that and does not believe the remand imposed an obligation to undertake significant new data collection and analysis where, based on its review of the administrative record, EPA does not believe that a zero discharge standard based on recycle would be feasible for more than a few of the product/processes in the OCPSF industry. *See CMA* v. *EPA*, 870 F.2d at 209 (upholding EPA determination not to establish BPT limitations based on polishing ponds following biological treatment where EPA determined that, although 17 plants successfully employed ponds, the experience of these plants could not be transferred to other plants in the OCPSF industry due to the diversity of OCPSF wastewater characteristics).

C. Appropriate BAT Subcategorization

In its comments, NRDC argues that EPA's establishment of the BAT subcategorization scheme violates the Clean Water Act because it allows the discharger to choose the technology basis for the BAT limitations based on whether the discharger installs end-of-pipe biological treatment to comply with the BPT limitations. EPA disagrees. As a general matter, NRDC is correct in stating that it is EPA's responsibility to identify the best available technology and to establish limitations based on its application. However, as EPA explained in its proposal, the Agency concluded that it was not feasible, necessary or desirable to eliminate or limit the applicability of the Subpart J, non-end-of-pipe biological treatment subcategory. Based upon these determinations, as described in the proposal and below, EPA believes the subcategorization scheme represents the best approach for the OCPSF industry and is a lawful application of EPA's discretion in selecting BAT. EPA does not believe the Clean Water Act requires the Agency to develop a scheme which is not technically defensible and which would create undesirable treatment incentives within the regulated community.

NRDC identifies three alternatives to the present scheme that it considers valid. Each is addressed in turn.

1. BOD Floor

First, as explained above in Section IV, NRDC suggests that EPA should develop a BOD "floor" (i.e., a minimum BOD level) to limit the applicability of Subpart J. However, as EPA explained in the proposal, the development of a floor is technically infeasible due to the lack of a theoretical minimum BOD level for sustaining biological treatment and the great variability of OCPSF production and wastewater characteristics.

EPA received a number of comments supporting its conclusion that it would be infeasible to establish a BOD floor for the OCPSF industry. CMA points out that there are a number of factors that affect a plant's ability to operate a biological treatment system effectively, including not only the plant's BOD load but also the variability of the plant's waste concentration, wastewater flows, and chemical composition and treatability (CMA Comments at 9). The Synthetic Organic Chemicals Manufacturing Association (SOCMA) states that, even though it may be theoretically possible to establish a BOD floor under steady-state laboratory conditions for a particular waste stream, it would be futile to try to establish cutoffs for the large number of full scale production facilities in the highly complex and diverse OCPSF industry (SOCMA Comments at 11). The Society of the Plastics Industry (SPI) agrees with EPA's view, presented in the proposal, that process streams in the OCPSF industry "may change frequently and dramatically" (SPI Comments at 2).

EPA continues to believe that the complexity of the industry and the frequent changes in production and wastewater characteristics, as described in the proposal and in comments, make

[2] EPA notes that the 1987 Development Document accompanying the final OCPSF guideline stated that "[r]ecycling systems can achieve significant pollutant load reductions or zero discharge at relatively low cost," at VII–6. Based on EPA's comprehensive re-evaluation of the OCPSF record and technical analysis in response to the remand, this statement is incorrect. Recycle is widely practiced in the industry and, depending on individual plant processes and configurations, can achieve significant pollutant load reductions. However, recycle alone, except in very limited circumstances, does not achieve zero discharge.

it infeasible to establish a BOD floor for the operation of biological treatment systems. While a given plant may be able to operate a biological system at a given long-term average BOD level, that does not assure that another plant with the same long-term average BOD level, but with a different waste stream composition or varying BOD levels, will also be able to operate a biological system.

The feasibility of establishing a floor is further limited by the complexity of the OCPSF industry and EPA's consequent inability to develop a detailed knowledge of the production practices and other factors affecting wastewater treatment at each OCPSF plant. In the face of this complexity, EPA based the OCPSF guidelines on a number of simplifying assumptions and conclusions (see, e.g., 56 FR at 63901). For example, in view of the fundamental, delicate inter-relationships among conventional, toxic, and non-conventional pollutant controls, EPA developed a scheme under which it recognized that different plants would exercise discretion to adopt plant-specific treatment configurations in order to comply with the promulgated BPT and BAT limits (*id.* at 62901–02). Without a more detailed working knowledge of individual plants, which would be extraordinarily difficult to develop, the establishment of a BOD floor or series of floors that would require plants to install end-of-pipe biological treatment systems would likely interfere with the comprehensive waste management systems that have been appropriately instituted at individual plants.

Moreover, as EPA explained in the proposal, the Agency does not believe it is necessary to establish a BOD floor because plants that need to achieve significant BOD reductions will generally be motivated by economic considerations to install biological treatment over the more costly alternatives. In addition, as explained in the proposal, the existence of Subpart J will not result in significantly increased discharges of pollutants to the environment over Subpart I. Based on EPA's 1991 survey of the 84 direct discharge plants that did not have end-of-pipe biological treatment at the time of promulgation of the OCPSF guideline, EPA concluded that 47 of the plants have not installed biological treatment to comply with the OCPSF guideline (April 26, 1991 memorandum to the December 6, 1991 Public Record: "Current Status of Direct Non-Biological Facilities," R.00365–428). (This is more than the 23 plants projected at OCPSF promulgation to comply without installing biological treatment.) The maximum projected increased loadings of the OCPSF-regulated toxic pollutants to receiving waters associated with these plants' complying with Subpart J rather than Subpart I is estimated to be 2,471 lbs/yr for the 47 plants that have not installed end-of-pipe biological treatment as of April 1991. These estimates are lower than the comparable estimates presented at proposal because they account for the incidental removals of the four pollutants that are not regulated under Subpart J (the proposal noted that the estimates presented were high because incidental removals were not accounted for (56 FR at 63901)). These pollutants appear in waste streams with other pollutants that are regulated by Subpart J limits based on in-plant biological and/or activated carbon treatment, and are incidentally removed by these technologies (April 29, 1993 memorandum to the OCPSF Public Record "Toxic Pollutant Loadings for the 47 Projected Subpart J Plants). (The total estimated industry loadings (before BAT and PSES) are 24,166,480 lbs/yr; projected loadings after compliance are 571,723 lbs/yr, 56 FR at 63901.) In addition, as explained in the proposal 1,188 lbs/yr (48 percent) of the additional removals accomplished by Subpart I are projected to result from volatilization of the pollutants into the air during end-of-pipe biological treatment.

In addition, EPA believes that a BOD floor would be undesirable in that it would likely result in irrational and undesirable wastewater treatment and waste management decisions. In particular, as explained in the proposal, EPA is concerned that plants that would otherwise be able to control BOD and TSS levels, and thereby comply with BPT, through in-plant product and by-product recovery or other source control measures would eliminate or otherwise reduce the effectiveness of these in-plant controls in order to ensure sufficient organic matter to operate a biological system, or to operate such a system in a cost-effective fashion. Even if a BOD floor could be developed, e.g., based on raw waste BOD load, such a structure would create incentives to maximize BOD at the end-of-pipe. One of the distinguishing features of the OCPSF industry, noted throughout EPA's development of the OCPSF guideline, is the variability of wastewater characteristics at individual plants, including BOD levels, and the need for plants to take protective measures to ensure stable, healthy populations of microorganisms to biodegrade the organic pollutants in their waste streams (e.g., 56 FR at 63900). Plants that are required to comply with BAT limits most readily achieved through end-of-pipe biological treatment will often have the incentive to maximize end-of-pipe BOD levels to assure consistently adequate BOD levels to sustain biological treatment in the face of variability.

In-plant source controls can recover valuable manufacturing by-products (thus eliminating these by-products as wastes), reduce or eliminate waste streams, reduce in-plant and end-of-pipe treatment costs, and reduce or eliminate pollutants inhibitory or not amenable to end-of-pipe treatment systems. Process modifications, improved instrumentation, added operator training, and solvent recovery as well as water reuse, recovery, and recycle are the first considerations in the waste management and wastewater treatment process (Proposal "Development Document for Effluent Limitations Guidelines and Standards for the Organic Chemicals and Plastics and Synthetic Fibers Point Source Category," (EPA 440/1–83/009–b), February 1983 (hereafter referred to as 1983 DD, Vol. I pp 119 to 122, Vol II pp VII–1 to 2; 1987 DD pp VII–1 to 10). Simple good housekeeping, such as proper maintenance and clean-up practices, contribute to reduced pollutant loadings. In addition to these water use techniques and best management practices, certain in-plant treatment techniques, such as steam stripping, recover valuable products and effectively eliminate pollutants from a plant's waste stream.

EPA believes these in-plant waste management practices are generally preferable to the alternative of letting pollutants remain in the waste stream to be removed by end-of-pipe treatment. In the 1983 OCPSF proposal, EPA discussed the advantages of a regulatory scheme that focuses on in-plant controls rather than end-of-pipe treatment: "Such an emphasis would result in a reduction of the overall pollutant release through various environmental media that might otherwise occur through a heavier reliance on end-of-pipe biological treatment. For example, biological treatment can, in some instances, cause the transfer of some volatile organic pollutants from the wastewater to the air, and the adsorption of some other organic pollutants, as well as metals, to the biological sludge, which is then disposed of through methods which may affect other media. While some in-plant physical/chemical controls may similarly transfer pollutants to other media * * *, other in-plant controls

and treatments return at least some pollutants to the process, thereby minimizing total environmental releases" (48 FR 11838; March 21, 1983).

In addition, the reduction of pollution or treatment of pollution in concentrated waste streams close to the process source is more efficient and often less energy-intensive than end-of-pipe biological treatment of combined waste streams (which is a relatively energy-intensive treatment method), and EPA intended under the OCPSF guideline that plant managers, who will have a far better working knowledge of the optimal treatment configurations for individual plants than EPA can acquire, have the discretion to weigh such factors. EPA is reluctant to establish a scheme that discourages plants from doing what it would otherwise encourage them to do, which is to reduce pollutants at the source, recycle waste streams to the extent practicable, or treat pollutants close to the source when that is the most efficient treatment alternative. SOCMA, in its comments, at 12, raises a similar concern, stating that limitation of Subpart J would prevent dischargers from selecting alternative in-plant controls and techniques such as recycling, waste reduction and material recovery.

EPA is especially reluctant to change the structure of the OCPSF guideline as suggested by NRDC at this point, more than five years after promulgation. Most plants in the industry are now required to be in compliance with all of the OCPSF limitations and standards including the BPT limits. Many of these plants may not have sufficient BOD levels to operate end-of-pipe biological treatment systems. Compliance with the OCPSF subcategorical "maximum for monthly average" and "maximum for any one day" BOD limitations requires plants to achieve long-term annual-average BOD effluent levels ranging from 12 to 41 mg/l depending on the subcategory or subcategory mix for any plant (12 mg/l BOD for Other Fibers, 16 for Rayon and Thermoplastics, 20 for Commodity Organics, 23 for Bulk Organics, 30 for Specialty Organics, and 41 for Thermoplastics; p VII–176, Vol. I, 1987 DD). These levels are below the levels for which the Agency has data demonstrating the feasibility of biological treatment. The OCPSF record has BOD data for 98 plants with end-of-pipe biological treatment. The influent long-term average BOD levels for these plants ranged from 60 mg/l (a single plant) to 9,420 mg/l, with only 12 plants below 125 mg/l. (The Agency's field sampling efforts identified one additional plant with a two-week average influent value of 37 mg/l, but this value may not be representative of the plant's long-term average influent BOD concentration.) Thus, plants that have achieved compliance with BPT without the use of end-of-pipe biological treatment would likely have to (and, in any event, would likely have the incentive to) eliminate the in-plant source controls and/or cease operation of the in-plant treatment systems they have installed in order to elevate their BOD levels. EPA does not believe this is a rational regulatory result.

NRDC suggests, based on the OCPSF record, that even in instances of low BOD levels, nutrient addition, pure oxygen, or extended aeration could be used to operate end-of-pipe biological treatment systems. However, as EPA explained in the December 1991 proposal, these practices are not generally applicable substitutes for sufficient BOD to sustain biological treatment. In their comments, CMA, at pp 11–12, and Ashland Chemical, at p 3, agree. The several brief references identified by NRDC to practices used in the OCPSF industry, out of the 600,000-page OCPSF record, do not provide a basis to treat these techniques as "available technologies" on which EPA could base limits.

EPA agrees with CMA's assessment that the pure oxygen variation of activated sludge biological treatment offers no particular advantages because it is not used to treat *low*-strength (i.e., low BOD) wastewaters (CMA Comments at 11). The pure oxygen activated sludge variation generally treats widely fluctuating organic loadings and *high*-strength wastewaters more effectively than "standard" activated sludge designs. CMA also notes that high oxygen transfer rates in the aeration basins due to the use of pure oxygen assure that sufficient oxygen is available for biological removal of organics with high biomass populations. However, high biomass concentrations can only be achieved when ample biodegradable organic compounds (BOD) are available in the wastewater. Pure oxygen activated sludge treatment is not a solution for biological treatment of wastewater with low raw waste BOD concentrations.

In the case of extended aeration, which is a variation of the complete mix activated sludge design, low organic loadings and long aeration times permit more complete wastewater degradation and partial aerobic digestion of the microorganisms (p VII–63, Vol. I, 1987 DD). However, as CMA also notes, effective extended aeration operation requires a wastewater with sufficient organic substrate to form a biomass that can be flocculated and kept in the treatment system for extended periods of time. Wastes with low BOD may not generate enough biomass that can be settled from the treated effluent by gravity and recycled to the aeration basin. In the case of insufficient raw waste BOD, the biological solids would wash out of the system, and extended aeration operation would not work. (CMA comment at 12). Extended aeration treatment is not a substitute for an adequate BOD level, and, as discussed above, whether an extended aeration system or any other type of biological system were used, the BOD level that would be sufficient to sustain biological treatment would vary from plant to plant.

NRDC also misunderstands the function and purpose of "nutrient addition." As generally practiced in the OCPSF industry, nutrient addition is the process of adding nitrogen or phosphorous in a chemically combined form to a waste stream. (p XV–14, Vol. II, 1987 DD) These nutrients are analogous to vitamins; they may help a viable biological system operate optimally, but they are not a substitute for adequate substrate or "food." CMA's comments state that it is possible to add supplemental organic substrate to a treatment system, but this practice is at odds with the purpose of effluent treatment. CMA also correctly observes that the addition of readily biodegradable substrate, such as molasses, to a low strength wastewater does not ensure the growth of an activated sludge that is capable of effectively removing organic toxic pollutants. The biomass must be acclimated to the same or similar compounds that must be removed. This may create the need to add toxic pollutants to the wastewater to assure that they can be removed consistently by the treatment system. (CMA Comments at 12.) EPA is not aware that this technique is practiced in the OCPSF industry, and does not encourage it. The Agency believes that the framework of the OCPSF regulation should encourage plants to minimize the overall generation of raw wastes rather than create an incentive to increase the discharge of "biodegradable" compounds to ensure the operation of biological treatment systems.

With respect to these suggested solutions to low BOD levels, NRDC argues that EPA has based its rulemaking on ignorance, and that the Agency was obligated to collect additional information or perform additional technical analyses to evaluate whether nutrient addition or other techniques might be a substitute for low

BOD. EPA disagrees. EPA has evaluated these options, based on the voluminous OCPSF record and on comments received, and does not believe they are viable substitutes for adequate BOD. Rather, they are approaches that, under plant-specific circumstances, can be used to improve the operation of biological treatment systems. EPA does not have an obligation to collect data and perform extensive technical analyses to investigate options that it does not believe provide viable bases for technology-based limits in a national guideline.

More generally, NRDC argues that EPA has performed a "paper review" in response to the Fifth Circuit's remand rather than collecting additional data and performing additional technical analyses regarding the feasibility of establishing a BOD floor. NRDC believes that EPA should have evaluated the plants that have not installed end-of-pipe systems to determine a BOD floor for the subcategory. Again, EPA disagrees. EPA conducted a detailed technical re-evaluation in response to the Court's remand and concluded that the present subcategorization scheme is the best approach for the OCPSF industry; EPA does not believe the establishment of a BOD floor is necessary or desirable.

In addition, EPA does not read into the Fifth Circuit's remand the same requirements as NRDC does. The court remanded the subcategory scheme "for notice-and-comment proceedings," and remarked that such proceedings may disclose that NRDC's suggestions are neither necessary nor feasible (870 F.2d at 236). Prior to publishing the December 1991 proposal, EPA conducted an in-depth review of its OCPSF database, an extensive literature search, and additional pollutant loadings analyses to evaluate NRDC's suggestions. The Agency does not believe that the Court's remand, the Clean Water Act or general principles of administrative law require EPA to collect data and perform extensive additional analyses where, based upon the information before it, the Agency concludes that such efforts are not likely to be valuable.

The Clean Water Act authorizes EPA to consider non-water quality environmental impacts (including energy requirements) and other factors EPA deems appropriate in setting BAT limits. CWA 304(b)(2)(B). EPA believes it has discretion to create a BAT scheme that does not discourage plants from complying with BPT through in-plant source control and treatment, with the potential to recover product and by-product and otherwise to reduce pollution at the source. EPA continues to believe that the current BAT subcategorization scheme is the appropriate scheme for the OCPSF industry.

2. Subcategory Limited to Certain Processes

Alternatively, NRDC argues that EPA should limit subpart J to those processes for which an adequate showing of low-BOD wastewater has been created through industry comments, such as the chlorosolvent industry. NRDC argues that EPA has impermissibly extended subpart J beyond the scope of the comments and data that support it. EPA disagrees. The OCPSF record supports the conclusion that the phenomenon of low BOD levels is not limited to specified industry segments; rather, low BOD wastewater may occur throughout the OCPSF industry. Therefore, EPA believes the availability of subpart J should not be limited to specific industry segments.

As NRDC notes, the specific comments and data during the 1987 OCPSF rulemaking with respect to low BOD levels related principally to the chlorosolvent industry. Nonetheless, EPA had already concluded that the characteristics associated with low BOD levels extended beyond chlorosolvent manufacture to other generic process chemistry and other product/processes. In response to the Halogenated Solvent Industry Alliance 1985 comment that EPA should set separate BAT limitations for stand-alone chlorosolvent production plants because biological treatment methods are not used and would be ineffective if used, EPA declined to establish a subcategory limited strictly to chlorosolvent plants, recognizing that other types of facilities are also expected to have low BOD levels (1987 Public Record comment response No. 254, R103,160).

In 1983, the Agency had studied 46 generic OCPSF process groups and their potential to generate various BOD loadings. The study identified 19 generic processes expected to generate wastewater of relatively low BOD when refractory chemical species predominate in the wastewater and when relatively few chemical species are present in the wastewater (1983 DD, Vol. I, p 63–68). EPA concluded at the time that the manufacture of halogen compounds in general, not just chlorosolvents in particular (chlorosolvents are included among halogen compounds), tend to generate relatively low raw waste BOD levels. Other generic process groups that tend to produce wastewater with the lowest BOD concentrations include alkylation, isomerization, polymerization (bulk & addition), and phosgenation (*id.*). Plants with manufacturing activity limited to these groups generally, but not always, produce wastewater with relatively low BOD concentrations.

Further analysis following the 1983 OCPSF proposal revealed that, although generic process groups provide a rough correlation with raw waste BOD levels, individual product/processes within the generic process groups exhibit widely varying raw waste BOD levels, and generic process groups cannot be confidently classified as "low-BOD" or "high-BOD" raw waste groups. For example, even within the low BOD halogenation group, there is a significant variation of raw wastewater BOD concentrations—chlorobenzene processing averaged 20 mg/l BOD and trichloroethylene averaged 36 mg/l BOD; however, 2-dichloroethane averaged 1,869 mg/l BOD (Appendix S, draft "Contractors Engineering Report Analysis of Organic Chemicals and Plastics/Synthetic Fibers Industries," November 1981, pp S–1839, S–3301, and S–2084, respectively). Similar variability exists among the product/processes within the generic process chemistry groups that are projected to generate the highest levels of BOD. For example, within the high BOD esterification group, n-butyl acrylate/ethylhexyl acrylate processing averaged 5,481 mg/l BOD and dimethyl terphthalate processing averaged 1,310 mg/l; however, n-butyl methacrylate processing averaged 4 mg/l (*id.*, pp S–1,666, S–2,166, and S–1,770, respectively).

In supporting EPA's current BAT subcategorization scheme, CMA observed (and EPA agrees) that the Subpart J limits cannot be confined to a small number of subcategories since low-BOD wastewaters may occur across various subcategories, citing data from the OCPSF database showing low BOD levels across a range of product groups (CMA Comment, pp 3–4).

Thus, generic reaction chemistry and general product groups are incomplete predictors of the raw wastewater characteristics necessary to support effective biological treatment. EPA believes that the phenomenon of low BOD levels, and the availability of Subpart J, cannot be limited to certain industry segments, and, as explained above, believes that such a limitation would create undesirable incentives in other industry segments.[3]

[3] NRDC similarly argues that BOD levels in the OCPSF industry generally appear high, and low BOD wastewater appears concentrated in the zero or alternative discharge categories (citing the 1987

3. FDF Variance Alternative

Finally, NRDC argues that EPA should eliminate Subpart J altogether and address low-BOD situations through fundamentally different factors (FDF) variances (or maintain the Subpart but apply it only where a site-specific showing of necessity is made). However, as explained above, EPA believes the current subcategorization scheme appropriately reflects the potential for low BOD levels throughout the OCPSF industry. Moreover, the current subcategorization scheme does not discourage source control and other in-plant waste management techniques. EPA has discretion in determining whether to account for industry characteristics through subcategorization or through the FDF process. In this instance, EPA's decision to subcategorize the industry was rational and within its discretion, for the reasons explained above.

D. Applicability of the Revised Pass-Through Methodology

A number of industry commenters supported the Agency's proposed conclusion presented in the December 1, 1992 NOA that phenol and 2,4-dimethylphenol do not pass through POTWs, but urged that the modified pass through analysis used to reach that conclusion be applied to the remaining 11 remanded PSES pollutants to determine that they also do not pass through. EPA disagrees, for the reasons explained below.

1. Background

Under section 307(b) of the Clean Water Act, EPA is required to promulgate categorical pretreatment standards for pollutants which are determined not to be susceptible to treatment by POTWs or which would interfere with the operation of POTWs (33 U.S.C. 1317(b)(1)). The methodology EPA used to evaluate whether a pollutant is susceptible to treatment (i.e., whether it "passes through" POTWs) for purposes of establishing categorical pretreatment standards for the OCPSF point source category, as well as in previous guidelines, compared the median percent removal of each pollutant of concern achieved by direct dischargers employing BAT-level treatment to the median percent removal achieved by well-operated POTWs with secondary treatment (1987 DD, pages VI–22 to 32). The source of EPA's data on POTW removals used to determine pass through was a 1982 study of the performance of 50 POTWs (the 50 POTW Study; EPA 440/1–82/303).

Where EPA had data on pollutant removals from both POTWs and direct dischargers, EPA relied exclusively on a comparison of the percent removals demonstrated by the data (1987 DD, page VI–23). If the data showed that direct dischargers with BAT-level treatment achieved a higher percent removal of a pollutant than well-operated POTWs, then the pollutant was determined to pass through, and EPA established categorical pretreatment standards to regulate the pollutant. If the POTWs showed removals equal to or greater than the direct dischargers, then the pollutant was determined not to pass through, except for volatile and semi-volatile pollutants, for which EPA determined that some of the removals from the wastewater were accomplished as a result of "air stripping" (*id.*, p VI–27). Because these removals were the result of transfer of the pollutants to the air rather than treatment, EPA applied a "volatile override" to determine that they passed through and established pretreatment standards (*id.*, p VI–37). EPA also applied the volatile override to several pollutants for which it lacked POTW removal data based on its professional judgment that these pollutants volatilize based on their physical characteristics.

In determining the percentage of a pollutant that a plant removed, EPA compared the concentration of the pollutant in the influent to the concentration in the effluent. Where effluent concentrations for either direct dischargers or POTWs were below the analytical minimum level, usually 10 ppb, EPA assigned this value to the effluent (*id.*, p VI–23). Although the actual concentrations may have been below the analytical minimum level, EPA concluded that this represented a reasonably conservative approach, since the actual levels could not be quantified. For phenol and 2,4-dimethylphenol, both the direct dischargers and well-operated POTWs in EPA's data base generally achieved effluent concentration levels that were below the analytical minimum level, which is 10 ppb, (*id.*, p VII–186). Accordingly, EPA assigned 10 ppb to the effluents. EPA's pass through methodology was upheld in the OCPSF litigation (*CMA* v. *EPA*, 870 F.2d at 243–48).

Allied Signal, Inc. and other commenters on the December 6, 1991 proposal argued that phenol and 2,4-dimethylphenol are highly biodegradable and are treated by POTWs to the same degree as direct dischargers, and that EPA's pass through analysis for these pollutants was therefore overly conservative. The commenters argued that the apparent difference between direct discharger and POTW performance arises from the fact that the direct dischargers in EPA's database have significantly higher influent concentrations than the POTWs; as a result, the direct dischargers show higher removals than the POTWs because their wastewater concentration is treated from a high concentration down to 10 ppb, whereas the POTWs' wastewater is treated from a comparatively lower concentration down to 10 ppb. The commenters also submitted performance data to support their claims, which consisted of pilot-scale biological treatment studies as well as actual sampling data from POTWs that receive industrial wastewaters containing these two pollutants showing their high biodegradability.

EPA concluded that the commenters' arguments might have merit. Using 2,4-dimethylphenol as an example, the median percent removal of this pollutant demonstrated by direct dischargers was 99.8 percent. This was based on data from four OCPSF plants with average influent concentrations ranging from 697 to 29,868 ppb, and with 30 of 37 effluent values below the analytical minimum level and therefore assigned values of 10 ppb. For POTW performance, EPA had a single observation of a POTW with an average influent concentration of 20.5 ppb and an average effluent concentration below the analytical minimum level, which was also assigned a value of 10 ppb.

DD at IV–30–36 and V–32–33). However, the tables cited by NRDC display *mean*, aggregated BOD values for plants within different subcategories, and do not reflect variability of plants within the subcategories. For example, Table V–20, 1987 DD at V–32, shows a mean BOD value for 62 direct discharge thermoplastics plants (Part 414, Subpart D) of 725.190 mg/l. Despite this relatively high mean, individual plants within the Subcategory will exhibit a broad range of BOD values, and the mean reveals nothing about whether individual plants will have sufficient BOD levels to sustain biological treatment. As explained above, varying BOD levels occur throughout the industry, whether the average BOD level for a particular subcategory is low or high. In any event, the tables cited by NRDC contain too little zero/alternative discharge plant data for any meaningful comparison between regulated and zero discharge plants. For example, the data base used to display the average raw waste BOD levels presented in Table V–20 contained only one zero discharge plant with 2.28 percent of its production in the Specialty Organic Chemical Manufacturing subcategory. At this plant, 280 mg/l BOD in raw wastewater was attributed to Specialty Organic Chemical production. In contrast, the entire data base used to display average raw waste BOD levels for the industry contained the equivalent of 60.37 Specialty Organic Chemical plants on a production-weighted basis. The data derived from 2.28 percent of one zero discharge plant cannot be meaningfully compared with the data from 60.37 discharging plants to draw any conclusion about the BOD levels exhibited by zero discharge as opposed to discharging facilities.

Thus, POTW removal was calculated at 51.2 percent, and the pollutant was determined to pass through. In this case, the pass through determination may be an artifact of the differing influent concentrations and does not necessarily reflect a real difference in removals.[4]

In the December 1, 1992 NOA, EPA presented a comprehensive assessment of the available data with respect to phenol and 2,4-dimethylphenol, as well as a chemical and engineering analysis of the fate of these two pollutants in biological treatment systems. Based on this analysis, EPA proposed to conclude, and today has concluded, that these pollutants are treated to essentially the same levels by direct dischargers and POTWs and, therefore, do not pass through. However, as the Agency explained in the NOA, EPA generally is continuing to apply the median percent removal methodology used to determine pass through at promulgation of the OCPSF guideline (57 FR at 56885). This methodology was upheld in litigation as an appropriate, conservative approach to determining pass through (870 F.2d at 243–48), and EPA continues to believe it is the correct approach as a general matter. EPA determined that the approach is overly conservative for the highly-biodegradable phenol and 2,4-dimethylphenol, but believes it is appropriate for the other 11 remanded pollutants. As explained in the NOA and below, EPA believes these pollutants are less biodegradable and, consequently, less readily treatable by POTWs, which typically have biological treatment systems with much shorter detention times than the systems employed by direct dischargers.

[4] EPA acknowledged this phenomenon in developing the OCPSF rule and proposed several modifications of the pass through analysis, including applying a "removal differential" under which EPA would determine that a pollutant passed through only if the analysis found a difference between direct discharger and POTW removals that exceeded 5% or 10% (see, e.g., 50 FR 29084–85 (July 17, 1985)). However, after carefully reviewing comments arguing, among other things, that this approach would bias the analysis against a finding of pass through, EPA decided to employ its historical approach to pass through, with one variation. In the final OCPSF rule, EPA edited its database to exclude POTWs with influent concentrations of less than ten times the analytical minimum level (typically 100 ppb), unless there was no plant in the data base with influent concentrations that high, in which case EPA retained the 20 ppb cut-off used in previous guidelines (1987 DD at VI–33). This mitigated the underestimation of removals that could occur when comparing very low influent concentrations to the analytical minimum level.

2. Assessment of the Remanded Phthalate Esters and Polynuclear Aromatics

In the NOA and accompanying Technical Support Document (TSD; "Technical Support Document for the Organic Chemicals, Plastics and Synthetic Fibers Point Source Category Notice of Availability of New Information, November 30, 1992), EPA did perform a data review and technical analysis for the other 11 remanded pollutants similar to that performed for phenol and 2,4-dimethylphenol. The Agency reviewed the available data on the removal of the two phenols as well as the two other general pollutant categories covering the remaining 11 pollutants, phthalate esters (PEs) and polynuclear aromatics (PNAs). The Agency also reviewed the available literature on the biochemical mechanisms of biodegradation for all 13 pollutants, and investigated the adequacy of biological treatment systems at POTWs in effectively treating these pollutants via biodegradation. The Agency included all of its performance data from various data sources as well as information collected from the literature on the biochemical mechanisms of biodegradation of these pollutants in the Record supporting the NOA.

EPA's decision to modify its traditional pass through methodology for phenol and 2,4-dimethylphenol is based on EPA's conclusion that *both* the data available for these two pollutants and the chemical and engineering analysis performed by EPA indicated that the OCPSF pass through methodology is overly conservative for these pollutants. The data and technical analyses do not support a similar conclusion for the other 11 pollutants.

EPA's analysis focused first on the data from the OCPSF Record relating to phenol removal. A comparison of median removals (the original OCPSF methodology) indicated that phenol passes through POTWs (TSD at 11, Table II–2). However, when EPA arrayed all of the direct discharge and POTW data for phenol, it became apparent, as explained in the NOA, that the pass through conclusion was strictly an artifact of the higher influent concentrations for direct dischargers in EPA's database. Viewing the data as a whole, POTWs appeared to achieve removals that are essentially equivalent to those achieved by direct dischargers (57 FR 56886–87). This conclusion was confirmed by additional data EPA solicited from three POTWs, that demonstrated phenol removals from very high influent concentrations (e.g., 4,043 ppb at the Sheboygan Regional Wastewater Treatment Facility) to below the analytical minimum level. In addition, as explained in the NOA and the accompanying TSD, EPA determined that 2,4-dimethylphenol would be removed by POTWs to the same degree as phenol, given its similar molecular structure.

Three of the remaining eleven pollutants—fluoranthene, bis(2-ethylhexyl)phthalate and di-n-butyl phthalate—were detected in POTW effluent in the 50 POTW Study (TSD at 11, Table II–2). For these pollutants, the results of the pass through determination clearly are not merely an artifact of differing influent concentrations but reflect worse performance by POTWs. EPA has no basis to conclude that these pollutants do not pass through.

With respect to the remaining eight pollutants, EPA does not have data comparable to the data that provided a basis to modify the pass through methodology for the phenols. In addition, EPA's technical analysis confirmed that phenol and 2,4-dimethylphenol are the most readily treatable by POTWs of the 13 pollutants. EPA noted that while phenols are rapidly biodegraded in biological treatment systems due to their simple molecular structure, PEs and PNAs would be expected to biodegrade at a much slower rate because of the additional time required to convert these pollutants into a form that can be readily biodegraded (TSD at 6).

Biodegradation does not commence until a pollutant is "sorbed" by (i.e., attached to) the microorganisms in the biological treatment system that degrade the pollutant ("OCPSF Remand Issues—Assessing the POTW Compatibility of Remanded Organic Pollutants Regulated by PSES," November 20, 1992 memorandum, Item No. 73 of the OCPSF December 1, 1992 NOA Public Record). Once sorbed, pollutants degrade at different rates that depend on structural complexity. In order to be biodegraded, a pollutant must be able to pass through the cell wall of a microorganism. This transfer will occur only if the pollutant is compatible with the proteins in the cell wall. While small, simple molecules are generally compatible, the more complex structures typical of PE and PNA organic pollutants must first be broken down into smaller chemical units by extra-cellular enzymes secreted by the microorganisms. Thus, biodegradation depends on the ability of the microorganisms to structurally alter pollutants outside the cell wall while they are sorbed.

As EPA explained in the NOA, the phenols have simple chemical structures that permit them to be rapidly transferred through the cell wall and biodegraded (57 FR 56888). This molecular-level analysis is confirmed by the fact that wastewaters containing phenol and 2,4-dimethylphenol have high "biodegradation rate constants" (*id.* at 56887). (As explained in the NOA (57 FR at 56887), "biodegradation rate constant" is a measure of how rapidly a compound or mixture of compounds biodegrades). In addition, these two pollutants have the highest compound-specific estimated biodegradation rate constants of the 13 remanded pollutants (TSD at 11, Table II–2)(biodegradation rate constants can be assigned to both individual pollutants and to waste streams containing mixtures of pollutants). In contrast, as further explained in the Supplement to the Development Document accompanying today's rule, the phthalate esters and polynuclear aromatics are structurally more complex, and require additional transformation steps before they can be transferred through the cell wall of the biodegrading microorganisms and biodegraded. These steps require additional time in the aeration basin of a biological treatment system that is generally available at OCPSF direct discharge facilities, which typically have detention times that exceed 24 hours, but may not be available at POTWs, where aeration basin detention times are usually four to eight hours.

Thus, based on rate of biodegradation, EPA believes that phenol and 2,4-dimethylphenol are more readily treatable by POTWs than the eight remaining pollutants. EPA recognizes, as several commenters on the NOA pointed out, that organic pollutants may be removed from wastewater by biological treatment systems to varying degrees by removal mechanisms other than biodegradation. In particular, pollutants may be removed by volatilization and by adsorption to sludge. However, as explained below, EPA believes that a pollutant's biodegradation rate is the most accurate indicator of whether the pollutant will pass through POTWs.

In general, volatile pollutants are not readily treated in POTWs; rather, these pollutants are volatilized or "stripped" to the atmosphere. As EPA explained above, EPA applied the volatile override in the 1987 OCPSF guideline to determine that several volatile and semi-volatile pollutants pass through where POTWs showed equal or better percent removals than direct OCPSF dischargers or where no POTW removal data were available. In determining whether to apply the volatile override, EPA considered total estimated volatilization of a pollutant after leaving an indirect discharge facility—i.e., volatilization in both the aeration basin (i.e., the treatment basin) of the biological treatment system and volatilization in the sewer systems and pre-biological unit treatment operations that convey the pollutant to the aeration basin (1987 DD at VIII–281).

For five of the PNAs that were remanded—naphthalene, acenaphthene, anthracene, fluorene, and phenanthrene—EPA would have applied the volatile override in the 1987 OCPSF rule to determine these pollutants passed through if the percent removal analysis had not shown pass through. These pollutants have overall volatilization rates comparable to the rates for which the override was applied. For example, EPA applied the override to hexachlorobenzene, hexachloroethane and hexachlorobutadiene in promulgating the 1987 guideline (1987 DD at VIII–279). These pollutants have a 5 to 10 percent estimated volatilization rate in the aeration basin; the pre-biological volatilization rates for hexachlorobenzene, hexachloroethane and hexachlorobutadiene are estimated to range from 19 to 39 percent, 59 to 66 percent, and 48 to 73 percent, respectively (1987 DD at VIII–281). Similarly, the estimated aeration basin volatilization rates for the five remanded PNAs at issue range from 10 to 30 percent, and the estimated pre-biological volatilization rates range from 12 to 82 percent (*id.*) EPA notes that estimated volatilization rates for individual pollutants vary depending on the source of the estimate, and the aeration basin volatilization rates that appear in the TSD, at 11, Table II–2, vary from those presented in the 1987 Development Document because they are based on different technical studies. TSD Table II–2, however, does not account for pre-aeration-basin volatilization, and the overall estimated volatility of the five pollutants at issue is comparable to the estimated volatility of the pollutants to which EPA applied the volatile override in 1987. Because these pollutants are chemically more complex than phenol and 2,4-dimethylphenol and, EPA believes, therefore less readily biodegradable in POTWs, and because much of the "removal" of these pollutants prior to and during POTW biological treatment is likely the result of volatilization, EPA continues to conclude, based on its traditional methodology, that these five pollutants pass through POTWs.

EPA believes the remaining three pollutants—diethyl phthalate, dimethyl phthalate, and pyrene—are likely adsorbed to sludge in the biological treatment system. A compound's propensity to separate from the water phase and adsorb to sludge (which includes the microorganisms that degrade the compounds) is predicted by its "octanol/water partition coefficient." Pyrene, in particular, has a high estimated octanol/water partition coefficient, and would be expected to adsorb rapidly to the sludge in a biological system (TSD at 11, Table II–2). However, pollutants that are initially adsorbed onto the sludge may become "desorbed" (i.e., may detach from the sludge) and pass through into the receiving stream if they are not rapidly transferred through the cell wall and biodegraded.

The ability of complex, organic pollutants such as phthalate esters and polynuclear aromatics to remain absorbed prior to being converted to simpler compounds for transfer through the cell wall can be affected by many conditions in the treatment system, including the presence of other pollutants, electrolytes, oils and greases and other more highly adsorbent compounds ("Report to Congress on the Discharge of Hazardous Wastes to Publicly Owned Treatment Works," February 1986, (EPA/530–SW–86–004), p 4–5). This can cause the pollutants to desorb prior to conversion and biodegradation and pass through the POTW to the receiving water. EPA believes this phenomenon explains why organic pollutants which are generally considered highly adsorbable can sometimes be found at detectable levels in the POTW effluent. For example, anthracene and phenanthrene have high estimated octanol-water partition coefficients and therefore would be expected to adsorb rapidly to sludge (TSD at 11, Table II–2). POTW Number 6 from the 50 POTW Study shows an average influent concentration of anthracene and phenanthrene of 62.2 ppb and an average effluent concentration of 16.2 ppb, while POTW Number 52 has a much higher average influent concentration of 225.3 ppb for anthracene and 195.8 ppb for phenanthrene, both reduced to not detected at 10 ppb (1987 Public Record at 115910–115976). Based in this data, the propensity of these pollutants to adsorb to the sludge does not appear to be a good indicator of POTW removal performance. EPA believes that external conditions in a biological treatment system can affect the ability of a POTW

to remove more complex pollutants by adsorption or biodegradation.

The overall removal data for the 13 remanded pollutants appears to confirm that octanol/water partition coefficient is not a reliable indicator of pass through. Phenol has the lowest octanol/water partition coefficient of the 13 pollutants but is rapidly and virtually completely removed by biological systems, including POTW systems. In contrast, bis(2-ethylhexyl)phthalate and di-n-butyl phthalate have among the highest octanol/water partition coefficients, but achieved lower POTW removal levels (TSD at 11, Table II–2). In fact, the only pollutants among the 13 remanded that were detected in POTW effluents in the 50 POTW study—bis(2-ethylhexyl)phthalate, di-n-butyl phthalate and fluoranthene—also had the highest octanol/water partition coefficients of the 13 pollutants (TSD at 11, Table II–2).

In sum, EPA believes that a pollutant's estimated biodegradation rate is the best theoretical indicator of whether it will pass through POTW biological treatment systems. As a result, EPA continues to conclude that diethyl phthalate, dimethyl phthalate, and pyrene pass through based on its traditional pass through methodology. These pollutants are structurally more complex and consequently less readily biodegradable than phenol and 2,4-dimethylphenol, and are therefore more likely to pass through POTW biological treatment systems. Moreover, EPA does not have data demonstrating that these pollutants are adequately treated by POTWs.

E. Land Availability

CMA in comments asserts that EPA overestimated the land available for the construction of biological treatment systems in its survey of eight indirect discharge facilities by including in its analysis parcels of non-contiguous land and land that is obstructed by railroad tracks, buildings and other physical obstacles. (CMA Comments at 39–41). This is not true. Each of the eight facilities EPA surveyed has sufficient contiguous, unobstructed land for the installation of the model biological treatment system costed by EPA at proposal. Furthermore, the available land is configured such that it can accommodate the costed biological treatment systems.

In the December 1991 proposal, the Agency recognized that the larger in-plant biological treatment systems costed for compliance with the BAT Subpart J limits and corresponding pretreatment standards would require more land than the smaller systems costed for the 1987 OCPSF promulgation. EPA investigated whether land availability would be a constraint on the ability of OCPSF plants to install in-plant biological treatment. EPA's investigation included the land requirements for treatment of all 13 of the remanded PSES pollutants, including phenol and 2,4-dimethylphenol, which are not being regulated by today's final rule. At that time, 20 of the 242 indirect discharge plants costed for in-plant biological treatment were projected to require more than one acre of land. EPA projected land requirements for individual facilities based on the modeled raw waste concentrations for the facilities developed by the Agency for purposes of costing compliance with the 1987 OCPSF guideline. The Agency visited the eight indirect discharge facilities with land estimates greater than one acre in the three-state area of New York, New Jersey, and Delaware. Indirect discharge facilities were selected because their typical location in urban areas makes them more likely than direct dischargers to have land-availability constraints. EPA believes the combination of large land requirements and an urban setting makes these eight plants a "worst case" sample of land availability.

Five of the plants visited had sufficient land based on the land requirements projected from their modeled raw waste concentrations (the remaining three had from 78 to 96 percent of the projected requirements). The remaining three had enough land based on their actual reported raw waste concentrations (the three plants had from 1.9 times to 3.7 times more than the required land). EPA generally was conservative in projecting raw waste characteristics in order to err on the side of overestimating rather than underestimating plant compliance costs. EPA thus believes its raw waste projections will often be higher than actual loadings (April 19, 1993 memorandum to the OCPSF Public Record "Estimation of BAT and PSES Compliance Costs). Based on this assessment, the Agency concluded that land availability is not a constraint for installing the model treatment technology (56 FR 63904; 1991 Supplement to the DD, p III–33).

The three plants for which CMA asserted the record shows insufficient contiguous land—Plants 257, 1853, and 1667—are the plants for which EPA determined that there is sufficient land based on the plants' *reported* raw waste concentrations (56 FR 63904). CMA apparently overlooked this portion of the analysis and based its comments on the land estimates based on the plants' projected raw waste concentrations. As described in more detail below, all of the plants EPA visited have more than sufficient contiguous land to install in-plant biological treatment systems to comply with the land requirements estimated by EPA for compliance with the 13 remanded pretreatment standards.

Furthermore, based on the Agency's decision not to promulgate pretreatment standards for phenol and 2,4-dimethylphenol, the estimated land requirements are lower for six of the eight plants visited than the requirements estimated at proposal for these plants based on their projected raw waste concentrations. Two plants no longer require in-plant biological treatment (257 and 2300), reducing their land requirements to zero. The estimated land requirements for four additional plants were reduced by 29, 69, 75 and 74 percent (plants 814, 1667, 1853 and 2485, respectively). The estimated land requirements for the remaining two plants have not changed from the 1991 estimates.

Addressing the plants individually, the commenter states that the available land claimed by the Agency for Plant 257 was made up of three parcels, that one parcel would require demolishing two buildings and that another parcel is crisscrossed by railroad tracks. At the time of the site visit, plant personnel informed EPA that plans called for the demolition of the two buildings in question and in fact demolition was already underway at the time of the site visit; the Agency reasonably concluded that the land made available by the demolition of these two buildings would be available, and notes that the pretreatment standards to which this plant was to be subject do not become effective until three years after the promulgation of today's amendments. The area made available by the demolition of these buildings in addition to the contiguous, open area designated as "A" to the left of the railroad tracks on the plot plan submitted by the facility will more than accommodate EPA's land requirement estimate of 0.55 acres for Plant 257 (1991 Supplement to the DD, p III–35). This land is contiguous and is not intersected by the railroad tracks. Finally, based on the Agency's decision not to promulgate pretreatment standards for phenol and 2,4-dimethylphenol, Plant 257 no longer is projected to install in-plant biological treatment.

The commenter also claims that "part" of one of the parcels of land at Plant 1706 is unavailable because of a

nearby flare stack. But the commenter does not explain, and EPA does not understand, how a nearby flare stack would prevent installation of a biological treatment system. Nor did it indicate how much of the four-acre parcel in question it considered to be unavailable, and EPA has no basis to conclude that the presence of a nearby flare stack renders unavailable the 1.8 acres estimated as necessary for plant 1706 to install the costed biological treatment system.

The commenter also states that the Agency unrealistically utilized two parcels of land (1 acre and 0.2 acres) to meet the estimated land requirement of 1.25 acres for Plant 1667 (CMA Comment at 41). In addition to stating that the two parcels of land are not contiguous, the commenter states that the 0.2 acre parcel contains a 2 story brick building and the 1 acre parcel has a railroad track running through it. Again, the commenter has overlooked portions of the Agency's analyses contained in its Record. Even if the railroad track bisected the 1 acre parcel, the Agency's revised land estimate of 0.38 acres based on the facility's reported raw waste concentration (1991 Supplement to the DD, p III–35) could still be accommodated by either one of the two 0.5 acre parcels. Moreover, the Agency's Record clearly states that the 2 story brick building was confirmed as not in use and available (1991 Proposal Record, p R01236).

In a related argument, the commenter argues that EPA has included land in its analysis that is unavailable because of contamination and related factors. EPA disagrees with CMA's analysis of the record, as explained below.

The commenter states that personnel from Plant 2756 informed EPA that the availability of its land depended on getting clearance from the state agency because contamination was suspected. However, the plant provided no information during EPA's site visit or in comments regarding the likelihood, nature or extent of the suspected contamination, the procedures involved in obtaining clearance from the state, or the extent to which the contamination might preclude the installation of a biological treatment system to comply with today's regulations within the three years allotted. The Agency has conservatively estimated that 32 percent of the facility's unused land (equal to the 1.61 acres required) will be available to accommodate the installation of in-plant biological treatment.

The commenter also states that "* * * Four of the eight acres identified for Plant 1853 were under investigation for possible contamination. EPA was told by plant personnel that the availability of the land was dependent on the results of the investigation * * *" (CMA Comment at 41). However, the Agency's Record shows that the uncontaminated 4-acre parcel at the site will accommodate EPA's estimated land requirement of 2.16 acres, based on reported raw waste concentrations, for Plant 1853 (1991 Supplement to the DD, p III–35). In addition, EPA has insufficient information regarding the "possible" contamination to evaluate its effect on compliance with today's amendments.

The commenter states that plant personnel informed EPA that of the 130 acre site for Plant 2485, some unspecified portion of the plant site was under investigation for contamination and 30 percent of the site was considered fresh water wetlands. Since 30 percent of the total plant site totals 39 acres and since no accurate estimate of the extent of the contamination at the 130 acre plant site could be made by plant personnel, the Agency has conservatively estimated the amount of land available at 20 acres or about 15 percent of the total plant site, which is more than adequate for the 6.64 acres projected to be required at proposal. EPA also notes that no comments have been received to date regarding the results of the site investigation of potential contamination which was scheduled for completion in 1991. Finally, based on the Agency's decision not to promulgate pretreatment standards for phenol and 2,4-dimethylphenol, the land requirements for Plant 2485 have been reduced from 6.64 acres to 1.68 acres.

The commenter also states that plant personnel at Plant 814 informed EPA that 11 of the 13 acres EPA included in its available area was under investigation for possible contamination. Subsequent correspondence from Plant 814 confirmed the presence of contamination but did not detail the extent of the contamination, only that remediation would be necessary and "* * * a large portion of these areas will not be available for future construction other than that related to remediation * * *" (1991 Proposal Record, p R01210). However, even according to the plant's information, 2.3 acres of land are not under investigation for contamination. Although this land is comprised of two separate parcels, the larger of the two alone is sufficient to install the costed biological treatment system. Based on the Agency's decision not to promulgate pretreatment standards for phenol and 2,4-dimethylphenol, this plant only requires 1.55 acres of land to install the Agency's current recommended treatment system. Subtracting the smaller of the two available parcels (designated as area "J" on the facility plot plan, estimated at 0.5 acres) from the 2.3 acre total, approximately 1.8 contiguous, uncontaminated acres remain available, which will accommodate the current land requirement (1991 Proposal Record, p R01243). Moreover, only 14 percent of the 11 contaminated acres would be required to install the *entire* treatment system, not counting any of the 2.3 acres which the commenter admits is available. The information that "a large portion" of the 11 acres is unavailable does not provide a basis to conclude that the facility could not install a biological treatment system to comply with the promulgated pretreatment standards within three years.

Overall, EPA reasonably concluded that each of the plants visited should have sufficient contiguous, unobstructed, uncontaminated land to install the costed biological treatment systems. In addition, even if EPA's analysis indicated a lack of contiguous, available land, this would not necessarily preclude installation of the costed biological treatment systems. Individual pieces of a plant's treatment system, including separate aeration basins, can be physically located on non-contiguous parcels, or on different portions of a single parcel. In the OCPSF industry, plant manufacturing and/or treatment areas are sometimes segmented or separated by such things as utility roads, railroad tracks, canals, parking lots, warehouses, or other unrelated parcels of land. EPA cannot perform a detailed evaluation, in a national guideline, of how individual facilities in the industry can best comply with the promulgated limitations and standards. Especially with considerations as inherently plant-specific as land availability and potential contamination and remediation requirements, EPA can only assess whether, for the industry as a whole, sufficient land should be available to comply with the requirements of the guideline. EPA has performed such an assessment and has concluded that land availability will not be a constraint on compliance with today's limitations and standards. To the extent that an individual plant determines, after making a good faith effort to use the land available to it, that it is unable to comply with the requirements of today's rule, the plant may apply for an FDF variance.

F. Guidance for Laboratory Analysis of Complex Matrices

Several commenters stated that they were unable to measure some of the regulated pollutants in OCPSF wastewater at the concentrations required by the regulation due to matrix interferences, i.e., that the composition of wastewater samples complicates measurement of OCPSF-regulated pollutants at the low levels required to show compliance with the rule. They suggested that EPA provide notice that relief is available to the regulated community under this regulation when a permittee is unable to measure pollutants due to matrix problems.

At the time of promulgation of the OCPSF guideline in 1987, EPA found that for well-designed, well-operated treatment systems, matrix interferences should not present a problem. The limitations were based upon data that demonstrated that the pollutants have been and thus can be measured at the regulatory levels (52 FR 42563). EPA's determination that the regulated pollutants could be measured at the compliance levels was upheld by the Fifth Circuit (*CMA* v. *EPA*, 870 F.2d at 231).

Since promulgation of the OCPSF guideline, the Analytical Methods Staff of the Engineering and Analysis Division has been assisting EPA Regions and States in evaluating claims of matrix interferences and other analytical difficulties associated with OCPSF compliance monitoring. Since 1990, the Analytical Methods Staff has issued a series of draft reports that provide guidance to control authorities and laboratories for accommodating matrix-related problems that complicate laboratory measurements of the analytes of interest. These documents have been updated and expanded in one final publication, the May 1993 "Guidance on Evaluation, Resolution, and Documentation of Analytical Problems Associated with Compliance Monitoring," (EPA 821–B–93–001) that is available from Mr. William A. Telliard, Chief, Analytical Methods Staff, Engineering and Analysis Division (WH–552), USEPA, Washington, DC 20460. The document includes: (1) A checklist of laboratory data required to support a claim that a permittee was unable to measure pollutants due to matrix problems, (2) guidance for analysts attempting to identify and quantify pollutants in wastewaters discharged from plants manufacturing OCPSF products, (3) cost estimates for resolving matrix interferences, (4) guidance for reviewing data from the analysis of organic compounds using EPA 600/1600 series analytical methods, (5) case histories of data submitted for claims of matrix interferences under the OCPSF rule, and (6) guidance on contracting for analytical services.

The Agency's past experience is that nearly all matrix interference problems can be resolved when industries and their laboratories apply the philosophy and techniques suggested in the draft documents. Based on this experience, EPA does not believe matrix interferences will present a problem in demonstrating compliance with the OCPSF guideline.

Finally, EPA notes that this guidance regarding matrix interference is beyond the scope of the Fifth Circuit's remand and today's rule. As stated above, the Fifth Circuit upheld EPA's determination that the OCPSF-regulated pollutants can be measured at the compliance levels, and no issues relating to measurement were remanded. The above discussion is guidance only, and it relates only to implementation and enforcement issues; it does not provide a basis to challenge today's amendment.

G. Guidance for the Appropriate Flow Basis for Converting Concentrations Into Mass-Based Limitations and Standards

The Passaic Valley Sewerage Commissioners, referring to supporting correspondence from the State of New Jersey, complained about conflicting guidance and differing interpretations of the appropriate flow basis for calculating the mass-based permit limits. They requested that the Agency clarify its guidance for (1) determining the appropriate flow basis for establishing the permit limitations and standards as well as (2) the appropriate flow basis for converting compliance monitoring concentration data into mass-based figures.

Regarding the first issue—the appropriate flow basis for establishing permit limits—the promulgated OCPSF effluent limitations guidelines and standards listed in 40 CFR 414 are concentration-based and thus do not regulate flow. As required by the regulation, the permitting or control authority must multiply a reasonable estimate of a plant's regulated process wastewater discharge by the concentration limitations to develop mass limitations for each NPDES or industrial user permit.

The appropriate process wastewater flow to be used must be determined by the permitting or control authority on a case-by-case basis using current information provided by the applicant and other available data. EPA strongly urges the permit writer or control authority to develop an appropriate process wastewater flow for use in computing the mass effluent or internal plant limitations based on water conservation practices. The factors that should be considered in developing the appropriate process wastewater flow include: review of the component flows to ensure that the claimed flows are, in fact, process wastewater flows as defined by the regulation; review of plant operations to ensure that sound water conservation practices are being followed (examples include minimization of process water uses; cascading or countercurrent washes or rinses, where possible; reuse or recycle of intermediate process waters or treated wastewaters at the process area and in wastewater treatment operations (e.g., pump seals, and equipment and area washdowns)); and review of barometric condenser use at the process level (barometric condensers often generate relatively large volumes of slightly contaminated wastewater; replacement of barometric condensers with surface condensers can reduce wastewater volumes significantly and result in collection of condensates that may be returned to the process). (1987 DD, p IX–9–10)

Assuming proper water conservation is being practiced, the 1987 OCPSF Development Document accurately advises the control authority to "use the plant's annual average process wastewater flow to convert the concentration-based limitations into mass-based limitations" (*id.* at p IX–10). To clarify, the annual average flow is defined as the *average of daily flow measurements* calculated over at least a year. These average flows could be based on a single year's data; however, if available, multiple years' data are preferable to obtain a representation of annual average flow. The regulated OCPSF process wastewater flows, as defined by 40 CFR 401.11(q), are the process waste streams that are subject to 40 CFR Part 414.

Based on current guidance issued by the Office of Water Enforcement and Compliance, the permitting or control authority is advised to establish, for each direct or indirect point source discharge, a single estimate of the regulated long-term average of daily flow measurements based on three to five years of facility data. In the event that no historical or actual process wastewater flow data exists, such as for a new source, the permitting or control authority is advised to establish a reasonable estimate of the facility's projected flow. Historical or projected daily maximum, weekly maximum, or

monthly maximum flows and design-based or plant-capacity-based flows *are not recommended as appropriate bases* for determining a facility's regulated long-term or annual average of daily flow measurements and corresponding mass limits. The permitting or control authority is advised to establish a flow rate that is expected to be representative during the entire term of the permit or other individual control mechanism. If a plant is planning for significant changes in production during the effective period of the permit, the permitting or control authority may consider establishing multiple tiers of limitations as a function of the significant, projected changes in production. In addition, or in the alternative, a permit may be modified during its term, either at the request of the permittee (or another interested party) or on EPA's initiative, to increase or decrease the flow basis in response to a significant change in production (40 CFR 124.5, 122.62). A change in production could be an "alteration" of the permitted activity or "new information" that would provide the basis for a permit modification (40 CFR 122.62(a) (1), (2)).

Guidance for determining appropriate process wastewater flow is presented in several documents published by the EPA Office of Wastewater Enforcement and Compliance, Washington, DC: "Guidance Manual for the Use of Production-Based Pretreatment Standards and the Combined Wastestream Formula," 1985 (NTIS Order No. PB92–114438) and "Training Manual for NPDES Permit Writers, 1993 (EPA 833–B–93–003).

Confusion as to the recommended basis for determining appropriate process wastewater flow has arisen, however, due to several OCPSF guidance memoranda that present guidance that is in conflict with the guidance presented in the OCPSF preamble and the above-mentioned guidance documents. Specifically, two EPA guidance memoranda recommend, as a basis for establishing long-term average flow, that the permit writer or control authority use "the highest monthly average flow during the past twelve (12) months or the highest yearly mean of the twelve monthly average flows during the past five (5) years." These incorrect examples were listed in the February 16, 1989 memorandum to Regional Water Management Division Directors and NPDES Authorized State Directors from James R. Elder, Director, Office of Water Enforcement and Permits, entitled "NPDES Permitting Strategy for OCPSF Direct Dischargers" (pp. 29, 40, & 44), and in the October 12, 1988 memorandum to Regional Water Management Division Directors and NPDES State Directors from Mr. Elder entitled "Questions and Answers Regarding the OCPSF Effluent Limitations Guidelines" (p. 4). This guidance establishes an inappropriate basis for determining permit limits because the promulgated OCPSF maximum daily and maximum monthly average limitations were derived by multiplying the long-term average performance level of well-designed, well-operated treatment systems by the respective variability factors for the treatment system. The variability factors already include, among other components, the variability associated with day-to-day and month-to-month production and flow variations. As a result, the OCPSF limits and standards are, in general, considerably less stringent than the long-term averages achieved by the plants on which the limits and standards were based, and plants that design their operations and treatment systems to achieve the long-term averages for individual pollutants should be able to achieve the OCPSF limits and standards even during high-flow days and months. The data from any given day or month may not be representative of the plant's annual or long-term flow. Use of the highest monthly mean to set permit limits would "double count" the effect of flow variability, since the potential for high flow periods is already accounted for in the promulgated limits and standards. The approach presented in the two memoranda from Mr. Elder results in an overly generous permit limit. Therefore, the time period of the measure of production or flow should correspond to the time period used to derive the promulgated limitations, which is an annual average or long-term average measure.

Regarding the second issue—the correct flow basis for determining compliance—the Agency intends that compliance with the OCPSF standards should be evaluated based on the actual total applicable OCPSF-regulated flow discharged during the period for collecting the effluent sample, typically 24 hours. The cumulative 24-hour flow corresponding to the day on which sampling is performed, when combined with concentration data from 24-hour sampling, gives the best indication of the actual mass of pollutants discharged on a given day. The OCPSF mass-based permit limits are calculated using the regulated long-term or annual average of daily flow measurements, adjusted downward as appropriate based on potential for flow reduction, as discussed above. The limits in 40 CFR part 414 are expressed as maximum for any one day and maximum for monthly average values. Since the limits in the permits are mass-based, the compliance data must also be mass-based. A daily mass value is defined as the total mass discharged over a 24-hour period (unless the operating day is less than 24 hours). Similarly, the monthly average is derived from averaging the available daily mass values in each calendar month. Compliance with the mass-based limits should be based on the actual total applicable OCPSF-regulated flow discharged on the day of sampling, not on the long-term average flow rate that provided the basis for establishing the permit limitations and standards.

Therefore, to determine compliance for OCPSF facilities, the measured concentration of the pollutant in question in the effluent sample should be multiplied by the total applicable OCPSF-regulated flow during the effluent sampling period. For example, if analytical data from a 24-hour sample period for a particular plant demonstrates a pollutant concentration of 0.055 mg/l, and the measured process wastewater flow for the same 24-hour period is 0.600 million gallons, then the plant's reported mass compliance value for that day is 0.275 pounds of the pollutant.

EPA notes that this guidance regarding the proper flow basis is beyond the scope of the Fifth Circuit's remand and today's rule. This guidance simply addresses conflicts in existing guidance and reaffirms that the contemporaneous guidance presented in the 1987 OCPSF Development Document correctly reflects EPA's judgment regarding appropriate implementation of the OCPSF guideline. The above discussion is guidance only, and it relates only to implementation and enforcement issues; it does not provide a basis to challenge today's amendments.

IX. Executive Order 12291

Executive Order 12291 requires EPA and other agencies to perform regulatory analyses of major regulations. Major rules are those which impose a cost on the economy of $100 million or more annually or have certain other economic impacts. This action is not a major rule because the estimated cost of today's rule is $78 million annually. This figure differs from the $61 million cost presented in the December 6, 1991 proposal because: (1) The costs reflect the shift in discharge status for 14 plants that were direct discharge facilities in 1987 but now discharge to POTWs; (2) the costs reflect the revised projection

that 47 direct discharge facilities are subject to the Subpart J BAT limitations rather than the 23 facilities estimated in 1987; (3) the costs associated with compliance with the pretreatment standards for phenol and 2,4-dimethylphenol have been eliminated since EPA is not promulgating pretreatment standards for these pollutants; (4) the cost is expressed in 1992 dollars rather than 1986 dollars as was done at proposal, because EPA has concluded that this approach more accurately reflects the cost of today's rule; and (5) the cost presented today reflects the total projected cost of the model in-plant biological treatment systems that provide the technology basis for the promulgated limits and standards, rather than simply the incremental cost of today's rule over the cost of the 1987 OCPSF guideline. This last point is explained further in response to the comments of Allied-Signal, Inc. Today's rule meets none of the criteria of a major rule as set forth in section 1(b) of the Executive Order. This rule was submitted to the Office of Management and Budget for review.

X. Regulatory Flexibility Analysis

The Regulatory Flexibility Act, 5 U.S.C. 601 et seq., requires EPA and other agencies to prepare a final regulatory flexibility analysis for regulations that have a significant impact on a substantial number of small entities. As noted in Section V.E., the regulatory flexibility analysis for today's final rule, as in the 1987 final rule, examined whether small plants, as defined by a plant production threshold of 5 million pounds, are disproportionately affected by the regulation. The Agency's assessment concludes that no change in the small plant analysis findings is necessary. That is to say, the regulation continues to set BAT equal to BPT for plants with production less than or equal to 5 million pounds of OCPSF products per year, and makes no special provision for small plants complying with PSES standards.

XI. Paperwork Reduction Act

In accordance with the Paperwork Reduction Act of 1980, 44 U.S.C. 3500 et seq., EPA must submit a copy of any rule that contains a collection-of-information requirement to the Director of the Office of Management and Budget for review and approval. This rule contains no additional information collection requirements beyond those already required by 40 CFR part 403 and 40 CFR part 122, and therefore the review requirement of the Paperwork Reduction Act is not applicable.

List of Subjects in 40 CFR Part 414

Organic chemicals manufacturing, Plastics manufacturing, Synthetic fibers manufacturing, Water pollution control, Water treatment and disposal.

Dated: May 28, 1993.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, 40 CFR part 414 is amended as set forth below:

PART 414—ORGANIC CHEMICALS, PLASTICS, AND SYNTHETIC FIBERS

1. The authority citation for part 414 continues to read as follows:

Authority: Secs. 301, 304, 306, 307, and 501, Public Law 92–500, 86 Stat. 816, Public Law 95–217, 91 Stat. 156, Public Law 100–4, 101 Stat. 7 (33 U.S.C. 1311, 1314, 1316, 1317, and 1361).

2. Sections 414.25, 414.35, 414.45, 414.55, 414.65, 414.75, and 414.85 (including the tables) are revised to read as follows:

§ 414.____ Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve discharges in accordance with § 414.111.

3. Sections 414.26, 414.36, 414.46, 414.56, 414.66, 414.76, and 414.86 are revised to read as follows:

§ 414.____ Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7 any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve discharges in accordance with § 414.111.

4. In § 414.91, paragraphs (b)(1) and (b)(2) are removed and the second sentence of the introductory text of paragraph (b), the flush paragraph of paragraph (b), and the table are revised and combined to form one paragraph to read as follows:

§ 414.91 Toxic pollutant effluent limitations and standards for direct discharge point sources that use end-of-pipe biological treatment.

* * * * *

(b) * * * The metal-bearing waste streams and cyanide-bearing waste streams are defined as those waste streams listed in Appendix A of this part, plus any additional OCPSF process wastewater streams identified by the permitting authority on a case-by-case basis as metal or cyanide bearing based upon a determination that such streams contain significant amounts of the pollutants identified above. Any such streams designated as metal or cyanide bearing must be treated independently of other metal or cyanide bearing waste streams unless the permitting authority determines that the combination of such streams, prior to treatment, with the Appendix A waste streams will result in substantial reduction of these pollutants. This determination must be based upon a review of relevant engineering, production, and sampling and analysis information.

Effluent characteristics	Effluent limitations BAT and NSPS [1]	
	Maximum for any one day	Maximum for for any monthly average
Acenaphthene	59	22
Acenaphthylene	59	22
Acrylonitrile	242	96
Anthracene	59	22
Benzene	136	37
Benzo(a)anthracene	59	22
3,4-Benzofluoranthene	61	23
Benzo(k)fluoranthene	59	22
Benzo(a)pyrene	61	23
Bis(2-ethylhexyl) phthalate	279	103
Carbon Tetrachloride	38	18
Chlorobenzene	28	15
Chloroethane	268	104
Chloroform	46	21
2-Chlorophenol	98	31
Chrysene	59	22
Di-n-butyl phthalate	57	27
1,2-Dichlorobenzene	163	77
1,3-Dichlorobenzene	44	31
1,4-Dichlorobenzene	28	15
1,1-Dichloroethane	59	22
1,2-Dichloroethane	211	68
1,1-Dichloroethylene	25	16
1,2-trans-Dichloroethylene	54	21
2,4-Dichlorophenol	112	39
1,2-Dichloropropane	230	153
1,3-Dichloropropylene	44	29
Diethyl phthalate	203	81
2,4-Dimethylphenol	36	18
Dimethyl phthalate	47	19
4,6-Dinitro-o-cresol	277	78
2,4-Dinitrophenol	123	71
2,4-Dinitrotoluene	285	113
2,6-Dinitrotoluene	641	255
Ethylbenzene	108	32
Fluoranthene	68	25
Fluorene	59	22
Hexachlorobenzene	28	15
Hexachlorobutadiene	49	20
Hexachloroethane	54	21
Methyl Chloride	190	86
Methylene Chloride	89	40
Naphthalene	59	22
Nitrobenzene	68	27

Effluent characteristics	Effluent limitations BAT and NSPS[1]	
	Maximum for any one day	Maximum for for any monthly average
2-Nitrophenol	69	41
4-Nitrophenol	124	72
Phenanthrene	59	22
Phenol	26	15
Pyrene	67	25
Tetrachloroethylene	56	22
Toluene	80	26
Total Chromium	2,770	1,110
Total Copper	3,380	1,450
Total Cyanide	1,200	420
Total Lead	690	320
Total Nickel	3,980	1,690
Total Zinc[2]	2,610	1,050
1,2,4-Trichlorobenzene	140	68
1,1,1-Trichloroethane	54	21
1,1,2-Trichloroethane	54	21
Trichloroethylene	54	21
Vinyl Chloride	268	104

[1] All units are micrograms per liter.

[2] Total Zinc for Rayon Fiber Manufacture that uses the viscose process and Acrylic Fiber Manufacture that uses the zinc chloride/solvent process is 6,796 µg/l and 3,325 µg/l for maximum for any one day and maximum for monthly average, respectively.

5. In § 414.101, paragraphs (b)(1) and (b)(2) are removed and the second sentence of the introductory text of paragraph (b), the flush paragraph of paragraph (b), and the table are revised and combined to form one paragraph to read as follows:

§ 414.101 Toxic pollutant effluent limitations and standards for direct discharge point sources that do not use end-of-pipe biological treatment.

* * * * *

(b) * * * The metal-bearing waste streams and cyanide-bearing waste streams are defined as those waste streams listed in Appendix A of this part, plus any additional OCPSF process wastewater streams identified by the permitting authority on a case-by-case basis as metal or cyanide bearing based upon a determination that such streams contain significant amounts of the pollutants identified above. Any such streams designated as metal or cyanide bearing must be treated independently of other metal or cyanide bearing waste streams unless the permitting authority determines that the combination of such streams, prior to treatment, with the Appendix A waste streams will result in substantial reduction of these pollutants. This determination must be based upon a review of relevant engineering, production, and sampling and analysis information.

Effluent characteristics	BAT effluent limitations and NSPS[1]	
	Maximum for any one day	Maximum for monthly average
Acenaphthene	47	19
Acenaphthylene	47	19
Acrylonitrile	232	94
Anthracene	47	19
Benzene	134	57
Benzo(a)anthracene	47	19
3,4-Benzofluoranthene	48	20
Benzo(k)fluoranthene	47	19
Benzo(a)pyrene	48	20
Bis(2-ethylhexyl) phthalate	258	95
Carbon Tetrachloride	380	142
Chlorobenzene	380	142
Chloroethane	295	110
Chloroform	325	111
Chrysene	47	19
Di-n-butyl phthalate	43	20
1,2-Dichlorobenzene	794	196
1,3-Dichlorobenzene	380	142
1,4-Dichlorobenzene	380	142
1,1-Dichloroethane	59	22
1,2-Dichloroethane	574	180
1,1-Dichloroethylene	60	22
1,2-trans-Dichloroethylene	66	25
1,2-Dichloropropane	794	196
1,3-Dichloropropylene	794	196
Diethyl phthalate	113	46
2,4-Dimethylphenol	47	19
Dimethyl phthalate	47	19
4,6-Dinitro-o-cresol	277	78
2,4-Dinitrophenol	4,291	1,207
Ethylbenzene	380	142
Fluoranthene	54	22
Fluorene	47	19
Hexachlorobenzene	794	196
Hexachlorobutadiene	380	142
Hexachloroethane	794	196
Methyl Chloride	295	110
Methylene Chloride	170	36
Naphthalene	47	19
Nitrobenzene	6,402	2,237
2-Nitrophenol	231	65
4-Nitrophenol	576	162
Phenanthrene	47	19
Phenol	47	19
Pyrene	48	20
Tetrachloroethylene	164	52
Toluene	74	28
Total Chromium	2,770	1,110
Total Copper	3,380	1,450
Total Cyanide	1,200	420
Total Lead	690	320
Total Nickel	3,980	1,690
Total Zinc[2]	2,610	1,050
1,2,4-Trichlorobenzene	794	196
1,1,1-Trichloroethane	59	22
1,1,2-Trichloroethane	127	32
Trichloroethylene	69	26
Vinyl Chloride	172	97

[1] All units are micrograms per liter.

[2] Total Zinc for Rayon Fiber Manufacture that uses the viscose process and Acrylic Fibers Manufacture that uses the zinc chloride/solvent process is 6,796 µg/l and 3,325 µg/l for maximum for any one day and maximum for monthly average, respectively.

6. Part 414 is amended by adding subpart K to read as follows:

Subpart K—Indirect Discharge Point Sources

Sec.

Subpart K—Indirect Discharge Point Sources

§ 414.110 Applicability; description of the subcategory of indirect discharge point sources.

The provisions of this subpart are applicable to the process wastewater discharges resulting from the manufacture of the OCPSF products and product groups defined by § 414.11 from any indirect discharge point source.

§ 414.111 Toxic pollutant standards for indirect discharge point sources.

(a) Any point source subject to this subpart must achieve discharges not exceeding the quantity (mass) determined by multiplying the process wastewater flow subject to this subpart times the concentration listed in the following table.

(b) In the case of lead, zinc, and total cyanide the discharge quantity (mass) shall be determined by multiplying the concentrations listed in the following table for these pollutants times the flow from metal-bearing waste streams for metals and times the flow from the cyanide-bearing waste streams for total cyanide. The metal-bearing waste streams and cyanide-bearing waste streams are defined as those waste streams listed in Appendix A of this part, plus any additional OCPSF process wastewater streams identified by the control authority on a case-by-case basis as metal or cyanide bearing based upon a determination that such streams contain significant amounts of the pollutants identified above. Any such streams designated as metal or cyanide bearing must be treated independently of other metal or cyanide bearing waste streams unless the control authority determines that the combination of such streams, prior to treatment, with the Appendix A waste streams will result in substantial reduction of these pollutants. This determination must be based upon a review of relevant engineering, production, and sampling and analysis information.

Effluent characteristics	PSES and PSNS [1]	
	Maximum for any one day	Maximum for any monthly average
Acenaphthene	47	19
Anthracene	47	19
Benzene	134	57
Bis(2-ethylhexyl) phthalate	258	95
Carbon Tetrachloride	380	142
Chlorobenzene	380	142
Chloroethane	295	110
Chloroform	325	111
Di-n-butyl phthalate	43	20
1,2-Dichlorobenzene	794	196
1,3-Dichlorobenzene	380	142
1,4-Dichlorobenzene	380	142
1,1-Dichloroethane	59	22
1,2-Dichloroethane	574	180
1,1-Dichloroethylene	60	22
1,2-trans-Dichloroethylene	66	25
1,2-Dichloropropane	794	196
1,3-Dichloropropylene	794	196
Diethyl phthalate	113	46
Dimethyl phthalate	47	19
4,6-Dinitro-o-cresol	277	78
Ethylbenzene	380	142
Fluoranthene	54	22
Fluorene	47	19
Hexachlorobenzene	794	196
Hexachlorobutadiene	380	142
Hexachloroethane	794	196
Methyl Chloride	295	110
Methylene Chloride	170	36
Naphthalene	47	19
Nitrobenzene	6,402	2,237
2-Nitrophenol	231	65
4-Nitrophenol	576	162
Phenanthrene	47	19
Pyrene	48	20
Tetrachloroethylene	164	52
Toluene	74	28
Total Cyanide	1,200	420
Total Lead	690	320
Total Zinc [2]	2,610	1,050
1,2,4-Trichlorobenzene	794	196
1,1,1-Trichloroethane	59	22
1,1,2-Trichloroethane	127	32
Trichloroethylene	69	26
Vinyl Chloride	172	97

[1] All units are micrograms per liter.

[2] Total Zinc for Rayon Fiber Manufacture that uses the viscose process and Acrylic Fiber Manufacture that uses the zinc chloride/solvent process is 6,796 µg/l and 3,325 µg/l for maximum for any one day and maximum for monthly average, respectively.

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DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

49 CFR Part 604

[Docket No. 92–E]

RIN 2132–AA40

Charter Services Demonstration Program

AGENCY: Federal Transit Administration, DOT.

ACTION: Final rule.

SUMMARY: Section 3040 of the Intermodal Surface Transportation Efficiency Act (ISTEA) directs the Federal Transit Administration (FTA) to issue regulations establishing a demonstration program which would permit transit operators to provide charter services for purpose of meeting the transit needs of government, civic, charitable, and other community activities which otherwise would not be served in a cost effective and efficient manner. Section 3040 also requires the FTA to consult with a board representing public transit operators and privately owned charter services. Today's final rule describes the demonstration program that the FTA has developed in consultation with a committee equally representative of the public and private sectors. During the demonstration program, recipients in eight sites within four States will be allowed to provide direct charter service as determined by local officials according to certain set criteria.

EFFECTIVE DATE: August 9, 1993.

FOR FURTHER INFORMATION CONTACT: Rita Daguillard, Attorney-Advisor, FTA Office of Chief Counsel, (202) 366–1936, or Rosemary Woods, FTA Office of Private Sector Initiatives, (202) 366–1666.

SUPPLEMENTARY INFORMATION:

I. Background

On April 13, 1987, the FTA, then the Urban Mass Transportation Administration, revised its charter service regulation, 49 CFR part 604. The principle underlying this regulation is that federally funded equipment and facilities may not be used to compete unfairly with private charter operators, in keeping with sections 3(f) and 12(c)(6) of the Federal Transit Act, as amended (49 U.S.C. 1602(f) and 1608(c)(6)). When the regulation went into effect on May 13, 1987, it was subject to five limited exceptions, set out in 49 CFR 604.9. Under these exceptions, a recipient of Federal funds may provide charter services if: (1) there is no willing and able private charter operator; (2) the private charter operator does not have the capacity needed for a particular charter trip; (3) the private charter operator is unable to provide equipment accessible to the elderly and persons with disabilities; (4) is non-urbanized areas, the charter service that would be provided would result in a hardship on users; or, (5) private charter operators are not capable of providing service for special events.

On December 22, 1987, the President signed the Department of Transportation and Related Agencies Appropriations Act, 1988 (Pub. L. 100–202, 101 Stat. 1329; hereafter the "FY 1988 Act"). In the Conference Report accompanying the FY 1988 Act, the FTA was directed to amend its charter service regulation to "permit non-profit social service agencies to seek bids for charter service from publicly funded operators." (Conf. Rept., Committee Print accompanying Department of Transportation and Related Agencies Appropriations Act, 1988, 100th Cong., 1st Sess. 62). This report suggests that "[t]hese non-profit agencies * * * be limited to government entities and those entities subject to sections 501(c) 1,3,5[sic] and 19 of the Internal Revenue Code." The Report recommends that "[i]n such cases, the public operator * * * be required to identify to the chartering organizations any private operator that has notified it of its willingness and ability to provide comparable charter service."

Further to this congressional directive, the FTA amended its charter regulation on December 30, 1988, to provide three additional exceptions to the general prohibition on the use of federally funded equipment and facilities for charter service (53 FR 53348).

The first exception allows the use of FTA-funded equipment and facilities for direct charter service with non-profit social service agencies that are governmental entities or organizations exempt from taxation under Internal Revenue Code 501(c) (1), (3), (4) and (19), provided that the agency is contracting for service for persons with disabilities; is a recipient of funds under certain U.S. Department of Health and Human Service ("USDHHS") programs; or has been State-certified according to the procedure set forth in § 604.9(b)(5)(iii) of the Charter Service Regulation.

The second exception provides an additional exemption for nonurbanized areas by allowing FTA-funded equipment and facilities operated by recipients in such areas to be used incidentally in direct charter service for