

# WASTEWATER RESOURCE MANUAL



Edward Norum  
Editor

WASTEWATER  
RESOURCE  
MANUAL



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## INTRODUCTION

# — SPRINKLER IRRIGATION ASSOCIATION —

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An effort has been made in the development of the Wastewater Resource Manual to provide a concise body of technical information of special value to designers of systems for the spraying of wastewaters and sludges. The outline was structured to cover both the salient legal and technical areas of concern. Since the strength of the Sprinkler Irrigation Association lies in the breadth of actual project experience represented by the membership, the bulk of the material presented reflects this experience. General project design data is presented and a number of actual projects are described. In addition, the Appendix contains a wealth of technical reference material.

The looseleaf format of the Manual is appropriate since it reflects the dynamic nature of the subject matter. The Manual will periodically be expanded with new technical information, descriptions of projects and additional sections.

Land treatment is a viable alternative to conventional treatment and should be seriously considered. It is in harmony with the letter and spirit of Public Law 92-500. It is an idea whose time has come. We hope the Manual makes a major contribution toward establishing the Sprinkler Irrigation Association as a significant source of practical information in the area of land treatment of wastewaters.

A handwritten signature in cursive script, reading 'Edward M. Norum', is positioned above the printed name and title.

Edward M. Norum, Editor  
Wastewater Resource Manual



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**LEGAL**  
**TECHNICAL ASPECTS**





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FEDERAL PROGRAMS AND LEGISLATION  
GOVERNING THE LAND TREATMENT OF  
WASTEWATER

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From the first water pollution control act of 1889 to Public Law 92-500 enacted October 18, 1972, is a long step in time but more important for the efficient use of the Nation's water resources a long step in the philosophy of resource use. The Rivers and Harbors Act of 1899, among other things, prohibited the dumping or discharge of refuse into navigable waters. Even this limited initial move to control water pollution was for 70 years more attended to by neglect than by enforcement.

Public Law 92-500, on the other hand, not only calls for a complete cleanup of the Nation's waters by 1985 but as one means to this end establishes increased Federal financial assistance for the construction of waste treatment works and sets up the policies for management planning processes and research and demonstration that hopefully will achieve its goals. Public Law 92-500 is today quite appropriately the Bible of Federal Water Pollution Control and those agencies, both State and Federal, that have an interest in or responsibility for water pollution control. Also, it is the major instrument through which states, municipalities, and other public institutions will achieve the necessary means for obtaining financial assistance for planning and constructing waste treatment works.

For the members of the Sprinkler Irrigation Association, Public Law 92-500, for the first time, provides the demand for innovative planning, research, and authority, as well as funds that could result in large-scale utilization of sewage effluent through "land treatment" using various forms of irrigation techniques and equipment. In other words, 92-500 should play an important part in expanding the market for sprinkler and other irrigation equipment in the handling of sewage effluents.

For the people of the United States, in its policy statements and in its implementing provisions as applied to research, planning, and financial aid, and approval of grants for publicly-owned sewage treatment plants, PL 92-500 promises, at least, a more intelligent and constructive use of our so-called "waste waters." For it should be noted here that our waste waters are not waste waters as such but simply another segment of our diminishing water resources. Used properly they can grow crops, timber, and other needed products. As such, they are not wastes but resources in the wrong places.

PL 92-500 recognizes this concept but whether this legislative concept will be carried out by the many people and agencies, both State and Federal, responsible for planning and finally authorizing grants for the treatment works is still an open question which we will touch on later in this chapter.

However, although PL 92-500 of 1972 is appropriately the Bible of present-day water pollution control action, it seems wise in considering its provisions

and its use to point out a few of the major trends that have marked the growth and changes of water pollution control legislation since 1899.

The first of these trends is the increase in breadth of concept from the initial anti-dumping act of 1899 to the series of Federal Water Pollution Acts and continuing amendments to those acts starting, basically, with the Water Pollution Control Act of 1948. This was the first legislation to deal with the broad problem of National water pollution rather than point-to-point pollution by oil or other specific refuse.

But the Act of 1956 went further in calling for "Comprehensive Programs for Water Pollution Control." It enjoined the states and municipalities to join the Federal Government in preparing "comprehensive programs for eliminating or reducing the pollution of interstate waters." The Act states that "due regard shall be given to the improvements which are necessary to conserve such waters for public water supplies, propagation of fish and aquatic life and wildlife, recreational purposes, and agriculture, industrial and other legitimate uses."

In Public Law 91-190 the Congress passed the "National Environmental Policy Act of 1969." Note that by this time the Congress has broadened the language to cover all environmental aspects of water control. In Section 2 the Act states the purposes of this Act are: "To declare a National policy which will encourage productive and enjoyable harmony between man and his environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality."

In this Act under Title I on the "Declaration of National Environmental Policy" the Congress sets forth the responsibility of the Federal Government in carrying forth a series of broad policies and in Section 102 "authorizes and directs that, to the fullest extent possible, (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act and (2) all agencies of the Federal Government shall "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and decision making which may have an impact on man's environment." And moreover the Congress, in this section, says that the "responsible Federal official shall study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."

Thus the federal official is called upon to develop alternative courses of action in the use of resources. As we shall see, this is spelled out in detail in PL 92-500 as it regards "waste water" disposal. But it seems important to note that this responsibility of the Federal Official or Agency does not spring up as a new concept or direction in 1972 but is part of important and basic legislative history.

The final act to date in the broadening of a National policy in water pollution control is PL 92-500 known as the "Federal Water Pollution Control Act Amendments of 1972." This Act not only further broadens the scope of water pollution



control programs, but far beyond all others calls for innovative action in effecting these programs.

We shall deal with 92-500 in detail later in this chapter. At this time we need only point out that it is clear from the above that it is the intent of Congress to have the appropriate Federal Agencies working jointly with municipalities and states to carry out a water pollution control program that will not only control pollution, but through the use of the best alternative methods possible make the most efficient use of all of our resources including waste water.

In considering the above record of Congressional broad intent as well as Congressional directives to the Executive Branch of Government we must pose the question whether the latter is meeting that broad intent in actual practice in the planning, approval, and the allocation of funds for publicly-owned sewage treatment works. This question will be covered in more detail later in our further consideration of PL 92-500.

In addition to the immensely broadened concepts developed in the legislative history of water pollution control two other trends allied to this concept are worth noting. These are Federal agency changes in responsibility and authority to carry out the legislative acts and the financing of planning, research, and treatment works by the Federal Government in cooperation with the states.

With regard to agency responsibility, the first Federal responsibility in the initial Federal Water Pollution Control Act of 1899 fell to the Army Corps of Engineers in pursuing their other responsibilities on navigable streams. As we have already noted, the history of enforcement under the '99 Act is largely that of neglect.

For the next 60 odd years future legislation tied water pollution control almost entirely to public health starting with the Public Health Act of 1912 until the 1956 Act in Section 1 specifically stated that "the Surgeon General of the United States shall administer this Act through the Public Health Service and under the supervision and direction of the Secretary of Health, Education, and Welfare." The Act then directs the Surgeon General to carry out the goals of the Act: "to develop comprehensive programs for water pollution control; to encourage state activity and interstate cooperation; to promote research; to issue federal grants for state planning of water pollution control programs and to make grants for construction of necessary treatment works. And, finally and importantly, to enforce "measures against pollution of interstate waters."

The Water Quality Act of 1965 specifically places the responsibility for carrying out the Act on the shoulders of the Secretary of Health, Education, and Welfare in Section One but in Section Two creates a new agency within HEW, the Federal Water Control Administration, to carry out the Act. We now have the Act at Cabinet Offices level, and for the first time in our pollution control history, a newly-created office, FWPCA. However, the overall administration of the Act did not remain long in HEW since in May 1966, under the Clean Water Act of 1966, the newly-created agency, FWPCA, was transferred to the Secretary of the Interior to be administered under that Department.