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WATER STRATEGY PAPER

Second Edition

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STATEMENT OF POLICY
FOR IMPLEMENTING THE REQUIREMENTS
OF THE
1972 FEDERAL WATER POLLUTION CONTROL ACT
AMENDMENTS

AND CERTAIN REQUIREMENTS
OF THE
1972 MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT

U.S. ENVIRONMENTAL PROTECTION AGENCY

Washington, D.C. 20460

MONS 039406

PREFACE

This February 15, 1974 edition of the Water Strategy has been prepared for use and review by Federal, State, and local government officials and for the information of the public. Major changes to the previous 1973 edition have been made. This edition has also been expanded to include many areas of program activities that were not previously covered. This edition of the Strategy reflects the final decisions on the Federal Government's FY 1975 budget.

Persons using the Strategy are reminded that the Strategy, while based on the law, is not the law, nor is it a regulation mandated by the law. It is guidance prepared for use by government agencies in implementing the Acts.

The Strategy Paper is written under the aegis of the Water Planning Division in EPA Headquarters. While much of the work undertaken in its development has been performed by people within this Division, it more fully reflects the work of individuals within all EPA Headquarters program areas, and the participation of EPA's Regional Offices and the States.

Comments on the Strategy are welcomed. They should be addressed to:

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A limited number of additional copies of the Strategy Paper are available, and can be had upon request by writing to the above address. For those seeking a more general discussion of this area, EPA's Office of Public Affairs has prepared several pamphlets describing the provisions of the Act, and will have available a summary primer covering the contents of this Strategy Paper.

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PURPOSE

The Water Strategy Paper is designed to play an important part in implementing the Federal Water Pollution Control Act Amendments of 1972 and the Marine Protection, Research, and Sanctuaries Act of 1972. As a part of the management system for their implementation, the Paper will ensure that program activities, by conforming to a single strategy, are consistent among each other. It will further serve as a means of promoting awareness and encouraging public participation.

The principal emphasis of the Strategy is on the implementation of the Federal Water Pollution Control Act, for which EPA has the major Federal responsibility. EPA's role under the Marine Protection, Research, and Sanctuaries Act in regulating ocean dumping is also included. However, specific programs governing the protection of public water supplies are not included in this Paper.

CONTENTS

I. Strategic Overview

- A. Major Themes for FY 75
- B. Sequence of Implementation through 1983
- C. Program Outputs
- D. The Water Problem--The Current Condition

II. Individual Program Strategies

- ✓ A. Basis for Effluent Limitations
 - ✓ 1. Effluent Standards
 - ✓ 2. Water Quality Standards
 - ✓ 3. Toxic and Thermal Standards; Limitations Above BPWT & BAT
- ✓ B. Permits and Compliance
- ✓ C. Municipal Facilities--Grants and Operations
- ✓ D. Planning, Management, and Reporting
 - ✓ 1. Basin and Regional Planning
 - ✓ 2. The Management Structure
 - ✓ 3. Monitoring
- E. Diffuse and Intermittent Sources
 - ✓ 1. Non-Point Sources and Lake Restoration
 - ✓ 2. Spills and In-Place Pollutants
- ✓ F. Oceans and Groundwater
- G. Research and Development
- H. Institutional and Associated Program Areas

Appendix:

- III. Program Summary Activity Schedules
- IV. Index of Legislative and Program Requirements and Accomplishments
- V. Non-Point Sources: Specific Program Description
- VI. Management Reporting System

MONS 039408

II. INDIVIDUAL PROGRAM STRATEGIES

The basic elements of the Strategy for controlling water pollution are set by the scope and emphasis of the Act itself. Of all receiving waters, the Act focusses (Federal) attention on navigable waters first. Of all dischargers into these navigable waters, the Act assigns highest priority to point sources for control.

Accordingly, the initial sections of this part of the Water Strategy concern programs for the control of stationary point sources, discharging inland to streams, lakes, and rivers. Later sections deal with sources which are diffuse or intermittent, and with the pollution of oceans and groundwater.

The Act's primary mechanism for controlling point source discharges into inland and coastal waters is the National Pollutant Discharge Elimination System. Under NPDES, permits are issued stating the limits of allowable discharge in 1977 and 1983 (the general target dates of the Act) and a schedule of interim dates and allowable discharges. Section A explains the basis for the final effluent limitations contained in these NPDES permits.

A. The Basis for Effluent Limitations

Subject to certain cutoffs for ease in administering the program, under the Act every point source is subject to an effluent standard and a water quality standard. The effluent, or technology, standard states what is economically achievable in pollutant reduction for that class and type of discharger, nationally. The water quality standard can be used to determine what is environmentally necessary to achieve in pollutant reduction, if the particular stretch of water on which a discharger is located is to be used for its designated purpose (agriculture, swimming, etc.).

The effluent limitation which is contained in a discharger's permit is calculated by comparing the technology standard for the source category with the water quality standard for the receiving waters, and adopting whichever implied level of control is more stringent. In practice, the technology standard is used as the base level for limitations. Its provisions are tightened where necessary to meet water quality standards.

The concept of base-level limitations unrelated to local water quality is one of the major innovations of the Act. It represents a departure from water pollution control practice prior to the 1972 Amendments, when water quality standards alone were the basis for effluent limitations.

New source review may initially be limited to large sources, to assure cost-effective review procedures. However, it may also be necessary to provide procedures to review the aggregate impact of multiple smaller sources. In stringent areas, the policy may dictate that no major new source be allowed unless it is balanced by the closure or increased control of certain existing facilities. In any case, every review of potential new source impacts must consider downstream as well as local effects.

Policies to prevent significant degradation of water quality will necessarily impact on land use planning. Water quality control policies must be developed and reviewed in a larger context to assure that water quality will be protected in a manner consistent with the overall projections and goals of the State.

A.3. Toxic Effluent Standards.

Strategic Guidance

By section 307(a) EPA is required to set effluent standards which will end the discharge into waters of toxic pollutants in toxic amounts. This has been interpreted as essentially an environmental and not an economic mandate, and the effluent standards which will result are so oriented. Toxic effluent standards are based on receiving water quality rather than available control technology. They typically consider the physical, chemical, and biological parameters which are to be protected, the assimilative capacity of the receiving water in terms of these parameters, and the ambient improvements to be derived.

The list of toxic pollutants for which effluent standards are promulgated is dynamic. To the initial list of nine pollutants others will be added, as the following criteria are satisfied: 1) data from laboratory or field studies indicate that a pollutant could constitute a serious environmental threat if discharged into water (these would include data on bioaccumulation, teratogenicity, mutagenicity, carcinogenicity, and high acute toxicity), 2) the pollutant is discharged, or has the potential of being discharged, from point sources, 3) data are available to establish effluent standards meeting the requirements of the Act, and 4) standards-setting under section 307(a) is appropriate because the prospective timing and effectiveness of abatement actions under other provisions of the Act are not commensurate with the seriousness of the problems identified by the above criteria.

For a toxic pollutant, the standards-setting methodology will begin with the determination of a concentration safe from undesirable effects (equivalent to the water quality criterion for that pollutant). If such a level cannot be established the effluent standard will be set or no discharge. If such a level can be established, then a model ecosystem will be constructed to find the particular limiting concentration for the most sensitive species that is considered important and which can be adversely affected. In some cases this may be an aquatic organism; in others, through bioaccumulation or

exposure, it may be man. Each toxic standard will be expressed as a maximum allowable concentration, based on acute effects, and as a maximum allowable daily amount, based on chronic effects and the dilution characteristics of the water body on which a discharger is located.

Toxic effluent standards will apply to the significant classes of toxic pollutant dischargers-sources which are also covered by municipal and industrial guidelines. Toxic standards will bear no necessary relation to the removal levels of the other standards, because they are conceived on a different methodological basis (environmental damage vs. economic feasibility). Toxic standards will have uniformly stricter timetables, however: Congress provides that they be met within a year of final promulgation, as opposed to 1977 for other standards.

Toxic effluent standards, in effect, provide a short-cut to the control of the most dangerous individual pollutants presently being discharged into navigable waters. The legislative history is a record of Congress' concern on this subject, which is borne out by the requirement for a year's compliance with promulgated standards. Toxic effluent standards serve the same function, however, as water quality standards could theoretically serve: both are meant to achieve criteria levels in ambient waters. Water quality standards as an instrument of toxic control still face a variety of problems, including use designations not compatible with the Act's 1983 goals, the absence of toxic criteria from most standards, and technical difficulties in toxic modelling and load allocation. The final relationship for 1983 between toxic effluent standards and water quality standards has not been worked out yet. EPA's strategy will depend in part on the resolution of these issues.

Approach

Step 1 - EPA promulgated the following initial list of toxic pollutants on September 7, 1973:

Aldrin-Dieldrin
Benzidine
Cadmium
Cyanide
DDT (DDD, DDE)
Endrin
Mercury
Polychlorinated Biphenyls
Toxaphene

Step 2 - EPA published proposed effluent standards for materials on the toxic pollutants list on 27 December 1973.

18

Step 3 - EPA will promulgate final toxic effluent standards for initial list by June 1974.

Step 4 - EPA will add materials to the list of toxic pollutants to be controlled by effluent standards as information on effects to substantiate a standard becomes available.

A.4. Thermal Limitations.

The Act treats discharges of heat differently from other pollutants. Control technology-related effluent standards do not necessarily provide the base level of limitations. Moreover, because long lead times are needed for the planning and construction of facilities having major thermal discharge components (principally power plants), longer immunity from other requirements may be provided.

Thermal Effluent Standards.

Guidelines for one of the major sources of thermal effluents--the steam electric power industry--will establish definitions of BPT, BAT, and new source performance standards. These will be consistent with the Administrator's statutory responsibility to identify the degree of effluent reduction attainable by various industries, independent of water quality considerations.

Thermal Water Quality Standards.

Few States currently have water quality standards for temperature that are adequate to assure the 1983 goal of aquatic life protection. Deficiencies exist in some areas because the waters are not classified for aquatic life uses; in others, although the waters are so classified, the established criteria do not provide the necessary level of protection.

Water quality criteria which the Administrator has published pursuant to section 304(a) of the Act address temperature. These are interim criteria: when final, they will supersede EPA's former recommendations contained in the 1968 NTAC Report. Water quality standards which are revised according to the new recommendations will provide more site-specific protection of indigenous populations by determining, for each waterway, the species of fish which should be protected as an indicator of the balanced population. For each species the new criteria list weekly average and maximum temperatures allowable in the summer and reproductive season, and weekly average temperatures for the winter months. Zones of passage beyond any thermal plume or mixing zone must also be determined pursuant to EPA recommendations.

The new thermal criteria recommendations should be integrated into each State's standards at the first review. Standards will be revised according to applicable statutory requirements, including public participation.