



A Guide to the Clean Water Act Amendments



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Introduction

This guide explains the major 1977 amendments to the Federal Water Pollution Control Act, known as the Clean Water Act. Congress first approved national water quality legislation in 1948, and has updated it periodically since that time. The 1972 Act (PL 92-500) represented a major course change in Federal water pollution control law. In contrast, the 1977 legislation provides adjustments — commonly referred to as “mid-course corrections” — to an on-going program.

Background: The 1972 Amendments

Prior to 1972, the central national strategy for controlling water pollution was to base clean-up requirements on the desired uses of effluent-receiving waters (drinking water, body-contact recreation, fishing, navigation, etc.) as determined by State governments, and the water quality conditions necessary to support those uses. Accordingly, the state water pollution control agency applied a “water quality standard” to each stream or portion of a stream, and where this water quality standard was not being met, sought to determine the responsible discharger(s) for enforcement action. As increased or new discharges were introduced, it was intended that treatment capabilities be upgraded in order to maintain the quality of the receiving waters. This strategy was generally ineffective due to a number of political, technical, and legal weaknesses: stream use designations tailored to protect or attract industrial development, inadequate information on the cause and effect links between discharges and water quality, inadequate consideration of the health of aquatic ecosystems, problems of equity between old and new pollution sources, and general inattention to pollution emanating from sources other than a pipe.

These problems were attacked head-on in 1972 by P.L. 92-500. This sweeping revision of the Federal Water Pollution Control Act was predicated on the philosophy, as set forth in the Senate committee report, “that no one has the right to pollute and that pollution continues because of technological limits, not because of any inherent right to use the Nation’s waterways for the purpose of disposing of waste.” The Act established a national goal of eliminating pollutant discharges by 1985, and directed “that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983.”

While the 1972 amendments retained — and strengthened — the previous system of water quality standards, they more importantly changed the course of the whole national clean water effort by:

- requiring three phases of nationally uniform industrial effluent limitations*; these limitations are developed by EPA based upon the economic and technological capabilities of each industry;

*BPT: best practicable technology, to be achieved by 1977

BAT: best available technology, to be achieved by 1983 (changed to 1984 in the 1977 amendments)

NSPS: new source performance standards, to be achieved when a new source commences operation. The Act defines “new source” as any source the construction of which is commenced after the publication of proposed regulations which will be applicable to such source, if such standard is thereafter promulgated.

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- requiring special controls over severely toxic pollutants (a pollutant-specific approach requiring a great amount of information for proof of toxicity — see Toxic Pollutants and Hazardous Substances section below);
 - requiring National Pollutant Discharge Elimination System (NPDES) permits for all point sources of pollution, providing the first major direct enforcement procedure against polluters; these permits are to be renewed, and upgraded, at least every five years;
 - requiring national effluent limitations for municipal dischargers, and providing for an expanded Federal program of financial assistance to local governments for planning and construction of wastewater treatment works;
 - requiring comprehensive river basin and regional water quality planning for both point sources and nonpoint sources of pollution — a provision which set in motion major planning initiatives in all states.

Why Amend the 1972 Law?

Congress has periodically improved the Federal Water Pollution Control Act. Indeed, even as it adopted P.L. 92-500, Congress clearly anticipated that review, course-correction, and fine tuning would be required soon after 1972. EPA was directed to report to Congress annually on the measures taken toward implementing the objective of the Act; additionally EPA was directed to submit biennially a detailed estimate the costs of carrying out the provisions of the Act and “ . . . a comprehensive analysis of the national requirements for and the cost of treating municipal, industrial, and other effluent to attain the water quality objectives as established by this Act or applicable State law.” The 1972 amendments also established the National Commission on Water Quality which was instructed to conduct a three-year comprehensive study of the economic, social, technological and environmental effects of achieving or not achieving the 1983 goals of the Act. In short, Congress well recognizes that the water quality field is changing rapidly; new problems emerge, new technology is developed, overall knowledge improves apace. And the law must be adjusted in response.

A practical but especially compelling motivation for the 1977 amendments lay in the fact that the financial authorizations of P.L. 92-500 applied only until June 30, 1975, with short term funding extensions voted after that date. The 1977 amendments provide long-term authorizations, generally to September 30, 1980. Authorizations for the construction grants program extend until September 30, 1982, generally at \$5 billion annually.

The 1977 amendments were shaped in part by what might be described as “institutional forces.” For instance, though recognizing a continuing and important state role in water quality planning and management, P.L. 92-500 had defined the Federal interest to be both broad and, in some areas, pre-eminent. Implementation of the 1972 law thus led to some conflicting interpretations of the division of authorities and responsibilities between Federal and state agencies. The 1977 amendments respond to this problem by more explicitly defining the roles of the different levels of government.

Similarly, priority and program decisions by state agencies in response to the 1972 law tended understandably to focus on urban areas, where problems loomed largest and needs were found greatest — an emphasis which aroused frustrations in some rural communities. At the same time, agricultural interests began to voice concern about difficulties potentially inherent in the Act’s — language governing nonpoint source pollution and disposition of dredge-and-fill materials. Accordingly, several of the 1977 amendments deal directly with the needs and problems of small communities, rural areas, and agriculture.

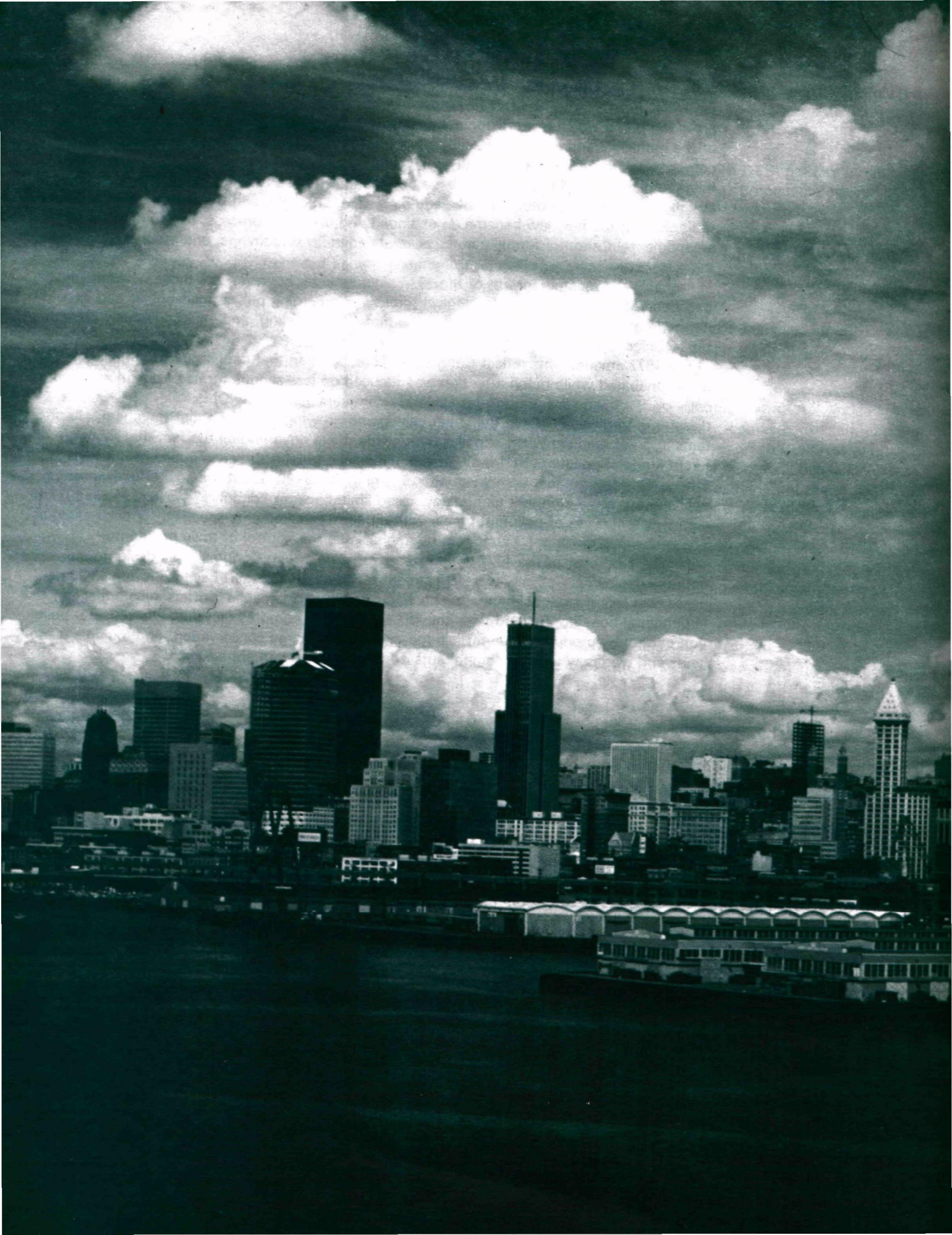
A third “institutional force” stemmed from findings that lack of compliance with the 1972 law could in a great many cases be traced to failures of the Federal Government to adhere to its own policies or to follow through on promised actions. Major industry, it was noted in the Congressional hearings to amend the Act, was better than 85% in compliance; municipalities

were complying at only 33% level. And, in the words of the Chairman of the Subcommittee on Water Resources of the Senate Committee on Environment and Public Works, "in many areas the prime violator of environmental laws has been the Federal Government itself." Most of the municipal and industrial (facilities waiting to discharge into municipal facilities) failure to comply was attributed to delays in Federal funding as well as procedural delays (the time it takes to plan and build facilities for large communities); the President had impounded construction grant appropriations in the early days of P.L. 92-500, and the drafting of regulations to implement the new law became an extended and uncertain process. In adopting the 1977 amendments, Congress formally noted several Federal shortcomings, and attempted to correct them.

Probably the most important of the 1977 amendments, however, are those which might be described as based upon "technological forces" — emerging public philosophies and expressed concerns about chemical pollution, materials recycling, and environmentally compatible technical systems.

The 1977 amendments reflect Congressional recognition that dangerous toxic pollution was going unabated while much attention was focused on less serious forms of pollution. Major oil spills on the open seas, carbon tetrachloride contamination of the Ohio River, the Kepone disaster in Virginia, PCB's in the Great Lakes, and growing concern about the chemical contamination of drinking water supplies nationwide, have driven home the fact that there are different kinds of pollution, and that some kinds pose a greater threat to public health than others. This recognition, combined with emerging questions about the cost effectiveness of applying our more stringent technology-based limitations on "ordinary" wastes, led in 1977 to a new classification of pollutant types, with different requirements specified for each category. These changes result in a much greater emphasis on the control of toxic pollutants.

Finally, a number of the 1977 amendments reflect a strong Congressional desire to encourage deployment of new waste treatment technology — in part because it may in some cases cost less than conventional technology, and in part because it offers substantial environmental benefits. Beyond that, the 1977 legislation promotes recycling and reuse of pollution control by-products (effluent, sludge, nutrients), energy conservation, and multiple use of lands and waters which are components of wastewater treatment systems.



Technology Related Amendments of 1977

Pollutant Classification and Control System

In effect, P.L. 92-500 divided effluent limitations into three categories: municipal (domestic waste), industrial, and toxic. Unless the quality of the receiving waters dictated more stringent limitations, different general controls were applied to each category. Municipal discharges were to meet secondary treatment requirements by July 1, 1977, and municipal best practicable waste treatment technology (BPWTT) by July 1, 1983. Industrial discharges were subject to industrial best practicable technology currently available (BPT) by July 1, 1977, and best available technology economically achievable (BAT) by July 1, 1983. Toxic effluent standards (including prohibition of discharges) were to be set by EPA in accordance with formal rulemaking procedures, for pollutants placed on a toxic pollutant list.

Problems quickly developed. Provisions of the Act relating to toxic pollutants were cumbersome (putting a great burden of proof upon EPA to show toxicity) and so subject to varying interpretation that EPA experienced great difficulty in speeding their implementation. And a special variance for thermal pollution — allowing relaxation of effluent limitations where the discharger could demonstrate the less stringent controls would not mean damage to fisheries and wildlife resources — quickly turned into a major stumbling block. EPA found itself in court in both areas.

Meanwhile, national public concern had been growing with respect to pollution of water supplies, toxic chemicals in the environment, oil spills, and accidental discharges of hazardous substances. Congress approved the Safe Drinking Water Act in 1974 and the Toxic Substances Control Act and the Resource Conservation and Recovery Act in 1976. On the other hand, treatment of conventional industrial wastes was fairly well on schedule (although compliance by municipalities was lagging).

All of this led Congress to establish in the 1977 amendments a new pollutant classification system, with different deadlines and treatments requirements for each class. The Chairman of the Subcommittee on Water Resources of the Public Works and Transportation Committee of the House put it this way: "The highlight of the bill — the most important and far-reaching amendments are contained in a package of provisions responding to the most critical deficiencies of P. L. 92-500, dealing with toxic pollutants and the 1983 requirements in the Act for treatment of industrial discharges. Taken together, they will result in a major redirection and refinement of the Environmental Protection Agency's regulatory program and immeasurably improve its capability to achieve the purposes and objectives of the Act."

Municipal Pollution:

Requirements for municipal treatment remain basically as they were established by the 1972 law, except that the 1977 secondary treatment deadline may be extended in some cases (where construction cannot be completed in time or Federal financial assistance was not available in time to achieve compliance with the 1977 deadline) to no later than July 1, 1983 — which is also the deadline for attainment of municipal BPWTT. In fact, however, there is no real conflict here, for the standards which EPA has approved for secondary treatment are closely akin to those it has established for municipal BPWTT.

Under the 1977 amendments, there are essentially three categories of industrial pollutants:

- *Conventional* — BOD (biological oxygen demand), suspended solids, fecal coliforms, pH (acidity), and other pollutants so designated by EPA.

Treatment required — best conventional technology (BCT)

Deadline — July 1, 1984

Variances allowed — none

- *Toxic* (also see Toxic Pollutants and Hazardous Substances section below) — the 1977 amendments specify an “initial list” of toxic substances, to which EPA may add or from which it may subtract.

Treatment required — best available technology (BAT)

Deadline — July 1, 1984, or not later than three years after a substance is placed on the toxics pollutant list.

Variances allowed — none

The 1977 amendments leave in force the original pollutant-specific approach.

Treatment required — Not applicable (These are effluent restrictions or prohibitions for each chemical which apply to all dischargers, regardless of treatment technologies.)

Deadline — Not later than three years after effluent standard is established

Variances — None

- *Nonconventional* — “gray area” or “all other” pollutants, those not classified by EPA as either conventional or toxic

Treatment required — best available technology (BAT)

Deadline — July 1, 1984, or within three years of the date EPA established effluent limitations, but not later than July 1, 1987.

Variances allowed — EPA may permit treatment levels below BAT, but no lower than BPT, if the discharger demonstrates that either 1) such lower level represents the maximum level economically feasible and that such level will result in “reasonable further progress” toward elimination of the discharge, or 2) such lower level is environmentally acceptable.

Some specialized departures from these requirements should be kept in mind:

- The 1977 amendments do allow EPA, in lieu of enforcement proceedings where an industrial polluter has acted in good faith but has not met the 1977 BPT deadline, to extend the BPT deadline to no later than April 1, 1979.
- The 1977 BPT deadline may be extended to July 1, 1983, in cases where the industrial discharger has contracted to discharge to a publicly owned treatment system, but the public system is not yet ready to accept the discharge (see later section on extension of municipal deadlines due to lack of Federal funds).

- The 1984 BAT deadline for nonconventional and toxic pollutant discharges may be extended to July 1, 1987, to allow replacement of existing production capacity with an innovative production process which will result in greater pollution reduction or lower cost, and which has potential for industry-wide application (see later section on innovative technology).

The 1977 amendments leave intact a 1972 provision for review and upgrading of effluent limitations every five years. The 1977 legislative history indicates that Congress intends that guidelines for both BCT and BAT be upgraded on a regular basis.

In the 1972 law, Congress attacked the problems of pollution by toxic and hazardous substances — but found it necessary to deal with both issues again in 1977.

P.L. 92-500 had established a formal rulemaking process under which EPA was to identify toxic pollutants and issue effluent standards (including prohibition of discharge) for control of those substances on a pollutant-by-pollutant basis rather than by industrial categories. However, the procedural requirements set forth in 1972 led to a tangle of legal debates — clouded by scarcity of toxicological data — as to what was and wasn't "toxic," how much of a toxic substance was "safe," how much regulation Congress really intended, and so on. Under these circumstances, EPA proceeded slowly to identify and regulate six chemicals.

The Natural Resources Defense Council (NRDC) and several other citizens groups took the toxics question to court in a series of cases — these resulted in a June 1976 Consent Decree issued by the U.S. District Court in Washington, D.C. The court decree (NRDC Consent Decree) mandated that effluent limitations for 21 major industrial categories based on BAT be established for 65 specified toxic pollutants by December 31, 1979, and implemented by the July 1, 1983, deadline of P.L. 92-500.

In 1977, Congress rewrote the toxic pollutants portion of the Federal Water Pollution Control Act, in effect codifying the NRDC Consent Decree — though extending the court-imposed deadlines, and empowering EPA to add to and subtract from the court's list of 65 toxic pollutants. (Note: the court's list of 65 included some categories and families of substances; these were refined by EPA to an "initial list" of 129 specific pollutants referenced by the 1977 amendments.) The amendments retain the original pollutant-by-pollutant approach as an alternative control technique for particularly pervasive toxic pollutants, but simplify and clarify the regulatory procedure, with the intent of precluding another administrative impasse.

Under the new legislation, EPA has until July 1, 1980, to promulgate BAT toxic effluent guidelines, on an industry-by-industry basis, for the Consent Decree pollutants — industry being required to comply by July 1, 1984. For substances later added to the initial list, industry will have a three year period following promulgation of effluent guidelines within which to comply with effluent guidelines.

In the 1977 amendments Congress also approved language regulating industrial management of toxic and hazardous materials which might enter the environment other than through effluent discharges. EPA is authorized to establish "best management practices" (BMP's) to be implemented as provisions of NPDES permits, for the control of plant site runoff, leaks, spillages, sludge and other waste disposal, and drainage from raw material storage sites.

The BMP provision of the 1977 amendments is a key link in the Nation's defenses against toxic substances in the environment. Under the Toxic Substances Control Act, EPA is inventorying chemicals produced or used in the United States, and setting the stage to prohibit manufacture or distribution of those found unreasonably dangerous to human or environmental health. The Clean Water Act, with the new toxics provisions of 1977, provides controls over dispersal into the Nation's waters of those toxic substances which continue in use — and the Resource Conservation and Recovery Act of 1976 provides similar controls over disposition of toxics-laden solid wastes, including municipal sewage sludge. Thus, BMP requirements close a potential gap between laws.

Looking to a broader range of materials than those classified as "toxic," section 311 of P.L. 92-500 declared a national policy of seeking to prevent discharge of oil or hazardous substances (to be defined by EPA) into U.S. waters, and established procedures by which EPA could act to prevent or respond to spills and other non-routine releases of such substances. Regulations pursuant to this section were not finalized due in part to conflicting interpretations

of key subsections. The amendments clarify the situation in one respect by broadening the definition of "costs of removal" to specifically include costs incurred by Federal and state government in restoring or replacing natural resources damaged or destroyed by a discharge. Furthermore, section 311 now authorizes EPA to mitigate the damage caused by discharges of substances deemed not actually removable, and to assess the mitigation costs against the discharger (in addition to penalties established in 1972); mitigation includes such measures as containment of the discharge, public warnings, monitoring water supplies and the environment, and raising of sunken ships leaking hazardous substances. The 1977 amendments strengthen section 311 in several other respects — primarily by making those responsible for spills and releases potentially subject to increased costs. Liability limits for costs incurred by the Federal Government in removing oil or hazardous substances are raised to \$50 million (from \$8 million) for discharges from onshore and offshore facilities; new liability formulas are established to cover discharges from ships and barges. Finally, section 311 was broadened to cover activities carried out in connection with the Outer Continental Shelf Lands and Deep-water Port Acts.

In a related action, Congress added extensive language to the "emergency powers" section of P.L. 92-500, requiring EPA to prepare a plan, and establishing a special fund, for emergency assistance to persons and communities in cases of pollutant and contaminant discharges. This new program is not limited to water pollution emergencies, but covers all "releases into the environment." It also applies to "any pollutant or other contaminant" — thus not being limited to toxics, or oil and hazardous substances as defined in accordance with the law.

Innovative and Alternative Technology

The 1977 amendments to P.L. 92-500 enunciate a major policy of promoting the utilization of innovative and alternative waste management techniques, with special focus on the municipal waste treatment program. Though mentioned only briefly, innovative and alternative technology was explicitly encouraged in the 1972 law — but few projects (10%) applied such technology, largely because of perceived greater risks and higher costs on the part of water quality administrators, public health officers, and consulting engineers. However, several other factors were also involved: engineering orientation toward conventional technology; public health laws, and the focus of EPA resources on other activities required by the Act. So Congress used the 1977 amendments to require every community seeking Federal grants for construction of wastewater facilities to consider innovative and alternative options in order, in the words of the Chairman of the Subcommittee on Environmental Pollution of the Senate Committee on Environment and Public Works, "to force technology so that new and better alternatives which have not been demonstrated can become available."

The Chairman summed up the Congressional intent, "to underscore the requirements of (P.L. 92-500) that all those involved in implementing the program—the Environmental Protection Agency, states, communities, and consulting engineers—direct the program away from the conventional collection and secondary treatment approach and toward the use of alternative technologies, especially those which rely on controlled natural processes, such as land or lagoons or marshes, in order to make use of the nutrients in the waste waters. More than any other issue concerning the construction grant program, (Congress is) concerned with the need to encourage alternative and innovative systems."

What is Alternative and Innovative

Innovative and alternative techniques, taken together, foster three central objectives: recycling and reuse of water and waste materials (nutrients, sludge), energy conservation and recovery, and cost reduction. In this context, EPA has defined innovative and alternative.

"Innovative" refers to new and promising technology which is not yet fully proven under the circumstances of its contemplated use. In conventional treatment systems, "innovative" describes technology which reduces costs by 15% or more, or reduces the amount of energy required for waste treatment by at least 20%. "Innovative" could also refer to new technology which advances the state of the waste treatment art — in terms of cost reduction, energy conservation or recovery, recycling and conservation of water resources, pollutant containment, reclamation and reuse of effluents, treatment efficiency or reliability, beneficial use of sludge, better management of toxics, and increased environmental benefits.

“Alternative” technology is better known than innovative, offering treatment approaches which are clearly alternate to conventional secondary and advanced waste treatment processes. Included in this category are such techniques as land treatment, aquifer recharge, water reclamation, use of nutrients, aquaculture, silviculture, direct industrial reuse of effluents, composting and land application of sludges, burning sludge to produce energy, and anaerobic digestion to produce methane.

Among the 1977 amendments are requirements that EPA publish guidelines for identifying and evaluating innovative and alternative wastewater treatment processes and technologies, and that EPA establish a national clearinghouse for information about such technologies. Furthermore, EPA must develop and operate a public information program concerning recycling and reuse of wastewater and sludge, land treatment, and methods of reducing wastewater volumes.

Sewer construction and rehabilitation are specifically excluded from these categories by the amendments.

Major 1977 Provisions for Innovative and Alternative Technology:

- The keystone amendment in this area is straight forward: “(EPA) shall not make grants . . . to any state, municipality, or intermunicipal or interstate agency for the erection, building, acquisition, alteration, remodeling, improvement, or extension of treatment works unless the grant applicant has satisfactorily demonstrated to (EPA) that innovative and alternative wastewater treatment processes and techniques . . . have been fully studied and evaluated . . .”
- Federal grants for innovative and alternative facilities will provide 85% of construction costs rather than the normal 75%.
- To provide funds for the increase from 75% to 85% grants, two percent (1979-1980) of construction grant funds allocated to each state (three percent in fiscal 1981) must be set aside for innovative and alternative facilities — with at least one-half of one percent earmarked for innovative facilities.
- To help speed deployment of innovative and alternative technology, projects using alternative or innovative techniques are to be given preference and qualify for the 85% grant if their life cycle cost under a cost effectiveness analysis does not exceed the life cycle cost of the most cost effective conventional alternative by more than 15%.
- The amendments provide an “insurance policy” — EPA will pay 100% of the costs of modifying or replacing any innovative or alternative facility which does not meet design performance standards, and shows significantly increased operation and maintenance costs. (One hundred percent grants are also available for technical evaluation and dissemination of information.)
- States are empowered to modify their priority systems for allocating Federal grant funds to give higher priority ratings to innovative and alternative facilities.
- Four percent of grant funds allotted to each state with a rural population of 25% or greater “shall be available only for alternatives to conventional sewage treatment works for municipalities having a population of 3,500 or less, or for the highly dispersed sections of larger municipalities.” (See small communities section below.)
- The Federal Government is to play a leadership role in utilizing innovative and alternative technologies. After September 30, 1978, construction may not be initiated on any wastewater treatment works at a Federal property or facility unless innovative or alternative techniques are utilized; this requirement does not apply, however, if the costs of innovative and alternative techniques are more than 15% above the most cost effective alternative.
- On the industrial side, the 1983 BAT deadline may be extended until July 1, 1987, for an industry installing an innovative pollution control system (see pollution classification section above.)

- Two amendments specifically prohibit EPA from granting funds for construction of municipal wastewater facilities unless the applicant demonstrates that it has considered methods, processes and techniques to reduce total energy consumption, and has analyzed the open space and public recreation potential of lands, waters, and rights-of-way which are parts of the proposed project.
- EPA is instructed to study and report by October 1978 upon the use of effluents and sludges for agricultural and other processes that utilize nutrients, and to advise Congress whether or not further legislation is desirable to "encourage or require" the use of sludge for agricultural and other beneficial purposes.

Cost Effectiveness

In 1977, Congress amended P.L. 92-500 in three important ways to reflect its desire not to waste money in waste treatment — and yet to assure that economic criteria point the way to desired treatment systems.

Congressional dissatisfaction with the amount of land treatment or reuse systems led to an amendment which provides a 15% "cost effective bonus" as an incentive to application of innovative or alternative technology. EPA was also required to republish the cost effectiveness guidelines, emphasizing in them the identification and selection of cost effective alternatives which provide for recycling and reuse of effluents, pollutants, and sludges. (Cost effectiveness guidelines describe procedures for identifying the least cost treatment alternative that will produce effluent of required quality.)

The Chairman of the House Subcommittee on Water Resources of the Public Works and Transportation Committee, offered a context for attention to economic considerations in setting industrial best conventional technology (BCT) guidelines: "Progress to date and justifiable anticipation of further progress in the conventional pollutant area militates against preserving the requirements in existing law that BAT be required across-the-board for all conventional pollutants. The result would be treatment for treatment's sake." So Congress amended the Act to direct that "factors to be taken into account in determining (BCT measures and practices) shall include consideration of the reasonableness of the relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits desired." Furthermore, in approving this language, Congress instructed EPA to "review every (existing) effluent guideline which applies to (conventional) pollutants," with adjustments favored wherever necessary to reflect the concern about cost-effectiveness.

Concern about reasonable costs is also reflected in the 1977 provisions which modify the 1972 philosophy that all municipal discharges should be subject to uniform requirements. The National Commission on Water Quality had found that application of the 1977 secondary treatment standard to certain ocean discharges might not be required to protect water quality. After consideration of this and information submitted by coastal municipal dischargers, Congress amended the law to allow waiver or modification of the secondary treatment requirement for certain municipal discharges into deep marine waters with currents that provide rapid dispersal, if specified conditions can be met. Such waivers are subject to the normal NPDES five-year review, require special monitoring of discharge impacts on the marine ecosystem, allow no new or substantially increased discharges, and require compliance with industrial pretreatment regulations, and removal of toxics from the discharge.

Pretreatment

"Pretreatment" refers to treatment provided by an industrial facility which discharges to a publicly owned treatment works (POTW). The purpose of pretreatment is to remove those industrial wastes which might create problems in sewers (fire, corrosion, explosion), inhibit municipal sewage treatment processes, or pass untreated into waterways or the POTW's sludge rendering it unfit for beneficial use or disposal. As observed by the Chairman of the Subcommittee on Environmental Pollution of the Senate Committee on Environment and Public Works, "often sludge is so contaminated by the chemicals and metals which find their way into municipal waste treatment systems, that it is useless." Pollutants which cause the above problems are said to be "incompatible" with a POTW and thus require some form of pretreatment prior to their discharge to a municipal sewer system.

The 1972 legislation directs EPA to establish pollutant discharge limits or national pretreatment standards on an industry-by-industry basis for toxic pollutants determined to be "incompatible" with POTW's. The 1977 amendments required discharge limits set forth in pretreat-

ment standards to be based upon the application of BAT to "indirect dischargers" (those industries that discharge to POTW's). State and local government may set pretreatment requirements for substances not regulated by standards and more stringent limits for toxic pollutants which are regulated by national standards. Indeed, as municipal NPDES permits are revised, EPA is to require development of a local pretreatment program through which the POTW will govern industrial use of public waste treatment facilities. Such programs are to establish limits for specific pollutants contained in industrial discharges, enforce the national toxic pretreatment standards, and provide for compliance monitoring and adequate revenue to run the local enforcement program.

Subject to state and EPA approval, the municipality may also provide at least partial treatment for industrial toxic wastes in a way which allows the industry to reduce its pretreatment costs. Thus, if the municipal facility consistently removes a certain percentage of an industrial toxic pollutant, the discharge limit set forth in any national pretreatment standard for discharges of that pollutant may be relaxed accordingly, permitting industrial cost-saving. Authority to modify the discharge limits in national pretreatment standards will be granted for specific pollutants on a case-by-case basis. To be authorized to revise pretreatment standards the POTW must demonstrate that the subject pollutant is removed in absolute terms; simple dilution of industrial wastes with municipal sewage does not qualify as removal. Revisions will be further conditioned upon EPA or NPDES state approval of the POTW's local pretreatment program and the POTW's municipal sludge meeting any applicable EPA criteria for the disposal method used by the POTW.

If a municipal (or state) government does not enforce violations of national pretreatment standards EPA will do so — including going into court against the municipality. POTW pollutant removals that justified revisions to national pretreatment standards as well as the revised limits themselves will be included in the POTW's permit and will be enforceable against the municipality.

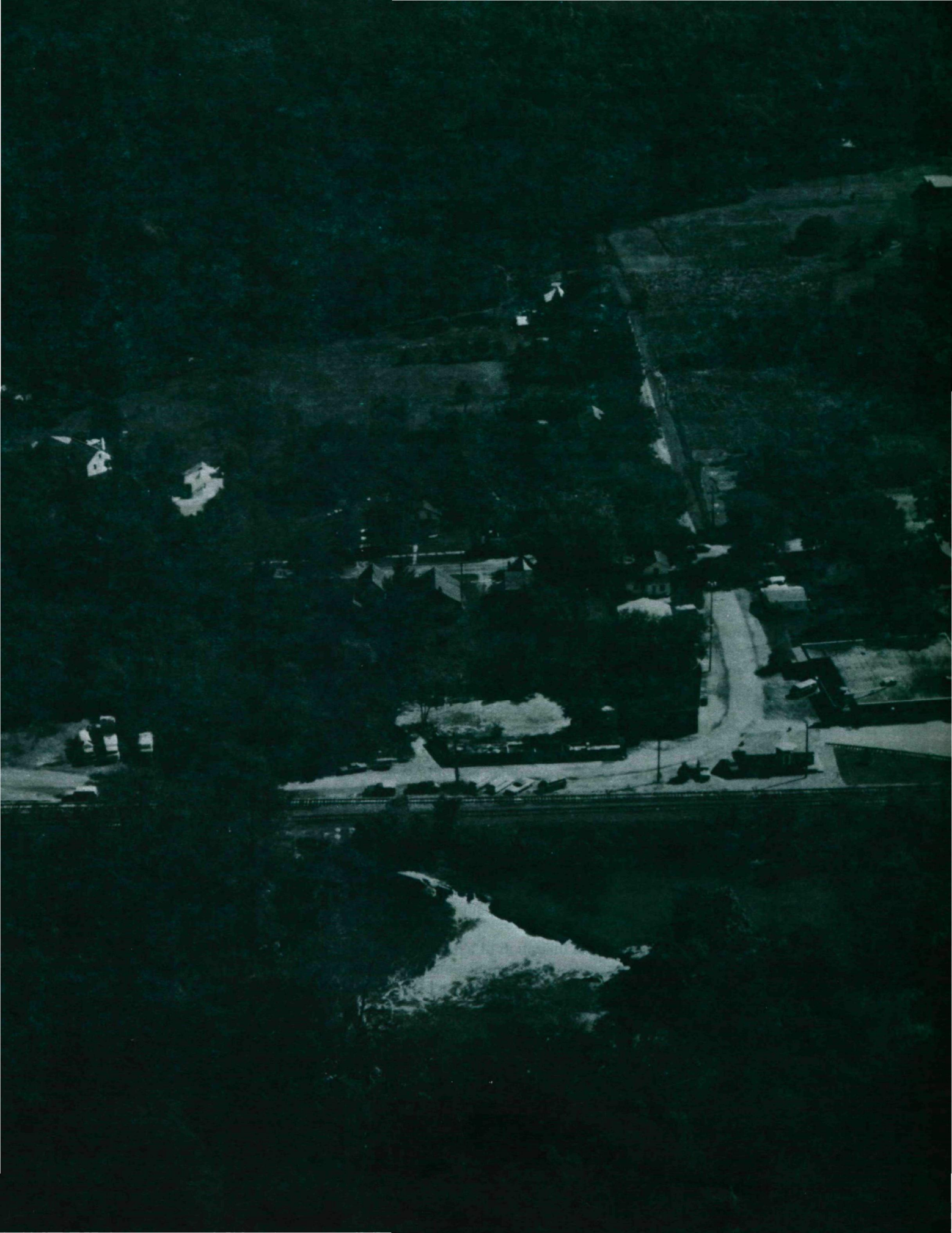
Sludge Management

The 1977 Clean Water Act's provisions for sludge management clearly indicate Congressional support for properly managed utilization of the increasing volumes of sludge generated by the Nation's municipal wastewater treatment plants. The objectives of the 1977 amendments for sewage sludge management are two-fold:

- (1) To assure adequate protection of public health and the environment by promulgation of minimum Federal standards for sludge disposal and utilization;
- (2) To maximize encouragement of beneficial uses of sludge which conform with Federal standards.

Provisions regulating the management of sewage sludge under the 1972 Act were limited to conditions where disposal "would result" in pollution of navigable waters. The 1977 amendments make two major changes to the regulation of sludge disposal requirements: the 1972 Act's provisions for controlling sludge disposal were tied to the NPDES permit program, and regulatory authority was expanded to include any disposal or utilization of sludge from POTW's.

The beneficial utilization of sludge is encouraged by the amendments' emphasis upon and increased funding for alternative and innovative technology. Also, the 1977 amendments require EPA to submit to Congress a report on the use of sludge in agriculture and other activities that utilize its nutrient content. This report must include a discussion of EPA's research and development programs and grants regarding alternatives to conventional disposal options and an analysis of current sludge utilization technologies and impediments to implementation of these technologies. EPA must also make recommendations, in this report, for future legislation which will encourage or require greater utilization of sludge. The report is to be submitted to Congress by October 1, 1978.



"Institutional" Amendments of 1977

Separating the amendments in the institutional category from those which are related to technology is difficult because of the interrelationships among them. The "institutional" amendments, however, tend to deal more with the process than the technical substance of water quality management. By and large, they are intended to recognize the responsibility of state and local governments in reaching national water quality goals.

State Role

The Clean Water Act is designed to encourage Federal/State cooperation to achieve clean water. Even while outlining broad new Federal authority, the Act stated: "It is the policy of the Congress to recognize, preserve and protect the primary responsibilities and rights of states to prevent, reduce, and eliminate pollution." In ensuing years, however, as new powers and programs were implemented, concern was voiced in several quarters that the Federal Government was preempting state authority in areas related to water quality, that the Federal Government held the authorities granted in P.L. 92-500 too closely, and that there was overlap and duplication of activity between Federal and state levels.

So, in the 1977 amendments, Congress made its feelings very clear: "It is the policy of Congress that the states manage the construction grant program under this Act and implement the permit programs under sections 402 (NPDES permits) and 404 (dredge and fill permits) of this Act." State, local and the Federal governments each have water pollution control responsibilities, the nature of which varies from program to program. A major thrust of the 1977 amendments is to shift toward the exercise of more authority by the states.

To support the states in implementing this policy, the 1977 amendments authorize (but do not require) EPA to reserve 2% of each state's allotment of construction grant money — or \$400,000, whichever is greater — to be used as "state management assistance funds." Top priority expenditure of such funds is to underwrite state operation of the construction grant program, but they may also be applied to administration of the NPDES and dredge and fill permit programs, as well as to management of the section 208 statewide water quality planning program (if requisite construction grant activities have been taken over by the state). The legislative history underscores Congressional intent that these funds result in additional personnel and expanded activities — and that they not simply replace funds from some other source. Management assistance grants will be based on assessments of state capabilities to use them as intended by Congress.

In other 1977 actions to clarify the state role, Congress:

- amended the law to provide that "the determination of the priority to be given each category of projects for construction of publicly owned treatment works within each state shall be made solely by that state" — where category refers to such functional descriptions such as secondary treatment, advanced waste treatment, and new collector sewers. The amendment, however, also allows EPA to remove a specific project from the priority list if it is not necessary to comply with enforceable requirements of the Act, such as municipal and industrial effluent limitations. And there was guidance to the states from the Senate Subcommittee Chairman: "The states are expected to continue to give priority to projects within each category . . . on the basis of the severity of the pollution problem to be corrected and related factors such as the size of the existing population to be served."

- amended the Act to assure that it would not interfere with state water rights and water allocation systems.
- used the legislative history to emphasize Congressional intent in approving P.L. 92-500 that “the provisions of this Act with respect to any pollutant . . . are not preemptive of any (more stringent) applicable state or local requirement, standard, limitation, or deadline.”

Such language, of course, should be read in the context of EPA’s overall authority to oversee the national water quality program. As explained here, Congress clarified the state role in determining priorities — and at the same time emphasized EPA’s authority to challenge a specific project. And Congress combined its intention that states administer the permit programs with EPA authority to veto a state permit (where the limitations and requirements of a state permit are contrary to the provisions of Federal law), and with the requirement that the state certify that each permit is in compliance with state water quality standards.

Needs of Small Communities and Rural Areas:

As mentioned above — because of the magnitude of pollution problems, state priority policies, and the economics of conventional waste treatment technology — the national clean water program has historically tended to focus on the needs of metropolitan areas. Small communities have often been either overlooked altogether, or subjected to pressures to build highly expensive, growth-inducing conventional treatment facilities.

The Chairman of the Subcommittee on Environmental Pollution of the Senate Committee on Environment and Public Works offered one example of the problem: “In a county neighboring Washington, D.C., the state and county had proposed to construct a \$400 million advanced waste treatment facility whose capacity was at least four times that needed by the existing population. Meanwhile, 43 other (communities) in that same state which would have gone without funds to construct needed secondary treatment facilities are potentially subject to enforcement action for failure to comply with minimum treatment standards.”

The 1977 amendments included a series of provisions designed to assist rural and other small communities:

- no state shall receive less than one-half of one percent of the total construction grant funds available each year (may require special appropriations).
- four percent of the construction grant funds available each year to any state with a rural population of 25% or greater — or in any other state where the Governor so requests — “shall be available only for alternatives to conventional sewage treatment works for municipalities having a population of 3,500 or less, or for the highly dispersed sections of larger municipalities.”
- in order to save money, reduce project delays, and remove certain planning uncertainties facing small cities and towns, communities of 25,000 or less in population may combine project design and construction phases (steps 2 and 3) for federally-assisted waste treatment projects having an estimated cost of \$2 million or less (\$3 million in states with unusually high construction costs).
- the state management assistance grant amendment pointedly mentions state assistance to small communities, and the Chairman of the Subcommittee on Environmental Pollution of the Senate Committee on Environment and Public Works specified during floor discussion that “it is understood that no grant would be made under this provision until the state has demonstrated a commitment to acquiring the capability to manage grant awards in small communities.”
- at community request, EPA is authorized to provide technical and legal assistance in administration and enforcement of any contract for planning, design, or construction of treatment facilities.

- "A grant may be made . . . to construct a privately owned treatment works serving one or more principal residences or small commercial establishments constructed prior to, and inhabited on (December 27, 1977), when (EPA) finds that 1) a public body . . . eligible for a grant . . . has applied on behalf of a number of such units and certified that public ownership of such works is not feasible; 2) such public body has entered into an agreement with (EPA) which guarantees that such treatment works will be properly operated and maintained and . . . includes a system of charges to assure that each recipient of waste treatment services under such a grant will pay its proportionate share of the cost of operation and maintenance (including replacement) and; 3) the total cost and environmental impact of providing waste treatment services to such residences or commercial establishments will be less than the cost of providing a system of collection and central treatment of such wastes." (Recreation residences or "second homes" are not eligible.)
- EPA is to work with other Federal agencies and the state to "develop a comprehensive program for achieving adequate sanitation services in Alaska villages."

Agricultural Pollution Provisions:

Agricultural interests had pointed out that certain provisions of P.L. 92-500 might prove difficult for farmers to meet. Specific concern was voiced about potential farm-related requirements of the nonpoint source pollution provisions of section 208, dredge and fill permit requirements, and whether or not irrigation return flow conduits constituted point sources subject to NPDES permit requirements. Congress amended the law in all three areas:

- irrigation return flows are specifically exempted from the definition of "point source" and from NPDES permit procedures. Instead, irrigation return flows will be treated as nonpoint sources subject to section 208 planning and control.
- normal farming, ranching, and forestry activities — plowing, harvesting, soil and crop management, stock pond and farm road construction (in accord with best management practices) — are explicitly exempt from NPDES and section 404 dredge and fill permit requirements.
- to help ease the potential financial burden of implementing required BMP's (best management practices) on farms, a major amendment to section 208 establishes a rural landowner assistance program — with annual authorizations as high as \$400 million to be administered by the Department of Agriculture. This program involves long term contracts for installation of BMP's by landowners, under Federal cost sharing up to 50%. To be eligible for cost sharing assistance, an area must: (1) have a critical water quality problem that results from agricultural nonpoint source pollution (2) be included in an approved agricultural portion of a 208 plan, and (3) be able to ensure an adequate level of participation by rural landowners. Participation will be considered adequate when 75 percent of the critical acreage or source of the pollutant problem are under contract. This may vary in those areas where the approved agricultural portion of the 208 plan provides data and analysis which indicate that a greater or lesser percentage of the acreage or source of the pollutant must be treated to attain water quality standards or water quality goals. BMP's eligible for cost sharing are those that reduce agricultural nonpoint source pollution and which are included in the approved agricultural portion of the 208 plan. The function of this program is to reduce nonpoint source pollution, not to augment other agricultural support efforts administered by the Department of Agriculture. Indeed, as pointed out by the Chairman of the Subcommittee on Resource Protection of the Senate Committee on the Environment and Public Works, "Existing soil conservation programs have simply not addressed the problem of nonpoint source pollution and, frankly, have contributed to poor water quality in several instances."

Dredge and Fill Program

The Clean Water Act of 1977 made substantial changes in EPA's role in the section 404 dredged or fill permit program. Perhaps the most important of these is EPA's responsibility for reviewing and approving State permit programs. Such programs will operate in lieu of the permitting responsibilities of the Corps of Engineers in certain waters of the United States (in general, those waters traditionally considered to be non-navigable.) EPA's role both in approving and overseeing these State programs is to be similar to its approval and oversight of State NPDES programs. The touchstone of the section 404 permit process is compliance with EPA's environmental guidelines, which describe the evaluations necessary to ascertain the environmental damage potential of both the dredged or fill material composition and the proposed disposal site, the value of ecosystems at the site, and measures to protect such values. The 1977 amendments also identify a number of activities which do not require 404 permits including several farming and forestry activities. The basic purpose of these exclusions and exemptions is to make both the Corps and the States permit programs operate more efficiently by alleviating the necessity for case-by-case review of activities which are not major sources of pollution of the aquatic ecosystem. Federal dredge and fill activities in connection with a project specifically authorized by Congress do not require a 404 permit — so long as an environmental impact statement is submitted to Congress in timely fashion which includes consideration of the environmental guidelines.

The net effect of the 1977 amendments has been to increase EPA's responsibility for ensuring the success of the 404 program even though EPA does not issue 404 permits. The EPA 404 environmental guidelines, which under prior law were applicable only to Corps-issued permits, will now serve a variety of functions. They will limit the issuance of State-issued 404 permits, the approval of Best Management Practices promulgated by Statewide 208(b)(4) regulatory programs, and the operation of the exemption for particular Federal projects. Additionally, EPA now has the responsibility for publishing procedures and standards governing the approval and operation of state programs.

Sewer Policy

Since its inception in the 1960's, the central purpose of the Federal program of grants for planning and construction of wastewater facilities has been to catch up with the Nation's municipal pollution backlog, not to subsidize new local growth. Because of that policy, and as facilities have been installed in the areas of greatest need, debate has arisen in recent years over the extent to which Federal funds should continue to be used for sewer construction and rehabilitation — activities which are viewed as growth supporting or inducing.

The 1977 amendments in this area provide that not less than 25% of construction grant funds available to each state in any year shall be obligated for sewer construction and rehabilitation, if such projects are on the state priority list and are otherwise eligible for funding. However, the 1977 amendments did not change the requirement of the 1972 law that collector funding be limited to communities in existence on October 18, 1972.

Treatment deadlines

The most significant of these actions is extension until July 1, 1983, of the original 1977 deadline for municipal secondary treatment in those cases where construction was already underway, or Federal financial assistance has not been available. An application for such extension must be filed by June 25, 1978.

The 1977 BPT deadline is extended for an industrial facility which has a permit issued prior to July 1, 1977, allowing connection to a municipal facility where that facility is not yet able to accept industrial wastes. EPA must determine that the industry involved is otherwise acting in good faith. An industrial extension will not be granted if the municipal facility will not be available prior to July 1, 1983. The industrial facility may be required to meet any applicable pretreatment requirements.

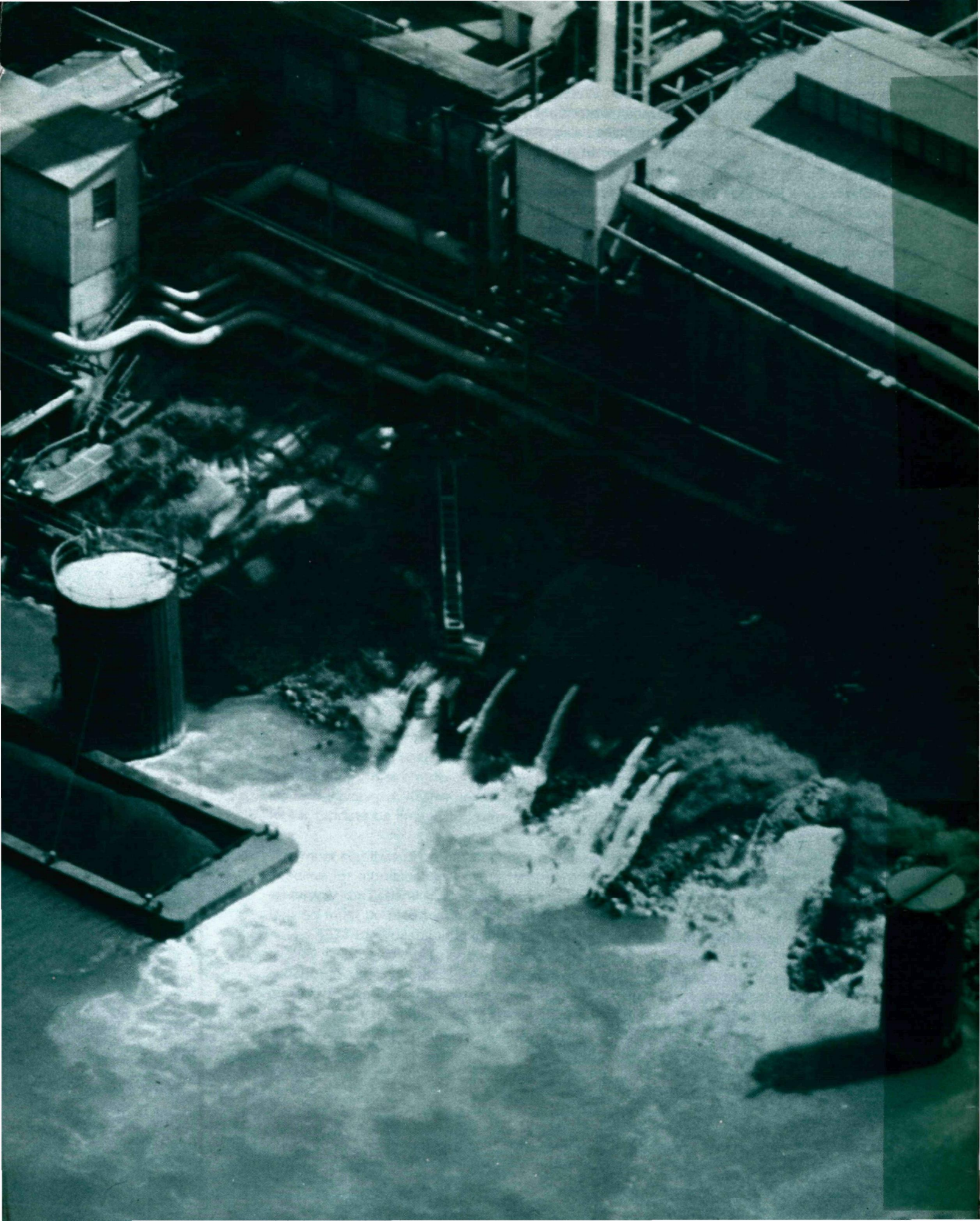
**Areawide Waste Treatment
Management (208)
Amendments**

The 1977 Clean Water Act Amendments provide for extending the planning period for development of initial water quality management plans, pending the EPA Regional Administrator's approval. Agencies designated after 1975 will have three years from the time of their first grant award to complete their initial plan. The amendments further state that all future grants will not exceed a 75% Federal share. In addition, a provision is added which requires that 208 plans identify open space and recreation opportunities that can be expected to result from improved water quality.

It should be noted that the 1977 amendments do not reflect the extent of interest in non-point source pollution indicated in the legislative history. This is because Congress regarded the provisions of PL 92-500 as sufficient to achieve nonpoint source pollution control, but require greater implementation by EPA and the states.

**Federal Facility
Compliance:**

Many Federal waste treatment facilities do not meet Federal pollution control requirements — as well as state standards. Congress has now directed Federal agencies to take the lead in utilizing innovative and alternative treatment methods. In addition, the 1977 amendments provide that all Federal facilities and activities comply with all substantive, procedural, and administrative clean water requirements of Federal, state, interstate or local agencies (including permitting and enforcement). The President may exempt military facilities from this provision.



Additional Amendments

There were a number of amendments to P.L. 92-500 not discussed in detail. Most of these amendments make minor administrative changes, but a few are significant.

User Charges/Industrial Cost Recovery

A central concept of P.L. 92-500 was that local water quality programs had to pay for themselves, with the clear implication that the Federal construction grants program would be terminated when the municipal pollution backlog was eradicated. Accordingly, the Act required establishment of systems both to charge domestic users of Federally financed wastewater systems for operations and maintenance (O and M), and to recover Federal costs attributable to the capacity needs of industrial users. Objections were raised to both charge systems. The 1977 amendments remove one problem by allowing ad valorem taxes, rather than metering, as the basis of charges to residential users for O and M, under certain conditions. And they declare an 18-month moratorium on industrial cost recovery charge collection while EPA conducts a study of their efficiency and necessity.

Buy American

Waste treatment facilities assisted by Federal grants must use materials which come substantially from U.S. sources (unless American materials are significantly more expensive).

Clean Lakes

Section 314(a)(1) requires states to identify publicly owned lakes and classify them according to their state of eutrophication. This is done in conjunction with grant applications for lake restoration projects funded under this section. The 1977 amendments make funding available for the inventory requirements in 314 (a)(1).

The 1977 Clean Water Act amendments, while not a major change in direction, do represent extensive modifications to the existing law. Implementation of these amendments will result from many varied activities by various levels of government, private industry, and the public. For example, the amendment will give rise to many new or revised regulations from EPA or state or local agencies; additionally, the amendments will likely result in the states assuming more of the authority and responsibility for administering the Clean Water Act. It is, of course, anticipated that they will result in improved quality of the Nation's waters.