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THE FEDERAL WATER POLLUTION CONTROL ACT—INDUSTRIAL CHALLENGES TO EFFLUENT LIMITATIONS

James E. McKinnon*

I. INTRODUCTION

The Federal Water Pollution Control Act Amendments of 1972\(^1\) launched a head-on attack on water pollution in the United States, declaring that henceforth any discharge of pollutants into the nation's water is unlawful unless it complies with the provisions of the legislation.\(^2\) The Act covers every "point source"\(^3\) in the country and mandates that every industry that discharges waste water, from the smallest printing shop to the largest steel mill, must meet effluent limitations\(^4\) promulgated by the United States Environmental Protection Agency (EPA).\(^5\)

Economic consequences have made effluent limitations controversial from the beginning. Testifying against passage of the Act, representatives of industry predicted widespread plant closings and

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* B.S., University of North Carolina, 1977; J.D. expected 1980, Wake Forest University School of Law.
\(^2\) Id. § 1311(a). These provisions include procedures for the acquisition of a permit which specifies the levels at which a pollutant can be discharged. Id. § 1342.
\(^3\) A "point source" is "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." Id. § 1362(14).
\(^4\) An "effluent limitation" is a restriction "on quantities, rates and concentrations of chemical, physical, biological, and other constituents which are discharged . . . including schedules of compliance." Id. § 1362(11).
\(^5\) EPA's authority to issue actual limitations (and not just guidelines to be used by permit writers) was confirmed in E.I. du Pont de Nemours and Co. v. Train, 430 U.S. 112 (1977).
resulting unemployment. To help prevent these problems, the Act specifically requires EPA to consider the potential economic consequences of an effluent limitation while it is being developed. Nevertheless, the probable costs to industry guaranteed legal challenges, which indeed began soon after the publication of the first effluent regulations.

The purpose of this article is to describe and catalog the different types of industrial challenges to effluent limitations and to define the standards that these limitations must meet in order to withstand such judicial challenges. The first section describes EPA's statutory mandate to develop effluent limitations. The second section outlines the general legal requirements for the limitations. Finally, the third section describes individually the procedural, statutory and substantive challenges to effluent limitations.

II. TYPES OF EFFLUENT LIMITATIONS REQUIRED BY THE 1972 AND 1977 AMENDMENTS

The Federal Water Pollution Control Act Amendments of 1972 requires EPA to develop effluent limitations on an industry-by-industry basis. Under the Act, the discharge of effluents is to be reduced over several years and industrial pollution control methods are to reach increasingly sophisticated technological levels to accomplish this goal. By 1977 all industries had to install the "best practicable control technology currently available" and, by 1983, they must be using the "best available technology economically achievable."
The "practicable" technology standard generally depends on the level of pollution control achieved by the plants in an industrial category that have the most effective pollution control technology. The level of pollution control that these "exemplary plants" achieve is, in effect, averaged, and this average level then becomes the technology level that the rest of the industrial subcategory must achieve.

The "available" technology standard, on the other hand, is somewhat more demanding. Courts have interpreted this standard to be the level of pollution control producible by the best technology that can reasonably be expected to be available in 1983.

The 1972 Act also requires EPA to promulgate standards of performance for new industrial waste sources on the basis of "best available demonstrated control technology." If a business begins construction of a plant after proposed effluent limitations are published, that plant is treated as a "new source."

The "new-source" performance standards rest on a combination of the "practicable" and "available" technologies; the particular technology utilized depends on whether the 1983 "available" tech-

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14 Contrary to the trend in most opinions, see, e.g., American Iron and Steel Institute v. EPA, 568 F.2d 284 (3rd Cir. 1977), the Boston College Environmental Affairs Law Review has chosen to use shortened word descriptions for the technology standards rather than acronyms. Thus, "best practicable control technology currently available" is shortened to "practicable" technology rather than BPCTCA, "best available technology economically achievable" becomes "available" technology rather than BAT, and "best conventional pollution control technology" is "conventional" technology rather than BCPCT. The substitution is part of an effort to make our articles more readable by promoting the use of descriptive words rather than unpronounceable initials wherever possible. Acronyms are generally used on these pages only when their meaning is so common or the words are repeated so often that spelling them out would be a waste of paper. See, Comment, The National Forest Management Act of 1976: A Critical Examination, 7 B.C. Envtl. Aff. L. Rev. 99, 108-09 (1978) (waste of paper).

15 When no exemplary plants are found in an industry, i.e., no plants with effective pollution control technology, EPA "transfers" technology from another industry. See section IV(c)(3), infra.

16 If, for example, the three most exemplary plants in an industrial subcategory can reduce the level of a pollutant in their effluent to 0.01, 0.03, and 0.05 parts per million, the level of pollution reduction which the Act calls "practicable" would result in a reduction at 0.03 parts per million for that subcategory.

17 See e.g., E. I. duPont de Nemours v. Train, 541 F.2d 1018, 1032 (4th Cir. 1976), modified, 430 U.S. 112 (1977). The circuit courts have differed considerably on the question of what can reasonably be expected in 1983.


19 Id. § 1316(a)(2).
nology standard has yet been demonstrated.

EPA develops the different effluent limitations for each technology through a series of steps. The Agency initially divides each major industrial category, such as wood products, into separate industries, such as pulp, paper, timber and textiles. These industries are then further divided into subcategories. After full technical and economic studies of each of the subcategories are provided by private contractors, EPA issues a preliminary development document summarizing its findings on each industry. Public comments on these documents are then received and analyzed by the Agency. Based on this information, EPA proposes effluent limitations for each subcategory. After EPA receives more comments, it issues final limitations. Industry challenges either to this procedure or to the resulting technology-based standards comprise the bulk of the cases discussed in this article.

In addition to technology-based, general effluent limitations, the 1972 Act requires special standards for toxic pollutants. Proposed regulations for specific toxic pollutants should have been published about nine months after the passage of the 1972 Act. However, developing these standards has proved more difficult than Congress had anticipated, and they had not as yet been published when Congress amended the Act again in 1977. In fact, EPA's difficulty in developing toxic pollutant standards was one of the main reasons for the 1977 Amendments.

Other than the proposed special treatment of toxics, no differentiation between types of pollutants was made in the 1972 Act. All point sources were required to achieve the required levels of pollution control by the required deadlines no matter what type of pollutants they discharged. However, under the 1977 Amendments, pollutants are divided into four categories: identified toxics, toxics

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20 These steps can be extracted to a certain extent from 33 U.S.C.A. §§ 1311, 1314, 1316, 1317 (West 1978). A better view of the process can be obtained from a case study of a particular industry. See, e.g., 44 Fed. Reg. 38746-66 (1979) (supplementary information to proposed effluent limitations guidelines for leather tanning and finishing industry).


22 Id.


26 The 1972 Act required EPA to develop and publish a list of toxic pollutants. 33 U.S.C.
yet-to-be-named, conventional pollutants and all other pollutants. For both kinds of toxics and for non-conventional pollutants, the "available" technology standard remains. However, for conventional pollutants, which include biological oxygen-demanding pollutants, suspended solids, fecal coliform and pH, a new "best conventional pollution control technology" standard applies. The "conventional" technology standard is defined as being at least as stringent as the "practicable" technology standard, but not more stringent than the "available" technology standard. The 1977 Amendments also extend the "available" and "conventional" technology deadlines to July 1, 1984, and allow for case-by-case exceptions for non-toxic pollutants. In sum, for each pollutant category, the 1977 Amendments require a different combination of (1) the level of treatment, (2) the timetable for compliance and (3) the options for modification.

III. GENERAL REQUIREMENTS OF EFFLUENT LIMITATIONS

An effluent limitation must meet the same standards as any other federal regulation. Judicial doctrines in administrative law forbid regulations which violate or exceed the scope of empowering legislation. In addition, regulations must satisfy the procedural and substantive requirements of the Administrative Procedure Act (APA).


The 1977 Amendments define conventional pollutants as including "pollutants classified as biological oxygen demanding, suspended solids, fecal coliform, and pH." Id. § 48(a), to be codified at 33 U.S.C. § 1314(a)(4).

The 1977 Amendments define all other pollutants by elimination. They are substances not specifically designated as toxic by EPA or conventional by the 1972 Act. See id. § 43, to be codified at 33 U.S.C. § 1311(g)(1). Examples include oil and grease. Thermal pollution is not included in any of the three categories and is handled separately. Id.

Id. § 42(a)(3), to be codified at 33 U.S.C. § 1311(a)(2)(C), (D), (F).

Id. § 42(a)(3), to be codified at 33 U.S.C. § 1311(b)(2)(E).


Id. § 42(a)(3), 91 Stat. 1566 (1977), to be codified at 33 U.S.C. § 1311(b).

Id. § 43, to be codified at 33 U.S.C. § 1311(g).

This area of the law involves the question of what is "fact" and what is "law," a question which has defied systematic characterization or treatment. For a discussion of some of the ways to look at this problem, see W. Gellhorn & C. Byse, Administrative Law 427-86 (1974).

§ 5 U.S.C. §§ 551-59, 701-06 (1976). The APA itself forbids regulations that are "in excess of statutory jurisdiction, authority, or limitations, or short of statutory right." Id. § 706.
The APA requires that an agency give interested parties advance notice by publication of impending regulations so that they can have an opportunity to give their comments to the administrator and participate in the making of the regulations.\textsuperscript{37} The substantive requirements of the APA are applicable when an administrator possesses the authority to use his judgment in development a regulation. Under the APA a reviewing court must set aside any discretionary agency action, findings and conclusions only if they are found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."\textsuperscript{38}

In determining the validity of a regulation, a court must review the entire administrative record.\textsuperscript{39} In fact, the record upon which the agency made its decision is the only thing the reviewing court should examine when deciding whether the agency acted arbitrarily, capriciously, in abuse of its discretion or otherwise unlawfully.\textsuperscript{40} Most importantly, the record must be complete. It should articulate the standards and details that governed the agency's decision in as much depth as possible. Decisions are considered arbitrary and capricious if the facts upon which they are purportedly based are not supported by the record.\textsuperscript{41} Factual certainty, however, is not necessary; the administrator may regulate even though the facts do not illuminate a "clear path."\textsuperscript{42}

When reviewing actions within the scope of an administrator's discretion, the court "must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment."\textsuperscript{43} The reviewing court should not substitute its judgment for that of the agency but must engage in a substantial inquiry and a thorough, probing, in-depth review.\textsuperscript{44}

This substantial inquiry or "hard look" doctrine means that courts will accept nothing less than fairly conceived, fully explained and rationally based administrative discretionary judgments. Courts undertake careful scrutiny to assure that agencies (1) abide

\textsuperscript{37} Id. §§ 552, 553.
\textsuperscript{38} Id. § 706(2)(A).
\textsuperscript{42} Id.
\textsuperscript{44} Id. at 416.
by fair and reasonable procedures; (2) give good faith consideration to matters assigned to them; and (3) produce results that are defensible in reason.\textsuperscript{46}

The importance of a complete administrative record cannot be over-emphasized. Courts usually defer to the expertise of an agency like EPA unless the record is found incomplete.\textsuperscript{46} For example, in \textit{American Paper Institute v. Train},\textsuperscript{47} the Court of Appeals for the District of Columbia stressed the fact that a court may not substitute its judgment for that of EPA.\textsuperscript{46} However, the court also said that, in reviewing an effluent limitation, it must ensure that the Agency's decision had a rational basis and rested on a consideration of all relevant factors.\textsuperscript{46} Moreover, the court's inquiry must be searching and careful, especially in highly technical cases.\textsuperscript{50}

In sum, the record must demonstrate that the administrator considered all relevant factors and made a rational judgment based solely on the record. It must also show that the administrator met all the requirements of the APA as well as other requirements contained in the empowering legislation.

\section*{IV. Challenges to Effluent Limitations}

The complicated way in which effluent limitations are developed, and the lengthy records which often result, provide a host of grounds for challenges. Nevertheless, challenges can be divided into three main categories: procedural, statutory, and substantive.

Procedural challenges to effluent limitations generally concern EPA's failure to satisfy the APA requirements of fair notice of impending regulations and proper publication of such regulations. Very few effluent limitations have been struck down through procedural challenges. Moreover, the frequency of procedural defects has decreased as EPA has become more familiar with its procedural duties.

Challenges based on statutory grounds involve attacks on EPA's
interpretation of the Act itself. Generally, a reviewing court will accept the Agency’s construction of the controlling statute if it is “sufficiently reasonable.”51 In statutory challenges, litigants have tested the general scope of regulations, EPA’s assessment of certain factors which the Act requires the Agency to consider and EPA’s allowance for variations from the regulations.

Substantive challenges concern the Agency’s use of its judgment in developing effluent limitations. The “arbitrary and capricious,” and “clear error of judgment” standards apply to substantive challenges. EPA’s use of discretion has been challenged in such matters as its subcategorization of each industry and its choice of pollution control technology for each industry. Substantive challenges also include challenges to EPA’s general regulation-making methodology; when this methodology shows some gap in logic a court will remand the regulations.52

A. Procedural Challenges

Challenges to effluent limitations based on procedural defects have generally been based on EPA’s failure to give adequate notice of impending regulations. The APA requires such notice so that interested parties can participate in the rulemaking through the submission of written (or other) data bearing on the proposed limitations.53 Other procedural challenges have rested on faulty publication of the limitations or the lack of a general statement summarizing their basis and purpose.54

1. Notice

In American Iron and Steel v. EPA55 the Court of Appeals for the Third Circuit sustained the specialty steel industry’s challenge to interim iron and steel limitations based on faulty notice of EPA’s proposed rulemaking. The court said that EPA must sufficiently apprise all interested parties of its plans to issue regulations.56 It stated the test to be whether the notice given fairly apprised interested parties of the subjects and issues before the Agency.57 In a

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52 See text at notes 113-124, infra.
53 5 U.S.C. §§ 553(b), (c) (1976).
54 See id. §§ 552-53.
55 568 F.2d 284 (3d Cir. 1977).
56 Id. at 291.
57 Id.
similar case concerning adequate notice, the Court of Appeals for the District of Columbia struck down a limitation for a particular pollutant in the potato processing industry for want of notice and a public comments period.\textsuperscript{58}

EPA is free to adopt a rule which is "different—even substantially different from the proposed rule."\textsuperscript{59} Thus, in the second part of the opinion mentioned above, the American Iron and Steel court upheld interim regulations for the carbon steel industry even though they were more stringent than the previously proposed regulations and required the use of pollution control technology not clearly identified in the previously proposed regulations.\textsuperscript{60} However, the industry must have some warning. One court of appeals recently struck down a limitation for sulfite mills due to faulty notice and comment procedures.\textsuperscript{61} The court stated that EPA must give public notice and allow for public comments on every incremental change in its conclusions which is not the "logical outgrowth" of the preceding notice and comment process.\textsuperscript{62}

The notice issue becomes confused when EPA issues proposed limitations for a number of industries in one publication. This problem arose in American Iron and Steel, where the court said, in effect, that the Agency's consideration of certain pollution control technologies for some subcategories gave interested parties notice that EPA might apply these technologies to other subcategories in the same industry.\textsuperscript{63} Thus, reviewing courts and industry must be aware of all other regulations before they can determine if proper notice was given.

2. Defects in Publication

Publication of the proposed regulation must be complete and concise. In Appalachian Power Company v. Train,\textsuperscript{64} the Court of Appeals for the Fourth Circuit invalidated an effluent limitation because of an omission in its publication. EPA had intended certain

\textsuperscript{58} American Frozen Food Inst. v. Train, 539 F.2d 107 (D.C. Cir. 1976).
\textsuperscript{59} American Iron and Steel Inst. v. EPA, 568 F.2d 284, 293 (3d Cir. 1977).
\textsuperscript{60} \textit{id.}
\textsuperscript{61} Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978).
\textsuperscript{62} \textit{id.} at 1031. Ironically, the court in this case praised the majority of the challenged limitations saying that the EPA had "bent over backwards to accommodate public participation in, and the understanding of, the effluent limitations." \textit{id.} at 1028.
\textsuperscript{63} American Iron and Steel Inst. v. EPA, 568 F.2d 284, 293 (3d Cir. 1977).
\textsuperscript{64} 566 F.2d 451 (4th Cir. 1977).
information contained in its development document for cooling water intake structures to be incorporated into its regulations. The regulations were remanded because the development document was neither published in the Federal Register nor properly incorporated into the published regulations by reference. In *CPC International v. Train*, the Court of Appeals for the Eighth Circuit remanded a "new-source" technology regulation because it was too vague. The court said that the regulations must be specific enough to warn industry of the scope of prohibited conduct. However, courts are not likely to be overly demanding on this issue. For example, the Second Circuit upheld an effluent limitation challenged on the grounds that EPA had omitted both a "reference to the legal authority under which the rule is proposed," and "a concise general statement of their basis and purpose." The court found these requirements satisfied by a combination of the notice of proposed rulemaking and the publication of the final regulations (especially the preamble of the regulations), in spite of their "self-serving characteristics."

The procedural standards for effluent limitations set out in the APA have been refined through numerous interpretations. Although procedural defects have troubled EPA in the past, successful procedural challenges have declined as the Agency has become more familiar with the required standards. This decline should continue in the future.

**B. Statutory Challenges**

Statutory challenges to effluent limitations have generally been based on one of three grounds: EPA's failure to adequately consider factors enumerated in the statute, EPA's failure to permit variation from the effluent limitations and EPA's promulgation of regulations that exceed the scope of the statute.

1. Consideration of Factors

In order to limit the risk that EPA would develop effluent limita-

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65 See text at note 20, supra.
67 515 F.2d 1032 (8th Cir. 1975).
68 Id. at 1052.
69 Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 620 (2d Cir. 1976).
70 Id. at 630.
tions that would have a disastrous effect on the nation’s economy, Congress included in the Act a requirement that the Agency consider certain factors while developing the limitations. While some of the factors which the Agency must consider vary with each type of limitation, EPA must consider the cost of the limitation and its non-water quality environmental impact, including energy requirements, as it develops effluent limitations for all four technology levels.\footnote{33 U.S.C. §§ 1314(b)(1)(B), (2)(B), 1316(b)(1)(B) (1976); Pub. L. No. 95-217, § 48(b), 91 Stat. 1566 (1977), to be codified at 33 U.S.C. § 1314(b)(4)(B).} The statute provides special cost-benefit tests for the “practicable” and “conventional” technology standards.\footnote{33 U.S.C. § 1314(b)(1)(B) (1976) (“practicable”); Pub. L. No. 95-217, § 48(b), 91 Stat. 1566 (1977), to be codified at 33 U.S.C. § 1314(b)(4)(B) (“conventional”).} In addition, for the three standards that apply to existing plants (“practicable,” “available” and “conventional” technologies, but not “new-source” performance standards), EPA must take into account “the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, [and] process changes.”\footnote{33 U.S.C.A. § 1314(b) (West 1978).}

In developing regulations for the “practicable” technology level, EPA must perform a cost-benefit analysis. More precisely, the statute requires that EPA weigh the total cost of application of the technology in relation to the effluent reduction benefits to be achieved from such application.\footnote{33 U.S.C. § 1314(b)(1)(B) (1976).} The test is “intended to limit the application of technology only where the additional degree of effluent reduction is wholly out of proportion to the costs of achieving such marginal level of reduction.”\footnote{Environmental Policy Division of the Library of Congress, A Legislative History of the Water Pollution Control Act Amendments of 1972, 93 Cong. 1st Sess. 170 (Comm. Print 1973), (emphasis in original).} At the very least, the administrative record for a “practicable” standard must show that industry costs were considered.\footnote{E.I. du Pont de Nemours and Co. v. Train, 541 F.2d 1018, 1037 (4th Cir. 1976), modified, 430 U.S. 112 (1977); Appalachian Power Co. v. Train, 545 F.2d 1351, modified, 545 F.2d 1380 (4th Cir. 1976).}

The cost considerations for “conventional” technology effluent limitations seem, from the language of the Act, to involve a cost-benefit test similar to the one required for “practicable” technology.\footnote{Compare 33 U.S.C. § 1314(b)(1)(B) (1976) with Pub. L. No. 95-217, § 48(b), 91 Stat. 1566 (1977), to be codified at 33 U.S.C. § 1314(b)(4)(B).} Specifically, EPA must consider the reasonableness of the
relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits derived.\textsuperscript{78} Thus, EPA must consider both costs and benefits and determine whether or not they are reasonably related. The conventional technology standard was specifically developed for situations where the added benefits would not justify the costs involved in requiring the more stringent "available" technology levels of treatment.\textsuperscript{79} However, there are as yet no reported challenges to "conventional" technology limitations, so it is difficult to know what standards will govern such challenges.

For "available" technology and "new-source" performance standards, the Agency must only "consider cost."\textsuperscript{80} The Act does not specify the degree of consideration of the cost factor required for these limitations, therefore leaving that determination to the discretion of the Agency. Thus, cost consideration challenges to these two types of standards will succeed only when EPA's consideration of the cost factor was arbitrary and capricious.\textsuperscript{81} Moreover, since the Agency need not perform a cost-benefit analysis, \textit{per se}, it need not document the benefits to society arising from the control of pollutants from a particular point source.\textsuperscript{82} However, the courts have determined that for "new-source" standards EPA must show that the costs can be "reasonably" borne by the industry.\textsuperscript{83} The Agency may also have to show that its economic analysis used all the relevant data and that this data was accurate and up-to-date.\textsuperscript{84}

\begin{itemize}
\item \textsuperscript{78} Pub. L. No. 95-217, \textsection{} 48(b), 91 Stat. 1566 (1977), \textit{to be codified} at 33 U.S.C. \textsection{} 1314(b)(4)(B). In addition, EPA must make a "comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources." \textit{Id.}
\item \textsuperscript{80} 33 U.S.C. \textsection{} 1314(b)(2)(B), 1316(b)(1)(B) (1976).
\item \textsuperscript{81} Appalachian Power Co. v. Train, 545 F.2d 1351, 1365, \textit{modified}, 545 F.2d 1380 (4th Cir. 1976). The discussion in the text distinguishes between the language of the cost consideration requirements for different technology levels, as was done by the Court of Appeals for the District of Columbia, in Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978). However, other Circuits have reviewed EPA cost consideration for "practicable" and "available" technology effluent limitations as if the requirements were identical. See, \textit{e.g.}, National Renderers Ass'n v. EPA, 541 F.2d 1281, 1287-89 (8th Cir. 1976); California \& Hawaiian Sugar Co. v. EPA, 553 F.2d 280, 288 (2d Cir. 1977).
\item \textsuperscript{82} California and Hawaiian Sugar Co. v. EPA, 553 F.2d 280, 289 (2d Cir. 1977).
\item \textsuperscript{83} CPC International, Inc. v. Train, 540 F.2d 1329, 1342 (8th Cir. 1976), \textit{cert. denied}, 430 U.S. 966 (1977).
\item \textsuperscript{84} National Renderers Ass'n v. EPA, 541 F.2d 1281, 1288 (8th Cir. 1976), \textit{but see} California and Hawaiian Sugar Co. v. EPA, 553 F.2d 280, 289 (2d Cir. 1977).
\end{itemize}
Challengers of effluent limitations have also cited the age of the equipment and facilities involved as being improperly considered by EPA. As with the cost factor in "available" technology and "new-source" performance standards, the degree of consideration required for this factor is not specified in the Act and is left to the discretion of the Agency.85 However, the age of the equipment and facilities must at least be considered. In American Iron and Steel Institute v. EPA,86 the Court of Appeals for the Third Circuit remanded an interim iron and steel effluent limitation because the Agency improperly failed to consider the bearing of the age of the equipment and facilities involved on the cost and feasibility of retrofitting plants with new pollution control technology.87 The court said that EPA must consider the age of the equipment and facilities involved unless the Agency has specifically found that age has no bearing on the cost or feasibility of retrofitting plants with pollution control technology.88 The court explained that it might have accepted EPA's argument that age has little or no bearing on retrofit because the concept of plant age itself is difficult to define. However, an earlier court order in the American Iron and Steel Institute case required EPA to make a specific finding on the significance of the age factor, thereby forcing the court to remand the contested limitation, although only for the purpose of having EPA "consider" age.89

Finally, EPA must consider "non-water quality environmental factors."90 Water scarcity is one such factor.91 Thus when an industry challenged a technology standard that involved poor water conservation practices, the reviewing court upheld EPA, saying that it could not conclude that it was "arbitrary or capricious of EPA to consider the water scarcity problem by comparing the benefits in pollution reduction attributable to each phase of its regulations with the loss in water resources attributable to that phase."92 In California and Hawaiian Sugar Company v. EPA,93 the Court of

86 568 F.2d 284 (3d Cir. 1977).
87 Id. at 299.
88 Id.
89 Id.
90 Id.
91 As with cost and age factors, non-water quality environmental factors are also left to Agency discretion. Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1045-46 (D.C. Cir. 1978).
92 American Iron and Steel Inst. v. EPA, 568 F.2d 284, 308 (3d Cir. 1977). See also Appalachian Power Co. v. Train, 545 F.2d 1351, 1368-71, modified, 545 F.2d 1380 (4th Cir. 1976).
93 American Iron and Steel Inst. v. EPA, 568 F.2d 284, 308 (3d Cir. 1977).
94 553 F.2d 280 (2d Cir. 1977).
Appeals for the Second Circuit upheld effluent limitations for the crystalline cane sugar refining industry despite charges that EPA had improperly failed to consider such non-water quality environmental impact factors as land conservation, energy consumption, and fogging and noise caused by cooling towers. The court found that EPA had adequately considered such factors.

2. Variances

EPA uses two techniques to account for differences between individual plants in a given industry: subcategorization and variance. The Agency divides an industry’s plants into discrete subcategories for which separate effluent limitations are issued. Plants which do not fit a definite subcategory are subject to special variance provisions. Subcategorization is a matter of EPA judgment, thus creating a substantive problem which will be discussed later. Challenges to variance provisions, which are mandated by the Act, involve EPA’s interpretation of the Act as modified by case law.

While the Act explicitly requires that EPA include a variance provision in its “available” technology limitations, it contains no such variance provision for “practicable” technology limitations. However, the Supreme Court in E.I. du Pont de Nemours and Co. v. Train read the Act to require a variance provision in both “available” and “practicable” technology limitations. The Court also held that the Act forbids variance provisions for “new-source” performance standards.

The du Pont case clearly established that EPA must include variance provisions in both its “available” and “practicable” technology limitations. However, it also raised the question of the justiciability of challenges to these variance provisions, specifically focusing on whether variance provisions can be challenged in the context of a review of a general set of limitations or whether a separate suit must be brought by each plant that is denied a variance. In

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94 See also Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978).
95 See text at note 20, supra.
96 See text at notes 125-32, infra.
99 Id. at 128.
100 Id. at 138. The Act provides no authority for case-by-case exemptions from “conventional” technology limitations.
Weyerhaeuser Company v. Costle,\textsuperscript{101} the Court of Appeals for the District of Columbia concluded that a narrow review of a variance provision is allowable in the context of a review of a general set of limitations.\textsuperscript{102} The court stressed, however, that this review must be limited to a determination of whether the variance provision “can be applied with enough flexibility to support the general rulemaking effort.”\textsuperscript{103}

To determine whether EPA had met this “minimum-flexibility”\textsuperscript{104} requirement, the Weyerhaeuser court examined EPA’s variance philosophy. EPA will generally allow a discharger a variance from an effluent limitation only if the discharger can show that the technical and engineering factors which EPA considered while establishing the limitation are fundamentally different from the discharger’s equipment and facilities.\textsuperscript{105} However, the Weyerhaeuser court approved EPA’s position of denying variances when only cost factors constitute the fundamental difference.\textsuperscript{106} In support of this position, the court cited language in the legislative history showing that supporters of the Act “acknowledged and accepted the possibility that its 1977 requirements might cause individual plants to go out of business.”\textsuperscript{107} The court also stated that, in making its variance decisions, EPA need not consider the benefits to local water quality which result from enforcement of the limitations.\textsuperscript{108} In approving the challenged variance provisions, the court noted that the Agency had built a significant degree of flexibility into the regulations themselves through its intensive study of the industry and its attempts to account for the information uncovered by that study.\textsuperscript{109}

In sum, for a variance clause to be valid, it must permit a variance when a plant differs in some fundamental aspect from the rest of the plants in its subcategory. The danger of variance provisions that

\begin{itemize}
  \item \textsuperscript{101} 590 F.2d 1011 (D.C. Cir. 1978).
  \item \textsuperscript{102} Id. at 2163. See also Appalachian Power Co. v. Train, 545 F.2d 1351, 1358-60, n.22, \textit{modified}, 545 F.2d 1380 (4th Cir. 1976).
  \item \textsuperscript{103} Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1033 (D.C. Cir. 1978).
  \item \textsuperscript{104} Id.
  \item \textsuperscript{105} Id. at 1038. The fundamentally different standard also applies in direct challenges to the denial or revocation of a variance. \textit{In re Louisiana-Pacific Corp.}, 10 E.R.C. 1841, 1850 (EPA 1977) (administrative decision).
  \item \textsuperscript{106} 590 F.2d at 1038. \textit{But see} Appalachian Power Co. v. Train, 545 F.2d 1351, 1359, \textit{modified}, 545 F.2d 1380 (4th Cir. 1976).
  \item \textsuperscript{107} 590 F.2d at 1036.
  \item \textsuperscript{108} Id. at 1042.
  \item \textsuperscript{109} Id. at 1040.
\end{itemize}
are too broad results from the probability of their over-use by permit grantors. If variances are given too freely, the purpose of the Act could be effectively frustrated. Thus, variance provisions must be broad enough to prevent remand but narrow enough to prevent overuse.

3. Limitations Exceeding the Scope of the Statute

Effluent limitations have also been challenged as exceeding the scope of the Act. For example, the Act does not authorize EPA to regulate treatment of storm water runoff or other pollution caused by non-point sources, nor does it authorize EPA to require industry to remove pollutants which enter a plant through intake streams. The Act has, however, been interpreted as giving EPA the power to regulate disposal of pollutants into deep wells when it undertakes such regulation in conjunction with limitations on a plant's discharges into surface waters.

C. Substantive Challenges

Substantive challenges to discretionary actions taken by EPA in establishing effluent limitations have generally been based on one of three grounds: faults in EPA's general regulation-developing methodology, EPA's improper subcategorization of an industry or EPA's improper choice of pollution control technology.

1. EPA's General Regulation-Developing Methodology

Challenges to EPA's regulation-developing methodology can be divided into two general groups: attacks on EPA's data base and attacks on EPA's logic. EPA has used a variety of sources of data in establishing effluent limitations. The Agency's practice of using effluent data from the plants in an industrial subcategory with the most effective pollution control technology to develop "practicable" technology limitations has been unanimously upheld. In fact, the Agency can use data from exemplary plants that are not even lo-

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110 American Petroleum Inst. v. EPA, 540 F.2d 1023, 1035 (10th Cir. 1976), cert. denied, 430 U.S. 922; Appalachian Power Co. v. Train, 545 F.2d 1351, 1373, modified, 545 F.2d 1380 (4th Cir. 1976).

111 Appalachian Power Co. v. Train, 545 F.2d 1351, 1377, modified, 545 F.2d 1380 (4th Cir. 1976).

112 United States Steel Corp. v. Train, 556 F.2d 822, 852 (7th Cir. 1977).

113 See, e.g., FMC Corp. v. Train, 539 F.2d 973, 978 (4th Cir. 1976); Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 620, 632 (2d Cir. 1976).
icated in the United States,\textsuperscript{114} and even though the plants have installed the advanced pollution control technology solely to meet strict state water quality standards.\textsuperscript{115} When no exemplary plants exist in a given industrial subcategory, EPA can look to other subcategories, and even to other industries, for appropriate pollution control technology.\textsuperscript{116}

For "available" technology limitations, EPA can rely on scientific literature to support its conclusion that the selected technology will be available in 1983.\textsuperscript{117} The Agency must, however, specify what sections of a given publication it has relied upon so that its reasoning can be traced.\textsuperscript{118}

In addition, courts have also upheld the Agency's use of state water quality standards\textsuperscript{119} and its use of data obtained from other effluent limitation studies.\textsuperscript{120} EPA can even require an industry to monitor itself in order to acquire the needed data.\textsuperscript{121} Thus, it seems that EPA can use data from almost any available source in developing effluent limitations.

More frequently, problems arise because the Agency has based its regulations on data that is either incorrect or incomplete, revealing gaps in the logic the Agency used in exercising its discretion. If the record does not completely document EPA's reasoning, the affected limitation will be remanded.\textsuperscript{122} On the other hand, proving that the Agency made a clear error of judgment poses a difficult task. Due to the complex nature of the decisions EPA must make while developing an effluent limitation, the courts will usually defer to the Agency's expertise unless some defect in the record can be shown.\textsuperscript{123} As long as the record shows that EPA adequately considered the relevant factors and the record supports the Agency's conclusions, the courts will usually accept the administrator's judgment.\textsuperscript{124}

\begin{footnotesize}
\begin{enumerate}
\item American Frozen Food Inst. v. Train, 539 F.2d 107, 140 (D.C. Cir. 1976).
\item Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1062 (D.C. Cir. 1978).
\item California and Hawaiian Sugar Co. v. EPA, 553 F.2d 280, 286 (2d Cir. 1977).
\item Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 620, 636 (2d Cir. 1976).
\item \textit{Id.}
\item United States Steel Corp. v. Train, 556 F.2d 822, 835 (7th Cir. 1977).
\item Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 639, 641 (2d Cir. 1976).
\item United States Steel Corp. v. Train, 556 F.2d 822, 850-51 (7th Cir. 1977).
\item Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 639, 646 (2d Cir. 1976).
\item See text at notes 43-44, supra.
\item See, \textit{e.g.}, American Iron and Steel Inst. v. EPA, 568 F.2d 284 (3d Cir. 1977).
\end{enumerate}
\end{footnotesize}
2. EPA's Industry Subcategorization

Some of the earliest effluent limitations promulgated were challenged because EPA had not issued a separate regulation for each point source, but instead, had subcategorized each industry by such various factors as the manufacturing processes employed and the types of products produced. EPA claimed that this subcategorization adequately accounted for the diversity in each industry. Courts generally have supported EPA's position, upholding subcategorization as a substitute for individualized regulations. EPA's mode and basis of subcategorization, however, are still subject to challenges as being arbitrary and capricious.

Challengers of EPA's subcategorization have generally argued that the Agency failed to take into account enough factors when it divided an industry into subcategories. Generally speaking, EPA must take into account all relevant factors in its subcategorization process. The Agency must consider factors other than simply the manufacturing processes employed. Determining whether a factor is relevant to subcategorization is a discretionary matter, so that the arbitrary and capricious standard applies. Industry has argued at various times that EPA has failed to sufficiently consider several factors that are important to the subcategorization process, including the age of equipment and facilities involved, climate, volume of water flow from plants and the profitability of processes used to recover certain pollutants. Because subcategorization is a discretionary function which depends on the specific industry involved, there do not seem to be any iron-clad rules concerning which factors the Agency must take into account when subcategorizing. Nonetheless, it seems that economic factors need not be considered when subcategorizing. Thus, as with EPA's consideration of such

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125 See, e.g., Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 620 (2d Cir. 1976); FMC Corp. v. Train, 539 F.2d 973 (4th Cir. 1976).
128 Id. at 299.
129 Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 620, 634 (2d Cir. 1976).
131 Id. at 1056.
132 The Court of Appeals for the District of Columbia found that economic factors need not be considered in variance provisions. Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978). Since industry subcategorization is another form of variance, allowing for differences between subcategories, a similar result would probably obtain if challengers raised cost in a subcategorization suit.
factors as the age of facilities and equipment involved and the non-
water quality environmental impact, the Agency's consideration of
subcategorization factors will generally be upheld if the record
shows that these factors were, in fact, merely considered.

3. EPA's Selection of Pollution Control Technology

In challenging EPA's choice of pollution control technology, in-
dustry generally has argued either that EPA's chosen technology is
not available or that the technology is not effective. The 1972 Act
required EPA to develop three types of regulations ("practicable"
and "available" technology and "new-source" performance stan-
dards) and the 1977 Amendments added a fourth ("conventional"
technology). Each of these limitations is based on technology that
is either in current use ("practicable"), demonstrated as usable in
the industry ("new-source" performance standards and "conventional") or expected to be available to the industry when
enforcement begins ("available").

For each type of regulation it promulgates, EPA must present
different evidence as to the availability of the technology on which
the regulation was based. For example, for the "practicable" limita-
tions the Agency must show that the technology is currently in use
at the exemplary plants in the industry in question, or that the
technology can be transferred from another industry or that there
are a number of possible acceptable technologies of which one pre-
sumably will work at every plant in the industry. For "new-
source" performance standards, the Agency must show that the
technology relied on in promulgating the limitations is both avail-
able and demonstrated. To be demonstrated, however, a technol-
ogy need not necessarily be in use in the industry in question.

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132 See Section II, supra.
133 Id.
134 Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 620, 632 (2d Cir. 1976).
135 Tanner's Council of America, Inc. v. Train, 540 F.2d 1188, 1192 (4th Cir. 1976). When
EPA requires the use of transfer technology, it cannot simply presume that the technology
is transferable from one industry to another. CPC International, Inc. v. Train, 515 F.2d 1032,
1048-49 (8th Cir. 1975), cert. denied, 430 U.S. 966 (1977). The agency must have a reasonable
basis for believing that the technology is transferable from one industry to another before it
can require the use of the technology by the other industry. Id. at 1048.
137 Hooker Chemicals and Plastics Corp. v. Train, 537 F.2d 639, 641 (2d Cir. 1976).
138 CPC International, Inc. v. Train, 540 F.2d 1329, 1334-38 (8th Cir. 1976), cert. denied,
Thus, "new-source" performance standards based on transfer technology were upheld in *CPC International v. Train.*\(^{140}\)

Certain requirements in the Act mandate that challenges to "available" technology limitations be made far in advance of the actual enforcement of these limitations.\(^{141}\) Courts are thus presented with an anomaly since they must determine whether EPA can reasonably expect its "available" technology to be available for all plants in the industry in 1984. Thus, the Court of Appeals for the Second Circuit struck down an "available" technology limitation when it determined that EPA had insufficient reason to believe that the selected technology would be available to plants in cold climates by the original 1983 cut-off year.\(^{142}\)

EPA must also show that the technology on which it bases its effluent limitations is indeed capable of achieving them.\(^{143}\) In other words, when EPA bases a limitation on a certain type of technology, it must show that the use of that technology will permit an industry to meet the limitation.\(^{144}\) While the Agency need not estimate the total amount of pollution reduction attainable through the use of its selected technology, it must show that the selected technology can at least achieve some effluent limitation.\(^{145}\)

EPA need not, however, make "excursion" or "upset" provisions.\(^{146}\) In other words, EPA does not have to allow variances for plants that employ its selected technology but still cannot achieve its pollution concentration standards. A plant that does everything in its power to meet the EPA-developed regulations can thus still

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\(^{140}\) Id. at 1334-38.


\(^{144}\) Id. For the "available" technology limitations EPA must show that it can "reasonably expect" the selected technology to achieve the standards. Id. at 353; American Meat Inst. v. EPA, 526 F.2d 442, 463 (7th Cir. 1975).


\(^{146}\) Corn Refiners Ass'n, Inc. v. Costle, 594 F.2d 1223 (8th Cir. 1979); Weyerhaeuser Co. v. Costle, 590 F.2d 1011 (D.C. Cir. 1978). *Contras,* Marathon Oil Co. v. EPA, 564 F.2d 1253 (8th Cir. 1977).

An "excursion" or "upset" has been described as "a situation in which effluent limitations are unintentionally exceeded for reasons beyond the reasonable control of the permittee and in spite of the proper operation of treatment facilities meeting the statutorily required technological criterion." Corn Refiners Ass'n, Inc. v. Costle, 594 F.2d 1223, 1224 (8th Cir. 1979).
be subject to fines for failure to achieve them. While this situation seems unfair, courts have accepted it for three reasons. First, such a ruling forces industry to develop the technology necessary to avoid violation of the regulations. Second, excursion provisions would prevent the "swift and direct" enforcement the Act contemplates. Finally, the courts have felt that the decision to prosecute in such cases should be left to the Agency's discretion.

V. CONCLUSION

A discussion of industrial challenges to effluent limitations raises several points. First, EPA has an affirmative duty to develop effluent limitations that can withstand all possible procedural, statutory and substantive challenges. EPA, being a government agency, has as its primary function the duty to serve the public. Limitations that are based on faulty data or logic do not serve the public even if they survive judicial scrutiny. Such limitations might severely damage the economy, thereby resulting in public animosity towards EPA and its efforts to abate water pollution. Furthermore, industry is also a part of the public, so that it too has a right to fair regulations.

Second, strict enforcement of the procedural requirement of fair notice may present the best way to insure fair regulations. If an industry knows that, unless it acts, it will be forced to install expensive pollution control technology, that industry most likely will come forth with every available shred of information in order to inform EPA of potential problems. With full information, the Agency will be better equipped to develop regulations that are fair to all parties concerned.

In the future, challenges to effluent limitations will be increasingly technical, based primarily on substantive grounds. Procedural challenges, alleging faulty notice or improper publication will be less likely to succeed given EPA's demonstrated procedural acumen and the well-defined standards review courts have used in these cases. Procedural challenges should not, however, be overlooked. Moreover, recent decisions defining the standards for factors to be considered and industry subcategorization should also provide EPA with some guidance in these areas, thereby decreasing the

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147 Corn Refiners Ass'n, Inc. v. Costle, 594 F.2d 1223, 1226 (8th Cir. 1979).
148 Id.
149 Id.
likelihood of successful challenges to new limitations. Thus, challenges based on substantive grounds and variance provisions may be expected to make up the bulk of future challenges. However, the courts have demonstrated that EPA's judgment will be respected if it can show, through the administrative record, that it has adequately considered all relevant factors and has acted on correct data. Most successful challenges will therefore occur when some part of the record can be proven to be incorrect or incomplete.

Finally, while this article has attempted to categorize and define the industrial challenges to effluent limitation so far presented, industry has not exhausted all possible areas for effluent limitation challenges. In particular, challenges to EPA's scientific methodology have been underutilized. In the future, industry should closely examine the quality control used by EPA and its contractors in gathering data in order to uncover specific factual errors as well as general logical inconsistencies. Only through close scrutiny of EPA's regulation-developing procedures can industry guarantee fair effluent limitations.