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ABSTRACT

The U.S. Environmental Protection Agency (EPA) is responsible for setting and enforcing environmental quality standards for the nation. With the Clean Air Act of 1970 (P.L. 91-604) and the Water Pollution Control Act of 1972 (P.L. 92-500), the first truly nationwide control programs were established. This booklet is designed to inform the public of the work being done by the EPA in the areas of water and air pollution, of the standards established through much research and testing, and of the enforcement policies and legislation now in effect. Terms are defined and guidelines for citizen action in environmental concerns are included. (MA)

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U.S. ENVIRONMENTAL
PROTECTION AGENCY
WASHINGTON, D.C. 20460

March 1973

setting and enforcing standards

CHARLES O'REAR

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Protecting and enhancing our environment today and for future generations to the maximum extent possible under the laws enacted by Congress—that's the mission of the U.S. Environmental Protection Agency. EPA's mandate is to mount an integrated, coordinated attack on environmental pollution in cooperation with State and local governments.

Established in December 1970, EPA brought together in one Federal agency many environmental protection programs previously carried out by several different branches of the Government. EPA's responsibilities encompass a range of environmental concerns—air pollution; water pollution, solid waste management, pesticides, noise and radiation. First and foremost, EPA is a regulatory agency. As such, it is required by law to approve or establish and enforce certain environmental standards for pollution control. This publication focuses on standard-setting and enforcement in two of EPA's programs—air and water pollution control. (Information on other Agency programs is available on request.)

Standards define what we may or may not put into the air and water based on the best available scientific knowledge. They place limits on the pollutants that can be tolerated without endangering the health and welfare of human beings and of the ecological systems in which we live.

The standards set by EPA, in some cases

in cooperation with the States, have the force of law. EPA shares enforcement of some standards with the States, with the Federal government acting only if a State fails to do so. In other instances, the Federal government has primary responsibility for enforcing standards.

The process of setting standards begins with a scientific research and monitoring program. For just as a physician must know the nature of the illness before he can treat a patient, we must know the nature of pollutants before we can treat and restore our environment.

Where do pollutants come from? How do we identify and measure them? What are their effects? How can pollutants be controlled?

Scientific investigation provides the answers. Sources of pollution are identified through research. Research tells us what a specific level of a specific pollutant does to human beings; to crops and other vegetation; to domestic animals and wildlife; to plant and animal life in a body of water; to concrete, steel and other building materials; to painted surfaces; to fabrics. Research establishes thresholds at which we might expect adverse effects from environmental pollutants, alone or in combination. Research provides the basic scientific knowledge we need to safeguard public health and to balance the benefits of a specific product against its environmental risks.

For example, how much sulfur dioxide and particles of soot and ash do we permit from a coal-burning power plant in exchange for the electricity we need? How much radiation and heat can we tolerate in the air and water in return for electricity from nuclear power plants? How much and what kinds of industrial wastes can we tolerate in return for the products of the Nation's factories? Which pollutants are so dangerous that they should not be permitted to be put into the air or water in any amount?

To make those decisions, EPA seeks the best available scientific evidence on the effects of pollutants to lay the foundation on which environmental standards are erected. EPA gathers evidence from its own research studies, from scientific and technical advisory committees, from the scientific community, from industry. But the ultimate decision—the standard for a specific pollutant—cannot be based only upon the findings of scientific experts.

Value judgments, social decisions, are ultimately required. Thus, through public hearings and administrative proceedings, EPA also seeks the views of the public. When established, a standard is, therefore, the product of fact and theory provided by scientists, and a public value judgment conditioned by the balance of risks against benefits, with a margin of safety on the side of public health and welfare.

Standard-setting is a continuing, evo process. Even after a basic standard i research continues. More scientific kn edge is sought about the effects of the lutants on health and welfare. Better nology is sought to control that pollu As more is learned about the effects o pollutant and how to control it, the st ard may be changed to reflect this knowledge and to further protect the p and the environment.

EPA has a variety of tools to ensure pliance with environmental standard monitoring or inspections reveal a viola the first step may be to seek voluntary pliance. A great deal has been and ca accomplished by voluntary cooperation, ing time and money for both the Fe government and an alleged violator o vironmental standards. More importa in some cases, it brings faster compli than drawn-out legal proceedings.

But when the voluntary approach EPA has the authority to order compl and to take court action, if necessar compel compliance. In some instances mere existence of strong legal sanc stimulates voluntary cooperation by p ers who wish to avoid the adverse pub and penalties that legal action can brin

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Standard-setting is a continuing, evolving process. Even after a basic standard is set, research continues. More scientific knowledge is sought about the effects of the pollutants on health and welfare. Better technology is sought to control that pollutant. As more is learned about the effects of the pollutant and how to control it, the standard may be changed to reflect this new knowledge and to further protect the public and the environment.

EPA has a variety of tools to ensure compliance with environmental standards. If monitoring or inspections reveal a violation, the first step may be to seek voluntary compliance. A great deal has been and can be accomplished by voluntary cooperation, saving time and money for both the Federal government and an alleged violator of environmental standards. More importantly, in some cases, it brings faster compliance than drawn-out legal proceedings.

But when the voluntary approach fails, EPA has the authority to order compliance and to take court action, if necessary, to compel compliance. In some instances, the mere existence of strong legal sanctions stimulates voluntary cooperation by polluters who wish to avoid the adverse publicity and penalties that legal action can bring.

This booklet discusses the details of EPA's programs for setting and enforcing air and water pollution control standards.

Action for Environmental Quality

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the making of a standard

EPA is often asked how it establishes standards to protect human health and welfare and the general environment, from the harmful effects of pollution. At times, EPA is accused of setting standards that are too rough or too easy on polluters, or both. And at times, EPA is also accused of not knowing what it's talking about in setting a particular environmental standard. For those who are interested, here are some details on how a standard is established.

Environmental standards are made, not born. A standard does not spring full-blown from the imagination of a mad scientist, nor from a crystal ball. It is the product of a comprehensive process to assure:

- that the standard does indeed protect human health and welfare, and the environment, from harm;
- that the standard is based on the soundest possible scientific and technical information;
- that the standard meets all requirements of the law under which it is issued, and that it is legally enforceable;
- that the standard reflects sound public policy;
- and when social decisions and value judgments must be made, when risks must be balanced against benefits, that the standard contains a margin of safety on the side of public health and welfare.

The standard-setting process begins with the gathering of all available data on the health and environmental effects of a pollutant. This information comes from EPA's own research studies and from throughout the scientific community. The information is studied and evaluated by EPA's own scientific and technical experts. Technical advisory committees and outside contractors may be called upon for assistance.

Then a first draft of a regulation setting out the proposed standard is prepared by the program involved—air or water, for example. The draft is circulated within EPA for independent review by other Agency divisions, with the Office of Planning and Management coordinating the process through its steering committee and special working groups.

EPA's Office of Research and Monitoring reviews the scientific basis for the standard, as well as the surveillance and monitoring implications. And the Office of Enforcement and General Counsel reviews the proposal to make sure all legal requirements are satisfied.

In addition to overseeing the internal coordination process, the Office of Planning and Management also reviews the policy implications of the standard, the cost-effectiveness of alternative ways of achieving the standard, and the standard's potential impact on other pollution control programs. (For instance, will a new air pollution control standard aggravate or create water or land pollution problems?)

All branches of EPA that can contribute to the final product are involved throughout this initial inside-EPA process. Questions are asked, positions are challenged, changes may be proposed. The objective is the fullest possible inquiry and consideration.

The product that emerges from this process thus represents EPA's best judgment on what is needed, what is workable and what is supportable on scientific, technical, legal and policy grounds, to protect public health and the environment.

The standard-setting process then moves outside of EPA. What effect would the standard have on the goals of other Federal agencies such as Commerce, Defense, Interior, Transportation and on the general economy? To find out, the proposal is circulated among other Federal agencies, including the Council on Environmental Quality, for review and comment. The views of State agencies and interested nongovernmental organizations are solicited.

EPA then reviews any comments submitted by the other agencies and organizations. Disagreements are discussed with these agencies and all points of view are considered and evaluated. The proposal may be modified to reflect new information.

After all this, EPA publishes the standard in the *Federal Register* as a *proposed* regulation. The views of the general p interested individuals and organiza are solicited, with at least 30 days provided for comments. In some in a public hearing may be deemed d or may be required. On certain p water standards, the new Effluent St and Water Quality Information A Committee established under the 19 eral Water Pollution Control Act m hold public hearings.

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After receiving comments on the proposed regulation, EPA, in effect, begins its internal process again. A summary of the comments is prepared and circulated to all concerned within EPA, along with any revisions suggested.

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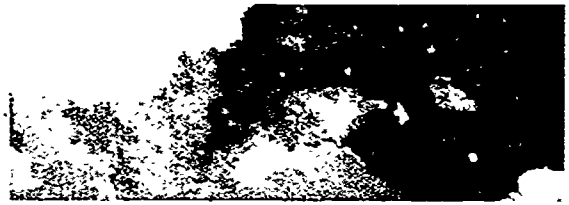

Emergency Standards

EPA is authorized to take whatever action is necessary, including seeking a court order to shut down polluters, whenever air pollution poses an imminent and substantial endangerment to health. This emergency power was given to EPA to deal with air pollution "episodes"—periods when adverse weather conditions produce stagnant air that allows pollutants to reach abnormally high concentrations.

EPA has established levels for emergencies that indicate when "significant harm" to health is threatened by the most common air pollutants—sulfur dioxide, particulates, carbon monoxide, photochemical oxidants and nitrogen dioxide, and has established minimum requirements for State plans to deal with air pollution episodes.

National Air Quality Standards

The law authorized EPA to establish national ambient air quality standards for pollutants and required the States to adopt implementation plans, after holding public hearings, to meet those standards.

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EPA has issued national air quality standards for the six most common pollutants—sulfur oxides, particulates, carbon monoxide, photochemical oxidants, hydrocarbons and nitrogen oxides. EPA is now studying other pollutants to determine if additional national air quality standards are needed.

The national standards are in two parts, primary and secondary. A *primary standard* is designed to protect public health. It sets a limit on the amount of a pollutant in the ambient air (the outdoor air around us) that is safe for humans. A *secondary standard* is designed to protect public welfare. Usually more stringent than a primary standard, a secondary standard sets a limit on the amount of a pollutant that is safe for clothes, buildings, metals, vegetation, crops, animals, etc.

For example, at certain concentrations, sulfur oxides can increase the incidence of respiratory disease, can cause an increase in death rates and can damage property and crops. To prevent adverse health effects, the national *primary* air quality standard for sulfur dioxide is, in part, 80 micrograms per cubic meter, or 0.03 parts of sulfur oxides to one million parts of air, as an annual arithmetic mean. But to prevent adverse effects on public welfare, the national *secondary* air quality standard for sulfur diox-

ide is 60 micrograms per cubic meter, or 0.02 parts per million, as an arithmetic mean. Further, EPA is considering secondary standards for such pollutants to cover shorter term exposures than annual averages.

The maximum concentrations of pollutants permitted by these national air quality standards are based on scientific evidence of their effects on public health and welfare. These effects are spelled out in "criteria" documents issued by EPA. In addition, the Agency publishes information on the known techniques and methods of controlling each pollutant for which a national air quality standard is established. This technical information includes the costs of emission control, the availability of control technology and alternative methods of controlling and preventing the particular form of air pollution.

To achieve the clean air objectives set forth in the national air quality standards, the States must set and enforce limits on emissions of those pollutants from pollution sources. Thus a national *air quality standard* is a limit on the amount of a given pollutant permitted in the air around us. An *emission standard* or limitation is the maximum amount of the pollutant that may be discharged from a specific source. Emission standards or limitations are therefore set by the States to achieve national air quality standards. If a State fails to set the standards, or if EPA determines State emission standards are inadequate to achieve the national ambient standards, EPA is authorized to set the required standards for the State.

National Emission Standards

National air quality standards are not applicable to all pollutants, however. Some are so hazardous that Congress requires direct Federal controls on their emission into the air. For hazardous pollutants—those that "may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness"—EPA is required to establish national emission standards.

To carry out this program, EPA must first identify hazardous air pollutants and then issue proposed national emission standards to control them. EPA must then hold a public hearing on the proposed standards. Ninety days after a national emission standard is issued for a hazardous pollutant, no one may emit that pollutant into the air anywhere in the United States in violation of the standard. EPA may grant a two-year delay, if necessary, to allow installation of pollution control equipment at an existing plant, if steps are taken in the interim to assure that human health will be protected from "imminent endangerment." And the President may grant a two-year exemption to any plant, new or old, if the technology to implement the national emission standard is not available, a needed for national securit

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EPA has so far identified and proposed national emission standards for three hazardous air pollutants—asbestos, beryllium and mercury. Inhaling asbestos fibers has been linked to a number of diseases, including cancer. Beryllium, an extremely toxic mineral, can cause chronic lung disease. Mercury in the air can damage the central nervous system, causing tremors and psychological disturbances, loss of appetite, loss of weight and insomnia.

EPA is authorized to delegate authority to enforce national emission standards for hazardous pollutants to a State. But even if it does so, the Agency retains authority to step in and enforce the emission standard if necessary.

New Plants Standards

Limiting emissions from existing factories and plants is only part of the air pollution control problem. Another objective is to control emissions from new plants that "may contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare," as the law states.

Thus the law requires EPA to establish "standards of performance for new stationary sources"—new plants and factories and old plants that, when modified, produce greater emissions. EPA has so far issued

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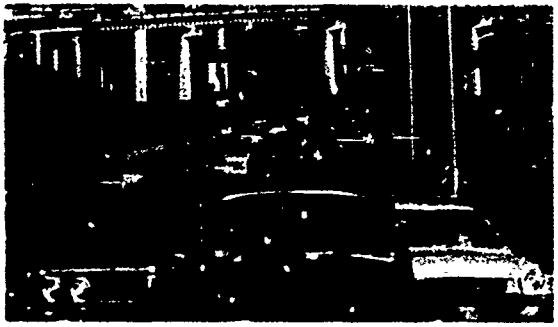

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Federal air pollution performance standards for fossil-fueled steam generating plants (those that use coal, oil or natural gas as fuel), sulfuric and nitric acid plants, Portland cement plants and large incinerators.

These performance standards specify emission limits for particulates, sulfur dioxide, nitrogen oxides and sulfuric acid mist, as well as limits on visible emissions. The performance standards are based on the degree of emission limitations that can be achieved by using the best emission control system that has been adequately demonstrated, taking into account the cost of the control system. The objective is to require new plants for which Federal performance standards are issued to use the best available technology to limit air pollution.

As with national emission standards for hazardous pollutants, EPA is authorized to delegate enforcement of performance standards to a State. But again, EPA retains authority to step in and enforce the performance standards if necessary.

Motor Vehicle Emission Standards

Motor vehicles, the major source of air pollution in many urban areas, are also covered by EPA standards. Here the targets are carbon monoxide, hydrocarbons and nitrogen oxides. key ingredients in the formation of photochemical smog.

The Federal government began setting emission levels for automobiles several years

ago, based on the then-existing state of the art. As auto emission control technology has improved, standards have been tightened. And under the Clean Air Act, auto emission standards will become still more stringent by 1975 and 1976. The law requires carbon monoxide and hydrocarbon emissions from 1975 model cars to be reduced at least 90 percent below 1970 levels, and nitrogen oxides from 1976 cars to be reduced at least 90 percent below 1971 levels.

Motor vehicle emission standards apply to new cars and engines made in the United States or that are imported into this country. Manufacturers are required to obtain certification from EPA that their cars meet specified emission levels. To do this, manufacturers test samples of prototypes of new cars or engines, under procedures specified by EPA, and submit the results to the Agency. If the samples tested meet the standards, EPA certifies the family of cars or engines. EPA also may conduct its own tests of new vehicles or engines.

A similar procedure covers emission standards for trucks and buses.

Fuel Standards

EPA is also authorized to control or prohibit the use of ingredients in motor vehicle fuels that endanger public health and welfare or significantly impair the performance of emission control devices on cars. Carrying out this authority, EPA has proposed regulations that would require a phased reduction in the lead content of "regular" and "premium" gasolines over the next five years. EPA has also proposed regulations to require petroleum companies to make available one grade of lead-free and phosphorus-free gasoline by mid-1974.

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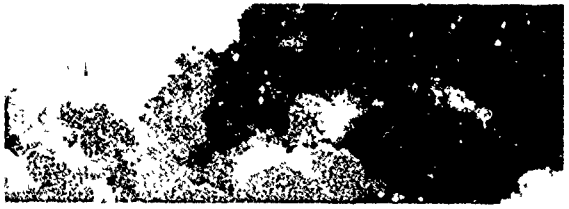
The purpose of the regulations is to reduce the level of lead in the air to protect public health. Another purpose is to assure that lead-free and phosphorus-free gasoline is available for the catalytic devices likely to be used on cars to meet the 1975 emission standards, for those two chemicals can foul the catalysts and prevent the control device from lowering pollution emissions to required levels.

EPA also has authority to identify aircraft emissions that endanger public health and welfare. Standards to control these emissions are then established and enforced by the Federal Aviation Agency.



This array of authority to set air pollution standards requires tools to enforce them, of course. And EPA has the tools.

If a State does not submit a plan to implement national air quality standards set by EPA, or if the plan is deemed inadequate, EPA can prepare and carry out an implementation plan for that State.

If anyone violates an approved implementation plan, EPA, after giving a State and the violator 30 days to act, can issue an order requiring compliance. If there are widespread violations of an implementation plan, EPA, again after 30 days' notice, can take over enforcement of the Sta

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EPA can move directly against anyone violating a new source performance standard or a hazardous emission standard by issuing an order requiring compliance, or by going to court.

Anyone violating an implementation plan, a new source performance standard or a hazardous emission standard is subject to a fine of up to $25,000 for each day of violation and one year in prison. Subsequent convictions can bring a fine of up to $50,000 for each day of violation and two years in prison.

EPA used its enforcement powers under these provisions for the first time in early 1972 when a State was unable to compel compliance. In that case, EPA served a 30-day notice on a Delaware power company accused of violating an approved implementation plan for the national air quality standard for sulfur oxides. The company was accused of using oil with a higher sulfur content than was permitted by the State.

If an air pollution episode produces "imminent and substantial endangerment" to public health, EPA can take whatever emergency action it deems necessary, including promptly filing suit in Federal court for

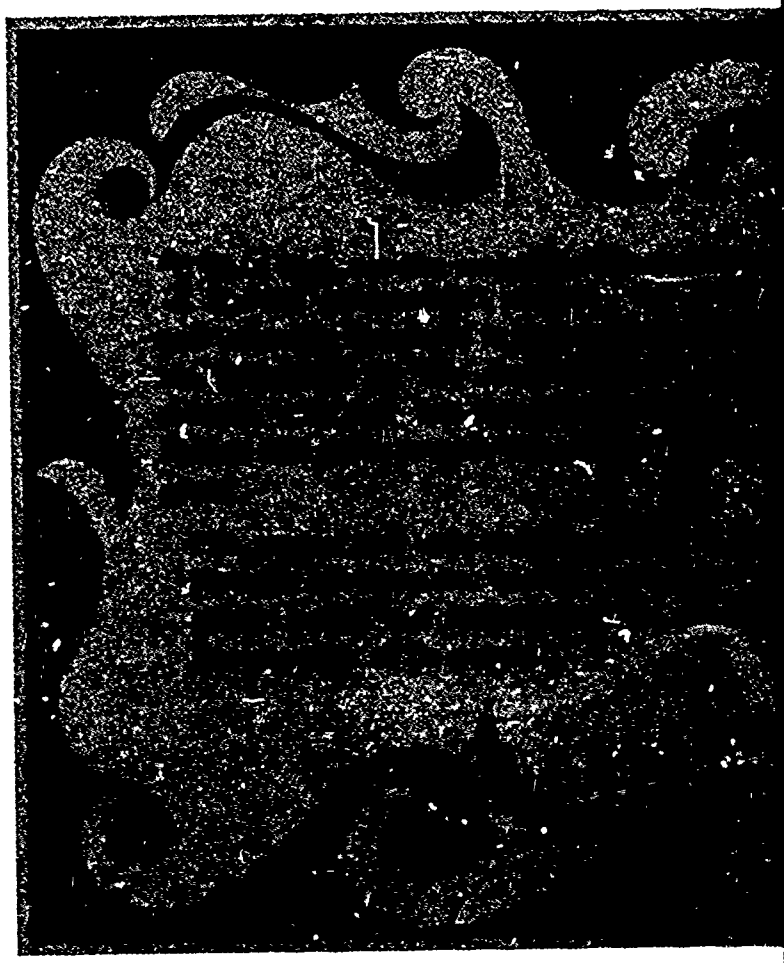
an immediate injunction. EPA used this emergency provision for the first time in November 1971, when a serious air pollution episode occurred in Birmingham, Ala.

When pollutants accumulated in the air in dangerous concentrations, county health officials asked industries that were the heaviest polluters to voluntarily cut back their operations. When the high pollution persisted, the Federal government stepped in and obtained a Federal court order temporarily restraining 23 industries in the area from emitting air pollutants. Failure to comply would have put an industry in contempt of court. When weather conditions changed and air pollution levels dropped, the injunction was lifted.

EPA's action prevented a possible health disaster and demonstrated that the Federal government would and could use emergency powers granted by the Clean Air Act when public health is in immediate danger.

To achieve compliance with EPA's motor vehicle emission standards, the 1970 law makes it illegal to sell or import a car or engine that is not certified by EPA. It's also illegal for a vehicle manufacturer or dealer knowingly to remove or disconnect an emission control device before or after selling or leasing a car or truck to a consumer.

Anyone violating those provisions can be fined up to $10,000, with each car or engine considered a separate offense. Anyone violating EPA's motor vehicle fuel standards can be fined up to $10,000 a day.



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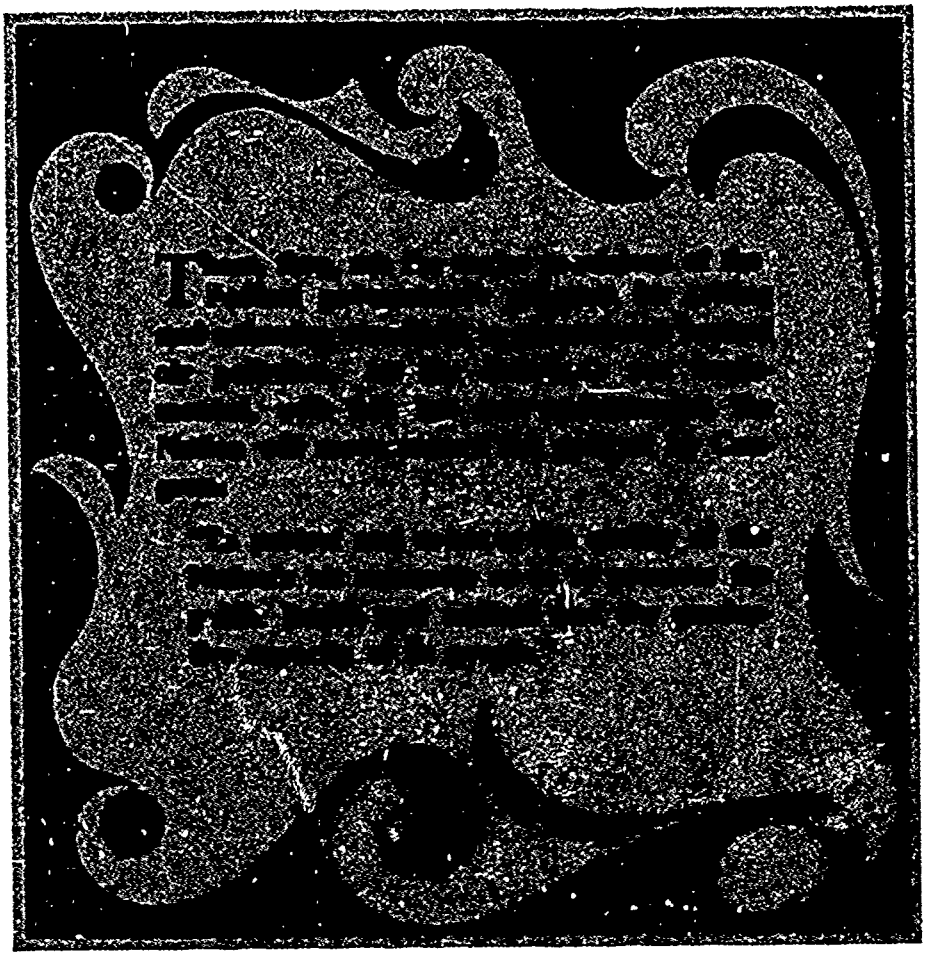

GELINDA RAIN

waters were covered by Federal legislation. And for the first time, the 1972 law created a system of national effluent limitations and national performance standards for industries and publicly-owned waste treatment plants. Previously, the Federal water pollution control program was based primarily on Federal-State water quality standards.

The 1972 law proclaimed two goals for the Nation: by July 1, 1983, wherever possible, water that is clean enough for swimming and other recreational use, and clean enough to protect fish, shellfish and wildlife; and by 1985, no more discharges whatsoever of pollutants into the Nation's waters.

Those goals, or objectives, reflect a strong national commitment to end water pollution to the greatest degree possible. They set the stage for a coordinated, integrated series of actions that must be taken, with strict deadlines, to achieve progress toward clean water. And the 1972 law gave EPA new enforcement powers.

The major provisions for setting and enforcing standards under the Federal Water Pollution Control Act, as amended in 1972 follow.

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HARC ST GIL

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STANDARDS

National Effluent Limitations

An effluent limitation is the maximum amount of a pollutant that a polluter is permitted to discharge into a water body. Effluent limits may permit some discharge or none, depending on the specific pollutants to be controlled. For instance:

• The 1970 law prohibits the discharge into the Nation's waters of any radiological, chemical or biological warfare materials or high-level radicactive waste. This is a zero discharge requirement.

• Discharges of other toxic pollutants will be controlled by effluent standards to be issued by EPA no later than January 1974. A pollutant is "toxic" if it causes death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions or physical deformities in man or any other other organism, directly or indirectly. EPA is required to provide an ample margin of safety in setting effluent standards for toxic pollutants and can prohibit discharges of toxic pollutants, in any amount, if deemed necessary.

(EPA has already established, under earlier water pollution control legislation, strict discharge limits of such toxic pollutants as lead and mercury. The 1972 la ened EPA's authority to control of toxic pollutants.)

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• EPA will establish effluent limitations for other industrial pollutants by October 1973. At the same time, EPA will define "best practicable" and "best available" water pollution control technologies. They will be based upon several factors including the cost of pollution control, the age of the industrial facility, the process used and the environmental impact (other than on water quality) of applying the controls. EPA will also identify pollution control measures for completely eliminating industrial discharges.

By July 1, 1977, industries must meet effluent limits that reflect the use of "best practicable" control technology. By July 1, 1983, industries must meet effluent limits that reflect the use of "best available" technology. Also by July 1, 1983, if EPA finds that doing so is "technologically and economically achievable," industries must completely eliminate the discharge of pollutants.

• Industrial discharges into publicly-owned sewage treatment plants are also subject to national effluent limitations. Those will be set by EPA, by February 1973, and will require pretreatment of industrial pol-

what citizens can do

Citizens can help State and local governments, as well as EPA, carry out their environmental responsibilities by:

- Making their views known on environmental issues by participating in public hearings and communicating with elected and appointed public officials.
- Supporting adequate financing of pollution control agencies.
- Finding out what environmental standards and enforcement procedures apply in their community.
- Reporting arousing violations of environmental standards to pollution control agencies.
- Reporting spills of oil and other hazardous substances to EPA or the U.S. Coast Guard.

For further information on the role of concerned citizens in environmental protection, see these EPA publications:

Don't Leave It All To The Experts
Citizen Action Can Get Results
Clean Air — It's Up To You, Too

lutants that might interfere with public treatment plants or pass through those plants without adequate treatment. Pretreatment requirements will take effect no later than May 1974, for new industrial sources of pollution, and no later than July 1976, for existing industrial facilities.

- Effluent limits will also apply to publicly-owned sewage treatment plants. In order to qualify for a Federal construction grant from EPA, treatment plants approved before June 30, 1974, must provide a minimum of secondary treatment. After June 30, 1974, Federal grants may be made only for plants that will use "best practicable" treatment.

All sewage treatment plants in operation on July 1, 1977—whether or not built with the aid of Federal funds and no matter when built—must provide a minimum of secondary treatment. (However, a plant built with the help of Federal funds approved before June 30, 1974, has until June 30, 1978, to comply with the secondary treatment requirement.)

Also by July 1, 1977, all sewage treatment plants must apply whatever additional, more stringent effluent limitations EPA or a State may establish to meet water quality standards, treatment standards or compliance schedules.

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TOM SENNETT

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TOM BENNETT

Federal effluent limitations require that all sewage treatment plants must provide a minimum of secondary treatment by 1977.

• If the effluent limitations described above are not adequate to protect public water supplies, agricultural and industrial uses of water, fish and wildlife, and to allow swimming, then EPA is required to impose still more stringent effluent limits on pollutants from industries, municipal treatment plants and other "point sources" of pollution.

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New Plant Standards

EPA is required to establish national performance standards for new industrial sources of water pollution. The standards will reflect the greatest degree of effluent reduction that can be achieved by applying the "best available demonstrated control technology, processes, operating methods or other alternatives, including, where practicable. a standard permitting no discharge of pollutants." The law directs EPA, in setting performance standards, to consider the cost of achieving the effluent reduction, energy requirements and the environmental impact (other than on water quality) of the standards.

EPA will issue proposed performance standards for various industries by January 1974. and will make those standards final by May 1974. From then on, it will be illegal to operate any new industrial source of water pollution in violation of a national performance standard.

Industries to be covered by performance standards for new facilities will include: pulp. paper, paperboard. builders paper, and board mills; meat product and rendering processing: dairy product processing; grain mills; canned and preserved fruits; vegetables, and seafood processing; sugar processing; textile mills; cement manufacturing; feedlots; electroplating; organic and inorganic chemicals manufacturing; plastic and synthetic materials manufacturing; soap and detergent manufacturing; fertilizer manufacturing; petroleum refining; iron and steel manufacturing; nonferrous metals manufacturing; phosphate manufacturing; steam electric power plants; ferroalloy manufacturing; leather tanning and finishing; glass and asbestos manufacturing; rubber processing; and timber products processing.

If a State wishes, and if its program meets EPA requirements, it may apply and enforce national performance standards to new plants within its borders (except for new sources owned or operated by the Federal government).

New plants on which construction started after October 18, 1972, and that meet all applicable performance standards, will not be subject to any more stringent performance standard for ten years, beginning with the date the new plant is completed. However, new and more stringent performance standards may be required before ten years if a plant is amortized sooner—in five years, for example—under the rapid write-off provisions of the Internal Revenue Code.

Water Quality Standards

The 1972 law continued and expanded the water quality standards program initiated in 1965. Under that program, the Federal government first issued guidelines and criteria to help the States set water qual-

TOM BENNETT

synthetic materials manufacturing; soap and detergent manufacturing; fertilizer manufacturing; petroleum refining; iron and steel manufacturing; nonferrous metals manufacturing; phosphate manufacturing; steam electric power plants; ferroalloy manufacturing; leather tanning and finishing; glass and asbestos manufacturing; rubber processing; and timber products processing.

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ity standards for *interstate* waters. (*Intrastate* waters were not covered.)

The criteria contained all available scientific findings on the physical, chemical, temperature and biological requirements for each major use of water—recreation, drinking water, fish and wildlife propagation, industrial or agricultural. Each State then decided, after holding public hearings, how it wanted to use portions of interstate waters that flow within its borders. Each use required differing degrees of purity. A river earmarked as a source of drinking water, for example, has to be cleaner than water designated for industrial cooling.

The Federal government set two basic ground rules for the States. The first required that no body of water could be classified for a lower level of purity than already existed. The antidegradation provision was designed to prevent increased pollution. The second ground rule was that no body of water could be designated only for waste disposal.

In addition to classifying waters by intended uses, the States were also required to adopt criteria to protect those uses, to develop timetables, implementation and enforcement plans to achieve those uses. All of these—criteria applied to specific stream uses or classifications, and implementation and enforcement plans—became the State's proposed water quality standards. The States then submitted their proposed standards to the Federal government for approval.

When the 1972 law was enacted, water quality standards had already been approved, wholly or in part, for all States. Those approved with exceptions were in the process of being resolved.

The 1972 law expanded this water quality standards program. Here's how:

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areawide planning

The 1972 water pollution control law inaugurated a special program for urban-industrial areas with substantial water pollution problems. The program calls for coordinated areawide planning to identify and provide municipal and industrial waste treatment. Here's how it operates:

First, EPA issues guidelines to identify areas where regional planning is required. Using those guidelines, each State has until July 1973, to designate the boundaries of areas requiring areawide planning and to designate an agency to develop an effective regional plan. If an interstate area is involved, the designations will be made cooperatively by the States concerned. If a State itself does not act, the top elected local government officials within an area ma designations themselves.

All designations are EPA approval.

By July 1974, each agency must have an area treatment management pla ess in operation. And by the agency's first plan mu fied by the State and s EPA for approval.

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All designations are subject to EPA approval.

By July 1974, each designated agency must have an areawide waste treatment management planning process in operation. And by July 1976, the agency's first plan must be certified by the State and submitted to EPA for approval.

After an areawide plan is approved, EPA construction grants to publicly-owned treatment plants within the area can be made only for plants that are part of and in conformity with the areawide plan. And no permit for the discharge of pollutants may be issued to any source in conflict with an approved plan.

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The 1972 law expanded this water quality standards program. Here's how:

- Water quality standards previously established by States for *interstate* waters, subject to EPA approval, remain in effect unless they are not consistent with the law. If EPA finds that a water quality standard is not adequate, the State has until April 1973 to make the necessary changes.
- In addition, the States must now also adopt water quality standards, after holding public hearings, for *intrastate* waters and submit them to EPA for approval by April 1973. (States that had earlier adopted stand-

ards for their intrastate waters under their own laws need only submit them to EPA for approval.)

• EPA is required to set water quality standards for inter-or-intrastate waters if a State does not do so, or if a State's proposed standards do not meet the law's requirements

• If a State finds that effluent limits based on "best practicable" or "best available" control technology are not adequate to meet water quality standards. the State must impose more stringent controls on pollution sources. To this end, the States must establish the total maximum daily load of pollutants, including heat, that will not impair propagation of fish and wildlife. EPA will identify, by October 1973, pollutants for which maximum daily loads might be set. The States, in turn, must submit for EPA approval, by April 1974, the daily loads established for specific water bodies.

• By October 1973, EPA is required to issue updated criteria for water quality. The criteria will include the latest scientific knowledge on the effects of pollutants in water bodies . . . (including groundwater) on health and welfare, on plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics and recreation. The criteria will also include information on the concentration and dispersal of pollutants through biological, physical and chemical processes. And the criteria will include information on the factors affecting eutrophication (aging) and sedimentation of water bodies.

BELINDA RAIN

Compliance with water quality standards will help prevent contamination such as this that causes eutrophication of our lakes and streams.

• Also by October 1973, EPA is required to issue information on what must be done to restore and maintain the chemical, physical and biological integrity of all the Nation's waters including groundwater and the oceans; on what must be done to protect fish and wildlife and to allow recreational use of water bodies; and informati measuring and classifying water quality

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- EPA is required to report to Congress by January 1, 1974, on the quality of the Nation's waters. The report will identify water bodies that, in 1973, met the 1983 goal of water adequate for recreation and to protect fish and wildlife. The report will also identify water bodies that might achieve the 1983 goal by 1977, 1983 or any later

date. The report will include an inventory of sources of water pollution.

• The States are required to submit similar reports to EPA each year on the quality of waters within their borders. The first report is due by January 1, 1975. EPA will submit the State water quality reports to Congress each year, along with its own analysis, beginning October 1, 1975.

• And at least once every three years (from October 1972), the States must hold public hearings to review their water quality standards and, if necessary, to update the standards, subject to EPA approval. Any new standard under this process must protect public health and welfare and must enhance water quality.

Permits

The 1972 law created a new national system of permits for discharges of pollutants into the Nation's waters, replacing the 1899 Refuse Act permit program. Under the 1972 law, no discharge of any pollutant is allowed without a permit. Publicly-owned sewage treatment plants as well as industrial dischargers must obtain permits.

The permit program is the key to applying national effluent limitations and performance standards to specific polluters. A permit tells a polluter what he may or may not discharge. If a polluter cannot immediately comply with effluent limitations, the permit sets firm targets for installing needed abatement equipment. The permit also sets firm limits on discharges during the interim period. Here's how the permit program works:

• Until March 1973, EPA, or a State with an existing permit program deemed adequate by EPA, is authorized to issue permits for discharges. State permits issued

citizen suits

Citizens long have had the right to file suit under common law for damage to health and property caused by pollution. Under the Clean Air Act of 1970 and the Federal Water Pollution Control Act of 1972, citizens can now take direct action to enforce compliance with Federal air and water pollution requirements.

Both laws empower citizens to take court action against anyone violating these laws. And citizens can also file suit against EPA itself if it fails to perform any mandatory duty required by the two laws.

Rules governing citizen suits under the Clean Air Act are available in the Federal Register, December 9, 1971. EPA was preparing similar rules for citizen suits under the Federal Water Pollution Control Act as this publication went to press.

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• Until March 1973, EPA, or a State with an existing permit program deemed adequate by EPA, is authorized to issue permits for discharges. State permits issued during the interim period are subject to EPA veto.

• A State wishing to permanently operate the permit program within its borders is authorized to do so, beginning in March 1973, if its program meets EPA requirements. EPA spelled out those requirements in guidelines issued in late 1972. (See The Federal Register, November 11, pages 24088 to 24097.)

To be approved by EPA, a State permit program must assure compliance with the Federal law and must include: requirements for monitoring and reporting discharges and procedures for making this information public; enforcement machinery; and adequate funds and staff of qualified personnel. Another important element required in each permit program is that no one who receives a significant portion of his income (or has during the previous two years) from permit holders or applicants is allowed to serve on a State permit-granting board.

Moreover, a State must have adequate authority to monitor discharges by polluters, to enter and inspect polluting facilities and to require reports from polluters. A State permit program must also contain provisions for public notice of all permit applications and must provide an opportunity for a public hearing before a permit is granted. No permit may be issued for more than five years.

• After a State permit program is approved and goes into effect, EPA retains

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Rules governing citizen suits under the Clean Air Act are available in the Federal Register, December 9, 1971. EPA was preparing similar rules for citizen suits under the Federal Water Pollution Control Act as this publication went to press.

BRUCE MCALLISTER

To prevent this pollution, permits are required of publicly-owned and private dischargers to limit the type and amount of their discharges.

the right, unless waived, to review and approve any State permit that affects another State. EPA also has authority, unless waived, to review proposed permits to determine if they meet the requirements of the Federal law.

- A State permit program is subject to revocation by EPA if the State fails to implement the law adequately.

Other Federal Permits, Licenses

The 1972 law also regulates the disposal of sludge from publicly-owned treatment plants and the disposal of dredged or fill material in the Nation's waters, and oceans. And the law strengthened a certification procedure for other Federal agencies to follow to assure compliance with water pollution controls.

Sludge—The law prohibits the disposal of sludge from sewage treatment plants into the Nation's waters except under a permit issued by EPA. After EPA issues regulations for sludge disposal permits, a State may take over the permit program if it meets EPA requirements.

Dredged, Fill Material—The law reaffirms the authority of the U.S. Army Corps of Engineers to issue permits for the disposal of dredged or fill material into the Nation's waters. This is consistent with the Corps' historic role of safeguarding navigation. But to safeguard water quality, dredged or fill materials may be dumped only in disposal sites. EPA has authorit the selection of a disposal site t adverse effects on municipal wate fishery resources, wildlife or recre

Ocean Dumping—The Water Control Act requires EPA to iss lines by April 1973, to protect c ocean waters from pollutants. P ocean disposal of pollutants mu with the guidelines after that guidelines will cover the effects of on human health and welfare, c life, shorelines and beaches and c natives to ocean disposal of pollu

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Ocean Dumping—The Water Pollution Control Act requires EPA to issue guidelines by April 1973, to protect coastal and ocean waters from pollutants. Permits for ocean disposal of pollutants must comply with the guidelines after that date. The guidelines will cover the effects of pollutants on human health and welfare, on marine life, shorelines and beaches and cover alternatives to ocean disposal of pollutants.

EPA has similar authority to regulate ocean dumping under the Marine Protection, Research and Sanctuaries Act of 1972 (P.L. 92-532). Under that law, EPA will establish criteria and may issue permits for ocean dumping that do not "unreasonably degrade or endanger human health, welfare or amenities or the marine environment, ecological systems or economic potentialities."

The Marine Protection Act bars permits for dumping anything that will violate water quality standards. EPA must give public notice of permit applications and provide an opportunity for public hearings before issuing an ocean dumping permit.

Certification—The 1972 water pollution control law strengthened a certification pro-

cedure in earlier legislation to assure compliance by other Federal agencies. Anyone applying for a Federal license or permit for any activity—such as a nuclear power plant—that might produce polluting discharges into the Nation's waters must obtain certification from the State involved that the discharges will not violate national effluent limitations and performance standards. If a State or interstate agency has no authority to issue the certification, EPA may do so.

States must give public notice of applications for certification and may hold public hearings if deemed appropriate.

If certification is denied—by a State or by EPA—the Federal agency in question may not grant the license or permit. If a certification by one State will result in a discharge that may affect water quality in another State, the Federal agency that issues the license or permit must hold a public hearing if requested by the second State.

If the permit or license will result in discharges that are not in compliance with water quality requirements, the license or permit cannot be issued.

Oil, Other Hazardous Pollutants

Under the Water Quality Improvement Act of 1970, EPA is required to define the amount of oil discharged into water that "will be harmful to the public health or welfare," including fish, shellfish, wildlife and public and private property, shorelines and beaches. A "harmful" discharge of oil was subsequently defined as an amount that violates a water quality standard or causes a "film or sheen" or "discoloration" of the water surface or adjoining shorelines or that causes a "sludge or emulsion" deposit beneath the water surface or upon the adjoining shorelines.

EPA was also required to formulate an action plan to minimize damage from oil spills. This, too, has been done. Called the National Contingency Plan, it provides machinery for the prompt cleanup of oil discharges. It regulates, among other things, the kinds of dispersants and chemicals that can be used for oil spill cleanup.

The 1972 law extended the oil pollution control, liability and enforcement provisions of the 1970 legislation to substances." These are def that "present an imminer danger to the public h including, but not limited wildlife, shorelines and b

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Sewage from Vessels

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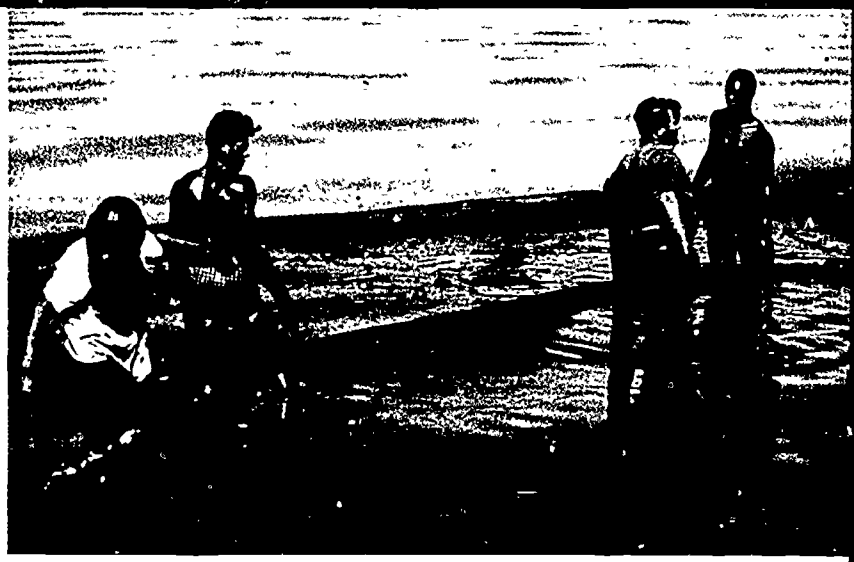

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The 1972 law extended the oil pollution control, liability and enforcement provisions of the 1970 legislation to other "hazardous substances." These are defined as substances that "present an imminent and substantial danger to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, shorelines and beaches."

EPA is now required to define "harmful" discharges of hazardous substances and to extend the National Contingency Plan to hazardous substances.

Sewage from Vessels

The 1970 amendments to the water pollution control law set in motion a procedure to regulate sewage discharges from ships and boats. EPA was required to issue standards for marine sanitation devices "to prevent

the discharge of untreated or inadequately treated sewage" from vessels.

EPA issued a standard in 1972. When it goes into effect, it will forbid the discharge of any sewage waste, treated or not, into the Nation's waters from toilet-equipped vessels.

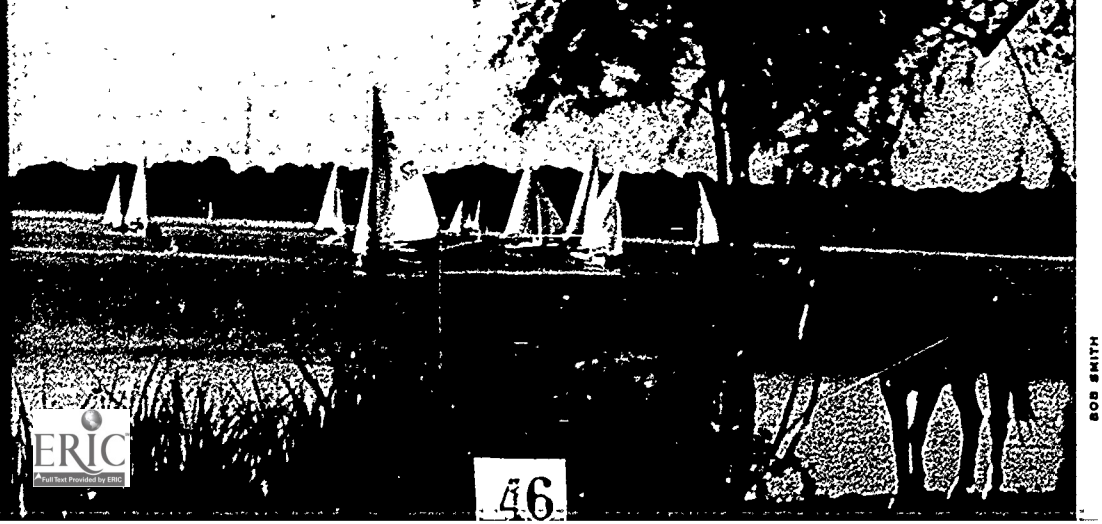
The Coast Guard is developing regulations, consistent with the EPA standard, governing the design, construction, installation and operation of marine sanitation devices. After the Coast Guard regulations are issued, they and the EPA standards will take effect in two years for new vessels and in five years for existing vessels.

Existing vessels will be allowed to use treatment devices certified by the Coast Guard if installed within five years of the regulations' issuance. The treatment devices will have to reduce fecal coliform bacteria to no more than 1,000 per 100 milliliters of water and prevent the discharge of visible floating solids.

However, after the regulations go into effect, a State may ask EPA to com prohibit vessel sewage discharges, trea not, if the State thinks that any of its able waters require greater environ protection. If EPA finds that adequ cilities for removal and treatment of s from vessels in these waters are reas available, EPA will issue regulations b all discharges.

The purpose of the standard and lations is to end the dumping of wastes, whether treated or not, a pr that has grown with the increased n of pleasure boats in use. The standar affect some 600,000 U.S. vessels, inc approximately 550,000 recreational as well as foreign ships using U.S. Small craft without toilets, such as and rowboats, are exempt.

Regulations forbidding the discharge of sewage from ships and boats will help to preserve the enjoyment of sailing, boating and other water sports.



BOB SMITH

Drinking Water

State and local governments ha primary responsibility for setting and lating drinking water standards. But t vent the spread of communicable di in interstate commerce, the Public Service Act of 1912 authorized the F government to establish standard drinking water used by interstate c such as railroads, buses, steamships a planes.

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However, after the regulations go into effect, a State may ask EPA to completely prohibit vessel sewage discharges, treated or not, if the State thinks that any of its navigable waters require greater environmental protection. If EPA finds that adequate facilities for removal and treatment of sewage from vessels in these waters are reasonably available, EPA will issue regulations banning all discharges.

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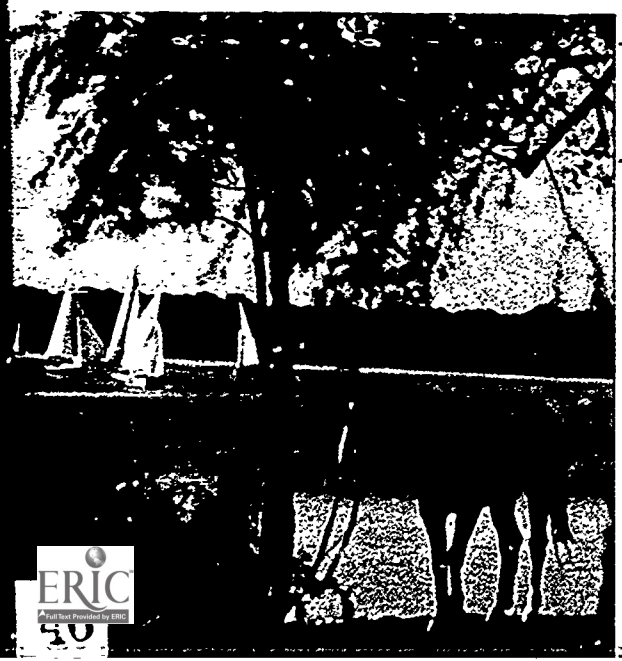

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Under that authority, the U.S. Public Health Service established standards for

drinking water, most recently in 1962. This program was transferred to EPA. The standards, currently being revised, set mandatory limits on the levels of coliform bacteria, arsenic, barium, cadmium, chromium, cyanide, lead, fluoride, selenium and silver. The standards also include recommended limits on the taste, odor and color of drinking water used by interstate carriers.

Because Federal authority over drinking water applies only to water supply systems used in interstate commerce, only 665 of the some 30,000 public water supply systems in the Nation are currently covered. In terms of people, Federal drinking water standards cover only half of the 160 million served by community water supply systems.

While many State and local governments follow the Federal standards for drinking water, a recent study revealed that some eight million people in the United States use water that does not meet Federal requirements and is potentially dangerous to public health. The study also disclosed other shortcomings, including poor operating and monitoring procedures and inadequate facilities in water supply systems.

As a result of those disclosures, legislation has been introduced in Congress to authorize EPA to set national drinking water standards. Enforcement would be left to State and local governments, with EPA action only if the national standards are not enforced.

impact statements

The National Environmental Policy Act (NEPA) requires all Federal agencies to prepare an environmental impact statement on any proposed action that would significantly affect the environment before the action is taken. These statements must be submitted to the Council on Environmental Quality and other Federal agencies, including EPA, and must be made public.

EPA reviews impact statements to determine if a proposed action would have adverse effects on public health or welfare, or environmental quality. EPA's findings, as well as those of other Federal agencies, must also be made public. In evaluating the impact statements, EPA considers their total environmental consequences including how they might affect environmental standards.

Moreover, under the Federal Water Pollution Control Act, EPA itself is required to prepare an environmental impact statement before approving a construction grant for a publicly-owned sewage treatment plant and before issuing a permit for the discharge of pollutants from a new source.

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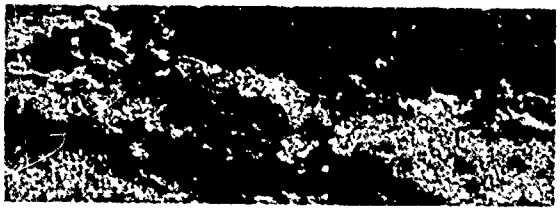

ENFORCEMENT

As in air pollution, EPA has a variety of enforcement tools to use to combat water pollution including stringent provisions in the 1972 law as well as provisions in legislation enacted earlier. Here are EPA's major enforcement powers:

- EPA has emergency power to seek an immediate court injunction to stop water pollution that poses "an imminent and substantial endangerment to public health or that endangers someone's livelihood—such as pollution that contaminates shellfish and makes it impossible to market them."
- EPA has emergency power to seek immediate court action to stop an actual or threatened discharge of oil or other hazardous material that presents "an imminent and substantial threat to public health or welfare," including fish, shellfish, wildlife, public and private property, shorelines and beaches. EPA used this provision for the first time in November 1970, after three million gallons of oil sludge spilled into the Schuylkill River in Pennsylvania and another 17 million gallons threatened to follow.
- Anyone violating permit conditions or other requirements of the law may be fined up to $10,000 a day. Willful or negligent violations could bring up to $25,000 a day in fines and one year in prison fo offense and up to $50,000 a da years in prison for subsequent Permits issued to major pollute continuous monitoring with freque subject to perjury penalties.
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- EPA can enforce permit cond other requirements of the law b administrative orders enforceable or by seeking court action.
- After EPA approves a Sta program, if EPA finds the Sta administering the program as re Federal law, EPA must revoke its This can be done only after a pu ing and after giving the State a r time (not more than 90 days) to rective action.
- To assist in enforcement as measure the effectiveness of water control programs, EPA will establ national water quality surveillance monitor water quality, in coopera other Federal agencies and State governments.

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- EPA has the power to enter and inspect any polluting facility, to check its records and monitoring equipment and to sample its discharges.
- EPA can enforce permit conditions and other requirements of the law by issuing administrative orders enforceable in court or by seeking court action.
- After EPA approves a State permit program, if EPA finds the State is not administering the program as required by Federal law, EPA must revoke its approval. This can be done only after a public hearing and after giving the State a reasonable time (not more than 90 days) to take corrective action.
- To assist in enforcement as well as to measure the effectiveness of water pollution control programs, EPA will establish a new national water quality surveillance system to monitor water quality, in cooperation with other Federal agencies and State and local governments.

• Discharges of oil or a hazardous substance must be reported immediately to the Federal government. Failure to do so can bring a fine of up to $10,000 and one year in prison. Anyone discharging harmful quantities of oil or another hazardous substance, or violating regulations issued under the National Contingency Plan for oil and hazardous substances, is subject to a fine of up to $5,000. Discharges of hazardous substances from a vessel can bring a penalty of up to $5 million, and from other facilities, up to $500,000 if the substance cannot be removed. Anyone spilling oil or a hazardous substance into water is liable for clean-up costs of up to $8 million (spills from onshore or offshore facilities) and up to $14 million (in the case of vessels). If the spill is due to willful negligence or willful misconduct, actual clean-up costs, no matter how high, can be imposed.

• Violations of waste treatment standards and regulations for vessels can bring a fine of up to $5,000. The Coast Guard is authorized to board and inspect any private ship or boat in U.S. waters to enforce marine sanitation standards.

• To enforce drinking water standards, EPA can prohibit interstate carriers—planes, trains, buses, steamships—from using water from a system that does not meet Federal standards. (Legislation is pending in Congress to strengthen the drinking water standards program.)

These, then, are the major provisions of the Federal government's program for setting and enforcing standards to prevent, reduce and eliminate water pollution. As the standards are implemented, with fair but firm enforcement, the Nation will move toward the goal set by Congress:

"To restore and maintain the chemical, physical, and biological integrity of the Nation's waters by eliminating the discharge of pollutants into the Nation's waters by 1985."

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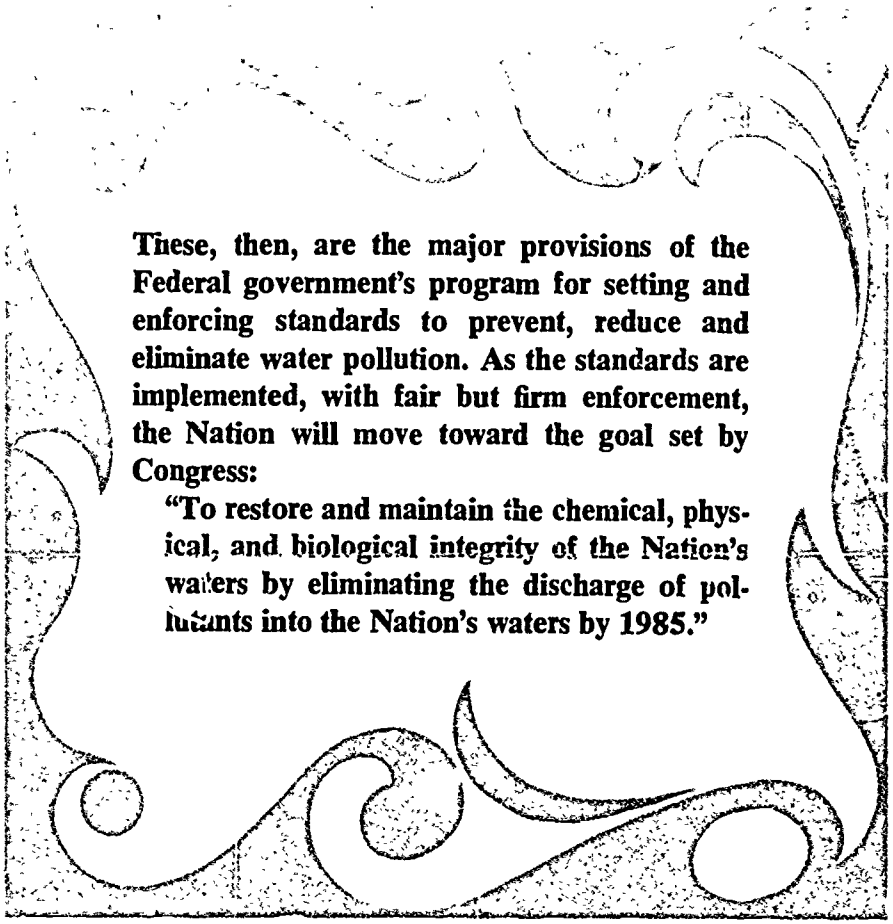

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While charged by law to carry out the responsibilities described in order to safeguard public health and welfare from air and water pollution, EPA cannot do it alone. EPA needs the support and cooperation of State and local governments and of industry. EPA, also needs and welcomes citizen participation for law enforcement cannot be effective without citizen support, cooperation and involvement. This is especially true in pollution control which often requires changes in attitudes and values.

Thousands of citizens, individually and more often through voluntary organizations dedicated to environmental protection and improvement, have already taken part in public hearings on pollution problems. They have participated in meetings, workshops and other educational activities designed to broaden public understanding of environmental issues. They have prodded and pushed government and industry to take action.

Public participation was spurred further by the Federal Water Pollution Control Act of 1972 when Congress placed strong emphasis on the importance of public participation in the national program to prevent, reduce and eliminate water pollution. The law directs EPA and the States to provide for, encourage and assist public participation in developing, revising and enforcing all regulations, standards, effluent limits, plans and programs under the law.

EPA welcomes this directive and seeks public participation in the campaign for water pollution control and in all of its environmental protection programs. EPA hopes that citizens will continue to raise their voices on behalf of a better environment in every conceivable forum. As noted earl
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A high level of public participation in the democratic processes of environmental decision making will nourish and sustain a high level of environmental standards and their enforcement.

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