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EPA'S PRETREATMENT PROGRAM

Tad A. Gold*

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* J.D., 1979, George Washington University Law School; LL.M., 1987, George Washington University Law School. The author works in the Environmental Protection Agency's Superfund Policy and Analysis Branch, managing the revisions to the National Contingency Plan. The author gratefully acknowledges Rebecca Webber for her editorial assistance and Professor Arnold Reitze of George Washington University Law School for explaining why environmental law is so important (and so interesting). The views expressed in this Article are the author's and do not necessarily reflect the views of the Environmental Protection Agency.
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I. INTRODUCTION

The control of discharges of toxic pollutants into the nation's surface waters is a matter of significant environmental concern. Toxic substances, primarily toxic metals and toxic organics,¹ adversely affect human health. Many are toxic to aquatic life as well. Substantial quantities of toxic pollutants have been and still are being discharged into surface waters throughout the country.²

² In 1982, the Association of Interstate Water Pollution Control Administrators estimated that 14,000 stream miles in thirty-nine states had been polluted by toxic substances. Also adversely affected by toxics were 638,000 acres of lakes in sixteen states and 920 square miles of estuaries in eight states. Lewis, Pretreatment of Industrial Wastes, EPA J., Sept. 1985, at 5.
The Environmental Protection Agency (EPA) primarily directed its first efforts at controlling these toxic discharges at the direct discharge of toxics by industrial facilities. The National Permit Discharge Elimination System (NPDES) permits required by the Clean Water Act (CWA) in order to discharge wastewater directly into surface waters, often contained specific limits and requirements regarding toxic discharges.\(^3\) Large quantities of industrial wastewater, however, are not discharged directly into surface waters but are discharged indirectly to surface waters via publicly owned treatment works (POTWs).\(^4\) Therefore, the EPA is now placing greater emphasis on controlling the indirect discharge of toxic pollutants.

The basic premise underlying this effort is that significant headway against toxic pollution of surface waters will not be made until American industry starts treating its toxic pollutants before discharging them into POTWs.\(^5\) As a result, the EPA's pretreatment program requires that Industrial Users (IUs) treat their wastewater before it reaches a POTW, whether through compliance with national standards or with standards set by a POTW.\(^6\) In addition, large POTWs and POTWs with significant industrial wastestreams must implement their own controls for the pretreatment of discharges from IUs.\(^7\)

The EPA's pretreatment standards consist of three basic elements. National categorical standards are specific effluent limitations


\(^4\) In 1981, the EPA estimated that roughly sixty percent of the total toxic metals and organics discharged by industry goes to publicly owned treatment works (POTWs) which are primarily equipped to treat only domestic sewage. Lewis, supra note 2, at 5. POTW refers to treatment facilities and sewers and pipes that convey wastewater to the treatment facility. 40 C.F.R. § 403.3(o) (1987). “Domestic sewage” is defined as untreated sanitary wastes that pass through a sewer system. 40 C.F.R. § 261.4(a)(1) (1987).

\(^5\) Pretreatment involves:
the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of the pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration may be obtained by physical, chemical, or biological processes, process changes, or by other means.
40 C.F.R. § 403.3(q) (1987).

\(^6\) The facilities subject to pretreatment program requirements treat an estimated eighty-two percent of all industrial wastewater discharged to POTWs and over ninety percent of wastewater from the roughly 14,000 industrial users (IUs) subject to the national categorical pretreatment standards. This industrial flow is approximately 3.7 billion gallons per day (gpd) out of 23.9 billion gpd of total wastewater flow to these POTWs. EPA REPORT TO CONGRESS ON THE DISCHARGE OF HAZARDOUS WASTES TO PUBLICLY OWNED TREATMENT WORKS 1–7 (doc. no. 530-SW-86-004 Feb. 1986) [hereinafter REPORT TO CONGRESS]; Lewis, supra note 2, at 6–7.

\(^7\) Approximately 1,500 out of nearly 15,000 POTWs are required to develop a federally approved pretreatment program. REPORT TO CONGRESS, supra note 6, at 1–7.
for particular industrial categories. Prohibited discharge standards regulate nondomestic uses. These standards are either general prohibitions against discharges that cause pass through or interference at the POTW or specific prohibitions against discharges causing a fire or explosion hazard, corrosive structural damage, interference due to flow obstruction, interference due to flow rate or concentration, or interference due to heat. Local limits are specific requirements developed by individual POTWs to implement the general and specific prohibitions and to attain compliance with other federal, state, and local requirements.

The Article discusses the statute, regulations, and the EPA guidance documents that provide the basis for the EPA's pretreatment program. The Article begins with a description of the three-tiered layer of pretreatment standards and how modifications of national standards can be obtained when individual circumstances warrant. The Article then describes how industry and environmental groups challenged important aspects of the pretreatment program and how such challenges were resolved. The Article then discusses the EPA's requirement that certain POTWs establish their own pretreatment programs. Finally, the Article discusses enforcement actions taken against both POTWs and IUs for noncompliance with pretreatment requirements.

II. BACKGROUND

A. Why Pretreatment Is Necessary

Pretreatment requirements for toxic discharges are necessary because most POTWs are designed to treat only domestic sewage. Toxic discharges, which can differ greatly in composition from domestic sewage, severely disrupt POTW operations. Toxic pollu-

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8 See infra notes 114–80 and accompanying text.
9 Regulating nondomestic users means that these requirements are not limited to specific industries. See infra notes 46–49 and accompanying text.
10 See infra notes 46–49 and accompanying text.
11 See infra notes 328–353 and accompanying text.
12 POTWs are generally equipped to remove the conventional pollutants: biochemical oxygen demand (BOD), total suspended solids (TSS), pH, fecal coliform, and oil and grease. 40 C.F.R. § 401.16 (1987). Domestic wastewater generally undergoes two stages of treatment, primary and secondary. Primary and secondary treatment processes vary so that the following is only a general description of how domestic sewage is treated. In the primary stage, screens, settling tanks, and skimming devices are used to separate sand, grit, and larger solids from the wastewater. Secondary treatment consists of biological processes to further purify the wastewater. The
tants may chemically or physically inhibit or destroy the bacteria and other organisms used in secondary treatment.\textsuperscript{13} This effect is called interference.\textsuperscript{14} Another serious consequence of toxic discharges is that the toxics may pass through the POTW without undergoing treatment or removal and be discharged into the receiving water in dangerous concentrations. Pass through or interference does not occur unless a POTW violates discharge limitations contained in its NPDES permit.\textsuperscript{15} For example, the biochemical oxygen demand (BOD) permit limitations may be exceeded. If the receiving water is also a source of drinking water, the discharge of toxic pollutants may increase the cost of treatment to achieve drinking water standards or may endanger human health. Additionally, the POTW's sludge may become contaminated with toxic pollutants and either render the sludge incompatible for its intended use, or make it difficult or harmful to otherwise dispose of the sludge.\textsuperscript{16}

wastewater flows into a tank in which bacteria and other organisms are utilized to consume the organic matter in the sewage. The wastewater flows into another sedimentation tank in which the bacteria is removed. The wastewater is then disinfected with chlorine, and sometimes then dechlorinated, prior to discharge into the receiving water. When operated properly, primary and secondary treatment can remove up to ninety percent of the conventional pollutants in wastewater streams. EPA, PRIMER FOR WASTEWATER TREATMENT 3-5 (document MCD-65 July 1980) [hereinafter EPA PRIMER].

\textsuperscript{13} The pollutants may also hydraulically overload a POTW so that proper settlement does not occur or wastes are retained for too short a time to receive adequate treatment before discharge. 52 Fed. Reg. 1,590 (1987).

\textsuperscript{14} 40 C.F.R. § 403.3(i) (1987).

\textsuperscript{15} POTWs are considered point sources and, therefore, are required under CWA §§ 301 and 402 to have National Permit Discharge Elimination System (NPDES) permits prior to discharging into surface waters. 33 U.S.C. §§ 1311, 1342 (1982 & Supp. IV 1986). Further, CWA § 301 requires POTWs to achieve discharge effluent limitations based upon secondary treatment, as defined in 40 C.F.R. pt. 133 (1987). The regulation provides numerical parameters for secondary treatment, which are based upon measurements of TSS, BOD, and pH. The measurements are based upon arithmetic means of pollutant parameter values for samples collected in a period of either seven or thirty consecutive days (seven- and thirty-day averages). 40 C.F.R. §§ 133.101, 133.102 (1987).

Suspended solids are the particles of solid pollutants remaining in the effluent. The seven- and thirty-day averages are measurements of the weight of suspended solids per volume of water retained on a 0.45 micron filter (for example, the seven-day average shall not exceed 45 mg/l). 40 C.F.R. § 133.102(b)(2) (1987). The BOD parameter is an indicator of the amount of organic matter remaining in the effluent discharged into the water after going through a POTW. EPA PRIMER, supra note 12, at 3.

BOD is a five-day laboratory test of the oxygen demand of the effluent and is also based on seven- and thirty-day averages of weight per volume. \textit{Id.} Organic pollutants "use" or "demand" dissolved oxygen in the water in order to decay naturally. Dissolved oxygen, however, is key to the survival of aquatic life in the water. If too much organic pollution is discharged, too much dissolved oxygen is used by the sewage and not enough is left to support fish and beneficial plant life. \textit{Id.}

\textsuperscript{16} Sludge is the solid matter that either settles to the bottom, floats, or becomes suspended
The purpose of the EPA's pretreatment program is to require industrial facilities to use treatment processes designed specifically for their toxic wastes so that these pollutants never reach a POTW in dangerous concentrations. A POTW can then remove pollutants from the industrial wastestream that it is equipped to handle. Thus, pretreatment is necessary to protect a POTW and receiving waters.

B. History of the EPA's Pretreatment Program

1. The 1972 Clean Water Act

The Federal Water Pollution Control Act Amendments of 1972 established pretreatment requirements. The Act required the EPA to promulgate pretreatment standards for the introduction of pollutants by existing sources and new sources into POTWs. The standards were intended to prevent the discharge of any pollutant into a POTW that interfered with, passed through, or was otherwise incompatible with operation of the POTW. The Act made it unlawful to operate a new or existing source in violation of published pretreatment standards.

2. The NRDC Consent Decree

The EPA initially attempted to implement the requirement to promulgate both pretreatment standards and direct discharge standards for toxic pollutants by developing health-based standards on in the sedimentation tanks during primary and secondary treatment. Sludge itself requires further treatment to destroy harmful organisms and to remove the high content of water. After such treatment, sludge can be spread directly on land as a soil conditioner, disposed in landfills, or burned for fuel because of its high organic content. EPA PRIMER, supra note 12, at 17–18.


18 Pub. L. No. 92-240, 86 Stat. 47 (1972) (codified at 33 U.S.C. § 1251 (1982)) (otherwise known as the Clean Water Act or the CWA). In this Act, the overall foundation for the regulatory effort to protect surface water shifted from ambient water quality standards to effluent or "end-of-pipe" standard. Hall, The Evolution and Implementation of EPA's Regulatory Program to Control the Discharge of Toxic Pollutants to the Nation's Waters, 10 NAT. RESOURCES LAW 507, 508 (1977). The objective was to improve ambient water quality but the primary focus was on increasingly stringent levels of technology on point source discharges. Id.

19 CWA § 307(b), (c), 33 U.S.C § 1317(b), (c) (1982). New sources are defined in CWA § 306(a)(2) as a source whose construction is commenced after publication of a proposed regulation. 33 U.S.C. § 1316(a)(2) (1982); see infra notes 159–78 and accompanying text.


a pollutant-by-pollutant basis.\textsuperscript{22} The EPA’s slow pace in publishing such standards prompted several frustrated environmental groups to sue the EPA in 1976 to challenge the EPA’s failure to develop the required toxic effluent discharge standards.\textsuperscript{23} This suit resulted in a settlement agreement known as the “NRDC consent decree.”\textsuperscript{24}

Pursuant to this agreement, the EPA started to regulate toxic pollutants on an industry-by-industry basis through the establishment of technology-based standards.\textsuperscript{25} The EPA agreed to develop effluent limitations guidelines reflecting “best available technology economically achievable” (BAT), new source performance standards reflecting “best available demonstrated control technology,” and pre-treatment standards for sixty-five toxic pollutant compounds or classes.\textsuperscript{26}

There were several benefits to this change in approach from setting health-based standards on a pollutant-by-pollutant basis to setting national standards for discharges of pollutants by certain industries (categorical standards). Most importantly, the new approach allowed the EPA to set standards for far more substances and emission sources. In addition, the EPA could gather data on effluent content and control technology for all pollutants discharged by an industry, rather than regather such data each time a new pollutant was added to the list of substances to be regulated.\textsuperscript{27} Also, the EPA could develop a single regulatory package that would apply to all problem pollutants in the discharges of a particular industry.\textsuperscript{28} Such a package would enable the industry to predict the entire cost of

\begin{itemize}
\item \textsuperscript{22} CWA § 307(a), 33 U.S.C. § 1317(a) (1982).
\item \textsuperscript{23} A settlement agreement was reached prior to trial and approved by the court. Natural Resources Defense Council v. Train, 8 Env’t Rep. Cas. (BNA) 2120, 2122 (D.D.C. 1976).
\item \textsuperscript{24} Id.
\item \textsuperscript{25} In E.I. du Pont de Nemours & Co. v. Train, 430 U.S. 112 (1977), the Court affirmed the EPA’s contention that CWA § 301(b), 33 U.S.C. § 1311(b), authorized the issuance of best practicable control technology (BPT) effluent limitations for direct dischargers on an industry-wide basis. Petitioner had argued that that limitation must be set on a plant-by-plant basis. The Court also noted that the statute clearly required that BPT limitations be issued for categories and classes of point sources. Id. at 136. Technology-based means that standards are determined on the basis of the capability of specific wastewater treatment technology or series of technologies to reduce pollutant discharges. EPA GUIDANCE MANUAL FOR THE USE OF PRODUCTION-BASED PRETREATMENT STANDARDS AND THE COMBINED WASTESTREAM FORMULA, 1-1 to 1-2 (Sept. 1985) [hereinafter PRODUCTION-BASED MANUAL]; see infra note 115 and accompanying text.
\item \textsuperscript{26} Train, 8 Env’t Rep. Cas. (BNA) 2120. The list of sixty-five toxic pollutants is otherwise known as Table 1 of Committee Print number 95-30 of the Committee on Public Works and Transportation of the House of Representatives.
\item \textsuperscript{27} Hall, supra note 18, at 517.
\item \textsuperscript{28} Id. at 516.
\end{itemize}
pollution control. Further, the EPA could consider available technology and its cost to industry as it established its standards.

3. The Sixty-five Toxic Pollutant Compounds

The NRDC consent decree named sixty-five toxic pollutant compounds and classes of compounds to be regulated. Three criteria were used to identify these pollutants. One criterion was the known occurrence of these compounds in point source effluents, in aquatic environments, in fish, and/or drinking water. Another criterion was substantial evidence of carcinogenicity, mutagenicity, and/or teratogenicity in human epidemiological studies or in animal bioassay systems. The last criterion was the likelihood that point source effluents containing these compounds contributed substantially to human hazards, at least locally. Because the sixty-five toxic pollutants actually represent compounds or classes of compounds, they include potentially thousands of pollutants. From the list of sixty-five toxic compounds or classes, the EPA selected 129 pollutants as "priority pollutants."

Additionally, the NRDC consent decree identified twenty-one industrial categories for which the EPA would promulgate regulations to control discharges of the priority pollutants. The EPA later reorganized the original twenty-one groups into thirty-eight "primary industries" to account for diversification and dissimilarities between industrial processes within the same industrial category.

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29 Id.
30 Id. at 517.
31 REPORT TO CONGRESS, supra note 6, at 2-9 to 2-10.
32 Id. at 2-10.
33 For example, chromium, copper, and lead are compounds.
34 REPORT TO CONGRESS, supra note 6, at 2-10. The number was later reduced to 126. The sixty-five toxic compounds and classes are listed in 40 C.F.R. pt. 403, App. B. The EPA has deleted two compounds from this list. 51 Fed. Reg. 20,428 (1986). Most of the CWA toxic pollutants are also Resource Conservation and Recovery Act (RCRA) hazardous wastes, which are identified and listed in 40 C.F.R. pt. 261 (1987). REPORT TO CONGRESS, supra note 6, at 2-17.
35 Natural Resources Defense Council v. Train, 8 Env't Rep. Cas. (BNA) 2124, 2130 (D.D.C. 1976). Other industries may be regulated for toxic pollutants, depending on the severity of the problem and the availability of resources. The emphasis, however, was on the twenty-one major industries in order to produce "the biggest bang for the buck" in terms of gross reduction of the discharge of toxic pollutants. Hall, supra note 18, at 519.
36 The thirty-four industrial categories are listed in 40 C.F.R. pt. 403, App. C (1987). See infra note 179. Pollutants that are not among the primary pollutants, or discharges from industries not among the primary industries, can be regulated by individual POTWs setting local limits. See infra notes 328–333 and accompanying text.
4. The 1977 Clean Water Act

The 1977 amendments to the Clean Water Act (CWA) largely incorporated the substance and approach of the NRDC consent decree.37 In addition, the 1977 amendments made several changes specifically involving pretreatment standards. For example, CWA section 307(b)(1) was amended to allow for local modification of national categorical pretreatment standards to take into account the actual pollutant removal capabilities of particular POTWs.38 Also, the amendments added CWA section 309(f),39 allowing the EPA to bring a civil action against a POTW and an IU if the EPA had notified a POTW that pollutants were being discharged into the POTW in violation of CWA section 307(d)40 and the POTW had not brought an enforcement action within thirty days. CWA section 309(f) provided that the EPA could request appropriate relief, including a permanent or temporary injunction against a POTW. Finally, the 1977 Act amended CWA section 402(b)(8) to require POTWs issued an NPDES permit to identify pollutants from significant IUs and to implement an adequate local pretreatment program to ensure compliance by the IUs with national pretreatment standards.41

5. EPA Establishes Its Pretreatment Program

EPA did not publish a regulation establishing its general pretreatment program until nearly a year after the 1977 amendments.42 The

37 Pub. L. No. 95-217, 91 Stat. 1566 (1977) (codified at 33 U.S.C. § 1251 (1982)). In Environmental Defense Fund v. Costle, the court ruled that the 1977 amendments did not supersede the terms of the settlement. 636 F.2d 1229, 1241 (D.C. Cir. 1980). In Citizens for a Better Environment v. Gorsuch, the appellate court defended the district court's earlier acceptance of a consent decree against challenges. 718 F.2d 1117, 1130 (D.C. Cir. 1983). In this decision, the court determined that the decree did not impermissibly infringe on the EPA's discretion. Id. at 1128. The court acknowledged that the agreement underlying the decree contained more extensive criteria regarding the use of scientific methodologies and decisionmaking standards for developing toxic discharge regulations than those articulated in the statute. Id. at 1126–27.

The Gorsuch court ruled, however, that the district court had the authority to approve the agreement because it was consistent with the statute and because the legislative history for the 1977 Act indicated Congress's approval of the terms of the agreement. Id. at 1130. Further, the court rejected the argument that the agreement was invalid because it set forth a detailed program for developing regulations for the discharge of toxic pollutants. The court found the agreement acceptable because the agreement did not specify the substantive result of any regulations that the EPA was to propose. Id. at 1129.

41 33 U.S.C. § 1342(b)(8) (1982); see infra note 391 and accompanying text.
program establishes several layers of regulations with respect to indirect discharges through POTWs. For example, the program requires that the EPA develop categorical pretreatment standards that specify quantities or concentrations of particular pollutants or pollutant properties that may be discharged to a POTW. These standards apply to certain IUs within selected categories of industries that commonly discharge toxic pollutants. Categorical standards establish numerical technology-based discharge limits derived from an assessment of the types and amounts of pollutant discharges that typically interfere with or pass through POTWs with secondary treatment facilities. Like the BAT effluent limitations guidelines for removal of toxic pollutants by direct dischargers, these pretreatment standards are generally promulgated when the EPA determines that there is pass through of a pollutant. Pass through for purpose of national standard-making occurs when the nation-wide average percentage of a pollutant removed by well-operated POTWs achieving secondary treatment is less than removal achieved by industry applying best available technology.

In addition to setting categorical standards, the general pretreatment program prohibits the discharge of pollutants through a POTW that pass through or interfere with the operations of a POTW. The program also specifically prohibits from being introduced into a POTW any pollutant that would: (1) create a fire or explosion hazard in a POTW; (2) cause corrosive structural damage to a POTW; (3) cause obstruction to the flow in a POTW; (4) cause interference because of an excessive flow rate or concentration, including oxygen-demanding pollutants; or (5) cause interference because of excessive heat.

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43 An industry discharging directly into a receiving stream is considered a direct discharger and must obtain an NPDES permit pursuant to CWA § 402. 33 U.S.C. § 1342(a)(1) (1982).
44 40 C.F.R. § 403.6 (1987).
47 Discharges with pH less than 5.0 is corrosive unless compatible with the POTW.
48 For example, solid or viscous pollutants may cause obstruction to the flow in a POTW.
49 40 C.F.R. § 403.5(b) (1987). The EPA has recently proposed amending 40 C.F.R. § 403.5(b) to forbid discharges that result in toxic gases, fumes, or vapors in a quantity capable of causing worker health or safety problems. 53 Fed. Reg. 47,664 (1988) (to be codified at 40 C.F.R. § 403.5(b)) (proposed Nov. 23, 1988). The EPA also proposed to specify limits for the prohibition against creating a fire or explosion hazard. The proposed revision forbids discharges with a closed cup flashpoint of less than 140 degrees Fahrenheit (the RCRA standard for ignitable liquid waste under 40 C.F.R. § 261.21(a)(1) (1987)). 53 Fed. Reg. 47,653 (1988) (to be codified at 40 C.F.R. § 403.5(b)) (proposed Nov. 23, 1988).
As part of a layer of regulations separate from the national standards, the pretreatment program further provides that POTWs shall develop and implement specific local limits to implement the general and specific prohibitions described under 40 C.F.R. sections 403.5(a) and (b) and to ensure continued compliance with NPDES permits and sludge use or disposal practices.50

The program also provides mechanisms for tailoring the effluent limit in a categorical pretreatment standard to the unique circumstances of particular IUs and POTWs.51 In addition to these standard-setting requirements, the program mandates that individual POTWs establish their own pretreatment programs to ensure that the general prohibition and specific categorical standards are applied and enforced.52

In establishing this program, the EPA attempted to create a system to control toxic discharges to POTWs in a practical manner. National standards would be set from toxic pollutants discharged in significant amounts, an effective use of the EPA’s limited resources. Other toxic pollutants would be controlled, as appropriate, by individual POTWs setting standards depending on local conditions. Various elements of the program, however, were soon challenged.

6. Third Circuit Review of the EPA’s Pretreatment Program

Despite the EPA’s efforts to respond to industry’s needs, industry groups challenged several substantive provisions of the EPA’s regulations in 1979 and 1981.53 The challenges were consolidated in National Association of Metal Finishers (NAMF) v. Environmental Protection Agency.54


"Pass through" is defined somewhat differently for local limits than for national standards. For local limits, “pass through” is defined so as to address localized conditions, see infra note 328, and does not use the percent removal comparison test described above. See supra note 45 and accompanying text.

51 40 C.F.R. § 403.13 (1987); see infra notes 181-315 and accompanying text.

52 40 C.F.R. § 403.8 (1987); see infra notes 354-96 and accompanying text.

53 The regulation challenged included the revisions made in 1981. 46 Fed. Reg. 9,404 (1981) (codified at 40 C.F.R. pt. 403). These revisions included a modified definition of interference. See infra notes 83–93 and accompanying text. The revisions also clarified that a POTW must have the legal authority to deny or condition new or increased contributions of pollutants, or changes in the nature of pollutants, where the new or changed pollutant would violate pretreatment standards or cause the POTW to violate its NPDES permit. 40 C.F.R. § 403.8(e) (1982).
Protection Agency.\textsuperscript{54} This case represents the watershed in the history of the EPA's pretreatment program.\textsuperscript{55}

The most significant development in NAMF was the court's rejection of all industry challenges to the development of categorical standards for the electroplating industry, which covers as many as ten thousand existing industrial facilities.\textsuperscript{56} The court also upheld the program's mechanisms to modify categorical standards to fit individual circumstances.\textsuperscript{57} The court held, however, that CWA section 301(1) prohibited the EPA from granting fundamentally different factors variances for toxic pollutants covered by categorical pretreatment standards.\textsuperscript{58}

Additionally, the court remanded to the EPA the definitions of pass through, interference, and new source.\textsuperscript{59} The court determined that the definition of pass through had not been promulgated in accordance with Administrative Procedure Act (APA) notice and comment requirements.\textsuperscript{60} Also, the court ruled that the definition of interference was inconsistent with the statutory requirement to hold dischargers liable only if their discharges cause the POTW to violate its permit.\textsuperscript{61} Further, the court rejected the definition of new source as too narrow.\textsuperscript{62} EPA revised each of these definitions.\textsuperscript{63} The court's decision had a significant impact on the subsequent development and implementation of the pretreatment program.

7. The Domestic Sewage Exclusion

Another significant event in the history of the EPA's pretreatment program was Congress's request for a report on the domestic sewage exclusion (DSE). The DSE refers to an interpretation of the Solid

\textsuperscript{54} 719 F.2d 624 (3d Cir. 1983), \textit{rev'd}, 470 U.S. 116 (1985); \textit{see infra} notes 229-40 and accompanying text.
\textsuperscript{55} The bases for each of the court's determinations on the challenged provisions are discussed by topic in specific sections later in this Article.
\textsuperscript{56} 719 F.2d at 665-67; \textit{see infra} notes 116-42 and accompanying text.
\textsuperscript{57} For a discussion of removal credits, see \textit{infra} notes 248-315 and accompanying text. For a discussion of combined waterstream formula, see \textit{infra} notes 181-209 and accompanying text.
\textsuperscript{58} 33 U.S.C. § 1311(d) (1982). This specific determination was reversed in Chemical Mfr's. Ass'n v. Natural Resources Defense Council, 470 U.S. 116 (1985); \textit{see infra} notes 220-40 and accompanying text.
\textsuperscript{59} 719 F.2d at 638-43.
\textsuperscript{60} \textit{Id.} at 641; \textit{see infra} notes 83-93 and accompanying text.
\textsuperscript{61} 719 F.2d at 641; \textit{see infra} note 81 and accompanying text.
\textsuperscript{62} 719 F.2d at 642; \textit{see infra} notes 159-78 and accompanying text.
\textsuperscript{63} \textit{See infra} notes 83-93 and accompanying text.
Waste Disposal Act (SWDA)\textsuperscript{64} that provides that domestic sewage is specifically excluded from the definition of solid waste; therefore, because hazardous waste is a subset of solid waste, domestic sewage is not considered hazardous waste.\textsuperscript{65} Further, when industrial waste is discharged to sewers containing domestic sewage that is treated at a POTW, the industrial waste is not considered hazardous waste and is therefore exempt from hazardous waste regulation.\textsuperscript{66}

In 1984, Congress requested the EPA to conduct and submit a report analyzing the legitimacy and effectiveness of the DSE.\textsuperscript{67} The purpose of the study was to identify gaps currently in the Resource Conservation and Recovery Act (RCRA) that may threaten public health and the environment.\textsuperscript{68} EPA submitted its Report to Congress in February 1986.\textsuperscript{69} The Report identified key areas where additional information was necessary for the continued evaluation of the DSE but concluded that the DSE should be retained.\textsuperscript{70} The basis for the conclusion was that hazardous waste mixed with domestic sewage is regulated under CWA pretreatment requirements.\textsuperscript{71} Absent the DSE, the Report stated, RCRA waste management requirements would be imposed on top of CWA pretreatment requirements, requiring an integration of both programs. The Report concluded that it was unclear that a final integrated program would be substantively different from the existing pretreatment program once recommended improvements had been implemented.\textsuperscript{72}

The Report's recommended improvements included expansion of the list of specific prohibitions, expansion of the list of pretreatment categorical standards, better enforcement of categorical standards, improvement of local limits, improvement of controls on spills and batch discharges, as well as controls on liquid waste haulers and midnight dumpers, development of additional water quality criteria for toxic pollutants, and development of criteria for hazardous waste found in sludge.\textsuperscript{73} EPA summarized these recommendations and requested comments thereon in an Advanced Notice of Proposed Ru-

\textsuperscript{64} 42 U.S.C. § 6901 (1982). The definitions of "solid waste" and "hazardous waste" are at 42 U.S.C. § 6903(27), (5) (1982), respectively. The SWDA is commonly referred to as RCRA.
\textsuperscript{66} EPA Solid Wastes, 40 C.F.R. § 261.4 (1987).
\textsuperscript{67} 42 U.S.C. § 6939 (Supp. IV 1986).
\textsuperscript{69} REPORT TO CONGRESS, supra note 6.
\textsuperscript{70} Id. at 6-80 to 6-81.
\textsuperscript{71} Id. at 6-82.
\textsuperscript{72} Id.
\textsuperscript{73} Id. at 7-10 to 7-12.
lemaking (ANPR).\textsuperscript{74} Many of the EPA's recent improvements and modifications in pretreatment regulations are based on the Report's recommendations. The significant revisions are examined in the following detailed analysis of the elements of the EPA's pretreatment program.

III. Analysis

A. Interference and Pass Through

1. EPA's Original Definitions

EPA must establish pretreatment standards to prevent the discharge of pollutants to a POTW that interfere or pass through the POTW.\textsuperscript{75} In 1981, interference was defined as an inhibition or disruption of the POTW that causes or significantly contributes to either an NPDES permit violation or prevention of sludge use or disposal, including an increase in the magnitude or duration of a violation.\textsuperscript{76} Pass through was defined as a discharge through a POTW into navigable waters that causes or significantly contributes to an NPDES violation, including an increase in the magnitude or duration of a violation.\textsuperscript{77} EPA defined the term "significantly contributes" to include discharges in excess of the limits proscribed by law or in the IU's agreement with the POTW, discharges that substantially differed from an IU's average discharge, or discharges that an IU knew would result in permit violation or sludge problems.\textsuperscript{78}

Interference was a difficult definition to draft because the EPA was concerned with situations in which more than one IU was discharging pollutants to the same POTW. If several IUs within the same industrial category discharge the same pollutant, and the POTW violates its permit for that pollutant, it may well be that no single IU caused the violation but that all the discharges combined to cause the violation.\textsuperscript{79}

\textsuperscript{76} EPA Effluent Guidelines And Standards, 40 C.F.R. § 403.3 (1982).
\textsuperscript{77} Id.
\textsuperscript{78} Id.
Industry groups challenged these definitions in *NAMF*. In response, the court ruled that the definition of interference was inconsistent with the statute because the statutory prohibition against interference held dischargers to POTWs liable only for those discharges that caused a POTW permit violation or sludge problem. Thus, the phrase "or significantly contributes to..." violated the intent of the CWA because an IU could be held liable under this standard for permit violations or sludge problems caused by other IUs or the POTW itself. The court accepted NAMF's argument that under the challenged definition an IU could be held liable for interference if it was discharging more than its average or beyond its contract limit, even though another IU's discharge or a POTW's malfunctions actually caused the permit violation or sludge problem. The court ruled that Congress did not intend to write causation out of the standard for liability and remanded the definition to the EPA.

2. EPA's Revised Definitions

As a result of its difficulties in establishing the definitions of interference and pass through, the EPA asked the Pretreatment Implementation Review Task Force (PIRT) to recommend revised definitions that would clearly establish the causation required by the Third Circuit. In 1987, the EPA adopted most of PIRT's recommendations and published revised definitions of interference and pass through. Consequently, the EPA now defines interference as a discharge which, alone or in conjunction with discharges from other sources, inhibits or disrupts the POTW, resulting in an NPDES permit violation, including an increase in the magnitude or duration of a violation, or prevention of sludge use or disposal. EPA defines
pass through to mean a discharge that exits the POTW in quantities or concentrations that alone, or in conjunction with other discharges, results in an NPDES permit violation, including an increase in the magnitude or duration of a violation.\textsuperscript{86}

EPA deleted the phrase "significantly contributes to" and the criteria clarifying that phrase. The preamble to the new definitions explained that, under the revised definitions, an IU's liability for violating the general statutory prohibition against interference and pass through depends on whether the IU's discharge causes a violation.\textsuperscript{87} EPA explained that the definitions were intended to clearly notify IUs of their pretreatment obligations under the general prohibitions, namely, that IUs should not discharge pollutants so as to cause a POTW to violate its NPDES permit or sludge requirements. EPA encouraged IUs to contact their POTWs to determine the applicable NPDES permit and sludge requirements and the POTW's treatment processes and capabilities. Based on this information and an analysis of their own pollutant discharges, IUs could then determine whether their discharges might result in POTW noncompliance.\textsuperscript{88}

The preamble also explained that interference also occurs when pollutants discharged by the IU cause a POTW to violate the limit for another pollutant.\textsuperscript{89} For example, if an IU discharges toxic pollutants that inhibit a POTW's treatment process and cause a POTW to violate its BOD permit limits, the IU's discharge constitutes interference. Moreover, under this definition, an IU would be held liable for interference if its discharge causes a POTW violation, even though another factor, such as POTW operating difficulties, could also have contributed to POTW noncompliance.\textsuperscript{90}

To further clarify when IUs are liable for interference, the EPA added to the new definitions of pass through and interference language expanding the definition of violation to include any "increase in the magnitude or duration of a [NPDES permit] violation."\textsuperscript{91} Thus, when one IU's discharge causes a POTW's violation, and a subsequent discharge from another IU disrupts the POTW's remedial efforts and causes the POTW to remain in noncompliance for an additional amount of time, the subsequent discharge from the second

\textsuperscript{86} 40 C.F.R. § 403.3(n) (1987).
\textsuperscript{87} Id. at 1588-91.
\textsuperscript{88} Id. at 1589-90.
\textsuperscript{89} Id. at 1590.
\textsuperscript{90} Id.
\textsuperscript{91} 40 C.F.R. § 403.3 (1987).
IU would also be considered interference. The second IU is not excused from potential liability simply because another IU had initially caused the POTW to violate its permit. Thus, if efforts by a POTW or an IU to remedy an existing problem are frustrated by a second IU that causes a new problem before the first problem has been fully corrected, an enforcement action can be brought against that second IU.92

Similarly, the EPA explained that the phrase “alone or in conjunction with discharges from other sources” addressed the problems arising from multiple discharge causation. Under this addition, an IU would be potentially liable if its discharge caused a POTW's noncompliance even if discharges from other IUs, simultaneous or sequential, were also contributing causes of the noncompliance. For example, if one IU discharged an amount of pollutant that did not significantly inhibit the POTW but, together with simultaneous discharges of the same pollutant from other IUs, caused a POTW to violate its permit, each discharge would be considered interference. EPA stated that such multiple discharger liability was necessary because joint causation of interference is likely to be common at any POTW with multiple IUs. Multiple discharges of wastes, varying in both amount and constituents, increase the likelihood that a combination of discharges will disrupt a POTW's treatment capacity even though a single discharge may not adversely affect POTW operations.93

Thus, the EPA addressed several problems in redefining pass through and interference. One problem was how to notify IUs of their pretreatment obligations. Through the definitions, the EPA instructed IUs that they would be liable if their discharge caused a POTW to violate its permit or prevented it from disposing or using its sludge. A second problem was how to assign liability if more than one POTW discharged pollutants to a POTW. The language that an increase in magnitude or duration of a violation was itself considered a violation precludes one IU from being excused simply because another IU had initially caused the POTW to violate its permit.

3. Affirmative Defenses

These revised definitions would probably not meet the Third Circuit’s requirement that an IU cannot be held liable for interference

93 Id.
unless it caused a POTW's permit violation or sludge problem. To remedy this problem, the regulatory definitions of interference and pass through include two affirmative defenses to an allegation of interference or pass through. One defense is available when an IU can show that its discharge, which allegedly caused interference or pass through, was in compliance with a local limit developed for that pollutant and that the IU did not know or have reason to know that its discharge alone or in combination with other discharges would cause POTW noncompliance. The purpose of this affirmative defense is to minimize an IU's uncertainty as to their pretreatment obligations.

The other affirmative defense applies in the absence of local limits when an IU can establish that its discharge prior to and during a POTW's noncompliance was substantially the same, in nature and in constituents, as its discharge when the POTW was regularly in compliance with its permit or applicable sludge use or disposal requirements. The policy underlying this defense is to provide certainty to IUs regarding the standard of liability. An IU knows that, if its discharge remains substantially the same, it should not be held responsible if a POTW goes out of compliance. Further, the EPA has assumed that an unchanged discharge is at most a minor cause of a POTW's noncompliance.

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94 52 Fed. Reg. 1,592 (1987) (codified at 40 C.F.R. pt. 403). The Third Circuit would probably question these revisions, standing on their own, because they fail to preclude a finding that a single IU is liable when, in fact, the discharges of more than one IU have caused pass through or interference.

95 Id.

96 40 C.F.R. § 403.3(a)(2) (1987). The preamble to the revised definitions explained that the local limits for interference and pass through must be established in accordance with the three basic steps described in 40 C.F.R. § 403.5(c). First, a POTW must determine which pollutants discharged by its IUs have a reasonable potential to interfere or pass through. Second, for each of these pollutants, a POTW must then determine the maximum loading that it can accept without resulting in interference or pass through. Third, after the total maximum loadings are established for each pollutant, a POTW must “distribute” the maximum loadings it will accept from each of its individual IUs and incorporate these units into its contract with that IU. The EPA cautioned that a POTW must update these limits as necessary to reflect changing conditions, that is, increased domestic wastewater flow or changes in IU wastewater characteristics or population. 52 Fed. Reg. 1,592-93 (1987). The preamble advised that the procedures for calculating maximum loadings and implementing local limits are explained in EPA GUIDANCE MANUAL FOR POTW PROGRAM DEVELOPMENT (Oct. 1983); see also EPA GUIDANCE MANUAL ON THE DEVELOPMENT AND IMPLEMENTATION OF LOCAL DISCHARGE LIMITATIONS UNDER THE PRETREATMENT PROGRAM (Dec. 1987) [hereinafter LOCAL DISCHARGE MANUAL].


EPA distinguished the first affirmative defense from a previously proposed, but never finalized, broad "safe harbor" provision. This provision would have relieved an IU from liability if the IU established that its discharge was in accordance with national categorical standards and state and local pretreatment standards. Compliance with a national or state standard does not necessarily protect the POTW, however, because each POTW has its own treatment processes and sludge practices. Further, according to the EPA, even the local pretreatment standards developed by some of the larger POTWs typically address only a small number of toxic metals and conventional pollutants. In summary, the EPA explained that a broad safe harbor is unacceptable because the POTW would have the entire burden of anticipating and regulating all discharges that may interfere with or pass through the POTW.

Accordingly, the EPA has emphasized that the local limit affirmative defense should apply only when a POTW and an IU have conducted a detailed technical analysis of the potential impact of a particular pollutant and established a limit that will protect the IU. If this analysis is done properly, the local limit would in effect function as a site-specific application of the general statutory prohibitions against interference and pass through. Further, the duty to pretreat industrial discharges to assure compatibility with the POTW would rest with the users that generate the discharge.

The second affirmative defense available, the "unchanged discharge" defense, was created to address the concern of IUs in a multiple discharger situation. Absent this defense, an excessive discharge by one IU could trigger liability for all IUs discharging the same pollutant. Further, this defense protects an IU when a POTW determines that it will not regulate a particular pollutant under its local limits program.

The "unchanged discharge" defense cannot be used where an IU is subject to a local limit for the pollutant that caused the interference or pass through. This limitation prevents a chronic violator of local limits are set in order to prevent pass through or interference. Noncompliance with such limits, therefore, results in pass through or interference.
limits from asserting that it is nonetheless not liable because its discharge remained substantially unchanged. Also, as with the first affirmative defense, this defense is not available if an IU knew or had reason to know that its discharge would cause POTW noncompliance.\textsuperscript{107}

To establish this defense, an IU must demonstrate a relatively consistent discharge pattern that coincides with a history of POTW compliance.\textsuperscript{108} Consistency means discharges of substantially the same flow, type, and concentration of pollutants on a daily, continuous, or some kind of regular basis. The defense would not be available to an IU that could not establish this consistency regarding its own discharges, even if a POTW had a history of steady compliance. Similarly, even if an IU could establish its own consistency, it could not use the defense if a POTW was not regularly in compliance.\textsuperscript{109}

4. IU Liability When a POTW Violation Is Excused

A POTW does not necessarily have to be held liable for a permit violation in order for an IU to be held liable for a discharge that causes pass through or interference. Even when a POTW permit violation is excused on the grounds of bypass or upset, the IU may still be liable for the discharge that caused the bypass or upset.\textsuperscript{110} A bypass is an intentional diversion of a wastestream. Pursuant to the EPA's regulations, a POTW is excused from liability when the bypass is necessary to prevent loss of life, serious injury, or severe property damage.\textsuperscript{111} An upset is an exceptional incident that creates unintentional and temporary noncompliance with a NPDES permit.\textsuperscript{112} Similar to a bypass, an upset does not subject a POTW to liability if the POTW identifies the upset's cause and demonstrates that its treatment facilities were being operated properly. Even if a POTW establishes a bypass or upset defense, however, an IU may be held responsible for the interference or pass through at the POTW.\textsuperscript{113} An IU's liability is determined by the problems that its

\textsuperscript{108} Id.
\textsuperscript{109} Id.
\textsuperscript{110} Id. at 1596.
\textsuperscript{111} 40 C.F.R. § 122.41(m) (1987).
\textsuperscript{112} 40 C.F.R. § 122.41(n) (1987).
discharge causes the POTW, not whether the POTW's liability for a permit violation is excused pursuant to the bypass and upset provisions.

B. Development of Categorical Standards

In order to better ensure that the general prohibitions against pass through and interference are observed, the EPA is primarily concerned with the development of categorical pretreatment standards for those toxic pollutants and industries that are most likely to cause such events. These standards are developed on an industry-by-industry basis and are technology-based. Thus, the EPA determines the capability of specific wastewater treatment technology or series of technologies to reduce pollutant discharges to a POTW. Industrial facilities are not necessarily required to use the technology that formed the basis of the pretreatment standard. Industrial facilities are required, however, to achieve the discharge limits that the EPA determined were achievable using the model technology.

1. Setting the Standard

The NAMF case well illustrates how the EPA develops industry-wide categorical pretreatment standards. The standards challenged in NAMF were categorical pretreatment standards for the electroplating point source industry. Ford Motor Company chal-

114 40 C.F.R. § 403.6 (1987); see supra notes 25 and 26.
115 PRODUCTION-BASED MANUAL, supra note 25, at 1-1 to 1-2. The standards for each industry are published in the Federal Register. For example, the electroplating pretreatment standards were promulgated in 46 Fed. Reg. 9,467 (1981) (codified at 40 C.F.R. pt. 413).
117 Two types of standards are promulgated for each categorical industry: Pretreatment Standards for Existing Sources (PSES) and Pretreatment Standards for New Sources (PSNS). The levels of technology for pretreatment standards generally correspond to technology levels applied to industrial direct dischargers: PSES to Best Available Technology Economically Achievable (BAT) for existing sources, and PSNS to Best Available Demonstrated Technology (BADT) for new sources. PRODUCTION-BASED MANUAL, supra note 25, at 1-1 to 1-2. See infra notes 159-78 and accompanying text regarding the definition of the new source. If a POTW can remove a specific industrial pollutant as efficiently as the technology applied to direct dischargers, pretreatment standards for those pollutants are generally not promulgated. The EPA did not propose PSES for the primary zinc and lead subcategories because it did not realize that there were any indirect dischargers of these pollutants. When the EPA learned otherwise from comments to the proposed regulations, it set PSES equal to BAT. Kennecott v. EPA, 780 F.2d 445, 455 (4th Cir. 1985).
lenged the methodology used to develop these pretreatment standards. Ford's action was consolidated with NAMF's assertion that the standards were not economically achievable.

a. Setting BPT and BAT Standards

In 1979, the EPA promulgated practicable technology (BPT) pretreatment standards for the electroplating point source industry. These standards applied to some 7752 firms with electroplating operations.\(^{118}\) The regulations divided these firms into seven categories, based on the electroplating process employed. For each subcategory, the EPA set numerical limits on the dischargeable concentrations of cyanide and several metals.\(^{119}\)

In developing the BPT pretreatment standards for the electroplating industry, the EPA complied with the CWA requirement to consider certain factors when setting BPT standards, including the total cost of the application of technology in relation to the effluent reduction benefits achieved from such application, the age of the equipment and the facilities subject to the standard, the process employed, the engineering aspects of the application of various types of control technologies, process changes, and non-water quality environmental impact, including energy requirements.\(^{120}\)

After the EPA decided which electroplating pollutants to regulate, it set BPT standards by determining the pretreatment technology used by “the average of the best” plants.\(^{121}\) Senator Edmund Muskie of Maine explained that BPT should be based upon “the average of the best existing performance by plants of various sizes, ages, and

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\(^{118}\) 44 Fed. Reg. 52,590 (1979) (codified at 40 C.F.R. §§ 413.01-.84).

\(^{119}\) For example, limits were set for cadmium, chromium, copper, lead, nickel, and zinc. 44 Fed. Reg. 52,590 (1979) (codified at 40 C.F.R. pt. 413); NRDC v. Train, 8 Env't Rep. Cas. (BNA) 2120, 2128 para. 13(b) (D.D.C. 1976). The 1979 regulations were amended in 1981. 46 Fed. Reg. 9,467 (1981). In 1983, the EPA published categorical standards for the metal finishing industry as a whole, establishing BAT pretreatment standards for most of the indirect dischargers then covered by the electroplating standards. Only existing job shops and printed circuit board manufacturers remained under the electroplating standards, which were amended to restrict the discharge of toxic organic pollutants. 48 Fed. Reg. 32,462 (1983) (codified at 40 C.F.R. §§ 433.10-.17).

\(^{120}\) CWA § 304(b)(1), 33 U.S.C. § 1314(b)(1) (1982). The factors to be used in developing BAT technology are specified in CWA § 304(b)(2). The difference in the statutory factors between BPT and BAT is that BAT adds “the cost of achieving such effluent reduction.” 33 U.S.C. § 1314(b)(2) (1982).

\(^{121}\) National Ass'n of Metal Finishers v. EPA, 719 F.2d 624, 657 (3d Cir. 1983), rev'd, 470 U.S. 116 (1985). The pollutants of concern for the electroplating standards included cadmium, lead, cyanide, hexavalent and trivalent chromium, copper, nickel, and zinc.
unit processes within each industrial category." The range of levels established for BAT technology, in contrast, should "at a minimum be referenced to the best performer in any industrial technology." Once the EPA determined the BPT pretreatment technology used by the average of the best plants with electroplating operations, it used sampling data to determine the effluent reductions achievable by these plants. The EPA first derived a "long-term average effluent concentration" for each regulated pollutant, which represented the expected (reduced) effluent concentrations attainable over a year or more of using the "average of the best" technology. EPA calculated "variability factors" in order to accommodate expected routine fluctuations in effluent reduction. These fluctuations were expressed as percentage increases normally occurring during one- and thirty-day periods. The long-term averages were then multiplied by the variability factors in order to obtain the one- and thirty-day pretreatment standards for each regulated pollutant. Ford challenged the EPA's setting of the electroplating pretreatment standards on the basis that the standards for two of the pollutants regulated—lead and cadmium—were based on treatability studies performed on other metals. The EPA argued that these studies accurately predicted the treatability of lead and cadmium. The court rejected Ford's challenge because Ford had failed to rebut the implicit assumption that lead and cadmium are as treatable as the metals actually studied.

b. Cost-benefit Analysis

An important aspect of the EPA's development of BPT standards is the EPA's determination, through cost-benefit analysis, whether the required BPT standard is indeed practicable. For the electroplating pretreatment standards, the EPA considered both the cost to dischargers of compliance with the standards and the potential unemployment and economic dislocation caused by the closing of

123 Id. at 3717.
124 National Ass'n of Metal Finishers, 719 F.2d at 657.
125 Id.
126 Each pretreatment standard was expressed in terms of a concentration of pollutant not to be exceeded on a one-day and thirty-day basis. Id.
127 Id. at 658.
128 Id. at 659.
dischargers unable to comply.129 The EPA concluded that the technology was achievable.130

The cost analysis for setting BPT standards is different than that used in setting BAT standards.131 The EPA is accorded considerable discretion in weighing costs and benefits for BPT standards.132 In comparing total costs and effluent reduction, the EPA need only confirm that effluent reduction is not wholly out of proportion to the cost.133 So long as the EPA determines that the effluent reduction benefits are worth the costs imposed on an industrial category, an individual discharger would not be excused because the standards are not economically achievable at its plant.134

Congress anticipated that individual dischargers might have difficulty complying with BPT standards. Compliance with such standards would cause economic hardship and plant closings because they would impose on a substantial number of point sources additional costs that either had to be borne or the point source eliminated.135 Accordingly, the closing of job shops and the loss of jobs, even if in significant numbers, would not invalidate the BPT standards unless the EPA had failed to compare effluent reduction benefits to costs or improperly concluded that the benefits are worth the costs.136

129 Id. at 660.

130 The EPA estimated that the benefits of the standards would be an effluent reduction of one hundred forty million pounds of toxic pollutants per year at a cost of $1.34 billion in capital construction and $425 million annually. Id. (citing 44 Fed. Reg. 52,594 (1979)). The EPA further estimated that 737 electroplating operations would close rather than comply with the standard, resulting in a loss of 12,584 jobs. Id.

131 One of NAMF’s challenges in the Third Circuit to the BPT standards was that such standards were really BAT standards because they were not “economically achievable.” Id. at 661–62. NAMF’s basis for this assertion was the EPA’s estimate of the number of electroplating operations that would be forced to shut down. Id. The court rejected NAMF’s argument on the grounds that the EPA had properly considered the costs and benefits of promulgating the BPT standards for the electroplating industry. Id. at 663.

132 Id. at 663.

133 Id.

134 Id. (citing EPA v. National Crushed Stone Ass’n, 449 U.S. 64, 75–77 (1980)).

135 Id.

136 Id. at 663–64. Another basis for NAMF’s challenge was that the EPA failed to consider the costs of achieving less burdensome alternatives than required by the published BPT regulations. For example, NAMF contended that, if the electroplating standards were five percent less stringent, the costs to electroplaters would be cut in half. The Third Circuit’s decision contains a confusing discussion of “net” and “marginal” cost analyses, but the court appeared to conclude that the EPA was required only to ensure that the overall industry-wide cost was not wholly out of proportion to the overall effluent reduction benefit. One reason for this conclusion was that the court desired to make a distinction between BPT and BAT cost analyses and preserve a role for BAT standards in the two-phase statutory scheme. Id. at 664.
BPT and BAT standards differ with respect to economic achievability. BPT requires the elimination of all inefficient pollutant discharges where the costs imposed on the industry are worth the benefits in pollution reduction. Dischargers must raise their performance to BPT standards; if they cannot afford to do so they must go out of business. The second phase of standards, BAT, assumes that the BPT standard has been met and the discharges have been eliminated. Thus, the CWA requires that BAT represent "reasonable further progress toward the national goal of eliminating the discharge of all pollutants." In setting BAT, the EPA uses the latest scientific research and technology in setting effluent limits. The EPA bases its standard not on the average plant, but rather on the optimally operating plant. Each discharger need only commit the "maximum resources economically possible" to achieve BAT level reduction. Contrary to its practice in applying BPT standards, the EPA considers the economic ability of individual dischargers to comply with BAT standards when setting the standard.

2. Deadlines for Compliance with Categorical Standards

An IU in an industrial category or subcategory covered by that standard has up to three years in which to achieve compliance with a published pretreatment categorical standard. Each IU is re-
quired to submit a baseline monitoring report (BMR) by a date specified in the Federal Register notice in which the standard was published. The BMR contains basic information regarding the IU’s discharge and indicates whether the IU meets the categorical standard at the time of submission. When an IU’s BMR indicates current noncompliance with the standard, the IU must establish in its BMR a schedule of activities that will lead to compliance by the established deadline.

In addition to a BMR, the regulations require that each existing IU subject to a categorical standard must submit a report within ninety days after the compliance date set in the standard. This report must indicate whether an IU is in compliance with the standard. The regulations also provide that, within sixty days after the effective date of a pretreatment standard, an IU may request the EPA to determine whether that IU falls within the particular subcategory described by the categorical standard.

Several conditions apply to this authorization. According to these conditions, the treatment system must meet the criteria of innovative technology set forth in CWA § 301(k). Thus, the system must produce significantly greater effluent reduction, moving toward the national goal of eliminating the discharge of all pollutants or achieving required reduction that has the potential for industry-wide application. Further, the EPA or an approved state must concur with a POTW’s action and determine that the proposed compliance extension will not cause the POTW to violate its NPDES permit or applicable sludge requirements.

Congress explained that it intended the term “industry-wide” application to mean that the innovative system is technically feasible at a significant portion of the facilities in an industrial category or subcategory and will be made commercially available by the applicant IU unless the IU is the only facility in the subcategory. H.R. REP. No. 1004, 99th Cong., 2d Sess., 130-31 (1986).

The EPA recently revised 40 C.F.R. § 403.12(b) to require new sources, and existing sources that become IUs subsequent to the publication of an applicable categorical standard, to submit a baseline monitoring report (BMR) at least ninety days prior to commencement of an IU’s discharge to a POTW. BMRs for new sources are further required to include information on pretreatment equipment needed to meet categorical standards. 53 Fed. Reg. 40,613, (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.12(b)).

The EPA recently revised this section to require the same level of detail in this post-compliance date report as is included in a BMR. 53 Fed. Reg. 40,613 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.12(d)).

Section 303 of the 1987 Water Quality Act amended CWA § 301(h), which provides for waivers from the requirement for secondary treatment of municipal discharges into marine waters. 33 U.S.C.A. § 1311(h) (West Supp. 1988). The amendment states that a 301(h) applicant POTW that serves a population of fifty thousand or more and that receives a toxic pollutant from an IU for which there is no categorical pretreatment standard, must show that
3. Production-based and Concentration-based Standards

The EPA establishes either production-based or concentration-based categorical standards, depending upon the method of pollution reduction common to the particular industry being regulated. The EPA develops production-based standards for those industries for which one of the major technology options is to reduce pollutant discharge quantities. The production-based standards identify process equipment or changes in operating practices that will reduce the wastewater flow and the mass of pollutants discharged. In contrast, the EPA develops concentration-based standards for industries where flow reduction may fail to provide a significant amount of pollutant removal benefit. The EPA has issued both concentration-based and production-based pretreatment standards for these industries. The Control Authority can require these industries to comply with either the concentration-based or production-based standard. The choice may depend on whether the industry is suspected of using dilution to achieve compliance standards. Dilution means increasing the amount of the process water to achieve compliance with a concentration-based categorical pretreatment standard. Dilution is prohibited as a substitute for treatment. Industries that can use either production-based or concentration-based standards are electroplating, inorganic chemicals, petroleum refining, porcelain enameling, pulp, paper and paperboard, builders paper and board mills, and timber products. In certain industries, the EPA could not establish a correlation between production and achievable pollutant discharges. Therefore, only concentration-based standards were developed. These industries are electrical and electrical components, leather tanning and finishing, metal finishing, organic chemicals, plastics, synthetic fibers (standards not yet final), phar-
The EPA recently revised its general pretreatment regulations in order to codify the conversion of production-based standards to equivalent mass or concentration limits. The revision includes the procedures and formulas to be used by Control Authorities in computing the conversions. The revised regulation states that the proper production rate is based not upon the designed production capacity but upon a reasonable measure of an IU's actual long-term average daily production during a representative year. This revision would ensure that an IU operating below full capacity would achieve treatment reduction by complying with national production-based stan-

maceuticals, steam electric, and pesticides. Id. The EPA recently broadened the dilution prohibition to apply to compliance with local limits as well as categorical standards. 53 Fed. Reg. 40,611 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.6(d)).

The Production-Based Manual provides advice on how to implement production-based categorical standards for IUs. PRODUCTION-BASED MANUAL, supra note 25, at 2-1. Compliance with production-based standards can be difficult to monitor because they are expressed in terms of allowable pollutant mass discharge per unit of production (for example, mg/m² or lb/1000 lb). In order to determine whether an IU is within the daily maximum or maximum monthly average numbers for its industrial category, the IU or the Control Authority must measure both the pollutant concentration in a sample of the waste stream and the flow of the regulated wastewater and determine the corresponding production rate. This determination is more difficult than determining compliance with concentration-based standards, which requires only measurement of the pollutant concentration in the waste stream and comparison of the results with the standards. Id.

In order to make monitoring and enforcement of production-based standards easier, the EPA's Production-Based Manual recommends that the standards be converted to equivalent mass or concentration limits. Id. at 2-1. Equivalent mass or concentration limits use an industrial facility's average production and flow rates to derive a limit that is essentially equivalent to the production-based standard but is expressed as mass per day or concentration (for example, lb/day or mg/l). Id. Use of equivalent mass or concentration limits avoids the necessity of determining flow and production rates each time an IU's compliance is monitored.

The Production-Based Manual states that this method has been used for many years to measure the compliance of direct dischargers with their NPDES permit limitations. Id. The Manual explains how to develop equivalent mass and concentration limits in terms of daily maximums and maximum monthly average standards. Id. at 2-8. In order for a Control Authority to develop these limits, an IU must submit information regarding its average production and flow rates. CWA § 308, 33 U.S.C. § 1318 (1982); 40 C.F.R. § 403.12 (1987).

The EPA further advises that the equivalent limits should be clearly stated in the legally enforceable document that incorporates the standards for an IU's compliance with pretreatment requirements. See infra notes 369–70 and accompanying text. The document should include: (1) the equivalent limit; (2) the flow and/or production rates upon which the limit is based; (3) monitoring frequency; (4) type of monitoring or sampling; (5) the requirement to notify the Control Authority of changes in flow and/or production rates; and (6) a “reopener clause” stating that the permit may be modified, revoked and reissued, or terminated if there is any significant change in any of the values used to calculate the equivalent limits. PRODUCTION-BASED MANUAL, supra note 25, at 2-7 to 2-8. A twenty percent change in long-term average production or flow rate is generally considered significant. Id. at 2-5, 2-7. 156 53 Fed. Reg. 40,611 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.6(c)).
dards rather than by basing its reduction requirements on unused production capacity.\textsuperscript{157} Also, using actual production rates ensures equity among IUs in the same industry, regardless of their design capacity.

In addition, the revised regulation states that these equivalent limits, when properly calculated, will be deemed pretreatment standards for the purposes of section 307(d) of the CWA. As a result, IUs in compliance with equivalent mass or concentration limits will not be subject to the EPA enforcement actions based on the production-based standard itself. The equivalent limits will be federally enforceable.\textsuperscript{158}

In summary, the EPA is attempting to accomplish two important objectives when setting pretreatment standards. One is to impose standards that will require industry to actually reduce pollutant discharges and not achieve compliance through other means. The other is to ensure that the standards impose similar burdens on facilities within the same industrial category.

4. Definition of New Source

The definition of new source was at issue in \textit{NAMF}.\textsuperscript{159} The Third Circuit remanded the definition to the EPA because it did not adequately encompass new discharges to POTWs.\textsuperscript{160} The EPA revised the definition to cover sources commencing construction after the proposal of an applicable pretreatment standard for new sources (PSNS).\textsuperscript{161} The classification as either existing or new source is significant only if the standard required of new sources is more stringent than that required for existing sources.\textsuperscript{162}

\textsuperscript{157} 53 Fed. Reg. 40,564, 40,611 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.6(c)).
\textsuperscript{158} 53 Fed. Reg. 40,611.
\textsuperscript{159} National Ass'n of Metal Finishers v. EPA, 719 F.2d 624 (3d Cir. 1983), rev'd, 470 U.S. 116 (1985); see infra notes 229-40 and accompanying text. NRDC challenged the definition of new source on the grounds that it failed to encompass certain new sources. The definition provided that when the EPA failed to promulgate a standard within 120 days of its proposal, as required by CWA § 306(b)(1)(B), sources whose construction began after the publication of a proposed standard but before its promulgation were not considered new sources. 719 F.2d at 641-42.
\textsuperscript{160} Id. at 642-43.
\textsuperscript{161} 40 C.F.R. § 403.3(k) (1987).
\textsuperscript{162} Standards for new sources are not always more stringent. For example, standards are the same for existing and new sources for the Fatty Acid Manufacturing subcategory, 40 C.F.R. §§ 417.23, 417.25 (1987) (40 C.F.R. pt. 417 is the soap and detergent manufacturing point source category). PSNS is more stringent than PSES, however, for the Hot Forming subcategory, 40 C.F.R. §§ 420.72(a)(2), 420.74(a)(2) (1987) (40 C.F.R. pt. 420 is the iron and steel manufacturing point source category).
The CWA requires the EPA to promulgate PSNS simultaneously with the promulgation of categorical standards for new source direct dischargers.\(^{163}\) The CWA defines PSNS as the degree of effluent reduction achievable through application of the best available demonstrated control technology (BADT).\(^{164}\) A new source is defined as any source the construction of which is commenced after publication of the applicable proposed PSNS, if the PSNS is finally promulgated.\(^{165}\) Construction is defined as the placement, assembly, or installation of facilities or equipment, including contractual obligations to purchase such facilities or equipment.\(^{166}\)

In its 1981 pretreatment regulations, the EPA narrowed the CWA definition of new source to any source whose construction commenced after an applicable proposed PSNS but only if the final PSNS was promulgated within 120 days of the proposal.\(^{167}\) If the EPA did not meet the 120-day timeframe, the PSNS would apply only to new sources whose construction commenced after promulgation of the final PSNS.

The Third Circuit struck down this interpretation of the CWA. In NAMF, the court rejected the EPA's definition as inconsistent with basic principles underlying the CWA.\(^{168}\) Congress, the court found, intended to subject as many firms as possible to the new source regulation.\(^{169}\) That goal can be achieved only if all businesses initiating new construction after publication of proposed standards are required to comply with those standards. The court suggested that if a business was uncertain which standard would apply if a delay in final promulgation resulted, the business should bring a citizen's suit seeking the EPA's compliance with the 120-day statutory deadline.\(^{170}\) In response to the Third Circuit's remand, the EPA revised its pretreatment regulation by classifying any source commencing construction after the proposal of an applicable PSNS as a new source.\(^{171}\)

The EPA recently clarified new source requirements.\(^{172}\) New source indirect dischargers, like direct dischargers, are required to

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\(^{163}\) CWA § 307(c), 33 U.S.C. § 1317(c) (1982).


\(^{167}\) 46 Fed. Reg. 9,404, 9,440 (1981) (codified at 40 C.F.R. § 403.3(k)).


\(^{169}\) 719 F.2d at 642.

\(^{170}\) Id.

\(^{171}\) 49 Fed. Reg. 28,058 (1984) (codified at 40 C.F.R. § 403.3(k)).

install necessary pollution control equipment before commencing discharge. These new sources are required to achieve compliance with the applicable PSNS within the shortest feasible time, not to exceed ninety days, after commencement of the discharge. 173

The EPA also clarified what type of construction should be considered construction of a new source. A source is considered new when the construction is at a site where no other source is located, when the construction totally replaces an existing source, or when the new source is substantially independent of an existing source at the same site. 174 Whether construction at an existing site is "substantially independent" of the existing source depends on the extent to which the new facility is integrated with the existing plant and the extent to which the new facility is engaged in the same general activity as the existing source. 175 These standards are consistent with the regulatory definition of direct discharge new sources. 176

Finally, the revised regulation articulates a new definition of commencement of construction. 177 Construction commences when either installation or assembly of facilities or significant site preparation begins as part of a continuous on-site construction program. Construction also commences when the owner or operator of the facility enters into a binding contractual commitment for the purchase of facilities or equipment intended to be used in its operation within a reasonable time. 178

5. Status of Categorical Pretreatment Standards Program

The EPA's development of categorical standards is an integral part of its pretreatment program. The EPA has promulgated categorical pretreatment standards for forty-two industrial categories, including industrial categories specified in the NRDC consent decree and other industrial sectors not covered by the decree. 179 In order

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173 Id. at 40,610.
174 Id.
175 Id.
176 40 C.F.R. § 122.29(b) (1987).
177 53 Fed. Reg. 40,610 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.3(k)).
178 Id.

Pretreatment categorical standards have been promulgated for other industrial categories either prior to or independent of the NRDC consent decree. Id. at 2. At Appendix C to 40 C.F.R. pt. 403 is a list of forty-two industrial categories that are subject to national categorical pretreatment standards. Of these, the following twenty-one are the industrial categories for which categorical standards have been established as a result of the NRDC consent decree. See supra note 35. Categories marked with asterisks indicate those that the EPA has recently
to strengthen the effectiveness of this aspect of the pretreatment program, the EPA needs to continue to revise existing standards and develop standards for more industrial categories in order to ensure that all toxic pollutants discharged in significant amounts to POTWs are effectively controlled. The EPA's analysis should center on determining those toxic pollutants, in addition to pollutants listed in the NRDC consent decree, that are likely to adversely affect a POTW's operations and that particular industries discharge in quantities significant enough to warrant national standard-setting.

identified as under consideration for revision pursuant to CWA § 304(m); Textile Manufacturing, 40 C.F.R. pt. 410, is also under review. 53 Fed. Reg. 32,584, 32,589 (Aug. 25, 1988).

EPA has also determined, pursuant to paragraph eight of the NRDC consent decree, that national categorical standards for all or part of twelve other industrial categories are not necessary. REPORT TO CONGRESS, supra note 6, at 6-62. Under paragraph eight, the EPA may choose not to issue such standards based on adequacy of analytical methods, treatability, or redundancy with other pretreatment standards. The EPA may further exempt subcategories when they comprise less than five percent of sources, discharge compatible pollutants (compatible to other pollutants treated by the POTW), or the discharge of incompatible pollutants is not significant. Id. at 6-63.

In accordance with CWA § 304(m), 33 U.S.C.A. § 1314(m) (West Supp. 1988), the EPA has recently proposed to initiate review of the following ten industrial categories to determine whether to promulgate national effluent limitations, guidelines, and standards: hazardous waste treaters, solvent recyclers, machinery manufacturing and rebuilding, transportation, paint manufacturing and formulation, industrial laundries, hospitals, waste oil refiners, drum reconditioners, and oil and gas (onshore and coastal subcategories). 53 Fed. Reg. 32,587 (Aug. 25, 1988). The EPA recently published its general strategy for selecting and evaluating industries for promulgation of standards. Id.

REPORT TO CONGRESS, supra note 6, at 7-11 to 7-12.
C. Modifications of Categorical Standards

1. Combined Wastestream Formula

   a. General Description

Categorical pretreatment standards are numerical pollutant reduction requirements for wastestreams resulting from particular industrial processes. A significant number of industrial facilities, however, have individual processes producing different wastestreams that are not regulated by the same categorical pretreatment standard or are not regulated at all. On one hand, it is less expensive to combine the individual wastestreams and install a pretreatment system on the combined stream than to install separate parallel systems on each individual stream. Parallel systems can be costly, wasteful of energy, inefficient, and environmentally counter-productive.

On the other hand, when various wastestreams are combined before pretreatment, dilution may occur. For example, if one of the wastestreams is regulated by a categorical standard and one of the other wastestreams is a non-contact cooling stream that contains no traceable level of pollutants, combining the two will increase the volume of the wastestream, thereby reducing the concentration of the pollutant. Unless the categorical standard, if concentration-based, is altered, less of the pollutant may actually have to be removed in order to achieve compliance. Dilution is specifically prohibited as a partial or complete substitute for adequate treatment to achieve compliance with a categorical pretreatment standard.

EPA developed the combined wastestream formula (CWF) to allow computation of an alternate limit when wastestreams are combined before pretreatment. EPA has classified the three types of wastestreams that can be found at an industrial facility: regulated, unregulated, and dilute. A regulated wastestream is a wastestream from an industrial process that is regulated by a categorical standard for a certain pollutant (pollutant X). An unregulated wastestream is a wastestream that is not regulated by a categorical...
standard for pollutant X and is not considered dilute. A dilute wastestream does not generally contain significant concentrations of regulated pollutants.\textsuperscript{186} Non-regulated wastestream is a general term that encompasses unregulated and dilute wastestreams.\textsuperscript{187}

The CWF applies in three basic circumstances. First, when a dilute wastestream is combined with a regulated wastestream, the CWF lowers the allowable concentration for the regulated pollutant in proportion to the dilution.\textsuperscript{188} Second, if a regulated wastestream is combined with another regulated wastestream with different concentration limits for the same pollutant, the concentration limit for the regulated pollutant in the combined stream will be somewhere in between the two limits, in proportion to the flows and limits of the two regulated streams.\textsuperscript{189} Third, if a regulated stream is combined with an unregulated stream, the concentration limit for the regulated pollutant in the combined stream remains unchanged.\textsuperscript{190}

Unregulated streams are presumed not to be dilute but rather to contain pollutants of concern at a significant level.\textsuperscript{191} Without the presumption that the unregulated wastestream is not dilute, combining a regulated stream and an unregulated stream would result in lower allowable discharge concentrations of the pollutant.\textsuperscript{192} In effect, the CWF “gives credit” for pollutants in the unregulated wastestream, or assumes that pollutants are present in the unregulated wastestream, in significant concentrations and will be treated to the same degree as pollutants in the regulated wastestream. Therefore, using the CWF allows the pollutant to be discharged into the combined wastestream at the same concentration as if the regulated wastestream had not been combined.\textsuperscript{193} The EPA suggests to POTWs that, if they are concerned that the unregulated wastestream does not actually contain pollutants of concern at a significant level and is actually acting as dilution, they may establish a local limit more stringent than required by the EPA’s regula-

\textsuperscript{186} 40 C.F.R. § 403.6(e)(1)(i) (1987) specifies in detail the types of wastestreams that are considered dilute. The industrial subcategories that are considered dilute for the purposes of the combined wastestream formula are listed in Appendix D to 40 C.F.R. pt. 403. This list was revised in 51 Fed. Reg. 36,368 (1986).

\textsuperscript{187} PRODUCTION-BASED MANUAL, supra note 25, at 3-2.

\textsuperscript{188} National Ass’n of Metal Finishers v. EPA, 719 F.2d 624, 652 (3d Cir. 1983), rev’d, 470 U.S. 116 (1985).

\textsuperscript{189} Id.

\textsuperscript{190} Id.

\textsuperscript{191} PRODUCTION-BASED MANUAL, supra note 25, at 3-2.

\textsuperscript{192} Id.

\textsuperscript{193} Id. at 3-2, 3-3.
tions. The CWF can be used to compute limitations when more than one of these combinations occurs.

b. Court Challenge to the Combined Wastestream Formula

The basic premise of the CWF was upheld in NAMF. Industry had asserted that the EPA was required to regulate whole plants, by industrial category, not operations or processes. The argument was that the EPA had to develop a single pretreatment standard for an entire facility. The court, without elaboration, deferred to the EPA's interpretation that pretreatment standards should be developed on a process-by-process basis rather than for entire facilities.

Industry also challenged the use of unregulated wastestreams to compute pretreatment limits. The concern was that the CWF alternative discharge limit would be a "moving target" because, every

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194 Id. at 3-3.
195 Id.
196 719 F.2d 624, 652 (3d Cir. 1983), rev'd, 470 U.S. 116 (1985); see infra notes 229-40 and accompanying text.
197 Id. at 650-56. It would be impracticable to develop categorical standards on a facility basis because a single facility often includes several types of industrial processes, and therefore discharges different pollutants. Moreover, facilities within the same industrial category can vary widely with respect to the pollutants they discharge. Setting pretreatment standards on a facility basis, therefore, would require the EPA to set thousands of individual standards. This approach would be prohibitively expensive and hard to justify in terms of environmental benefit. The EPA attempts, however, to consider industrial categories as narrowly as possible so that requirements for pollution reduction are equitably and reasonably applied to facilities within that category.
time an unregulated wastestream became subject to a categorical standard, the CWF would have to be revised.\textsuperscript{199} Industry asserted that the adjustments would deny finality and render the planning and construction of control technology impossible.\textsuperscript{200} The court accepted the EPA's contention that the moving target was not the fault of the CWF but was a result of the EPA choosing to utilize a process-by-process or "building-block" approach to promulgate standards because of its limited resources.\textsuperscript{201} The court ruled that this approach did not lack a rational basis and therefore declined to substitute its own judgment for the EPA's regarding how to promulgate the necessary standards.\textsuperscript{202}

The court also rejected the industry contention that the CWF was arbitrary and capricious because the EPA failed to consider the effluent reduction attainable or the cost involved when developing the CWF.\textsuperscript{203} The court ruled that this type of challenge would be appropriate only after the EPA had set the CWF's alternative discharge limit for a specified regulated wastestream.\textsuperscript{204} For example, when an unregulated wastestream becomes regulated and the CWF alternative limit is revised, it would be appropriate at that time for a court to consider whether the EPA properly considered all relevant factors, including cost and attainability, when determining the alternative discharge limit.

In \textit{Ford Motor Co. v. EPA}, the same court considered the economic impact of the CWF on integrated electroplating facilities.\textsuperscript{205} The majority ruled that the EPA was justified in relying on its cost-benefit analysis which favorably compared the cost to integrated facilities of using the CWF to the cost of requiring all integrated facilities to segregate their wastestreams before pretreatment.\textsuperscript{206} The court also accepted the EPA's conclusion that the CWF would make it unnecessary for most plants to segregate pretreatment of their wastewater.\textsuperscript{207}

\textsuperscript{199} \textit{Id.} at 650.
\textsuperscript{200} \textit{Id.} at 653.
\textsuperscript{201} \textit{Id.}
\textsuperscript{202} \textit{Id.}
\textsuperscript{203} \textit{Id.} at 653–56.
\textsuperscript{204} \textit{Id.} at 656.
\textsuperscript{205} 718 F.2d 55 (3d Cir. 1983).
\textsuperscript{206} \textit{Id.} at 59.
\textsuperscript{207} Interestingly, Judge Hunter, author of the majority opinion in \textit{NAMF}, filed a dissent in \textit{Ford}. \textit{Id.} (Hunter, J., dissenting). Judge Hunter concluded that the EPA's decision was arbitrary and capricious because the EPA failed to perform a proper cost-benefit analysis when applying the existing electroplating standards to integrated manufacturing firms with
The EPA recently made several revisions to the combined wastestream formula. One revision allows an IU the initial choice of how it will monitor compliance with applicable standards. An IU may either monitor its segregated wastestreams before they are combined or monitor the combined wastestream. If an IU later decides to change its method of monitoring, it must receive the approval of a POTW.

2. Net/gross Calculations

EPA provides IUs another opportunity to modify a categorical standard. IUs may request that the EPA adjust an applicable categorical pretreatment standard to reflect credit for pollutants in the intake water. In order to qualify for such adjustment, the IU must demonstrate that: 1) its intake water is drawn from the same body to which a POTW will discharge; 2) the pollutants in the intake will not be entirely removed by the IU; 3) the pollutants in the intake do not vary chemically or biologically from the pollutants limited by categorical standards; and 4) operation of the IU does not significantly increase the concentrations of pollutants in the water body.

combined wastestreams. Id. at 60. The existing standards were based on the costs for segregated or easily segregated plants to comply with the standards. Id. In essence, according to Judge Hunter, the EPA justified the application of these standards to integrated facilities because it determined that application of the CWF would obviate the need for segregation of most facilities and thus result in lower costs. Id.

Judge Hunter argued that this analysis failed to consider the additional costs to the integrated facilities when the EPA used the CWF. Id. at 62. Judge Hunter suggested that the EPA should have compared the extra costs for integrated facilities to comply with the standards to the effluent reduction benefits achieved. Id. The record suggested to Judge Hunter that the costs increased dramatically without any additional effluent reduction. Id. As a result, he concluded that the EPA acted in an arbitrary and capricious manner. Id. at 62–63.

209 Id. at 40,612. One significant type of user of the combined wastestream formula is commercial hazardous waste treaters (CWTs) that provide physical, chemical, and/or biological treatment of hazardous and non-hazardous wastewaters, such as leachate from landfills and process wastewater from manufacturing operations. Pretreatment requirements apply to CWTs that discharge wastewater to POTWs. For a discussion of the EPA’s options for the regulation of CWTs, including use of the combined wastestream formula, see 53 Fed. Reg. 47,645–47 (1988).
210 Id.
211 Id.
213 40 C.F.R. § 122.45(g) (1987). The EPA recently simplified the showing required of an IU to receive such a credit, consistent with comparable credits for direct dischargers under NPDES permits. 53 Fed. Reg. 40,614–15 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.15). The revised regulation provides that an IU requesting such an adjustment to the categorical standard must demonstrate that the control system it proposes or uses to meet the standard
3. Fundamentally Differing Factors Variances

a. General Description

When establishing the industry-by-industry pretreatment categorical standards for the CWA priority pollutants, the EPA takes into account all of the information it can collect, develop, and solicit regarding the factors relevant to CWA pretreatment standards. In some cases, however, information that may affect these standards will not be available, or, for other reasons, will not be considered during the development of the standards. As a result, the EPA recognizes that it may be necessary to adjust the numerical pretreatment standards for particular IUs within a certain industrial category when that IU presents factors fundamentally different from the factors considered during development of the categorical standards. Therefore, the EPA provides a mechanism for an IU to demonstrate that it possesses factors fundamentally different from those considered by the EPA in developing the standard at issue.

The fundamentally different factors for pretreatment standards include: the nature of the pollutants in the wastewater; the volume of the IU's process wastewater and effluent discharged; energy requirements for and engineering aspects of control and treatment would, if properly installed and operated, meet the standard in the absence of pollutants in the intake water. The premise is that the control system must be designed to meet the categorical standards as applied to the effluent. The credit is available, however, when necessary to meet applicable limitations after the control system is installed. Thus, credit for intake pollutants is only allowed to the extent necessary to meet the applicable categorical standard, up to a maximum value equal to the influent value.

In addition, an IU must demonstrate that the intake water is drawn from the same body of water as that into which the POTW discharges. The reason is that, while an IU should not be held responsible for pollutants already existing in a water supply that is both the source of its intake and the destination for a POTW's discharge, the same justification does not apply when the source of the intake is not the same water body in which the POTW discharges.

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214 CWA § 307(b), 33 U.S.C. § 1317(a) (1982); see infra note 120 and accompanying text.
216 Id.
217 Id. The EPA first utilized fundamentally differing factors (FDF) with respect to BPT standards for direct dischargers. In E.I. du Pont de Nemours and Co. v. Train, the Court upheld this FDF regulation, even though FDFs were not referenced in the statute, because FDFs were an essential part of the program of developing uniform national BPT categorical standards for direct dischargers. 430 U.S. 112, 128 (1977). The Court held that the categorical approach for BPT, which was also not explicitly set forth in the statute, was valid only "so long as some allowance [was] made for variations in individual plants as the EPA had done by including a variance clause in its 1977 limitations." Id.
technology; age, size, land availability, and configuration of the IU’s equipment or facilities; processes employed; and the cost of the required control technology.\textsuperscript{218}

Factors that will not be considered as fundamentally different include: the feasibility of installing the required waste treatment within CWA deadlines; the IU’s ability to pay for the required waste treatment; the impact of a discharge on the quality of the POTW’s receiving waters; or any other assertion unless based on one of the allowable fundamentally differing factors.\textsuperscript{219}

\textbf{b. Third Circuit Prohibition}

These fundamentally differing factors (FDF) variances have not gone unchallenged. In \textit{NAMF}, the National Resources Defense Council (NRDC) challenged the FDF variances from pretreatment standards and sought a declaration that CWA section 301(l) barred any FDF variance with respect to toxic pollutants.\textsuperscript{220} CWA section 301(l), added in 1977, provided that the EPA may not modify any CWA requirement applicable to toxic pollutants.\textsuperscript{221}

The EPA responded that “modification” is a term of art in the statute and that FDF variances are not modifications of a categorical standard.\textsuperscript{222} Rather, FDF variances are simply the creation of a more appropriate standard for a particular IU based on factors previously overlooked by the EPA. The EPA contended that the Act implicitly authorized FDF variances for indirect dischargers and relied on the Supreme Court’s approval of FDF variances from BPT effluent limitations for direct discharges in \textit{E.I. duPont de Nemours v. Train}.\textsuperscript{223}

In essence, the EPA contended that, when it grants an FDF variance, it creates a new subcategory for a particular facility based on statutory factors.\textsuperscript{224} The availability of FDF’s helps the EPA fend off what otherwise would be countless challenges for more and more subcategorization of industrial sectors for the purpose of setting

\begin{itemize}
  \item \textsuperscript{218} These factors are generally derived from CWA § 304(b), which directs the EPA to consider certain factors when determining BPT and BAT standards. 33 U.S.C. § 1314(b) (1982).
  \item \textsuperscript{219} 40 C.F.R. § 403.13(e) (1987).
  \item \textsuperscript{220} National Ass’n of Metal Finishers v. EPA, 719 F.2d 624, 644 (3d Cir. 1983), rev’d, 470 U.S. 116 (1985).
  \item \textsuperscript{221} 33 U.S.C. § 1311(l) (1982).
  \item \textsuperscript{222} National Ass’n of Metal Finishers, 719 F.2d at 645.
  \item \textsuperscript{223} E.I. duPont de Nemours & Co. v. Train, 430 U.S. 112 (1977).
\end{itemize}
standards. Because the agency is allowed to focus during rulemaking on “typical” facilities, it can deal with unique plants later.\textsuperscript{225} Under the EPA’s interpretation, CWA section 301(l) deprived the EPA only of its authority to “modify” BAT standards under CWA sections 301(c) and (g).\textsuperscript{226}

This interpretation did not meet with the court’s approval. In \textit{NAMF}, the Third Circuit determined that CWA section 301(l) clearly forbade modifications and that FDF variances were no less modifications than those types of modifications indisputably prohibited by that section.\textsuperscript{227} The court, therefore, concluded that Congress intended to prohibit FDF variances for all toxic pollutant discharges and remanded the FDF provision.\textsuperscript{228}

c. \textit{Supreme Court Reversal}

Industry groups challenged the prohibition on FDF variances in \textit{Chemical Manufacturers Association v. National Resources Defense Council.}\textsuperscript{229} The Supreme Court accepted the petition for review in order to resolve a conflict among the circuit courts.\textsuperscript{230} The conflict was whether CWA section 301(l) barred FDF variances with

\textsuperscript{226} CWA § 301(c) allows the EPA to modify a direct discharger’s BAT effluent limitations if the modified standard will represent the maximum use of control technology within the economic capability of the discharger and will result in reasonable further progress toward the elimination of the discharge of pollutants. 33 U.S.C. § 1311(c) (1982). CWA § 301(g) authorizes the EPA to modify a direct discharger’s BAT effluent limitations for nonconventional pollutants if the discharger can show that the modified limit will not jeopardize compliance with BPT limits or interfere with the attainment of water quality goals. 33 U.S.C. § 1311(g) (1982). Nonconventional pollutants are pollutants that are neither toxic nor conventional; they are not otherwise defined in the CWA. In \textit{Koppers Co. v. EPA}, the court held that CWA § 301(g) does not authorize variances from pretreatment standards for existing sources. 767 F.2d 57, 58 (3d Cir. 1985). The court concluded that a § 301(g) modification is available only for discharges directly to receiving waters. \textit{Id.} at 62.

Section 302 of the 1987 Water Quality Act amended CWA § 301(g). The amendment specifies five pollutants—ammonia, chlorine, color, iron, and total phenols (4AAP)—for which modifications under § 301(g) may be sought. 33 U.S.C. § 1311(g) (1987). Additional pollutants may be listed by the EPA in response to a petition. Before listing additional pollutants for which standards can be modified under § 301(g), the EPA first must determine that the pollutant does not meet the criteria for listing as a toxic pollutant. 33 U.S.C.A. § 1311(g) (West Supp. 1988).

\textsuperscript{228} \textit{Id.}
\textsuperscript{229} 470 U.S. 116 (1985).
\textsuperscript{230} \textit{Id.} at 125.
respect to toxic pollutants.\textsuperscript{231} In \textit{Appalachian Power Co. v. Train},\textsuperscript{232} the Fourth Circuit Court of Appeals had deferred to the EPA's statutory interpretation and ruled that section 301(l) did not prohibit FDF variances from BPT limitations for direct discharges of toxic pollutants.\textsuperscript{233} In contrast, the Third Circuit in \textit{NAMF} ruled that CWA section 301(l) prohibited the issuance of FDF variances for toxic pollutants.\textsuperscript{234}

Upon consideration of this issue, the Supreme Court ruled that the legislative history and the statutory language did not express an unambiguous congressional intention to forbid all FDF waivers with respect to toxic materials.\textsuperscript{235} In particular, the CWA authorized the EPA to revise pretreatment standards from time to time, as control technology, processes, operating methods, or alternatives change.\textsuperscript{236} Therefore, it made little sense to construe section 301(l) to forbid the EPA to amend its own standards, even to correct an error or to impose stricter requirements. As a result, the Court accepted the EPA's interpretation and ruled that CWA section 301(l) applied only to modifications under sections 301(c) and (g) for toxic pollutants.\textsuperscript{237} The Court ruled that FDF variances were legitimate corrective mechanisms when promulgating national standards. An FDF variance allowed for relevant factors not sufficiently taken into account when the uniform limitation was determined.\textsuperscript{238}

The Court distinguished FDF variances from standard modifications prohibited by other CWA sections because a source's inability to pay the foreseen costs—grounds for a CWA section 301(c) modification—and the lack of a significant impact on water quality—grounds for a CWA section 301(g) modification—are irrelevant under FDF variance procedures.\textsuperscript{239} In response to the \textit{Chemical Manufacturers Association} decision, the EPA reinstated its original pretreatment provision authorizing FDF variances from pretreatment standards.\textsuperscript{240}

The EPA's assignment for the setting of national standards for industrial categories is difficult because of the diversity of facilities.

\begin{thebibliography}{9}
\bibitem{232} 620 F.2d 1040 (4th Cir. 1980).
\bibitem{233} \textit{Id.} at 1048.
\bibitem{234} \textit{National Ass'n of Metal Finishers}, 719 F.2d at 646.
\bibitem{235} \textit{Chemical Mfrs. Ass'n}, 470 U.S. at 129.
\bibitem{236} \textit{Id.} at 126 (citing 33 U.S.C. § 1317(b)(2) (1982)).
\bibitem{237} \textit{Id.} at 131–32 (citing 33 U.S.C. § 1311(c), (g) (1982)).
\bibitem{238} \textit{Id.} at 130.
\bibitem{239} \textit{Id.} at 132; \textit{see also} Crown Simpson Pulp Co. v. Costle, 642 F.2d 323 (9th Cir. 1981).
\end{thebibliography}
within each category. The CWA allows the EPA to account for this diversity by permitting the agency to establish both subcategories and standards to accompany these subcategories. The EPA’s granting of an FDF variance, which includes pretreatment requirements, essentially establishes a new subcategory based upon factors unique to the FDF facility. Without such a corrective mechanism, the EPA’s broader standards would be subject to constant challenge on the grounds that they are unreasonable with respect to a specific facility. Thus, FDFs are an important tool, consistent with the CWA, in the EPA’s overall development of categorical pretreatment standards.

d. Water Quality Act of 1987

In section 306 of the Water Quality Act of 1987,241 Congress recognized the Chemical Manufacturers Association decision and expressly modified CWA section 301 to incorporate a new section in the Act, CWA section 301(n).242 Entitled “Fundamentally Different Factors,” this new section provides for alternative requirements from BAT or pretreatment categorical standards if certain restrictive requirements are met.243 Pursuant to this section, the FDF waiver applicant must demonstrate that its facility is fundamentally different from the factors, other than cost, specified in CWA sections 304(b) or 304(g) and considered by the EPA in developing the categorical standard.244 Further, the amendment requires that the request for the FDF variance be based solely on information submitted to the EPA while the EPA was developing the categorical standard or information that it did not have a reasonable opportunity to submit during the EPA’s rulemaking.245 Therefore, an IU must monitor

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243 Id.
244 Id. § 1311(n)(1)(A). The Conference Report to the 1987 Act explained that CWA § 301(n) was not intended to prohibit the EPA from modifying treatment regulations in a case where a fundamental difference in an aspect of a facility that is eligible for consideration (for example, age of facility, process employed) would result in a reduction in costs to a facility. H.R. Rep. No. 1004, 99th Cong., 2d Sess. 123 (1986), reprinted in 1987 U.S. Code Cong. & Admin. News 5, 23. When such an eligibility factor was under review, the EPA could consider the costs specifically associated with that factor but the applicant had to justify a finding of a fundamental difference on the basis of eligibility factors. Id.
closely, participate in, and submit the appropriate information during the national standards rulemaking process so that it will be eligible to apply for an FDF variance. The new CWA section 301(n) also provides that an alternative requirement based on an FDF variance can be no less stringent than justified by the demonstrated fundamental difference and cannot result in a non-water quality environmental impact that is markedly more adverse than those considered by the EPA in establishing the national standard.

4. Removal Credits

a. General Description

In addition to the modification of categorical standards available through the FDF process, the categorical standard can also be modified through the use of removal credits. A removal credit allows a POTW to relax a categorical standard imposed on it when the POTW itself can remove the pollutant regulated by such standard. In 1977, Congress revised the CWA to authorize a POTW to grant IUs removal credits. This provision reflected Congress' intent to avoid imposing redundant treatment requirements on IUs. The circumstances under which a POTW had the authority to vary a categorical standard, however, were narrow. For example, POTWs were not required to grant credits, only authorized to do so. Also the level of pollution reduction achieved by a POTW and IU combined had to be equivalent to the removal that would be required of the IU if it was a direct discharger before a removal credit will be granted. Further, removal credits could be given only if they did not prevent sludge use and disposal by the POTW.

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246 33 U.S.C.A. § 1311(n)(2), (3), (6) (West Supp. 1988). The application for the alternative requirement must be submitted within 180 days after the date the national standard is established. Id. § 1311(n)(2). EPA must approve or deny an application within 180 days after the application is filed. Id. § 1311(n)(3). The applicant is required to comply with the national standard while its application is pending. Id. § 1311(n)(6).

247 Id. § 1311(n)(1)(C), (D).


250 Id.

251 Id.

252 Id.

253 In 1977, Congress also amended CWA § 405 to require the EPA to develop regulations for sludge use or disposal within one year of enactment of the 1977 Act. Pub. L. No. 95-217,
Pursuant to the statutory authorization for removal credits, the EPA promulgated requirements for POTWs granting such credits. The regulation stated that a POTW must have an approved pretreatment program before it is eligible to grant removal credits. Also, a POTW had to obtain authorization from an Approval Authority in order to revise the discharge limits for specific pollutants. To obtain such authorization, POTW needed to demonstrate "consistent removal" of the pollutant for which the removal credit was sought.

Further, the regulation required that, if once a year or more untreated wastewaters overflow before they reach a POTW and thus bypass a POTW's treatment process, a POTW must show that its indirect dischargers compensated for the overflows. If this showing could not be made, a POTW had to reduce the amount of consistent removal claimed. The regulation also provided that once authorization for the revision had been granted, a POTW must monitor and report semiannually on its success in removing the specified pollutant.

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254 43 Fed. Reg. 27,746 (1978) (codified at 40 C.F.R. § 403.7 (1978)). These requirements were modified three years later. 46 Fed. Reg. 9,443 (1981). One of the revisions was to change the standard for consistent removal from ninety-five percent to seventy-five percent. 40 C.F.R. § 403.7(a)(2) (1982).

255 Id. § 403.7(b)(2). See infra notes 354–96 and accompanying text regarding a POTW's pretreatment program.

256 40 C.F.R. § 403.7(b)(1). An Approval Authority is either the EPA or a state delegated pretreatment responsibility. See infra note 356. When a removal credit is granted, an IU is allowed to remove less (or more) of a pollutant than required by a categorical pretreatment standard. Thus, the requirements imposed on an IU's discharge would be modified.

257 40 C.F.R. § 403.7(b). Consistent removal is based on influent and effluent data, sampled and analyzed in accordance with specified requirements. Id. The level of removal on which the credit is based is the removal achieved by a POTW seventy-five percent of the time. Seventy-five percent consistency is measured by averaging the lowest six of twelve POTW removal samplings. Id. § 403.7(a)(2).

258 40 C.F.R. § 403.7(b)(3) (1982). Toxic overflows generally result from combined sewers, which transport domestic and industrial wastewater, and, during periods of wet weather, storm water runoff. POTWs that treat these flows often do not have the capacity to handle the increase in flow that occurs during rainfalls or snowmelt. The sewers therefore have overflow points when the wastewater stream, including the toxic pollutants from the industrial wastewater, bypasses the POTW and discharges directly into receiving waters. This condition is called a combined sewer overflow (CSO).

A POTW unable to prevent toxic overflows must reduce the amount of removal claimed in proportion to the number of hours of overflow. 40 C.F.R. § 403.7(b)(3) (1982). If, for example, a POTW could calculate that overflows occurred fifteen percent of the year, then it should reduce the removal credit by fifteen percent. National Resources Defense Council (NRDC) v. EPA, 790 F.2d 289, 306 (3d Cir. 1986). The difficulty is in predicting the duration of CSOs with any accuracy. National Ass'n of Metal Finishers v. EPA, 719 F.2d 624, 649 (3d Cir. 1983), rev'd, 470 U.S. 116 (1985).
pollutants. If the EPA or the State determined that the revised discharged level did not meet the requirements of the regulation, or that a POTW was significantly in violation of its NPDES permit after an opportunity for corrective action, the EPA or the State could withdraw or modify the credit.259

b. Industry Challenge

Industry groups challenged the regulations governing the granting of removal credits.260 In NAMF, industry asserted that the regulatory requirement that POTWs have an approved pretreatment program before removal credits could be granted was not authorized by the statute.261 Industry also contended that the EPA or state approval was not required for each removal credit.262 Finally, because removal credits might be revised every six months, industry argued that the regulations were unworkable. The possibility of such frequent revisions meant that an IU would not be able to rely on the credit and would be forced to install just as much control technology as if no credit had been granted.263

The Third Circuit rejected all of these arguments.264 The court ruled that the regulatory requirement that POTWs have an approved pretreatment program was consistent with congressional intent.265 The court determined that statutory provisions and the legislative history also supported the requirement that the EPA or the delegated state approve each removal credit.266 The EPA’s approval was consistent with both the requirement that a POTW have an approved pretreatment program before granting credits and the EPA’s authority to bring an action against a POTW to enforce pretreatment standards. As a result, the court recognized the EPA’s power to deny authorizations of a POTW’s dispensation of removal credits.267

The court again cited the CWA as it rejected industry’s unworkability argument. The requirement to withdraw or modify credits if

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259 40 C.F.R. § 403.7(f)(5) (1982).
260 National Ass’n of Metal Finishers, 719 F.2d at 646; see supra notes 229-40 and accompanying text.
261 National Ass’n of Metal Finishers, 719 F.2d at 647-48.
262 Id. at 648.
263 Id. at 649.
264 Id. at 646-50.
266 National Ass’n of Metal Finishers, 719 F.2d at 648.
267 Id. at 649.
semiannual reporting reveals that a POTW is not achieving its predicted removal, or if a POTW is unable to predict the duration of toxic overflows, was consistent with the legislative intent that a revision to a categorical standard reflect actual removal of toxic pollutants by a POTW. The court decided that the requirement to modify credits had a rational basis under the CWA because a POTW that is unable to estimate the time, let alone the amount, of untreated water overflow may not be able to predict the proportion of pollutants that it will remove. The court also stated that industry had failed to overcome the presumption of regularity in the EPA’s conduct. Therefore, the court was unwilling to declare the regulation arbitrary and capricious on the grounds that it was unworkable.

c. Revised Regulation

Despite the favorable ruling in NAMF, the EPA revised the removal credits program in 1984. The EPA wanted to grant as much certainty as possible to POTWs that are granted removal credit authority and industrial users that rely upon removal credits. The EPA therefore adopted a new, more lenient method of measuring the consistency of toxics removal by POTWs. Instead of taking the average of the lowest six of twelve removal samplings, consistent removal was now based upon the average amount removed in all twelve samplings. Consequently, the amount of removal achieved by a POTW fifty percent of the time determined the amount of credit an IU would receive. The new rule enabled POTWs to grant more and larger credits that they had under the 1981 rule.

The EPA stated that, once a POTW’s removal credits were approved and incorporated into its NPDES permit, the removal credits would generally remain set for the five-year term of the NPDES permit. POTWs would be required to submit compliance reports

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268 Id.
269 Id.
270 Id. at 650. The EPA’s removal credit program was also approved in Cerro Copper Prods. Co. v. Ruckelshaus. 766 F.2d 1060 (7th Cir. 1985). Under § 10(e) of the Administrative Procedure Act, 5 U.S.C. §§ 551-912 (1982), the standard of review is that a reviewing court may not invalidate an agency regulation unless found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. 5 U.S.C. § 706(2)(A).
272 Id. at 31,213.
273 40 C.F.R. § 403.7 (1985).
274 Id.
on an annual basis only to the EPA or the delegated state. A removal credit would be modified or withdrawn only if a POTW's removal rate was consistently and substantially lower than the removal credit specified in the POTW's NPDES permit. The EPA explained that this standard was used so that a POTW would not lose its removal credit authority during the permit term because it experienced minor problems or because situations outside its control temporarily reduced its originally demonstrated removal efficiency.

d. Challenges to the Revised Regulation

The EPA found itself back in the Third Circuit after these changes were promulgated. In National Resources Defense Council v. United States Environmental Protection Agency, the court noted that, because the EPA had reversed its established interpretation of a statute, the degree of deference to the Agency had been somewhat lessened. "Sharp changes of agency course," explained the court, "constitute 'danger signals' to which a reviewing court must be alert." Pursuant to its close examination, the court determined that the EPA's 1984 revisions to the removal credit program were arbitrary and capricious and failed to meet statutory requirements.

One provision in the revised regulation that the court rejected related to consistent removal. Although the 1984 rule provides that the combined amount of toxics removed by an indirect discharge and a POTW combined must equal the amount of toxics removed by a direct discharger, the rule failed to require that an indirect discharger/POTW remove pollutants as consistently as is required of direct dischargers. This discrepancy conflicted with the CWA requirement that a POTW not violate the effluent limitation or standard that would apply if the pollutant were discharged by a direct discharger. Direct dischargers are required under CWA BAT cat-

277 Id. § 403.7(f)(4).
279 790 F.2d 289, 298 (3d Cir. 1986).
280 Id. Reviewing courts will customarily take an extra hard look at agency decisions that reflect deviation from the agency's previous position. See, e.g., Motor Vehicle Mfrs. Ass'n v. State Farm Mutual Automobile Insurance Co., 463 U.S. 29, 40-44 (1983).
281 Id. at 305.
282 Id. at 298.
283 Id. (citing 33 U.S.C. § 1317(b)(1) (1982)).
egorical standards to remove a certain amount of each toxic pollutant with a certain degree of consistency.\textsuperscript{284}

The court determined that such discrepancy existed between requirements for removal by an indirect discharger/POTW compared to a direct discharger when it examined the revised requirements for sampling. Under the revised sampling test, the amount of removal achieved by a POTW fifty percent of the time determined the amount of credit an indirect discharger received.\textsuperscript{285} The court observed a noticeable difference between this test and the one the EPA set forth in its 1978 regulations.\textsuperscript{286} In 1978, the test of consistent removal was removal capability that a POTW achieved in ninety-five percent of the representative samples taken.\textsuperscript{287} This test corresponded reasonably to BAT standards for direct dischargers which required consistent removal ninety-nine percent of the time.\textsuperscript{288} The court determined that a level of removal that is met only half of the time, and that contains no limit on the permissible amount of variability, is not "consistent" as contemplated by the statute.\textsuperscript{289}

Moreover, under the EPA definition of consistent removal, discharges could be above the limit for months at a time, so long as the above-average months were offset by below-average discharges in other months.\textsuperscript{290} According to the Third Circuit, the reason for re-

\textsuperscript{284} Id. at 299 (citing, for example, 40 C.F.R. § 129.102-.104 (1984); 40 C.F.R. pts. 405–469 (1984)).
\textsuperscript{285} 40 C.F.R. § 403.7(b)(1) (1985).
\textsuperscript{286} Natural Resources Defense Council, 790 F.2d at 300–01.
\textsuperscript{287} 40 C.F.R. § 403.7 (1979).
\textsuperscript{288} 790 F.2d at 299 (citing, for example, 40 C.F.R. § 129.102-.104 (1984); 40 C.F.R. pts. 405–469 (1984)).
\textsuperscript{289} Id. at 305. The EPA defended the fifty-percent test by asserting that a POTW would rarely perform below its average, that an IU would virtually never exceed its limit, and that the frequency with which these two events would occur simultaneously was even lower. Id. at 302. The court agreed that an IU would rarely exceed its limit because the limit is set so that it can be complied with virtually all of the time, particularly when the limit is raised to reflect a removal credit. Id. The court did not accept, however, the argument that a POTW will rarely perform below its average. In fact, the court held that such a claim was contradicted by a wealth of evidence in the record, including repeated statements by the EPA that POTW removal of toxics was extremely variable. Id. at 302–03.

For example, in 1981 the EPA noted that "industrial pretreatment provides much superior removal of pollutants than does treatment of the POTW." 46 Fed. Reg. 9,404, 9,406 (1981). This variability in removal becomes crucial when a removal credit is involved because it is not unusual for the removal credits to be in the eighty to ninety percent range. Therefore, most of the removal required to reach BAT-levels in such situations must be performed by the POTW, not the IU. NRDC v. EPA, 790 F.2d at 303. As a result, the variability in the removal performance of a POTW will be almost fully reflected in the final discharge into receiving waters. Id.

\textsuperscript{290} NRDC v. EPA, 790 F.2d at 305.
quiring polluters to meet BAT-level daily and monthly limits as well as long-term limits was obvious: a single concentrated discharge of toxic pollutants can irreparably damage the ecology of a body of water. Even a one-time excessive toxic discharge cannot be remedied by reduced discharges during subsequent months. Thus, the court concluded the EPA 1984 regulations violated CWA section 307(b)(1) because they permitted granting removal credits when both the consistency and amount of treatment resulting from such credits were not equivalent to BAT standards for direct discharges.

Additionally, the court expressed dissatisfaction with the EPA deletion of a requirement that POTWs unable to prevent overflows must reduce removal credits granted proportionally with the amount of such overflows. The court held that the deletion violated CWA section 307(b)(1) because removal credits should not be based on a purported national average for the frequency of CSO's. Relying on a national average ignores the great variability among POTWs in the number and duration of CSO events and in the amount of bypass that occurs during such events. Further, the court held that deletion of the requirement that POTWs adjust for overflows violated the stated intent of the statute that the combined POTW/IU level of treatment be equivalent to the direct discharge level of treatment. When overflows occur, the amount of pollutants discharged increases and the consistency of treatment is reduced. The court ruled that the difference in the total amount of pollutant discharged as a result of overflow into receiving waters over the long term was not de minimis. Because of the problems with POTW variability

291 Id.
292 Id.
293 In NAMF, the court had upheld against industry challenge a requirement in 40 C.F.R. § 403.7 (1982) that stated that a POTW unable to prevent toxic overflows must reduce the amount of removal claimed in proportion to the number of hours of overflow. National Ass’n of Metal Finishers v. EPA, 719 F.2d 624, 649 (3d Cir. 1983), rev’d, 470 U.S. 116 (1985). In 1984, however, the EPA deleted this provision regarding toxic overflows in its entirety. NRDC v. EPA, 790 F.2d at 307. The EPA asserted, based on a 1978 study of 15 POTWs, that combined sewers overflow 7.3 percent of the time and that a 7.3 percent adjustment in removal credits would lead to a negligible adjustment in the discharge limit required of the IU. Id. (citing EPA REPORT TO CONGRESS ON CONTROL OF COMBINED SEWER OVERFLOW (doc. no. 430/9-78-006 (1978))). Therefore, the EPA argued that the overflow provision was not needed. Id.
295 790 F.2d at 307. The court stated that many POTWs have overflows that would require an adjustment of substantially more than 7.3 percent. Id. at 308.
296 Id.
297 Id. The court ruled that the CWA does not permit the EPA to raise pollutant discharge limits by 7.3 percent, or by any amount that is not de minimis. Id. NRDC computed that,
and the statutory requirement that indirect discharger/POTW removal be equivalent to direct discharger removal, the court held that deletion of the requirement to adjust removal credits based on overflow violated the CWA.\textsuperscript{298}

The court also found that the EPA new, more lenient test for determining when a removal credit must be modified or withdrawn violated the CWA.\textsuperscript{299} Previously, the EPA moved to modify or withdraw a removal credit when a POTW no longer achieved the reduction claimed in its application for a credit.\textsuperscript{300} Under the 1984 rule, however, the EPA withdrew a credit before the expiration of a five-year term for a removal credit only when a POTW's removal rate dropped "consistently and substantially" below the rate claimed.\textsuperscript{301} Neither grossly inconsistent removal nor removal substantially below the required amount alone would be sufficient cause for withdrawal of a credit. Rather, only when both of these conditions — inconsistency and insufficiency— existed would a credit be withdrawn before the expiration of a POTW's five-year permit.\textsuperscript{302} Further, the regulation provided that when a credit was withdrawn, an IU had up to three years to install the required treatment systems.\textsuperscript{303} Thus, a violation of BAT-levels could continue for eight years before an enforcement action could be initiated.\textsuperscript{304} Ruling that the CWA did not allow POTWs and IUs to exceed BAT-equivalent limits for such substantial periods of time, the Third Circuit held that the 1984 rule violated the CWA requirement for equivalent removal between indirect discharger/POTWs and direct dischargers.\textsuperscript{305}

e. Removal Credits and Sludge

In addition to invalidating the 1984 revisions to removal credit requirements because of violations of CWA section 307(b)(1), the court held that the EPA failure to promulgate regulations required by the CWA for sludge use and disposal was a basis for invalidation of the 1984 revisions to the removal credit regulations.\textsuperscript{306} The court

\textsuperscript{299} 790 F.2d at 311.
\textsuperscript{300} Id. at 310.
\textsuperscript{301} 40 C.F.R. § 403.7(f)(4)(i)(ii) (1985).
\textsuperscript{302} Id.; see also 49 Fed. Reg. 31,216 (1984).
\textsuperscript{303} 40 C.F.R. §§ 403.7(f)(4)(iii), 403.6(b) (1985).
\textsuperscript{304} NRDC v. EPA, 790 F.2d at 311.
\textsuperscript{306} 790 F.2d at 314.
viewed this failure as significant because virtually all toxics that pass untreated through a POTW become concentrated in the sludge.\textsuperscript{307} POTW treatment of toxic pollutants is simply a matter of transferring toxics from a POTW’s liquid wastestream to a POTW’s sludge. Contaminated sludge may prevent the use of sludge as fertilizer or soil conditioner, or if so used, may introduce toxics into the food chain.\textsuperscript{308} Toxics from sludge deposited in landfills may leach into groundwater and contaminate drinking supplies. If sludge is incinerated, toxics can poison the air, harming POTW workers and residents of surrounding communities.\textsuperscript{309} The court accepted the EPA’s contention that the best way to handle this problem was to isolate the toxic pollutants in small, but concentrated, industrial sludges, rather than sending them on to a POTW.\textsuperscript{310} Such isolation could be achieved only through pretreatment by the discharger.\textsuperscript{311} As a result, the court held that, because a comprehensive framework to regulate the disposal and utilization of POTW sludge did not exist, the EPA could not authorize the issuance of removal credits.\textsuperscript{312}

\textit{f. Prohibition Against Issuing Removal Credits}

In response to the Third Circuit’s dismantling of the removal credits program, the EPA revised the affected removal credits provisions in November 1987 by reinstating the 1981 regulatory provisions for consistent removal, overflow, and modification or withdrawal of removal credits.\textsuperscript{313} Also in response to the decision, Congress stated in the Water Quality Act of 1987 that the portion of the NRDC decision relating to sludge regulations was stayed until August 31, 1987, with respect to EPA approval of removal credits approved before the date of enactment, February 4, 1987, and POTW

\textsuperscript{307} Id. at 311. Under CWA \textsection 307(b)(1), a removal credit must not prohibit a POTW’s sludge use or disposal in accordance with CWA \textsection 405. 33 U.S.C. \textsection 1317(b)(1) (1982 & Supp. IV 1986). CWA \textsection 405 required the EPA to promulgate regulations providing guidelines for disposal and utilization of sludge. Also, the sludge regulations had to specify factors for determining measures and practices applicable to sludge use and disposal and identify concentrations of pollutants that interfered with such use or disposal. 33 U.S.C. \textsection 1345(d) (1982 & Supp. IV 1986). See supra note 16 for a description of sludge.

\textsuperscript{308} NRDC v. EPA, 790 F.2d at 312.

\textsuperscript{309} Id.


\textsuperscript{311} Id. The court noted that, in some cases, industry can apply technologies to recover and recycle valuable metals and organic toxics that could not be applied at a POTW.

\textsuperscript{312} Id. at 313–14.

\textsuperscript{313} 52 Fed. Reg. 42,434–35 (1987) (to be codified at 40 C.F.R. \textsect 403.7(a)(2) (consistent removal), 403.7(h) (overflow), 403.7(f)(4) (modification or withdrawal of removal credit)).
applications received before this date and approved before August 31, 1987.\textsuperscript{314} EPA was otherwise prohibited, however, from approving removal credits until sludge regulations were issued.\textsuperscript{315}

As with FDF variances, removal credits are an important practical tool in the implementation of national standards. If an existing POTW has the ability to remove a certain pollutant, the IU should not be required to do so also. The Third Circuit's objections, however, to the EPA relaxation of requirements regarding consistent removal, overflow, and modification or withdrawal, and Congress's concern with sludge contamination, were legitimate. Removal credits should not be used to escape adequate pollution control.

\textit{D. Upset and Bypass}

In addition to modifications of categorical pretreatment standards, the EPA provides for one-time excuses for noncompliance with categorical pretreatment standards: upset and bypass. An upset is an exceptional incident that causes an IU to unintentionally and temporarily noncomply with a categorical pretreatment standard.\textsuperscript{316} Upset is an affirmative defense to an enforcement action for noncompliance.\textsuperscript{317} The exceptional incident must be attributable to factors beyond the reasonable control of the discharger. Noncompliance due to operational error, improperly designed or inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation, is not considered an upset event.\textsuperscript{318}

EPA recently deleted the requirement to identify the "specific" cause of noncompliance in order to establish an upset event.\textsuperscript{319} According to the EPA, it is sufficient that the available evidence, direct

\textsuperscript{314} Section 406(e) of the Water Quality Act of 1987, Pub. L. No. 100-4, 101 Stat. 7 (codified at 33 U.S.C.A. § 1345(d) (West Supp. 1988)).

\textsuperscript{315} The interim authority to approve removal credits does not extend beyond August 31, 1987. This date is used because § 406(a) of the 1987 Act amends CWA § 405(d) and requires the EPA to promulgate final sludge regulation by August 31, 1987. Pub. L. No. 100-4, 101 Stat. 7 (codified at 33 U.S.C.A. § 1345(d) (West Supp. 1988)). The Conference Report to the 1987 CWA specifically stated that the Third Circuit's other bases for invalidating the removal credit regulations were not affected by the 1987 Act. H.R. CONF. REP. No. 1004, 99th Cong., 2d Sess. 160–61 (1986).

\textsuperscript{316} 40 C.F.R. § 403.16(a) (1987). The upset provision for direct dischargers is 40 C.F.R. § 122.41(n) (1987).

\textsuperscript{317} 40 C.F.R. § 403.16(b) (1987).

\textsuperscript{318} Id. § 403.16(a).

\textsuperscript{319} 53 Fed. Reg. 40,615 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.16). Upset cannot be used as an excuse for violations of local limits. Id. at 40,606.
or circumstantial, vindicates an IU even if it does not specifically identify the responsible party or event. A showing that normal operating procedures were followed at the time the categorical standard was violated, however, is insufficient. The EPA requires at least a thorough investigation of the causes of an incident.

Bypass, too, is a one-time excuse for noncompliance with categorical pretreatment standards. EPA prohibits direct and indirect dischargers from intentionally diverting or bypassing wastestreams from any portion of their treatment facility except in certain situations. As a result, dischargers need to operate their entire treatment facilities at all times. Bypass is allowed for indirect dischargers, however, when the bypass does not violate any applicable pretreatment standards or requirements, and is done for essential maintenance purposes to assure efficient operation of treatment equipment. Bypasses are also permitted when they are unavoidable to prevent loss of life, personal injury, or severe property damage, and there are no feasible alternatives, such as the use of auxiliary treatment facilities or retention of untreated wastes. The “no feasible alternatives” condition is not met if, in the exercise of reasonable engineering judgment, adequate back-up equipment should have been installed to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance. IUs are required to notify the POTW at least ten days before an anticipated bypass and within twenty-four hours subsequent to an unexpected bypass.

The provisions for upset and bypass recognize that sometimes technology breaks down. The provisions are sufficiently limited, however, so that an IU cannot rely on insufficient systems or poor maintenance to excuse noncompliance with pretreatment requirements. Moreover, the bypass provision requires that IUs operate pollution control equipment at all times, thus obtaining maximum pollutant reductions, consistent with the general intent of the CWA.

320 Id. at 40,607.
321 Id. at 40,606–07.
324 Id.
325 Id.
326 Id.
327 Id. (to be codified at 40 C.F.R. § 403.17(c) and (d)(iii)).
E. Local Limits

1. General Description

The objective of the pretreatment program is to prevent the introduction to POTWs of pollutants that pass through or interfere with the treatment works. Implementation and enforcement of categorical standards comprise one part of the program. Designed to apply to broad industrial categories, these categorical standards do not necessarily regulate all of the pollutants that may cause a pass through or interference in a POTW. As a result, POTW must develop additional, local limits where necessary to comply with the general prohibitions on pass through, interference, and sludge contamination. These local standards are also designed to prevent violation of specific prohibitions against pollutants which could cause fire, explosion, corrosion, obstruction, chemical interference, or excessive heat.

Now that most categorical pretreatment standards have been established, the EPA is placing greater emphasis on the development of local limits to prevent site-specific pass through or interference. In a recent revision to its pretreatment regulations, the EPA stated that, "Local limit development represents the most important stage in the future implementation of the national pretreatment program." The EPA explained that the intent of the requirement to

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The EPA explains that categorical standards are developed to achieve a nationally-uniform degree of water pollution control for selected industries and pollutants. In contrast, local limits are intended to prevent site-specific plant and environmental problems resulting from any nondomestic user. LOCAL DISCHARGE MANUAL, supra note 96, at 1-11.

329 40 C.F.R. § 403.5(a), (b) (1987) are the general and specific prohibitions. 40 C.F.R. § 403.5(c), (d) (1987) require that POTWs develop local limits.

The EPA suggests that local limits may also be established to regulate the discharge of flammable/explosive and/or fume toxic pollutants in order to protect the health and safety of POTW workers. Also, local limits may be adopted to protect air quality. Such limits may be necessary, for example, to comply with state or local air quality standards associated with the POTW’s sludge use or disposal practices. LOCAL DISCHARGE MANUAL, supra note 96, at 2-4, 2-5.

330 52 Fed. Reg. 1,593 (1987). Local limits may also be necessary if a POTW accepts wastewater discharges from a Superfund site. A local limit may have to be established or modified depending upon the nature of the Superfund waste. The Superfund site must comply with all CWA pretreatment requirements pursuant to CERCLA § 121(d)(3). This section requires compliance with applicable federal or state law if a hazardous substance, pollutant, or contaminant is transferred off-site. 42 U.S.C.A. § 9621(d)(3) (West Supp. 1988).
2. Developing Local Limits

Three basic steps are involved in the development of local limits. First, the POTW must conduct an industrial survey and sample its influent, effluent, and sludge to determine which, if any, of the pollutants contributed to it by its IUs have a reasonable potential for causing pass through, interference, sludge contamination, or jeopardy to the health and safety of POTW employees.332 The EPA advises that a POTW's analysis of the results should consider both present standards and possible future requirements. Such future requirements include more stringent water quality standards that might be incorporated into an NPDES permit or likely restrictions on sludge use.333

Second, for each of the pollutants determined to be of concern, a POTW must determine the maximum amount or concentration of a pollutant that can be accepted by it without causing pass through, interference, or sludge contamination.334 Third, a POTW must decide how to implement local limits for each pollutant with respect to its IUs. Possible methods include uniform maximum allowable concentrations applied to all dischargers of a pollutant, proportionate reduction of a pollutant by each IU based on flow or mass loading, or technology-based limitations applied selectively to significant dischargers of a pollutant.335


The EPA recently imposed a requirement that POTWs must develop local limits or demonstrate that they are not necessary in order to contain POTW pretreatment program approval. 53 Fed. Reg. 40,612 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.8(f)). A POTW that is not required to establish a pretreatment program may still, however, be required to develop appropriate local limits to comply with the general and specific prohibitions. 40 C.F.R. § 403.5(c)(2) (1987).


333 Id.; see infra notes 345–53 and accompanying text.

Section 402 of the 1987 Water Quality Act amends CWA § 402 and states that, when issuing NPDES permits to POTWs, the EPA shall not require additional pretreatment by any indirect discharger of conventional pollutants introduced into a POTW as a substitute for inadequate pollution removal by a POTW due to design or operation problems. 33 U.S.C.A. § 1342 (West Supp. 1988).

334 51 Fed. Reg. 21,459. The Local Discharge Manual contains procedures for performing this analysis. "Loading" is the amount (for example, lbs/day) of a wastestream that can be treated by a POTW. LOCAL DISCHARGE MANUAL, supra note 96, at 3–8.

335 51 Fed. Reg. 21,459.
3. Implementing Local Limits

The EPA believes that efforts by POTWs to establish local limits have been successful in the case of some toxic metals frequently discharged to POTWs. The EPA has stated, however, that much work remains to be done to develop local limits for other hazardous constituents, especially organic solvents and other organic constituents. According to the EPA, local limits should be based on sound technical analyses of pass through and interference concerns, and incorporate specific, verifiable numerical effluent limits. Specific numerical limits are essential to making IUs aware of what is expected of them and to enable effective compliance monitoring and enforcement.

An effective way to implement the local limits portion of a POTW's pretreatment program is for a POTW to issue permits to its IUs. The permit would reflect a binding agreement between the POTW and the IU concerning numerical effluent limitations and monitoring frequency. Other methods include local ordinances or orders specifying pretreatment requirements. The EPA suggests, however, that an ordinance-only system would not be effective unless the same limitations are imposed on every IU discharging to the POTW.

Another implementation concern is the setting of deadlines for IU compliance with local limits. The EPA has stated that POTWs adopting local limits should require IUs to comply with the limits "as soon as is reasonable, but in no case more than three years from the date of adoption." The EPA further advised that, if an IU is allowed more than one year to achieve compliance, a POTW should set interim limits to minimize the discharge of pollutants until full compliance is reached. If an IU is contributing to a POTW's current violation of its NPDES permit or water quality standard, however, a POTW must take immediate enforcement action and other actions necessary to bring the IU into compliance in the shortest possible time.

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336 51 Fed. Reg. 30,171 (1986). Examples of such toxic metals are cadmium, copper, lead, nickel, and zinc.
337 Id.
338 Id. For more discussion regarding POTW permits, see infra notes 369–72 and accompanying text.
339 LOCAL DISCHARGE MANUAL, supra note 96, at 1-18. Even in those cases where one set of uniform local limits apply to all IUs, individual control mechanisms are desirable to specify monitoring locations and frequency, special conditions such as spill prevention plans, categorical standards that are applicable, and reporting requirements. Id.
341 Id. at 6–7.
4. Effects of the 1987 Water Quality Act

Two key sections of the 1987 Water Quality Act will most likely have a great impact on the development of local limits by POTWs. First, section 308, entitled "Individual Control Strategies for Toxic Pollutants," provides for the advancement of pollution control beyond BAT standards. The purpose of this section is to require states to undertake a progressive program of toxic pollutant load reduction when compliance with BAT standards is not sufficient to meet state and federal public health and water quality objectives. Second, section 406 of the Water Quality Act requires the EPA to promulgate regulations regarding toxic pollutants and sewage sludge.

a. Water Quality Standards for Toxic Pollutants

Section 308 of the 1987 Act requires that states must, within two years of enactment of the 1987 Act, identify those water bodies within or adjacent to them that will not meet state water quality standards because of toxic pollutants even after the implementation of BAT, new source performance standards, and pretreatment standards. For each water body identified, a state must determine the specific point sources discharging toxic pollutants that are believed to be preventing or impairing the desired water quality, as well as the amount of each toxic pollutant discharged by each source. Further, section 308 requires each state to develop an individual control strategy, subject to the EPA approval, that will produce a reduction in the discharge of toxic pollutants from the identified point sources. This control strategy must include the establishment of effluent limitations and water quality standards containing numerical criteria. In addition, a control strategy, in combination with other controls on point and nonpoint sources, must achieve applicable

343 See 133 CONG. REC. 131 (1987), reprinted in 1987 U.S. CODE CONG. & ADMIN. NEWS 5. The 1987 Act codified the EPA’s “Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants.” 49 Fed. Reg. 9,016 (1984). Pursuant to this policy, when state water quality standards contain numerical criteria for toxic pollutants, the NPDES permits should contain limits necessary to assure compliance with these standards. When violations of these standards exist, states are expected to develop water quality-based effluent limits for inclusion in NPDES permits. Id. at 9017.
345 Section 308 of the 1987 Act adds new subsection (1) to CWA § 304. 33 U.S.C.A. § 1314 (West Supp. 1988). States are required to provide this information by February 1989.
water quality standards as soon as possible, but not later than three years after establishment of the strategy.347

When a state reviews, revises, or adopts water quality standards, it must adopt criteria for all toxic pollutants listed pursuant to CWA section 307(a) for which criteria have been published under CWA section 304(a), the discharge or presence of which interferes with designated uses.348 A state's criteria have to be based on specific numerical criteria. When numerical criteria are not available, the state must adopt criteria based on biological monitoring or assessment methods.349

This amendment imposes ambitious requirements and tight deadlines. The amendment may have a dramatic effect on pretreatment requirements because local limits are often tied to state standards for toxic pollutants. The EPA advises that, when state standards contain numerical criteria for toxic pollutants and a POTW's effluent contains those pollutants, a POTW's NPDES permit may be written to include limitations on discharges of that pollutant.350 In turn, therefore, that POTW may have to set local limits for indirect dischargers so that the POTW can comply with such limitations in its NPDES permit. If state numerical criteria are not yet available, a POTW's NPDES permit may include permit conditions that establish effluent toxicity limits or specific chemical limits. Again, corresponding local pretreatment limits would have to be developed to ensure that these permit conditions are not violated.

b. Sewage Sludge Standards

Like section 308, the section 406 amendment to the CWA may force POTWs to make their pretreatment requirements more strin-

349 CWA § 303(c)(2)(A), 33 U.S.C.A. § 1313 (c)(2)(A)–(B) (West Supp. 1988). The EPA explained in its 1984 policy statement on water quality standards that it may be difficult to determine attainment or nonattainment of water quality standards for toxic pollutants on a chemical or pollutant-by-pollutant basis because of complex chemical interactions that affect the fate and ultimate impact of toxic substances in the receiving waters. In such situations, it may be feasible to examine the whole effluent toxicity and instream impacts using biological methods rather than attempt to identify all toxic pollutants, determine the effects of each pollutant individually, and then assess their collective effect. 49 Fed. Reg. 9,016, 9,017 (1984).
350 LOCAL DISCHARGE MANUAL, supra note 96, at 1-9.
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gent. Under this revision, the EPA is required to identify toxic pollutants that may be present in sewage sludge in harmful concentrations and to propose regulations specifying acceptable management practices and numerical limitations for each such toxic pollutant.

In addition to requiring the promulgation of regulations governing the concentration of pollutants in sewage sludge, the section 406 amendment directs that NPDES permits be amended to require compliance with the new regulations, unless the requirements are already included as conditions in a federal- or state-issued permit. Similar to the 1987 amendments to water quality standards requirements, if numerical limitations are set for toxic pollutants in sludge, pretreatment standards for those pollutants may have to be correspondingly modified.

F. POTW Pretreatment Programs

1. POTW's Required To Develop a Pretreatment Program

A significant element of the EPA pretreatment program is the requirement that certain POTWs establish pretreatment programs. POTWs with a total design flow greater than five million gallons per day (gpd), and receiving pollutants from IUs that pass through or interfere with the operations of a POTW, must establish a POTW pretreatment program unless the NPDES state exercises its option to assume local responsibilities. POTWs with a design flow less that five million gpd may also be required to establish a program if the nature or volume of the industrial influent, treatment process, upsets, violations of POTW effluent limitations, contamination of sludge, or other circumstances might otherwise cause pass through or interference.

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352 Id. The director of the EPA's sludge effort, Mr. Alan Rubin, Chief of Wastewater Solids Criteria Branch in the Office of Water, explained that Congress intended "that these regulations would be a driving mechanism to improve pretreatment programs, or to effect pretreatment programs where they are not in place." Sludge Criteria Stated for Fall Release; Rewritten State Program Rules Also Expected, 17 Env't Rep. (BNA) 1891-92 (March 13, 1987).
355 40 C.F.R. §§ 403.8(a), 403.10(e) (1987).
356 40 C.F.R. § 403.8(a) (1987). The total number of POTWs required to have pretreatment programs as of September 30, 1988 was 1,481. The total number of approved programs was
2. Required Elements of a Pretreatment Program

The EPA requires that POTW pretreatment programs contain certain elements.\textsuperscript{357} Most importantly, a POTW must obtain legal authority, recognized in federal, state and local courts, to enforce the statutory and regulatory requirements of the pretreatment program.\textsuperscript{358} The legal authority may be contained in a statute, ordinance, or series of contracts or joint powers agreements which a POTW is authorized to enact, enter into, or implement.\textsuperscript{359}

The EPA requires that a POTW have the legal authority to deny or condition new or increased contributions of pollutants, or changes in the nature of pollutants, discharged to the POTW by IUs where the contributions do not meet applicable pretreatment standards or would cause a POTW to violate its NPDES permit.\textsuperscript{360}

A POTW is required to ensure that IUs develop a compliance schedule for the installation of technology required to meet pretreatment requirements.\textsuperscript{361} A POTW must also have legal authority for inspection, surveillance, and monitoring procedures necessary to determine, independent of information supplied by an IU, whether or not an IU is complying with all applicable pretreatment standards.\textsuperscript{362} Representatives of a POTW shall be authorized to enter any premises of any IU in which a discharge source or treatment system is located or in which records are required to be kept to assure compliance with pretreatment standards.\textsuperscript{363} The CWA also authorizes recordkeeping, monitoring, the right to entry, and access to records in order to demonstrate compliance with pretreatment standards.\textsuperscript{364}

Another vital element of a POTW's legal authority is its ability to obtain remedies for noncompliance by IUs with pretreatment stan-

\textsuperscript{1,429. Pretreatment Approval Status (Sept. 30, 1988) (unpublished EPA memorandum).}

An engineering journal described the successful development of a pretreatment program. The journal explained that the elements of the Flint, Michigan program included a user survey, sampling and testing to determine the presence of priority and other critical pollutants, development of discharge limitations, monitoring program, the establishment of legal authority to enforce the program, and funding mechanisms to cover the cost of the program. \textit{Municipal Pretreatment Program Goes On-line}, 133 \textit{WATER ENG'G \\& MGMT} 5 (Jan. 1986).

\textsuperscript{357} 40 C.F.R. § 403.8(f) (1987).
\textsuperscript{358} 40 C.F.R. § 403.8(f)(1) (1987). The statutory and regulatory requirements include the general and specific prohibitions, categorical pretreatment standards, and local limits.
\textsuperscript{359} Id.
\textsuperscript{363} Id.
All POTWs must be able to seek injunctive relief for non-compliance. Further, all POTWs must have the authority to seek or assess civil or criminal penalties in at least the amount of $1,000 per day for each violation by an IU of pretreatment standards or requirements. Another necessary element of legal authority is that the POTW possess the authority and procedures to immediately and effectively halt or prevent any discharge of pollutants that reasonably appears to present an imminent danger to the public health or welfare, that endangers the environment, or that threatens to interfere with the operation of a POTW.

In addition to these requirements, the EPA suggests that an IU’s agreement with a POTW to discharge into that POTW be contained in a legally enforceable document. This document should be in the form of a discharge or sewer use permit and should contain several components. One such component is the specification of a limited period of duration. The EPA advises that IUs with a high potential to impact POTW operations should be given a permit of less than five-years duration, the NPDES permit term, so as to enable the POTW to review available data and issue requirements that accurately reflect conditions.

The EPA also suggests inclusion of a nontransferability clause in the permit. This clause conditions the applicability of the permit to the specific owner and facility to which they were issued. The EPA further recommends establishing legal authority for the POTW to revoke the sewer discharge privileges of the IU. Revocation authority is necessary in the event of illegal discharges, falsification of reports, and refusal to allow access to monitor discharges. Similarly, the permit should establish the legal authority for the POTW to modify the permit. Modification authority is necessary if there are significant process or discharge changes, newly promulgated national categorical standards, or enactment of more stringent local limits.
In addition to requiring that a POTW have legal authority to authorize an IU's discharge to that POTW, the EPA also requires that POTWs develop and implement procedures to ensure IU compliance with pretreatment standards.\textsuperscript{373} One such procedure is to maintain and regularly update a listing of all possible IUs that might be subject to pretreatment requirements.\textsuperscript{374} A POTW must also identify the character and volume of pollutants discharged to it by IUs.\textsuperscript{375} The EPA recently imposed a requirement that an IU promptly notify its POTW of any substantial change in the volume or character of pollutants in its discharge.\textsuperscript{376} The POTW is also required to notify all IUs of applicable pretreatment requirements. Such notice includes information regarding the general and specific prohibitions of the general pretreatment regulations, categorical standards, local limits and changes thereto, and hazardous waste disposal requirements under RCRA.\textsuperscript{377} Related to a description of required pretreatment standards, the EPA suggests that a POTW also identify sampling requirements to monitor compliance with such standards. The permit issued to the IU should include sampling frequency, sample type, and sampling points.\textsuperscript{378}

Requirements related to reporting procedures are an important part of a POTW pretreatment program. Accurate and timely reporting informs a POTW whether an IU is complying with applicable pretreatment requirements. Similarly, reporting requirements im-

\textsuperscript{373} 40 C.F.R. § 403.8(f)(2) (1987).
\textsuperscript{374} Id. § 403.8(f)(2)(i). The EPA has proposed requiring that a POTW with an approved program update its list of significant IUs once a year. 53 Fed. Reg. 40,614 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.12(i)).
\textsuperscript{376} 53 Fed. Reg. 40,614 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.12(j)). Further, the EPA recently proposed to amend 40 C.F.R. § 403.12 to include a new paragraph (p) requiring that all IUs notify the EPA, state permitting authorities, and their POTWs of any discharge into the POTW of a substance which is RCRA-listed or characteristic waste. 53 Fed. Reg. 47,655 (1988) (to be codified at 40 C.F.R. § 403.12(p)) (proposed November 23, 1988).
\textsuperscript{377} The EPA recently changed an IU’s responsibility to notify a POTW of slug loadings. 53 Fed. Reg. 40,613 (1988) (to be codified at 40 C.F.R. § 403.12(f)). A slug loading is defined as the discharge of any pollutant at a flow rate and/or pollutant concentration that will cause interference with a POTW. 40 C.F.R. § 403.5(b)(4) (1987). The notification requirement helps ensure that POTWs are alerted promptly to any loadings to their systems that could cause problems. The revision clarifies that the notification requirement applies to all IUs, not just those covered by categorical standards. Further, notification is required whether or not a violation of pretreatment standards actually occurs. 53 Fed. Reg. 40,613 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.12(f)).
\textsuperscript{379} Pretreatment Compliance, supra note 369, at 3-2.
posed on a POTW enable the EPA or a delegated state to monitor the POTW's compliance. The EPA requires that IUs submit self-monitoring reports to POTWs for analysis. Each IU report must be based on an appropriate amount of sampling and analysis to ensure that requirements related to flows and concentrations are met. Reporting requirements apply to all IUs discharging to a POTW, not just those regulated under categorical standards. The EPA suggests that the POTW use this reporting authority to require sampling for pollutants not regulated by categorical standards when those pollutants may cause pass through or interference. Moreover, the EPA now requires that if an IU's sampling and analysis indicates a violation, the IU must repeat the sampling and analysis and submit the results of both analyses to a POTW within thirty days.

In order to detect patterns of continuing noncompliance by IUs and distinguish isolated violations from chronic noncompliance, the EPA requires a POTW to randomly sample and analyze the effluent from IUs, and conduct surveillance and inspection activities, independent of reports submitted by IUs. Further with respect to violations of pretreatment requirements, the EPA requires a POTW to investigate instances of noncompliance, and to take samples and collect other information that would be needed for an enforcement action or judicial proceeding. A POTW is also required to submit,

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381 53 Fed. Reg. 40,614 (1988) (to be codified at 40 C.F.R. § 403.12(h)). The EPA recently proposed to amend 40 C.F.R. § 403.12(h) to require all significant IUs, see infra note 385, including non-categorical IUs, to submit to their POTWs at least twice annually a description of the nature, concentration, and flow of pollutants selected for reporting by the POTW. 53 Fed. Reg. 47,655 (1988) (to be codified at 40 C.F.R. § 403.12(h)) (proposed November 23, 1988).


383 53 Fed. Reg. 40,613 (Oct. 17, 1988) (to be codified at 40 C.F.R. § 403.12(g)(2)). If necessary to ensure compliance, a POTW rather than an IU is authorized to perform the sampling and analyses required for baseline monitoring reports, 90-day compliance reports, and periodic compliance reports. A POTW must perform at least the same amount of sampling and analysis as is required of an IU. 53 Fed. Reg. 40,597-98 (1988).


385 40 C.F.R. § 403.8(f)(2)(vi) (1987). The EPA provides definitions for “significant noncompliance” in order to help POTWs set priorities for their local enforcement programs. Pretreatment Compliance, supra note 369, at 3-48 to 3-50. The EPA has proposed a new
at least annually, to the largest daily newspaper in the municipality, a notification of IUs that significantly violated pretreatment standards. Significant violations include a violation that is uncorrected forty-five days after notification of noncompliance, a pattern of noncompliance over a twelve month period, a failure to report noncompliance accurately, or a violation that causes a POTW to exercise its emergency authority.

3. Approval of Pretreatment Programs

POTWs are required to submit their proposed programs to an Approval Authority. Upon a preliminary determination that a proposed program meets regulatory requirements, the Approval Authority will issue a public notice. If a program conforms to the regulations, and there are no significant comments or requests for a public hearing, the program will be approved.

An approved program must be incorporated as an enforceable condition in the POTW's reissued or modified NPDES permit. As a means to oversee the implementation of these programs, the EPA
requires a POTW to submit an annual report describing the POTW's implementation activities during the period covered by the report. An annual report should generally include an update of a POTW's IU population, the categorical standards and/or local limits applicable to each IU, a summary of the status of IU compliance, a POTW's compliance monitoring and enforcement activities, and modifications to a POTW's approved pretreatment program.

The EPA recently established procedures and criteria for modifying approved POTW pretreatment programs. Prior approval from the Approval Authority is required for substantial program modifications. Substantial modifications include changes in legal authority, imposition of less stringent local limits, and changes in POTW inspection/sampling procedures with respect to IUs.

POTW pretreatment programs are an important part of the EPA overall strategy for compliance with pretreatment requirements. Though the development of a POTW pretreatment program is generally a lengthy, arduous process, program implementation helps to ensure that a POTW can monitor and enforce compliance with pretreatment standards and avoid violations of the general and specific prohibitions and any local limits. The most significant result of a POTW pretreatment program is that an IU discharging to that POTW should become aware of its obligation to comply with pretreatment requirements of the measures it will have to take in order to comply, and of the fact that the IU will be closely monitored to verify its compliance with the pretreatment program.

G. Enforcement Actions

1. Actions Against POTWs

Courts have imposed a strict liability standard in actions brought against municipalities for failure to submit approvable pretreatment programs. In United States v. City of Lafayette, Indiana, the court determined that the city failed to submit an approvable program within the time required by its NPDES permit and an admin-

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393 Id.
395 Id. at 40,615.
396 Id. at 40,616.
397 24 Env't Rep. Cas. (BNA) 1226 (N.D. Ind. 1985).
istrative order.\textsuperscript{398} Even though the city eventually submitted an approvable program, the court imposed a strict liability standard and ruled that the city had violated the CWA.\textsuperscript{399}

The court did not accept excuses for noncompliance. The court rejected the city's assertion that it had demonstrated good faith in its efforts to comply with the statutory and regulatory requirements. The elements of an approvable program were set forth with specificity in the regulations, the NPDES permit, and in model pretreatment programs given to the city. Further, the court noted that, even though the program was approved, there was no evidence that it was being properly implemented.\textsuperscript{400} This case is significant because the court held that certain municipalities were strictly liable under the CWA to implement pretreatment programs.\textsuperscript{401}

The failure of another city to follow specified pretreatment program requirements was at issue in \textit{United States v. City of Blytheville, Arkansas}.\textsuperscript{402} As in \textit{Lafayette}, the court did not excuse deviation from CWA requirements. Specifically, the court determined that: (1) the defendant had been issued an NPDES permit pursuant to the CWA, (2) the permit required defendant to establish a pretreatment program, maintain records, sample effluent, and report results to the EPA, and (3) the defendant failed to perform these permit requirements.\textsuperscript{403} As a result of its failure to perform, Blytheville was found to be in violation of CWA pretreatment requirements.\textsuperscript{404}

Neither the \textit{Lafayette} nor \textit{Blytheville} opinions discussed what penalties would be imposed.\textsuperscript{405} According to the EPA, the amount of the penalty for a POTW's failure to submit an approvable pretreatment program should be based on two factors.\textsuperscript{406} One factor is the economic saving that a POTW realizes by not developing a program. The other factor represents the gravity of the failure to develop a program.\textsuperscript{407} The EPA analysis of the gravity component

\begin{footnotesize}
\begin{enumerate}
\item Id. at 1229.
\item Id.; CWA § 307(b), 33 U.S.C. § 1317(b) (1982).
\item 24 Env't Rep. Cas. at 1229.
\item The court cited 40 C.F.R. § 403.8(a), which states that any POTW that has a design flow greater than 5 million gallons per day and that receives pollutants from IUs that cause pass through or interference must establish a pretreatment program. 24 Env't Rep. Cas. at 1277.
\item See id. at 1, 3–4.
\item Id. at 5.
\item Id.
\end{enumerate}
\end{footnotesize}
examines the damage done to the POTW and its sewer system, or the potential harm to the environment that might have been allowed to continue as a result of the POTW not having an approved and implemented program.\(^{408}\) Gravity of failure includes the length of the violation, loss of useful life of the POTW that could have been avoided, excess costs for operation and maintenance and sludge disposal due to the absence of a program, the nature of the pollutants in the IUs’ discharges, and water quality impacts such as fish kills and drinking water contamination.\(^{409}\) Adjustments to the penalty may be made if the POTW made good faith efforts to comply but was hindered by the EPA’s delay or transmission of ambiguous information.\(^{410}\)

2. Actions Against Industrial Users

The EPA has initiated both civil and criminal enforcement efforts against IUs that have violated pretreatment requirements. CWA sections 307(d) and 309(b) and (c) provide the statutory basis for such actions.\(^{411}\) A massive explosion in the Louisville, Kentucky, sewer system initiated one of the earliest criminal actions for pretreatment violations. In *United States v. Ralston Purina Co.*,\(^{412}\) the defendant pled guilty to discharging 18,000 gallons of the toxic pollutant hexane into Louisville’s sewer system.\(^{413}\) The discharges caused a series of explosions in the sewer system, necessitating a diversion of sewer flow, including hexane, directly into the Ohio River.\(^{414}\) The court found liability because, among other violations, the spill was a negligent discharge of pollutants from a point source without a permit and a negligent discharge of pollutants creating a

\(^{408}\) Id. at 2.

\(^{409}\) Id. at 2-3.

\(^{410}\) Id. at 3.

\(^{411}\) 33 U.S.C. §§ 1317(d), 1319(b)–(c) (1982). CWA § 307(d) reads as follows:

After the effective date of any effluent standard or prohibition or pretreatment standard promulgated under this section, it shall be unlawful for any owner or operator of any source to operate any source in violation of any such effluent standard or prohibition or pretreatment standard.


Although “source” is not defined in the CWA or EPA regulations, the regulations state that “Industrial User” or “User” means a source of indirect discharge. 40 C.F.R. § 403.3(h) (1987). CWA § 309(b), (c) authorizes civil and criminal actions, respectively, for violations of CWA § 307(d). 33 U.S.C. § 1319(b)–(c) (1982).

\(^{412}\) 12 Envtl. L. Rep. (Envtl. L. Inst.) 20257 (W.D. Ky. 1982). The court imposed a penalty of $62,500. The basis for this amount is not explained in the summarization of the case. *Id.*

\(^{413}\) *Id.*

\(^{414}\) *Id.*
hazard in a POTW. The court held that such discharges violated the CWA.\textsuperscript{415} This case is significant to POTWs because the statutory prohibition against interference was one of the bases for finding the IU criminally liable for damages caused to a POTW’s sewer system.\textsuperscript{416}

Several civil actions have also been brought for violations of pretreatment standards.\textsuperscript{417} Significant civil penalties have been imposed, ranging from $41,000\textsuperscript{418} to the $1.5 million imposed against Chrysler Corporation.\textsuperscript{419} In addition to monetary penalties, Chrysler was also required to construct pretreatment systems, reduce heavy metal discharges, and sample and monitor for compliance with categorical standards three times per week.\textsuperscript{420}

Not until 1986, in \textit{United States v. Parker Metal Corp.},\textsuperscript{421} did a court issue a written opinion on the civil liability of an IU for violation of pretreatment standards. Defendant was a non-integrated electroplating facility, discharging 10,000 or more gallons of wastewater per day into a local POTW. The defendant’s discharges were subject to six separate categorical standards.\textsuperscript{422} The defendant’s own monitoring reports indicated that it had repeatedly exceeded one or more of the relevant effluent limitations. Defendant also allegedly failed to submit baseline monitoring reports and periodic compliance reports.\textsuperscript{423} Imposing a standard of strict liability under the CWA, the court ruled that the government simply had to prove that the pretreatment and reporting regulations applied to defendant and that defendant had failed to comply.\textsuperscript{424} The court rejected defendant’s

\textsuperscript{416} An IU’s discharge into a sewer system, creating a hazard of fire and explosion in a POTW, was also the basis for criminal liability and imposition of a fine in \textit{United States v. Louisville & Nashville R.R.}, No. CR 82-00146-01-L, slip op. (W.D. Ky. 1982).
\textsuperscript{417} In forty IU pretreatment cases, the United States has obtained civil penalties recovering the economic benefit that had accrued to defendants by failing to achieve timely compliance. DiBiagio-Wood & Moran, \textit{Pretreatment: The Next Enforcement Frontier for State and Local Water Pollution Authorities}, NAT’L ENVTL. ENFORCEMENT J., Sept. 1987, 7, 10.
\textsuperscript{418} In \textit{United States v. Parker Metal Corp.}, No. 85-3862-S, slip op., \textit{order granting partial summary judgment}.
\textsuperscript{419} \textit{Id.}
\textsuperscript{420} \textit{Id.}
\textsuperscript{421} \textit{Id.}
\textsuperscript{422} See id. at 2 (citing 40 C.F.R. § 413).
\textsuperscript{423} \textit{Id.} at 3. Such reports were required pursuant to 40 C.F.R. pts. 403, 413 (1981).
\textsuperscript{424} \textit{Parker Metal}, slip op. at 4–5.
argument that the government must also demonstrate that the industrial wastewater interfered with the POTW's operation. 425 This case relieves the government of having to prove interference at the POTW in order to sustain its burden of proof in cases alleging violation of a categorical pretreatment standard. Without this precedent, actions against one IU where other IUs also discharge to a POTW could be difficult to litigate. A defendant IU could assert that plaintiff failed to demonstrate the causal connection between the IU's violation of a categorical standard and the interference at the POTW on the grounds that other IUs may well have caused the interference. *Parker Metal* appears to preclude availability of such a defense. 426

As a result of the EPA and state enforcement efforts, only a small number of municipal pretreatment programs required by NPDES permits remain to be approved. 427 Further, the EPA substantial enforcement effort against IUs has resulted in higher compliance with categorical standards, such as those established for the electroplating and metal finishing industries. 428 Federal and state enforcement efforts need to continue, however, both to encourage POTWs to take appropriate actions to implement their pretreatment programs, such as bringing local enforcement actions against IUs, where necessary, and to compel compliance by IUs. 429 The significant enforcement task ahead will be to ensure that local pretreatment limits are modified to reflect upcoming revisions in NPDES permits regarding the discharge of toxic pollutants. 430 The success of the

425 Id. at 5.

426 In one of the first criminal prosecutions involving violations of pretreatment standards, the USM Corporation pled guilty to all forty-one counts of an indictment filed in federal district court in Massachusetts. See United States v. USM Corp., No. 86-365-S, slip op. (D. Mass 1986). The indictment charged that USM's electroplating operations illegally discharged pollutants to a POTW and failed to submit required reports. USM agreed to pay a one million dollar fine, the largest such fine ever levied and the maximum penalty available under the CWA for the number of violations pled. DiBiagio-Wood & Moran, *supra* note 417, at 10. This Article suggests that state and local enforcement authorities should consider proceeding criminally in a case alleging violation *of* a categorical standard because of the enhanced deterrent effect of a criminal prosecution. *Id.*


428 Id. Another EPA report disagreed with this optimistic assessment and estimated that as many as thirty percent of all electroplating/metal finishing firms have not yet complied with categorical standards. *Report to Congress, supra* note 6, at 7-3.

429 The EPA recently proposed to require POTWs with pretreatment programs to develop and implement an enforcement response plan describing how the POTW will investigate and respond to instances of IU noncompliance. 53 Fed. Reg. 47,654 (1988) (to be codified at 40 C.F.R. § 403.8(f)) (proposed November 23, 1988).

430 DiBiagio-Wood & Moran, *supra* note 417, at 12; *see also supra* notes 345-53 and accompanying text.
EPA and state efforts to comply with the mandate of the 1987 Water Quality Act to control more toxic pollutants will in large part be effective only to the extent that this enforcement task is pursued. New standards for toxic pollutants will be of value only when incorporated into a POTW's local limits and complied with by indirect dischargers.

**H. Expectations for Pretreatment**

Although the 1972 CWA established the first statutory requirements for pretreatment, and the EPA promulgated the first regulation establishing the general pretreatment program in 1978, the turning point for implementation of the EPA pretreatment program appears to be the Third Circuit approval of categorical pretreatment standards in the NAMF decision in 1983.431 Once that approval was achieved, more categorical standards could be developed and enforced in an effort to control the discharge of toxic pollutants to POTWs.

The NAMF decision did not review, however, the entire breadth of the EPA pretreatment program. In addition to categorical standards, the EPA places great emphasis on requiring POTWs, where appropriate, to develop individual pretreatment programs and local limits necessary to achieve compliance with the general and specific discharge limitations, as well as other federal, state and local requirements. The structure of the EPA pretreatment program, namely its combination of national and local standards is sensible and viable. The EPA is generally effective at developing standards for certain widely-discharged pollutants on an industry-by-industry basis. Because it is so difficult to promulgate standards for each and every hazardous or toxic pollutant that is or could conceivably be discharged into a POTW, however, it is reasonable for the EPA to outline general criteria that POTWs have the responsibility to enforce. Without POTW-developed local limits, too many toxic or hazardous pollutants that are not regulated under national standards would be discharged to POTWs, and could either severely damage a POTW's operations or be discharged into receiving water without undergoing any effective treatment, causing probable harm to human health and the environment. Successful implementation of local limits represents the pivotal element for the pretreatment program.

431 See National Ass'n of Metal Finishers v. EPA, 719 F.2d 624 (3d Cir. 1983), rev'd, 470 U.S. 116 (1985); see supra notes 229-40 and accompanying text.
Nevertheless, more work needs to be done in nearly all aspects of the EPA's pretreatment program. For example, not all categorical pretreatment standards have been promulgated, including standards for harmful pollutants or industries not on the NRDC consent decree list. Moreover, the requirements imposed by the 1987 Water Quality Act with respect to toxic pollutants, water quality, and sludge criteria will impact POTWs' development and enforcement of local limits for many years.

The effectiveness of the EPA pretreatment program depends, in addition to the promulgation of categorical standards, upon the successful enforcement of such standards and of local limits against noncompliant IUs. While the EPA's successes in Parker Metal and USM should provide helpful legal precedents in future enforcement actions, emphasis must be placed on discovering and documenting occurrences of noncompliance. Revising the pretreatment regulations to require POTWs to monitor and sample discharges from IUs, where appropriate, in addition to relying on IU's self-monitoring and sampling, is thus an important revision to the EPA program. Requiring sampling on a specified periodic basis for certain pollutants may also assist in discovering instances of significant noncompliance.

Because of the large number of IUs discharging toxic pollutants to POTWs, the pretreatment program needs to be effective in order for overall water quality to improve significantly. Moreover, even more IUs may be discharging to POTWs in the future due to recent changes to hazardous waste requirements under the Solid Waste Disposal Act. For example, restrictions on land disposal and application of hazardous waste requirements to small quantity generators, will probably increase industrial use of the domestic sewage exclusion to dispose of hazardous wastes. As a result, the EPA, states, and POTWs will have an even greater incentive to ensure compliance with pretreatment requirements.

EPA's pretreatment program is a vital element in the effort to control the discharge of toxic pollutants to our nation's surface waters. The program was implemented because Congress recognized both that direct discharges are not the only source of toxic discharges and that POTWs are generally designed to treat domestic—not industrial—wastewater. The program, therefore, imposes a requirement on industrial users discharging to POTWs, to control toxic

pollutants in their wastewater in much the same way as they would have to if they were discharging directly into surface waters. Because of the diversity of industrial facilities and of the toxic pollutants regulated, the program involves national and local standards, developed and enforced by federal, state, and local authorities. The future success of the program will depend largely on the ability of POTWs to develop and enforce their own limits on the contact of industrial discharges. These limits are necessary to protect POTWs and their receiving surface waters from the adverse effects of toxic pollutants.