THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Legal Compilation

Statutes and Legislative History
Executive Orders
Regulations
Guidelines and Reports

Supplement II
Volume I
Water

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Administrator

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FOREWORD

America's journey to environmental awareness has been a relatively recent one. Not so many years ago Americans were still living under the illusion that a land as vast as ours was blessed with indestructible natural resources and beauty.

We continued the exploitation of those resources and scattered unplanned communities across huge areas of open space. Large amounts of fuel were needed for the autos that took us to work from distant suburbs, and the air became laden with their dense emissions. Pesticides were used indiscriminantly by persons unaware of their effects on the food chain of plants and animals. Our rivers became contaminated with waste from homes and industries. Our landscape was marred by litter.

As the environmentalist movement gained impetus, attention was focused on these matters. Rachael Carson's book, *Silent Spring,* in 1962 awakened Americans to the hazards of pesticides. The oil spills of the Torrey Canyon in 1967 and at Santa Barbara, California in 1969 dramatized another environmental hazard. The first Earth Day on April 20, 1970, a coordinated program of teach-ins across the nation, helped to focus Congressional attention on the strength of the environmental movement.

Congress responded by approving the President's Reorganization Plan No. 3 which expanded the federal commitment to environmental concerns and consolidated 15 Federal organizations under the Environmental Protection Agency.

At the same time, Congress began enacting far-reaching legislation to provide EPA with specific authority for controlling pollution. These measures included the Clean Air Amendments in 1970, and the Federal Water Pollution Control Act Amendments, Federal Environmental Pesticide Control Act, the Noise Control Act, and the Marine Protection, Research and Sanctuaries Act, all in 1972. Congress also passed the Resource Recovery Act in 1970 and extended the Solid Waste Disposal Act in 1973.

As the Agency began taking action under these laws, Americans gradually realized that very real changes were required in our accustomed ways of doing business. We realized that our effort frequently conflicted with powerful and legitimate interests in both the public and private sectors. Our administrative, judicial and political processes now have the task of resolving these conflicts. They must do so by weighing all the interests which are affected in a sensitive and informed manner. Quick access to the legal dimensions of these problems is essential if conflicts are to be efficiently and fairly resolved.

The work of the present day environmentalist is less glamorous than that of four or five years ago, but it is essential if we are

to face the continuing challenge of protecting our fragile and perishable natural resources—and ultimately ourselves—from destruction. I hope you will find this manual helpful as we strive to create a society where we can live and work in harmony with the natural world surrounding us.

Russell E. Train
Administrator
U.S. Environmental Protection Agency

PREFACE

Reorganization Plan No. 3 of 1970 transferred 15 governmental units with their functions and legal authority to create the U.S. Environmental Protection Agency. Since only the major laws were cited in the Plan, it was decided that a compilation of EPA legal authority be researched and published.

The publication has the primary function of providing a working document for the Agency itself. Secondarily, it will serve as a research tool for the public.

It is the hope of EPA that this set will assist in the awesome task of developing a better environment.

LANE R. WARD, J.D.
Office of Executive Secretariat
Office of Administrator
U.S. Environmental Protection Agency

INSTRUCTIONS

The goal of this text is to create a useful compilation of the legal authority under which the U.S. Environmental Protection Agency operates. These documents are for the general use of personnel of the EPA in assisting them in attaining the purposes set out by the President in creating the Agency. This work is not intended and should not be used for legal citations or any use other than as reference of a general nature. The author disclaims all responsibility for liabilities growing out of the use of these materials contrary to their intended purpose. Moreover, it should be noted that portions of the Congressional Record from the 93rd Congress were extracted from the "unofficial" daily version and are subject to subsequent modification.

EPA Legal Compilation consists of the Statutes with their legislative history, Executive Orders, Regulations, Guidelines and Reports. To facilitate the usefulness of this composite, the Legal Compilation is divided into the seven following chapters:

A. General
B. Air
C. Water
D. Solid Waste
E. Pesticides
F. Radiation
G. Noise

SUPPLEMENT II

This edition, labelled "Supplement II," contains the additions to and alterations of EPA legal authority not included in the original set or Supplement I of the EPA Legal Compilation. Therefore, this edition updates the Compilation through the 93rd Congress, First Session.

SUBCHAPTERS

Statutes and Legislative History

For convenience, the Statutes are listed throughout the Compilation by a one-point system, i.e., 1.1, 1.2, 1.3, etc., and Legislative History begins wherever a letter follows the one-point system. Thus, any 1.1a, 1.1b, 1.2a, etc., denotes the public laws com-

prising the 1.1, 1.2 statute. Each public law is followed by its legislative history. The legislative history in each case consists of the House Report, Senate Report, Conference Report (where applicable), the Congressional Record beginning with the time the bill was reported from committee.

Example:

1.4 Amortization of Pollution Control Facilities, as amended, 26 U.S.C. §169 (1969).

1.4a Amortization of Pollution Control Facilities, December 30, 1969, P.L. 91–172, §704, 83 Stat. 667.

(1) House Committee on Ways and Means, H.R. REP. No. 91–413 (Part I), 91st Cong., 1st Sess. (1969).

(2) House Committee on Ways and Means, H.R. REP. No. 91–413 (Part II), 91st Cong., 1st Sess. (1969).

(3) Senate Committee on Finance, S. REP. No. 91–552, 91st Cong., 1st Sess. (1969).

(4) *Committee of Conference*, H.R. REP. No. 91–782, 91st Cong., 1st Sess. (1969).

(5) Congressional Record, Vol. 115 (1969):

(a) Aug. 7: Debated and passed House, pp. 22746, 22774–22775;

(b) Nov. 24, Dec. 5, 8, 9: Debated and passed Senate, pp. 35486, 38321–37322, 37631–37633, 37884–37888;

(c) Dec. 22: Senate agrees to conference report, p. 40718;*

(d) Dec. 22: House debates and agrees to conference report, pp. 40820, 40900.

This example not only demonstrates the pattern followed for legislative history, but indicates the procedure where only one section of a public law appears. You will note that the Congressional Record cited pages are only those pages dealing with the discussion and/or action taken pertinent to the section of law applicable to EPA. In the event there is no discussion of the pertinent section, only action or passage, then the asterisk (*) is used to so indicate, and no text is reprinted in the Compilation. In regard to the situation where only one section of a public law is applicable, then only the parts of the report dealing with that section are printed in the Compilation.

Secondary Statutes

Many statutes make reference to other laws and rather than have this manual serve only for major statutes, these secondary statutes have been included where practical. These secondary statutes are indicated in the table of contents to each chapter by a bracketed cite to the particular section of the major Act which made the reference.

Citations

The United States Code, being the official citation, is used throughout the Statute section of the Compilation. In four Statutes, a parallel table to the Statutes at Large is provided for your convenience.

EXECUTIVE ORDERS

The Executive Orders are listed by a two-point system (2.1, 2.2, etc.).

REGULATIONS

The Regulations are noted by a three-point system (3.1, 3.2, etc.). Included in the Regulations are those not only promulgated by the Environmental Protection Agency, but those under which the Agency has direct contact.

GUIDELINES AND REPORTS

This subchapter is noted by a four-point system (4.1, 4.2, etc.). In this subchapter is found the statutorily required reports of EPA, published guidelines of EPA, selected reports other than EPA's and interdepartmental agreements of note.

UPDATING

Periodically, a supplement will be sent to the interagency distribution and made available through the U.S. Government Printing Office in order to provide a current and accurate working set of EPA Legal Compilation.

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SUBCHAPTER I—RESEARCH AND RELATED PROGRAMS

§ 1251. Congressional declaration of goals and policy

(a) The objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In order to achieve this objective it is hereby declared that, consistent with the provisions of this chapter—

(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;

(2) it is the national goal 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;

(3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;

(4) it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;

(5) it is the national policy that areawide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State; and

(6) it is the national policy that a major research and demonstration effort be made to develop technology neces-

sary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and the oceans.

(b) 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, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this chapter. It is further the policy of the Congress to support and aid research relating to the prevention, reduction, and elimination of pollution, and to provide Federal technical services and financial aid to State and interstate agencies and municipalities in connection with the prevention, reduction, and elimination of pollution.

(c) It is further the policy of Congress that the President, acting through the Secretary of State and such national and international organizations as he determines appropriate, shall take such action as may be necessary to insure that to the fullest extent possible all foreign countries shall take meaningful action for the prevention, reduction, and elimination of pollution in their waters and in international waters and for the achievement of goals regarding the elimination of discharge of pollutants and the improvement of water quality to at least the same extent as the United States does under its laws.

(d) Except as otherwise expressly provided in this chapter, the Administrator of the Environmental Protection Agency (hereinafter in this chapter called "Administrator") shall administer this chapter.

(e) Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this chapter shall be provided for, encouraged, and assisted by the Administrator and the States. The Administrator, in cooperation with the States, shall develop and publish regulations specifying minimum guidelines for public participation in such processes.

(f) It is the national policy that to the maximum extent possible the procedures utilized for implementing this chapter shall encourage the drastic minimization of paperwork and interagency decision procedures, and the best use of available manpower and funds, so as to prevent needless duplication and unnecessary delays at all levels of government.

June 30, 1948, c. 758, Title I, § 10, as added Oct. 18, 972, Pub.L. 92–500, § 2, 86 Stat. 816.

§ 1252. Comprehensive programs for water pollution control

(a) The Administrator shall, after careful investigation, and in cooperation with other Federal agencies, State water pollution control agencies, interstate agencies, and the municipalities and industries involved, prepare or develop comprehensive programs for preventing, reducing, or eliminating the pollution of the navigable waters and ground waters and improving the sanitary condition of surface and underground waters. In the development of such comprehensive programs due regard shall be given to the improvements which are necessary to conserve such waters for the protection and propagation of fish and aquatic life and wildlife, recreational purposes, and the withdrawal of such waters for public water supply, agricultural, industrial, and other purposes. For the purpose of this section, the Administrator is authorized to make joint investigations with any such agencies of the condition of any waters in any State or States, and of the discharges of any sewage, industrial wastes, or substance which may adversely affect such waters.

(b) (1) In the survey or planning of any reservoir by the Corps of Engineers, Bureau of Reclamation, or other Federal agency, consideration shall be given to inclusion of storage for regulation of streamflow, except that any such storage and water releases shall not be provided as a substitute for adequate treatment or other methods of controlling waste at the source.

(2) The need for and the value of storage for regulation of streamflow (other than for water quality) including but not limited to navigation, salt water intrusion, recreation, esthetics, and fish and wildlife, shall be determined by the Corps of Engineers, Bureau of Reclamation, or other Federal agencies.

(3) The need for, the value of, and the impact of, storage for water quality control shall be determined by the Administrator, and his views on these matters shall be set forth in any report or presentation to Congress proposing authorization or construction of any reservoir including such storage.

(4) The value of such storage shall be taken into account in determining the economic value of the entire project of which it is a part, and costs shall be allocated to the purpose of regulation of streamflow in a manner which will insure that all project purposes share equitably in the benefits of multiple-purpose construction.

(5) Costs of regulation of streamflow features incorporated in any Federal reservoir or other impoundment under the provisions of this chapter shall be determined and the beneficiaries identi-

fied and if the benefits are widespread or national in scope, the costs of such features shall be nonreimbursable.

(6) No license granted by the Federal Power Commission for a hydroelectric power project shall include storage for regulation of streamflow for the purpose of water quality control unless the Administrator shall recommend its inclusion and such reservoir storage capacity shall not exceed such proportion of the total storage required for the water quality control plan as the drainage area of such reservoir bears to the drainage area of the river basin or basins involved in such water quality control plan.

(c) (1) The Administrator shall, at the request of the Governor of a State, or a majority of the Governors when more than one State is involved, make a grant to pay not to exceed 50 per centum of the administrative expenses of a planning agency for a period not to exceed three years, which period shall begin after October 18, 1972, if such agency provides for adequate representation of appropriate State, interstate, local, or (when appropriate) international interests in the basin or portion thereof involved and is capable of developing an effective, comprehensive water quality control plan for a basin or portion thereof.

(2) Each planning agency receiving a grant under this subsection shall develop a comprehensive pollution control plan for the basin or portion thereof which—

(A) is consistent with any applicable water quality standards, effluent and other limitations, and thermal discharge regulations established pursuant to current law within the basin;

(B) recommends such treatment works as will provide the most effective and economical means of collection, storage, treatment, and elimination of pollutants and recommends means to encourage both municipal and industrial use of such works;

(C) recommends maintenance and improvement of water quality within the basin or portion thereof and recommends methods of adequately financing these facilities as may be necessary to implement the plan; and

(D) as appropriate, is developed in cooperation with, and is consistent with any comprehensive plan prepared by the Water Resources Council, any areawide waste management plans developed pursuant to section 1288 of this title, and any State plan developed pursuant to section 1313(e) of this title.

(3) For the purposes of this subsection the term "basin" in-

cludes, but is not limited to, rivers and their tributaries, streams, coastal waters, sounds, estuaries, bays, lakes, and portions thereof, as well as the lands drained thereby.

June 30, 1948, c. 758, Title I, § 102, as added Oct. 18, 1972, Pub.L. 92–500, § 2,86 Stat. 817.

§ 1253. Interstate cooperation and uniform laws

(a) The Administrator shall encourage cooperative activities by the States for the prevention, reduction, and elimination of pollution, encourage the enactment of improved and, so far as practicable, uniform State laws relating to the prevention, reduction, and elimination of pollution; and encourage compacts between States for the prevention and control of pollution.

(b) The consent of the Congress is hereby given to two or more States to negotiate and enter into agreements or compacts, not in conflict with any law or treaty of the United States, for (1) cooperative effort and mutual assistance for the prevention and control of pollution and the enforcement of their respective laws relating thereto, and (2) the establishment of such agencies, joint or otherwise, as they may deem desirable for making effective such agreements and compacts. No such agreement or compact shall be binding or obligatory upon any State a party thereto unless and until it has been approved by the Congress.

June 30, 1948, c. 758, Title I, § 103, as added Oct. 18, 1972, Pub.L. 92–500, § 2,86 Stat. 818.

§ 1254. Research, investigations, training, and information—Establishment of national programs; cooperation; investigations; water quality surveillance system; reports

(a) The Administrator shall establish national programs for the prevention, reduction, and elimination of pollution and as part of such programs shall—

(1) in cooperation with other Federal, State, and local agencies, conduct and promote the coordination and acceleration of, research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, reduction, and elimination of pollution;

(2) encourage, cooperate with, and render technical services to pollution control agencies and other appropriate public or private agencies, institutions, and organizations, and individuals, including the general public, in the conduct of activities referred to in paragraph (1) of this subsection;

(3) conduct, in cooperation with State water pollution control agencies and other interested agencies, organizations and persons, public investigations concerning the pollution of any navigable waters, and report on the results of such investigations;

(4) establish advisory committees composed of recognized experts in various aspects of pollution and representatives of the public to assist in the examination and evaluation of research progress and proposals and to avoid duplication of research;

(5) in cooperation with the States, and their political subdivisions, and other Federal agencies establish, equip, and maintain a water quality surveillance system for the purpose of monitoring the quality of the navigable waters and ground waters and the contiguous zone and the oceans and the Administrator shall, to the extent practicable, conduct such surveillance by utilizing the resources of the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the Geological Survey, and the Coast Guard, and shall report on such quality in the report required under subsection (a) of section 1375 of this title; and

(6) initiate and promote the coordination and acceleration of research designed to develop the most effective practicable tools and techniques for measuring the social and economic costs and benefits of activities which are subject to regulation under this chapter; and shall transmit a report on the results of such research to the Congress not later than January 1, 1974.

Authorized activities of Administrator

(b) In carrying out the provisions of subsection (a) of this section the Administrator is authorized to—

(1) collect and make available, through publications and other appropriate means, the results of and other information, including appropriate recommendations by him in connection therewith, pertaining to such research and other activities referred to in paragraph (1) of subsection (a) of this section;

(2) cooperate with other Federal departments and agencies, State water pollution control agencies, interstate agencies, other public and private agencies, institutions, organizations, industries involved, and individuals, in the preparation

and conduct of such research and other activities referred to in paragraph (1) of subsection (a) of this section;

(3) make grants to State water pollution control agencies, interstate agencies, other public or nonprofit private agencies, institutions, organizations, and individuals, for purposes stated in paragraph (1) of subsection (a) of this section;

(4) contract with public or private agencies, institutions, organizations, and individuals, without regard to section 529 of Title 31 and section 5 of Title 41, referred to in paragraph (1) of subsection (a) of this section;

(5) establish and maintain research fellowships at public or nonprofit private educational institutions or research organizations;

(6) collect and disseminate, in cooperation with other Federal departments and agencies, and with other public or private agencies, institutions, and organizations having related responsibilities, basic data on chemical, physical, and biological effects of varying water quality and other information pertaining to pollution and the prevention, reduction, and elimination thereof; and

(7) develop effective and practical processes, methods, and prototype devices for the prevention, reduction, and elimination of pollution.

Research and studies on harmful effects of pollutants; cooperation with Secretary of Health, Education, and Welfare

(c) In carrying out the provisions of subsection (a) of this section the Administrator shall conduct research on, and survey the results of other scientific studies on, the harmful effects on the health or welfare of persons caused by pollutants. In order to avoid duplication of effort, the Administrator shall, to the extent practicable, conduct such research in cooperation with and through the facilities of the Secretary of Health, Education, and Welfare.

Sewage treatment; identification and measurement of effects of pollutants; augmented streamflow

(d) In carrying out the provisions of this section the Administrator shall develop and demonstrate under varied conditions (including conducting such basic and applied research, studies, and experiments as may be necessary):

(1) Practicable means of treating municipal sewage, and

other waterborne wastes to implement the requirements of section 1281 of this title;

(2) Improved methods and procedures to identify and measure the effects of pollutants, including those pollutants created by new technological developments; and

(3) Methods and procedures for evaluating the effects on water quality of augmented streamflows to control pollution not susceptible to other means of prevention, reduction, or elimination.

Field laboratory and research facilities

(e) The Administrator shall establish, equip, and maintain field laboratory and research facilities, including, but not limited to, one to be located in the northeastern area of the United States, one in the Middle Atlantic area, one in the southeastern area, one in the midwestern area, one in the southwestern area, one in the Pacific Northwest, and one in the State of Alaska, for the conduct of research, investigations, experiments, field demonstrations and studies, and training relating to the prevention, reduction and elimination of pollution. Insofar as practicable, each such facility shall be located near institutions of higher learning in which graduate training in such research might be carried out. In conjunction with the development of criteria under section 1343 of this title, the Administrator shall construct the facilities authorized for the National Marine Water Quality Laboratory established under this subsection.

Great Lakes water quality research

(f) The Administrator shall conduct research and technical development work, and make studies, with respect to the quality of the waters of the Great Lakes, including an analysis of the present and projected future water quality of the Great Lakes under varying conditions of waste treatment and disposal, an evaluation of the water quality needs of those to be served by such waters, an evaluation of municipal, industrial, and vessel waste treatment and disposal practices with respect to such waters, and a study of alternate means of solving pollution problems (including additional waste treatment measures) with respect to such waters.

Treatment works pilot training programs; employment needs forecasting; training projects and grants; research fellowships; technical training; report to the President and transmittal to Congress

(g) (1) For the purpose of providing an adequate supply of

trained personnel to operate and maintain existing and future treatment works and related activities, and for the purpose of enhancing substantially the proficiency of those engaged in such activities, the Administrator shall finance pilot programs, in cooperation with State and interstate agencies, municipalities, educational institutions, and other organizations and individuals, of manpower development and training and retraining of persons in, on entering into, the field of operation and maintenance of treatment works and related activities. Such program and any funds expended for such a program shall supplement, not supplant, other manpower and training programs and funds available for the purposes of this paragraph. The Administrator is authorized, under such terms and conditions as he deems appropriate, to enter into agreements with one or more States, acting jointly or severally, or with other public or private agencies or institutions for the development and implementation of such a program.

(2) The Administrator is authorized to enter into agreements with public and private agencies and institutions, and individuals to develop and maintain an effective system for forecasting the supply of, and demand for, various professional and other occupational categories needed for the prevention, reduction, and elimination of pollution in each region, State, or area of the United States and, from time to time, to publish the results of such forecasts.

(3) In furtherance of the purposes of this chapter, the Administrator is authorized to—

(A) make grants to public or private agencies and institutions and to individuals for training projects, and provide for the conduct of training by contract with public or private agencies and institutions and with individuals without regard to section 529 of Title 31 and section 5 of Title 41;

(B) establish and maintain research fellowships in the Environmental Protection Agency with such stipends and allowances, including traveling and subsistence expenses, as he may deem necessary to procure the assistance of the most promising research fellows; and

(C) provide, in addition to the program established under paragraph (1) of this subsection, training in technical matters relating to the causes, prevention, reduction, and elimination of pollution for personnel of public agencies and other persons with suitable qualifications.

(4) The Administrator shall submit, through the President, a report to the Congress not later than December 31, 1973, summarizing the actions taken under this subsection and the effectiveness of such actions, and setting forth the number of persons trained, the occupational categories for which training was provided, the effectiveness of other Federal, State, and local training programs in this field, together with estimates of future needs, recommendations on improving training programs, and such other information and recommendations, including legislative recommendations, as he deems appropriate.

Lake pollution

(h) The Administrator is authorized to enter into contracts with, or make grants to, public or private agencies and organizations and individuals for (A) the purpose of developing and demonstrating new or improved methods for the prevention, removal, reduction, and elimination of pollution in lakes, including the undesirable effects of nutrients and vegetation, and (B) the construction of publicly owned research facilities for such purpose.

Oil pollution control studies

(i) The Administrator, in cooperation with the Secretary of the department in which the Coast Guard is operating, shall—

(1) engage in such research, studies, experiments, and demonstrations as he deems appropriate, relative to the removal of oil from any waters and to the prevention, control, and elimation of oil and hazardous substances pollution;

(2) publish from time to time the results of such activities; and

(3) from time to time, develop and publish in the Federal Register specifications and other technical information on the various chemical compounds used in the control of oil and hazardous substances spills.

In carrying out this subsection, the Administrator may enter into contracts with, or make grants to, public or private agencies and organizations and individuals.

Solid waste disposal equipment for vessels

(j) The Secretary of the department in which the Coast Guard is operating shall engage in such research, studies, experiments, and demonstrations as he deems appropriate relative

to equipment which is to be installed on board a vessel and is designed to receive, retain, treat, or discharge human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes with particular emphasis on equipment to be installed on small recreational vessels. The Secretary of the department in which the Coast Guard is operating shall report to Congress the results of such research, studies, experiments, and demonstrations prior to the effective date of any regulations established under section 1322 of this title. In carrying out this subsection the Secretary of the department in which the Coast Guard is operating may enter into contracts with, or make grants to, public or private organizations and individuals.

Land acquisition

(k) In carrying out the provisions of this section relating to the conduct by the Administrator of demonstration projects and the development of field laboratories and research facilities, the Administrator may acquire land and interest therein by purchase, with appropriated or donated funds, by donation, or by exchange for acquired or public lands under his jurisdiction which he classifies as suitable for disposition. The values of the properties so exchanged either shall be approximately equal, or if they are not approximately equal, the values shall be equalized by the payment of cash to the grantor or to the Administrator as the circumstances require.

Collection and dissemination of scientific knowledge on effects and control of pesticides in water

(l) (1) The Administrator shall, after consultation with appropriate local, State, and Federal agencies, public and private organizations, and interested individuals, as soon as practicable but not later than January 1, 1973, develop and issue to the States for the purpose of carrying out this chapter the latest scientific knowledge available in indicating the kind and extent of effects on health and welfare which may be expected from the presence of pesticides in the water in varying quantities. He shall revise and add to such information whenever necessary to reflect developing scientific knowledge.

(2) The President shall, in consultation with appropriate local, State, and Federal agencies, public and private organizations, and interested individuals, conduct studies and investigations of methods to control the release of pesticides into the environment which study shall include examination of the per-

sistency of pesticides in the water environment and alternatives thereto. The President shall submit reports, from time to time, on such investigations to Congress together with his recommendations for any necessary legislation.

Waste oil disposal study

(m) (1) The Administrator shall, in an effort to prevent degradation of the environment from the disposal of waste oil, conduct a study of (A) the generation of used engine, machine, cooling, and similar waste oil, including quantities generated, the nature and quality of such oil, present collecting methods and disposal practices, and alternate uses of such oil; (B) the long-term, chronic biological effects of the disposal of such waste oil; and (C) the potential market for such oils, including the economic and legal factors relating to the sale of products made from such oils, the level of subsidy, if any, needed to encourage the purchase by public and private nonprofit agencies of products from such oil, and the practicability of Federal procurement, on a priority basis, of products made from such oil. In conducting such study, the Administrator shall consult with affected industries and other persons.

(2) The Administrator shall report the preliminary results of such study to Congress within six months after October 18, 1972, and shall submit a final report to Congress within 18 months after such date.

Comprehensive studies of effects of pollution on estuaries and estuarine zones; reports

(n) (1) The Administrator shall, in cooperation with the Secretary of the Army, the Secretary of Agriculture, the Water Resources Council, and with other appropriate Federal, State, interstate, or local public bodies and private organizations, institutions, and individuals, conduct and promote, and encourage contributions to, continuing comprehensive studies of the effects of pollution, including sedimentation, in the estuaries and estuarine zones of the United States on fish and wildlife, on sport and commercial fishing, on recreation, on water supply and water power, and on other beneficial purposes. Such studies shall also consider the effect of demographic trends, the exploitation of mineral resources and fossil fuels, land and industrial development, navigation, flood and erosion control, and other uses of estuaries and estuarine zones upon the pollution of the waters therein.

(2) In conducting such studies, the Administrator shall assemble, coordinate, and organize all existing pertinent information on the Nation's estuaries and estuarine zones; carry out a program of investigations and surveys to supplement existing information in representative estuaries and estuarine zones; and identify the problems and areas where further research and study are required.

(3) The Administrator shall submit to Congress, from time to time, reports of the studies authorized by this subsection but at least one such report during any three year period. Copies of each such report shall be made available at all interested parties, public and private.

(4) For the purpose of this subsection, the term "estuarine zones" means an environmental system consisting of an estuary and those transitional areas which are consistently influenced or affected by water from an estuary such as, but not limited to, salt marshes, coastal and intertidal areas, bays, harbors, lagoons, inshore waters, and channels, and the term "estuary" means all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with open sea and within which the sea water is measurably diluted with fresh water derived from land drainage.

Methods of reducing total flow of sewage and unnecessary water consumption; reports

(o) (1) The Administrator shall conduct research and investigations on devices, systems, incentives, pricing policy, and other methods of reducing the total flow of sewage, including, but not limited to, unnecessary water consumption in order to reduce the requirements for, and the costs of, sewage and waste treatment services. Such research and investigations shall be directed to develop devices, systems, policies, and methods capable of achieving the maximum reduction of unnecessary water consumption.

(2) The Administrator shall report the preliminary results of such studies and investigations to the Congress within one year after October 18, 1972, and annually thereafter in the report required under subsection (a) of section 1375 of this title. Such report shall include recommendations for any legislation that may be required to provide for the adoption and use of devices, systems, policies, or other methods of reducing water consumption and reducing the total flow of sewage. Such report shall include an estimate of the benefits to be derived from adoption and use of such devices, systems, policies, or other

methods and also shall reflect estimates of any increase in private, public, or other cost that would be occasioned thereby.

Agricultural pollution

(p) In carrying out the provisions of subsection (a) of this section the Administrator shall, in cooperation with the Secretary of Agriculture, other Federal agencies, and the States, carry out a comprehensive study and research program to determine new and improved methods and the better application of existing methods of preventing, reducing, and eliminating pollution from agriculture, including the legal, economic, and other implications of the use of such methods.

Sewage in rural areas

(q) (1) The Administrator shall conduct a comprehensive program of research and investigation and pilot project implementation into new and improved methods of preventing, reducing, storing, collecting, treating, or otherwise eliminating pollution from sewage in rural and other areas where collection of sewage in conventional, community-wide sewage collection systems is impractical, uneconomical, or otherwise infeasible, or where soil conditions or other factors preclude the use of septic tank and drainage field systems.

(2) The Administrator shall conduct a comprehensive program of research and investigation and pilot project implementation into new and improved methods for the collection and treatment of sewage and other liquid wastes combined with the treatment and disposal of solid wastes.

Research grants to colleges and universities

(r) The Administrator is authorized to make grants to colleges and universities to conduct basic research into the structure and function of fresh water[1] aquatic ecosystems, and to improve understanding of the ecological characteristics necessary to the maintenance of the chemical, physical, and biological integrity of freshwater[1] aquatic ecosystems.

River Study Centers

(s) The Administrator is authorized to make grants to one or more institutions of higher education (regionally located and to be designated as "River Study Centers") for the purpose of conducting and reporting on interdisciplinary studies on the na-

ture of river systems, including hydrology, biology, ecology, economics, the relationship between river uses and land uses, and the effects of development within river basins on river systems and on the value of water resources and water related activities. No such grant in any fiscal year shall exceed $1,000,000.

Thermal discharges

(t) The Administrator shall, in cooperation with State and Federal agencies and public and private organizations, conduct continuing comprehensive studies of the effects and methods of control of thermal discharges. In evaluating alternative methods of control the studies shall consider (1) such data as are available on the latest available technology, economic feasibility including cost-effectiveness analysis, and (2) the total impact on the environment, considering not only water quality but also air quality, land use, and effective utilization and conservation of fresh water and other natural resources. Such studies shall consider methods of minimizing adverse effects and maximizing beneficial effects of thermal discharges. The results of these studies shall be reported by the Administrator as soon as practicable, but not later than 270 days after October 18, 1972, and shall be made available to the public and the States, and considered as they become available by the Administrator in carrying out section 1326 of this title and by the States in proposing thermal water quality standards.

Authorization of appropriations

(u) There is authorized to be appropriated (1) $100,000,000 per fiscal year for the fiscal year ending June 30, 1973, and the fiscal year ending June 30, 1974, for carrying out the provisions of this section other than subsections (g) (1) and (2), (p), (r), and (t) of this section; (2) not to exceed $7,500,000 for fiscal years 1973 and 1974 for carrying out the provisions of subsection (g) (1) of this section; (3) not to exceed $2,500,000 for fiscal year 1973 for carrying out the provisions of subsection (g) (2) of this section; (4) not to exceed $10,000,000 for each of the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (p) of this section; (5) not to exceed $15,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (r) of this section; and (6) not to exceed $10,000,000 per fiscal year for the fiscal

years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (t) of this section.
June 30, 1948, c. 758, Title I, § 104, as added Oct. 18, 1972, Pub. L. 92–500, § 2, 86 Stat. 819, and amended Dec. 28, 1973, Pub. L. 93–207, § 1 (1), 87 Stat. 906.

§ 1255. Grants for research and development—Demonstration projects covering storm waters, advanced waste treatment and water purification methods, and joint treatment systems for municipal and industrial wastes

(a) The Administrator is authorized to conduct in the Environmental Protection Agency, and to make grants to any State, municipality, or intermunicipal or interstate agency for the purpose of assisting in the development of—

(1) any project which will demonstrate a new or improved method of preventing, reducing, and eliminating the discharge into any waters of pollutants from sewers which carry storm water or both storm water and pollutants; or

(2) any project which will demonstrate advanced waste treatment and water purification methods (including the temporary use of new or improved chemical additives which provide substantial immediate improvement to existing treatment processes), or new or improved methods of joint treatment systems for municipal and industrial wastes;

and to include in such grants such amounts as are necessary for the purpose of reports, plans, and specifications in connection therewith.

Demonstration projects for advanced treatment and environmental enhancement techniques to control pollution in river basins

(b) The Administrator is authorized to make grants to any State or States or interstate agency to demonstrate, in river basins or portions thereof, advanced treatment and environmental enhancement techniques to control pollution from all sources, within such basins or portions thereof, including nonpoint sources, together with in-stream [1] water quality improvement techniques.

Research and demonstration projects for prevention of water pollution by industry

(c) In order to carry out the purposes of section 1311 of this title, the Administrator is authorized to (1) conduct in

[1] So in original.

the Environmental Protection Agency, (2) make grants to persons, and (3) enter into contracts with persons, for research and demonstration projects for prevention of pollution of any waters by industry including, but not limited to, the prevention, reduction, and elimination of the discharge of pollutants. No grant shall be made for any project under this subsection unless the Administrator determines that such project will develop or demonstrate a new or improved method of treating industrial wastes or otherwise prevent pollution by industry, which method shall have industrywide application.

Accelerated and priority development of waste management and waste treatment methods and identification and measurement methods

(d) In carrying out the provisions of this section, the Administrator shall conduct, on a priority basis, an accelerated effort to develop, refine, and achieve practical application of:

(1) waste management methods applicable to point and nonpoint sources of pollutants to eliminate the discharge of pollutants, including, but not limited to, elimination of runoff of pollutants and the effects of pollutants from in-place or accumulated sources;

(2) advanced waste treatment methods applicable to point and nonpoint sources, including in-place or accumulated sources of pollutants, and methods for reclaiming and recycling water and confining pollutants so they will not migrate to cause water or other environmental pollution; and

(3) improved methods and procedures to identify and measure the effects of pollutants on the chemical, physical, and biological integrity of water, including those pollutants created by new technological developments.

Research and demonstration projects covering agricultural pollution and pollution from sewage in rural areas; dissemination of information

(e) (1) The Administrator is authorized to (A) make, in consultation with the Secretary of Agriculture, grants to persons for research and demonstration projects with respect to new and improved methods of preventing, reducing, and eliminating pollution from agriculture, and (B) disseminate, in cooperation with the Secretary of Agriculture, such information obtained under this subsection, section 1254(p) of this title, and section 1314 of this title, as will encourage and enable the adoption of such methods in the agricultural industry.

(2) The Administrator is authorized, (A) in consultation with

other interested Federal agencies, to make grants for demonstration projects with respect to new and improved methods of preventing, reducing, storing, collecting, treating, or otherwise eliminating pollution from sewage in rural and other areas where collection of sewage in conventional, community-wide sewage collection systems is impractical, uneconomical, or otherwise infeasible, or where soil conditions or other factors preclude the use of septic tank and drainage field systems, and (B) in cooperation with other interested Federal and State agencies, to disseminate such information obtained under this subsection as will encourage and enable the adoption of new and improved methods developed pursuant to this subsection.

Limitations

(f) Federal grants under subsection (a) of this section shall be subject to the following limitations:

(1) No grant shall be made for any project unless such project shall have been approved by the appropriate State water pollution control agency or agencies and by the Administrator;

(2) No grant shall be made for any project in an amount exceeding 75 per centum of cost thereof as determined by the Administrator; and

(3) No grant shall be made for any project unless the Administrator determines that such project will serve as a useful demonstration for the purpose set forth in clause (1) or (2) of subsection (a) of this section.

Maximum grants

(g) Federal grants under subsections (c) and (d) of this section shall not exceed 75 per centum of the cost of the project.

Authorization of appropriations

(h) For the purpose of this section there is authorized to be appropriated $75,000,000 per fiscal year for the fiscal year ending June 30, 1973, and the fiscal year ending June 30, 1974, and from such appropriations at least 10 per centum of the funds actually appropriated in each fiscal year shall be available only for the purposes of subsection (e) of this section.

June 30, 1948, c. 758, Title I, § 105, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 825.

' So in original.

§ 1256. Grants for pollution control programs—Authorization of appropriations for State and interstate programs

(a) There are hereby authorized to be appropriated the following sums, to remain available until expended, to carry out the purposes of this section—

(1) $60,000,000 for the fiscal year ending June 30, 1973; and

(2) $75,000,000 for the fiscal year ending June 30, 1974; for grants to States and to interstate agencies to assist them in administering programs for the prevention, reduction, and elimination of pollution, including enforcement directly or through appropriate State law enforcement officers or agencies.

Allotments

(b) From the sums appropriated in any fiscal year, the Administrator shall make allotments to the several States and interstate agencies in accordance with regulations promulgated by him on the basis of the extent of the pollution problem in the respective States.

Maximum annual payments

(c) The Administrator is authorized by pay to each State and interstate agency each fiscal year either—

(1) the allotment of such State or agency for such fiscal year under subsection (b) of this section, or

(2) the reasonable costs as determined by the Administrator of developing and carrying out a pollution program by such State or agency during such fiscal year,

whichever amount is the lesser.

Limitations

(d) No grant shall be made under this section to any State or interstate agency for any fiscal year when the expenditure of non-Federal funds by such State or interstate agency during such fiscal year for the recurrent expenses of carrying out its pollution control program are less than the expenditure by each State or interstate agency of non-Federal funds for such recurrent program expenses during the fiscal year ending June 30, 1971.

Grants prohibited to states not establishing water quality monitoring procedures or adequate emergency and contingency plans

(e) Beginning in fiscal year 1974 the Administrator shall

not make any grant under this section to any State which has not provided or is not carrying out as a part of its program—

(1) the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, and to compile and analyze data on (including classification according to eutrophic condition), the quality of navigable waters and to the extent practicable, ground waters including biological monitoring; and provision for annually updating such data and including it in the report required under section 1315 of this title;

(2) authority comparable to that in section 1364 of this title and adequate contingency plans to implement such authority.

Conditions

(f) Grants shall be made under this section on condition that—

(1) Such State (or interstate agency) files with the Administrator within one hundred and twenty days after October 18, 1972:

(A) a summary report of the current status of the State pollution control program, including the criteria used by the State in determining priority of treatment works; and

(B) such additional information, data, and reports as the Administrator may require.

(2) No federally assumed enforcement as defined in section 1319 (a) (2) of this title is in effect with respect to such State or interstate agency.

(3) Such State (or interstate agency) submits within one hundred and twenty days after October 18, 1972, and before July 1 of each year thereafter for the Administrator's approval its program for the prevention, reduction, and elimination of pollution in accordance with purposes and provisions of this chapter in such form and content as the Administrator may prescribe.

Reallotment of unpaid allotments

(g) Any sums alloted under subsection (b) of this section in any fiscal year which are not paid shall be reallotted by the Administrator in accordance with regulations promulgated by him.

June 30, 1948, c. 758, Title I, § 106, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 827.

§ 1257. Mine water pollution control demonstrations—Comprehensive approaches to elimination or control of mine water pollution

(a) The Administrator in cooperation with the Appalachian Regional Commission and other Federal agencies is authorized to conduct, to make grants for, or to contract for, projects to demonstrate comprehensive approaches to the elimination or control of acid or other mine water pollution resulting from active or abandoned mining operations and other environmental pollution affecting water quality within all or part of a watershed or river basin, including siltation from surface mining. Such projects shall demonstrate the engineering and economic feasibility and practicality of various abatement techniques which will contribute substantially to effective and practical methods of acid or other mine water pollution elimination or control, and other pollution affecting water quality, including techniques that demonstrate the engineering and economic feasibility and practicality of using sewage sludge materials and other municipal wastes to diminish or prevent pollution affecting water quality from acid, sedimentation, or other pollutants and in such projects to restore affected lands to usefulness for forestry, agriculture, recreation, or other beneficial purposes.

Consistency of projects with objectives of Appalachian Regional Development Act of 1965

(b) Prior to undertaking any demonstration project under this section in the Appalachian region (as defined in section 403 of the Appalachian Regional Development Act of 1965, as amended), the Appalachian Regional Commission shall determine that such demonstration project is consistent with the objectives of the Appalachian Regional Development Act of 1965, as amended.

Watershed selection

(c) The Administrator, in selecting watersheds for the purposes of this section, shall be satisfied that the project area will not be affected adversely by the influx of acid or other mine water pollution from nearby sources.

Conditions upon Federal participation

(d) Federal participation in such projects shall be subject to the conditions—

(1) that the State shall acquire any land or interests therein necessary for such project; and

(2) that the State shall provide legal and practical protection to the project area to insure against any activities which will cause future acid or other mine water pollution.

Authorization of appropriations

(e) There is authorized to be appropriated $30,000,000 to carry out the provisions of this section, which sum shall be available until expended.

June 30, 1948, c. 758, Title I, § 107, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 828.

§ 1258. Pollution control in the Great Lakes—Demonstration projects

(a) The Administrator, in cooperation with other Federal departments, agencies, and instrumentalities is authorized to enter into agreements with any State, political subdivision, interstate agency, or other public agency, or combination thereof, to carry out one or more projects to demonstrate new methods and techniques and to develop preliminary plans for the elimination or control of pollution, within all or any part of the watersheds of the Great Lakes. Such projects shall demonstrate the engineering and economic feasibility and practicality of removal of pollutants and prevention of any polluting matter from entering into the Great Lakes in the future and other reduction and remedial techniques which will contribute substantially to effective and practical methods of pollution prevention, reduction, or elimination.

Conditions of Federal participation

(b) Federal participation in such projects shall be subject to the condition that the State, political subdivision, interstate agency, or other public agency, or combination thereof, shall pay not less than 25 per centum of the actual project costs, which payment may be in any form, including, but not limited to, land or interests therein that is needed for the project, and personal property or services the value of which shall be determined by the Administrator.

Authorization of appropriations

(c) There is authorized to be appropriated $20,000,000 to carry out the provisions of subsections (a) and (b) of this section, which sum shall be available until expended.

Lake Erie demonstration program

(d) (1) In recognition of the serious conditions which exist in Lake Erie, the Secretary of the Army, acting through the Chief of Engineers, is directed to design and develop a demonstration waste water management program for the rehabilitation and environmental repair of Lake Erie. Prior to the initiation of detailed engineering and design, the program, along with the specific recommendations of the Chief of Engineers, and recommendations for its financing, shall be submitted to the Congress for statutory approval. This authority is in addition to, and not in lieu of, other waste water studies aimed at eliminating pollution emanating from select sources around Lake Erie.

(2) This program is to be developed in cooperation with the Environmental Protection Agency, other interested departments, agencies, and instrumentalities of the Federal Government, and the States and their political subdivisions. This program shall set forth alternative systems for managing waste water on a regional basis and shall provide local and State governments with a range of choice as to the type of system to be used for the treatment of waste water. These alternative systems shall include both advanced waste treatment technology and land disposal systems including aerated treatment-spray irrigation technology and will also include provisions for the disposal of solid wastes, including sludge. Such program should include measures to control point sources of pollution, area sources of pollution, including acid-mine drainage, urban runoff and rural runoff, and in-place sources of pollution, including bottom loads, sludge banks, and polluted harbor dredgings.

Authorization of appropriations for Lake Erie demonstration program

(e) There is authorized to be appropriated $5,000,000 to carry out the provisions of subsection (d) of this section, which sum shall be available until expended.

June 30, 1948, c. 758, Title I, § 108, as added Oct. 18, 1972, Pub. L. 92–500, § 2, 86 Stat. 828.

§ 1259. Training grants and contracts

(a) The Administrator is authorized to make grants to or contracts with institutions of higher education, or combinations of such institutions, to assist them in planning, developing, strengthening, improving, or carrying out programs or projects for the preparation of undergraduate students to enter an occupation which involves the design, operation, and maintenance of treatment works, and other facilities whose purpose is water

quality control. Such grants or contracts may include payment of all or part of the cost of programs or projects such as—

(A) planning for the development or expansion of programs or projects for training persons in the operation and maintenance of treatment works;

(B) training and retraining of faculty members;

(C) conduct of short-term or regular session institutes for study by persons engaged in, or preparing to engage in, the preparation of students preparing to enter an occupation involving the operation and maintenance of treatment works;

(D) carrying out innovative and experimental programs of cooperative education involving alternate periods of full-time or part-time academic study at the institution and periods of full-time or part-time employment involving the operation and maintenance of treatment works; and

(E) research into, and development of, methods of training students or faculty, including the preparation of teaching materials and the planning of curriculum.

(b) (1) The Administrator may pay 100 per centum of any additional cost of construction of a treatment works required for a facility to train and upgrade waste treatment works operation and maintenance personnel.

(2) The Administrator shall make no more than one grant for such additional construction in any State (to serve a group of States, where, in his judgment, efficient training programs require multi-State programs), and shall make such grant after consultation with and approval by the State or States on the basis of (A) the suitability of such facility for training operation and maintenance personnel for treatment works throughout such State or States; and (B) a commitment by the State agency or agencies to carry out at such facility a program of training approved by the Administrator.

(3) The Administrator may make such grant out of the sums allocated to a State under section 1285 of this title, except that in no event shall the Federal cost of any such training facilities exceed $250,000.

June 30, 1948, c. 758, Title I, § 109, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 829.

§ 1260. Same; applications; allocation

(1) A grant or contract authorized by section 1259 of this title may be made only upon application to the Administrator at

such time or times and containing such information as he may prescribe, except that no such application shall be approved unless it—

(A) sets forth programs, activities, research, or development for which a grant is authorized under section 1259 of this title and describes the relation to any program set forth by the applicant in an application, if any, submitted pursuant to section 1271 of this title;

(B) provides such fiscal control and fund accounting procedures as may be necessary to assure proper disbursement of and accounting for Federal funds paid to the applicant under this section; and

(C) provides for making such reports, in such form and containing such information, as the Administrator may require to carry out his functions under this section, and for keeping such records and for affording such access thereto as the Administrator may find necessary to assure the correctness and verification of such reports.

(2) The Administrator shall allocate grants or contracts under section 1259 of this title in such manner as will most nearly provide an equitable distribution of the grants or contracts throughout the United States among institutions of higher education which show promise of being able to use funds effectively for the purpose of this section.

(3) (A) Payment under this section may be used in accordance with regulations of the Administrator, and subject to the terms and conditions set forth in an application approved under paragraph (1), to pay part of the compensation of students employed in connection with the operation and maintenance of treatment works, other than as an employee in connection with the operation and maintenance of treatment works or as an employee in any branch of the Government of the United States, as part of a program for which a grant has been approved pursuant to this section.

(B) Departments and agencies of the United States are encouraged, to the extent consistent with efficient administration, to enter into arrangements with institutions of higher education for the full-time, part-time, or temporary employment, whether in the competitive or excepted service, of students enrolled in programs set forth in applications approved under paragraph (1).

June 30, 1948, c. 758, Title I, § 110, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 830.

§ 1261. Scholarships

(1) The Administrator is authorized to award scholarships in accordance with the provisions of this section for undergraduate study by persons who plan to enter an occupation involving the operation and maintenance of treatment works. Such scholarships shall be awarded for such periods as the Administrator may determine but not to exceed four academic years.

(2) The Administrator shall allocate scholarships under this section among institutions of higher education with programs approved under the provisions of this section for the use of individuals accepted into such programs, in such manner and according to such plan as will insofar as practicable—

(A) provide an equitable distribution of such scholarships throughout the United States; and

(B) attract recent graduates of secondary schools to enter an occupation involving the operation and maintenance of treatment works.

(3) The Administrator shall approve a program of any institution of higher education for the purposes of this section only upon application by the institution and only upon his finding—

(A) that such program has as principal objective the education and training of persons in the operation and maintenance of treatment works;

(B) that such program is in effect and of high quality, or can be readily put into effect and may reasonably be expected to be of high quality;

(C) that the application describes the relation of such program to any program, activity, research, or development set forth by the applicant in an application, if any, submitted pursuant to section 1260 of this title; and

(D) that the application contains satisfactory assurances that (i) the institution will recommend to the Administrator for the award of scholarships under this section, for study in such program, only persons who have demonstrated to the satisfaction of the institution a serious intent, upon completing the program, to enter an occupation involving the operation and maintenance of treatment works, and (ii) the institution will make reasonable continuing efforts to encourage recipients of scholarships under this section, enrolled in such program, to enter occupations involving the operation and maintenance of treatment works upon completing the program.

(4) (A) The Administrator shall pay to persons awarded

scholarships under this section such stipends (including such allowances for subsistence and other expenses for such persons and their dependents) as he may determine to be consistent with prevailing practices under comparable federally supported programs.

(B) The Administrator shall (in addition to the stipends paid to persons under paragraph (1)) pay to the institution of higher education at which such person is pursuing his course of study such amount as he may determine to be consistent with prevailing practices under comparable federally supported programs.

(5) A person awarded a scholarship under the provisions of this section shall continue to receive the payments provided in this section only during such periods as the Administrator finds that he is maintaining satisfactory proficiency and devoting full time to study or research in the field in which such scholarship was awarded in an institution of higher education, and is not engaging in gainful employment other than employment approved by the Administrator by or pursuant to regulation.

(6) The Administrator shall by regulation provide that any person awarded a scholarship under this section shall agree in writing to enter and remain in an occupation involving the design, operation, or maintenance of treatment works for such period after completion of his course of studies as the Administrator determines appropriate.

June 30, 1948, c. 758, Title I, § 111, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 831.

§ 1262. Definitions and authorizations

(a) As used in sections 1259 through 1262 of this title—

(1) The term "institution of higher education" means an educational institution described in the first sentence of section 1141 of Title 20 (other than an institution of any agency of the United States) which is accredited by a nationally recognized accrediting agency or association approved by the Administrator for this purpose. For purposes of this subsection, the Administrator shall publish a list of nationally recognized accrediting agencies or associations which he determines to be reliable authority as to the quality of training offered.

(2) The term "academic year" means an academic year or its equivalent, as determined by the Administrator.

(b) The Administrator shall annually report his activities under sections 1259 through 1262 of this title, including recommendations for needed revisions in the provisions thereof.

(c) There are authorized to be appropriated $25,000,000 per fiscal year for the fiscal year ending June 30, 1973, and June 30, 1974, to carry out sections 1259 through 1262 of this title.

June 30, 1948, c. 758, Title I, § 112, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 832.

§ 1263. Alaska village demonstration projects

(a) The Administrator is authorized to enter into agreements with the State of Alaska to carry out one or more projects to demonstrate methods to provide for central community facilities for safe water and elimination or control of pollution in those native villages of Alaska without such facilities. Such project shall include provisions for community safe water supply systems, toilets, bathing and laundry facilities, sewage disposal facilities, and other similar facilities, and educational and informational facilities and programs relating to health and hygiene. Such demonstration projects shall be for the further purpose of developing preliminary plans for providing such safe water and such elimination or control of pollution for all native villages in such State.

(b) In carrying out this section the Administrator shall cooperate with the Secretary of Health, Education, and Welfare for the purpose of utilizing such of the personnel and facilities of that Department as may be appropriate.

(c) The Administrator shall report to Congress not later than July 1, 1973, the results of the demonstration projects authorized by this section together with his recommendations, including any necessary legislation, relating to the establishment of a statewide program.

(d) There is authorized to be appropriated not to exceed $2,000,000 to carry out this section.

June 30, 1948, c. 758, Title I, § 113, as added Oct. 18, 1972 Pub. L. 92–500, § 2, 86 Stat. 832.

§ 1264. Lake Tahoe study

(a) The Administrator, in consultation with the Tahoe Regional Planning Agency, the Secretary of Agriculture, other Federal agencies, representatives of State and local governments, and members of the public, shall conduct a thorough and complete study on the adequacy of and need for extending Federal oversight and control in order to preserve the fragile ecology of Lake Tahoe.

(b) Such study shall include an examination of the interrelationships and responsibilities of the various agencies of the Federal Government and State and local governments with a view to establishing the necessity for redefinition of legal and other arrangements between these various governments, and making specific legislative recommendations to Congress. Such study shall consider the effect of various actions in terms of their environmental impact on the Tahoe Basin, treated as an ecosystem.

(c) The Administrator shall report on such study to Congress not later than one year after October 18, 1972.

(d) There is authorized to be appropriated to carry out this section not to exceed $500,000.

June 30, 1948, c. 758, Title I, § 114, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 833.

§ 1265. In-place toxic pollutants

The Administration is directed to identify the location of in-place pollutants with emphasis on toxic pollutants in harbors and navigable waterways and is authorized, acting through the Secretary of the Army, to make contracts for the removal and appropriate disposal of such materials from critical port and harbor areas. There is authorized to be appropriated $15,000,000 to carry out the provisions of this section, which sum shall be available until expended.

June 30, 1948, c. 758, Title I, § 115, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 833.

SUBCHAPTER II—GRANTS FOR CONSTRUCTION OF TREATMENT WORKS

§ 1281. Congressional declaration of purpose

(a) It is the purpose of this subchapter to require and to assist the development and implementation of waste treatment management plans and practices which will achieve the goals of this chapter.

(b) Waste treatment management plans and practices shall provide for the application of the best practicable waste treatment technology before any discharge into receiving waters, including reclaiming and recycling of water, and confined disposal of pollutants so they will not migrate to cause water or other environmental pollution and shall provide for consideration of advanced waste treatment techniques.

(c) To the extent practicable, waste treatment management

shall be on an areawide basis and provide control or treatment of all point and nonpoint sources of pollution, including in-place or accumulated pollution sources.

(d) The Administrator shall encourage waste treatment management which results in the construction of revenue-producing facilities providing for—

(1) the recycling of potential sewage pollutants through the production of agriculture, silviculture, or aquaculture products, or any combination thereof;

(2) the confined and contained disposal of pollutants not recycled;

(3) the reclamation of wastewater; and

(4) the ultimate disposal of sludge in a manner that will not result in environmental hazards.

(e) The Administrator shall encourage waste treatment management which results in integrating facilities for sewage treatment and recycling with facilities to treat, dispose of, or utilize other industrial and municipal wastes, including but not limited to solid waste and waste heat and thermal discharges. Such integrated facilities shall be designed and operated to produce revenues in excess of capital and operation and maintenance costs and such revenues shall be used by the designated regional management agency to aid in financing other environmental improvement programs.

(f) The Administrator shall encourage waste treatment management which combines "open space" and recreational considerations with such management.

(g) (1) The Administrator is authorized to make grants to any State, municipality, or intermunicipal or interstate agency for the construction of publicly owned treatment works.

(2) The Administrator shall not make grants from funds authorized for any fiscal year beginning after June 30, 1974, 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 the Administrator that—

(A) alternative waste management techniques have been studied and evaluated and the works proposed for grant assistance will provide for the application of the best practicable waste treatment technology over the life of the works consistent with the purposes of this subchapter; and

(B) as appropriate, the works proposed for grant assist-

ance will take into account and allow to the extent practicable the application of technology at a later date which will provide for the reclaiming or recycling of water or otherwise eliminate the discharge of pollutants.

(3) The Administrator shall not approve any grant after July 1, 1973, for treatment works under this section unless the applicant shows to the satisfaction of the Administrator that each sewer collection system discharging into such treatment works is not subject to excessive infiltration.

(4) The Administrator is authorized to make grants to applicants for treatment works grants under this section for such sewer system evaluation studies as may be necessary to carry out the requirements of paragraph (3) of this subsection. Such grants shall be made in accordance with rules and regulations promulgated by the Administrator. Initial rules and regulations shall be promulgated under this paragraph not later than 120 days after October 18, 1972.

June 30, 1948, c. 758, Title II, § 201, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 833.

§ 1282. Federal share

(a) The amount of any grant for treatment works made under this chapter from funds authorized for any fiscal year beginning after June 30, 1971, shall be 75 per centum of the cost of construction thereof (as approved by the Administrator). Any grant (other than for reimbursement) made prior to October 18, 1972, from any funds authorized for any fiscal year beginning after June 30, 1971, shall upon the request of the applicant, be increased to the applicable percentage under this section.

(b) The amount of the grant for any project approved by the Administrator after January 1, 1971, and before July 1, 1971, for the construction of treatment works, the actual erection, building or acquisition of which was not commenced prior to July 1, 1971, shall, upon the request of the applicant, be increased to the applicable percentage under subsection (a) of this section for grants for treatment works from funds for fiscal years beginning after June 30, 1971, with respect to the cost of such actual erection, building, or acquisition. Such increased amount shall be paid from any funds allocated to the State in which the treatment works is located without regard to the fiscal year for which such funds were authorized. Such increased amount shall be paid for such project only if—

(1) a sewage collection system that is a part of the same

total waste treatment system as the treatment works for which such grant was approved is under construction or is to be constructed for use in conjunction with such treatment works, and if the cost of such sewage collection system exceeds the cost of such treatment works, and

(2) the State water pollution control agency or other appropriate State authority certifies that the quantity of available ground water will be insufficient, inadequate, or unsuitable for public use, including the ecological preservation and recreational use of surface water bodies, unless effluents from publicly owned treatment works after adequate treatment are returned to the ground water consistent with acceptable technological standards.

June 30, 1948, c. 758, Title II, § 202, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 834.

§ 1283. Plans, specifications, estimates, and payments

(a) Each applicant for a grant shall submit to the Administrator for his approval, plans, specifications, and estimates for each proposed project for the construction of treatment works for which a grant is applied for under section 1281(g) (1) of this title from funds allotted to the State under section 1285 of this title and which otherwise meets the requirements of this chapter. The Administrator shall act upon such plans, specifications, and estimates as soon as practicable after the same have been submitted, and his approval of any such plans, specifications, and estimates shall be deemed a contractual obligation of the United States for the payment of its proportional contribution to such project.

(b) The Administrator shall, from time to time as the work progresses, make payments to the recipient of a grant for costs of construction incurred on a project. These payments shall at no time exceed the Federal share of the cost of construction incurred to the date of the voucher covering such payment plus the Federal share of the value of the materials which have been stockpiled in the vicinity of such construction in conformity to plans and specifications for the project.

(c) After completion of a project and approval of the final voucher by the Administrator, he shall pay out of the appropriate sums the unpaid balance of the Federal share payable on account of such project.

(d) Nothing in this chapter shall be construed to require, or to authorize the Administrator to require, that grants under

this chapter for construction of treatment works be made only for projects which are operable units usable for sewage collection, transportation, storage, waste treatment, or for similar purposes without additional construction.

June 30, 1948, c. 758, Title II, § 203, as added Oct. 18, 1972, Pub. L. 92–500, § 2, 86 Stat. 835, and amended Jan. 2, 1974. Pub.L. 93–243, § 2, 87 Stat. 1069.

§ 1284. Limitations and conditions

(a) Before approving grants for any project for any treatment works under section 1281(g) (1) of this title the Administrator shall determine—

(1) that such works are included in any applicable area-wide waste treatment management plan developed under section 1288 of this title;

(2) that such works are in conformity with any applicable State plan under section 1313(e) of this title;

(3) that such works have been certified by the appropriate State water pollution control agency as entitled to priority over such other works in the State in accordance with any applicable State plan under section 1313(e) of this title;

(4) that the applicant proposing to construct such works agrees to pay the non-Federal costs of such works and has made adequate provisions satisfactory to the Administrator for assuring proper and efficient operation, including the employment of trained management and operations personnel, and the maintenance of such works in accordance with a plan of operation approved by the State water pollution control agency or, as appropriate, the interstate agency, after construction thereof;

(5) that the size and capacity of such works relate directly to the needs to be served by such works, including sufficient reserve capacity. The amount of reserve capacity provided shall be approved by the Administrator on the basis of a comparison of the cost of constructing such reserves as a part of the works to be funded and the anticipated cost of providing expanded capacity at a date when such capacity will be required;

(6) that no specification for bids in connection with such works shall be written in such a manner as to contain proprietary, exclusionary, or discriminatory requirements other than those based upon performance, unless such requirements are necessary to test or demonstrate a specific thing

or to provide for necessary interchangeability of parts and equipment, or at least two brand names, or trade names of comparable quality or utility are listed and are followed by the words "or equal".

(b) (1) Notwithstanding any other provision of this subchapter, the Administrator shall not approve any grant for any treatment works under section 1281(g) (1) of this title after March 1, 1973, unless he shall first have determined that the applicant (A) has adopted or will adopt a system of charges to assure that each recipient of waste treatment services within the applicant's jurisdiction, as determined by the Administrator, will pay its proportionate share of the costs of operation and maintenance (including replacement) of any waste treatment services provided by the applicant; (B) has made provision for the payment to such applicant by the industrial users of the treatment works, of that portion of the cost of construction of such treatment works (as determined by the Administrator) which is allocable to the treatment of such industrial wastes to the extent attributable to the Federal share of the cost of construction; and (C) has legal, institutional, managerial, and financial capability to insure adequate construction, operation, and maintenance of treatment works throughout the applicant's jurisdiction, as determined by the Administrator.

(2) The Administrator shall, within one hundred and eighty days after October 18, 1972, and after consultation with appropriate State, interstate, municipal, and intermunicipal agencies, issue guidelines applicable to payment of waste treatment costs by industrial and nonindustrial recipients of waste treatment services which shall establish (A) classes of users of such services, including categories of industrial users; (B) criteria against which to determine the adequacy of charges imposed on classes and categories of users reflecting all factors that influence the cost of waste treatment, including strength, volume, and delivery flow rate characteristics of waste; and (C) model systems and rates of user charges typical of various treatment works serving municipal-industrial communities.

(3) The grantee shall retain an amount of the revenues derived from the payment of costs by industrial users of waste treatment services, to the extent costs are attributable to the Federal share of eligible project costs provided pursuant to this subchapter as determined by the Administrator, equal to (A) the amount of the non-Federal cost of such project paid by the grantee plus (B) the amount, determined in accordance with reg-

ulations promulgated by the Administrator, necessary for future expansion and reconstruction of the project, except that such retained amount shall not exceed 50 per centum of such revenues from such project. All revenues from such project not retained by the grantee shall be deposited by the Administrator in the Treasury as miscellaneous receipts. That portion of the revenues retained by the grantee attributable to clause (B) of the first sentence of this paragraph, together with any interest thereon shall be used solely for the purposes of future expansion and reconstruction of the project.

(4) Approval by the Administrator of a grant to an interstate agency established by interstate compact for any treatment works shall satisfy any other requirement that such works be authorized by Act of Congress.

June 30, 1948, c. 758, Title II, § 204, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 835.

§ 1285. Allotment of grant funds

(a) Sums authorized to be appropriated pursuant to section 1287 of this title for each fiscal year beginning after June 30, 1972, shall be allotted by the Administrator not later than the January 1st immediately preceding the beginning of the fiscal year for which authorized, except that the allotment for fiscal year 1973 shall be made not later than 30 days after October 18, 1972. Such sums shall be allotted among the States by the Administrator in accordance with regulations promulgated by him, in the ratio that the estimated cost of constructing all needed publicly owned treatment works in each State bears to the estimated cost of construction of all needed publicly owned treatment works in all of the States. For the fiscal years ending June 30, 1973, and June 30, 1974, such ratio shall be determined on the basis of table III of House Public Works Committee Print No. 92–50. For the fiscal year ending June 30, 1975, such ratio shall be determined one-half on the basis of table I of House Public Works Committee Print Numbered 93–28 and one-half on the basis of table II of such print, except that no State shall receive an allotment less than that which it received for the fiscal year ending June 30, 1972, as set forth in table III of such print. Allotments for fiscal years which begin after the fiscal year ending June 30, 1975, shall be made only in accordance with a revised cost estimate made and submitted to Congress in accordance with section 1375(b) of this title and only after such revised cost estimate shall have been approved by law specifically enacted after October 18, 1972.

(b)(1) Any sums allotted to a State under subsection (a) of this section shall be available for obligation under section 1283 of this title on and after the date of such allotment. Such sums shall continue available for obligation in such State for a period of one year after the close of the fiscal year for which such sums are authorized. Any amounts so allotted which are not obligated by the end of such one-year period shall be immediately reallotted by the Administrator, in accordance with regulations promulgated by him, generally on the basis of the ratio used in making the last allotment of sums under this section. Such reallotted sums shall be added to the last allotments made to the States. Any sum made available to a State by reallotment under this subsection shall be in addition to any funds otherwise allotted to such State for grants under this subchapter during any fiscal year.

(2) Any sums which have been obligated under section 1283 of this title and which are released by the payment of the final voucher for the project shall be immediately credited to the State to which such sums were last allotted. Such released sums shall be added to the amounts last allotted to such State and shall be immediately available for obligation in the same manner and to the same extent as such last allotment.

June 30, 1948, c. 758, Title II, § 205, as added Oct. 18, 1972 Pub.L. 92–500, § 2, 86 Stat. 837, and amended Jan. 2, 1974, Pub.L. 93–243, § 1, 87 Stat. 1069.

§ 1286. Reimbursement and advanced construction—Publicly owned treatment works construction initiated after June 30, 1966, but before July 1, 1972; reimbursement formula.

(a) Any publicly owned treatment works in a State on which construction was initiated after June 30, 1966, but before July 1, 1972, which was approved by the appropriate State water pollution control agency and which the Administrator finds meets the requirements of section 8 of this Act in effect at the time of the initiation of construction shall be reimbursed a total amount equal to the difference between the amount of Federal financial assistance, if any, received under such section 8 for such project and 50 percentum of the cost of such project, or 55 percentum of the project cost where the Administrator also determines that such treatment works was constructed in conformity with a comprehensive metropolitan treatment plan as described in section 8(f) of the Federal Water Pollution Control Act as in effect immediately prior to the date of enactment of the Federal Water

Pollution Control Act Amendments of 1972. Nothing in this subsection shall result in any such works receiving Federal grants from all sources in excess of 80 percentum of the cost of such project.

Publicly owned treatment works construction initiated between June 30, 1956, and June 30, 1966, reimbursement formula

(b) Any publicly owned treatment works constructed with or eligible for Federal financial assistance under this Act in a State between June 30, 1956, and June 30, 1966, which was approved by the State water pollution control agency and which the Administrator finds meets the requirements of section 8 of this Act prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972 but which was constructed without assistance under such section 8 or which received such assistance in amount less than 30 percentum of the cost of such project shall qualify for payments and reimbursement of State or local funds used for such project from sums allocated to such State under this section in an amount which shall not exceed the difference between the amount of such assistance, if any, received for such project and 30 percentum of the cost of such project.

Application for reimbursement

(c) No publicly owned treatment works shall receive any payment or reimbursement under subsection (a) or (b) of this section unless an application for such assistance is filed with the Administrator within the one year period which begins on October 18, 1972. Any application filed within such one year period may be revised from time to time, as may be necessary.

Allocation of funds

(d) The Administrator shall allocate to each qualified project under subsection (a) of this section each fiscal year for which funds are appropriated under subsection (e) of this section an amount which bears the same ratio to the unpaid balance of the reimbursement due such project as the total of such funds for such year bears to the total unpaid balance of reimbursement due all such approved projects on the date of enactment of such appropriation. The Administrator shall allocate to each qualified project under subsection (b) of this section each fiscal year for which funds are appropriated under subsection (e) of this sec-

tion an amount which bears the same ratio to the unpaid balance of the reimbursement due such project as the total of such funds for such year bears to the total unpaid balance of reimbursement due all such approved projects on the date of enactment of such appropriation.

Authorization of appropriations

(e) There is authorized to be appropriated to carry out subsection (a) of this section not to exceed $2,600,000,000 and, to carry out subsection (b) of this section, not to exceed $750,000,000. The authorizations contained in this subsection shall be the sole source of funds for reimbursements authorized by this section.

Additional funds

(f)(1) In any case where all funds allotted to a State under this subchapter have been obligated under section 1283 of this title, and there is construction of any treatment works project without the aid of Federal funds and in accordance with all procedures and all requirements applicable to treatment works projects, except those procedures and requirements which limit construction of projects to those constructed with the aid of previously allotted Federal funds, the Administrator, upon his approval of an application made under this subsection therefor, is authorized to pay the Federal share of the cost of construction of such project when additional funds are allotted to the State under this subchapter if prior to the construction of the project the Administrator approves plans, specifications, and estimates therefor in the same manner as other treatment works projects. The Administrator may not approve an application under this subsection unless an authorization is in effect for the future fiscal year for which the application requests payment, which authorization will insure such payment without exceeding the State's expected allotment from such authorization.

(2) In determining the allotment for any fiscal year under this subchapter, any treatment works project constructed in accordance with this section and without the aid of Federal funds shall not be considered completed until an application under the provisions of this subsection with respect to such project has been approved by the Administrator, or the availability of funds from which this project is eligible for reimbursement has expired, whichever first occurs.

June 30, 1948, c. 758, Title II, § 206, as added Oct 18, 1972,

Pub.L. 92–500, § 2, 86 Stat. 838, and amended Dec. 28, 1973, Pub.L. 93–207, § 1(2), 87 Stat. 906.

§ 1287. Authorization of appropriations

There is authorized to be appropriated to carry out this subchapter, other than sections 1288 and 1289 of this title, for the fiscal year ending June 30, 1973, not to exceed $5,000,000,000, for the fiscal year ending June 30, 1974, not to exceed $6,000,000,000, and for the fiscal year ending June 30, 1975, not to exceed $7,000,000,000.

June 30, 1948, c. 758, Title II, § 207, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 839.

§ 1288. Areawide waste treatment management—Identification and designation of areas having substantial water quality control problems

(a) For the purpose of encouraging and facilitating the development and implementation of areawide waste treatment management plans—

(1) The Administrator, within ninety days after October 18, 1972, and after consultation with appropriate Federal, State, and local authorities, shall by regulations publish guidelines for the identification of those areas which, as a result of urban-industrial concentrations or other factors, have substantial water quality control problems.

(2) The Governor of each State, within sixty days after publication of the guidelines issued pursuant to paragraph (1) of this subsection, shall identify each area within the State which, as a result of urban-industrial concentrations or other factors, has substantial water quality control problems. Not later than one hundred and twenty days following such identification and after consultation with appropriate elected and other officials of local governments having jurisdiction in such areas, the Governor shall designate (A) the boundaries of each such area, and (B) a single representative organization, including elected officials from local governments or their designees, capable of developing effective areawide waste treatment management plans for such area. The Governor may in the same manner at any later time identify any additional area (or modify an existing area) for which he determines areawide waste treatment management to be appropriate, designate the boundaries of such

area, and designate an organization capable of developing effective areawide waste treatment management plans for such area.

(3) With respect to any area which, pursuant to the guidelines published under paragraph (1) of this subsection, is located in two or more States, the Governors of the respective States shall consult and cooperate in carrying out the provisions of paragraph (2), with a view toward designating the boundaries of the interstate area having common water quality control problems and for which areawide waste treatment management plans would be most effective, and toward designating, within one hundred and eighty days after publication of guidelines issued pursuant to paragraph (1) of this subsection, of a single representative organization capable of developing effective areawide waste treatment management plans for such area.

(4) If a Governor does not act, either by designating or determining not to make a designation under paragraph (2) of this subsection, within the time required by such paragraph, or if, in the case of an interstate area, the Governors of the States involved do not designate a planning organization within the time required by paragraph (3) of this subsection, the chief elected officials of local governments within an area may by agreement designate (A) the boundaries for such an area, and (B) a single representative organization including elected officials from such local governments, or their designees, capable of developing an areawide waste treatment management plan for such area.

(5) Existing regional agencies may be designated under paragraphs (2), (3), and (4) of this subsection.

(6) The State shall act as a planning agency for all portions of such State which are not designated under paragraphs (2), (3), or (4) of this subsection.

(7) Designations under this subsection shall be subject to the approval of the Administrator.

Planning process

(b) (1) Not later than one year after the date of designation of any organization under subsection (a) of this section such organization shall have in operation a continuing areawide waste treatment management planning process consistent with section 1281 of this title. Plans prepared in accordance with this process shall contain alternatives for waste treatment manage-

ment, and be applicable to all wastes generated within the area involved. The initial plan prepared in accordance with such process shall be certified by the Governor and submitted to the Administrator not later than two years after the planning process is in operation.

(2) Any plan prepared under such process shall include, but not be limited to—

(A) the identification of treatment works necessary to meet the anticipated municipal and industrial waste treatment needs of the area over a twenty-year period, annually updated (including an analysis of alternative waste treatment systems), including any requirements for the acquisition of land for treatment purposes; the necessary waste water collection and urban storm water runoff systems; and a program to provide the necessary financial arrangement for the development of such treatment works;

(B) the establishment of construction priorities for such treatment works and time schedules for the initiation and completion of all treatment works;

(C) the establishment of a regulatory program to—

(i) implement the waste treatment management requirements of section 1281(c) of this title,

(ii) regulate the location, modification, and construction of any facilities within such area which may result in any discharge in such area, and

(iii) assure that any industrial or commercial wastes discharged into any treatment works in such area meet applicable pretreatment requirements;

(D) the identification of those agencies necessary to construct, operate, and maintain all facilities required by the plan and otherwise to carry out the plan;

(E) the identification of the measures necessary to carry out the plan (including financing), the period of time necessary to carry out the plan, the costs of carrying out the plan within such time, and the economic, social, and environmental impact of carrying out the plan within such time;

(F) a process to (i) identify, if appropriate, agriculturally and silviculturally related nonpoint sources of pollution, including runoff from manure disposal areas, and from land used for livestock and crop production, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources;

(G) a process to (i) identify, if appropriate, mine-related

sources of pollution including new, current, and abandoned surface and underground mine runoff, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources;

(H) a process to (i) identify construction activity-related sources of pollution, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources;

(I) a process to (i) identify, if appropriate, salt water intrusion into rivers, lakes, and estuaries resulting from reduction of fresh water flow from any cause, including irrigation, obstruction, ground water extraction, and diversion, and (ii) set forth procedures and methods to control such intrusion to the extent feasible where such procedures and methods are otherwise a part of the waste treatment management plan;

(J) a process to control the disposition of all residual waste generated in such area which could affect water quality; and

(K) a process to control the disposal of pollutants on land or in subsurface excavations within such area to protect ground and surface water quality.

(3) Areawide waste treatment management plans shall be certified annually by the Governor or his designee (or Governors or their designees, where more than one State is involved) as being consistent with applicable basin plans and such areawide waste treatment management plans shall be submitted to the Administrator for his approval.

(4) Whenever the Governor of any State determines (and notifies the Administrator) that consistency with a statewide regulatory program under section 1313 of this title so requires, the requirements of clauses (F) through (K) of paragraph (2) of this subsection shall be developed and submitted by the Governor to the Administrator for application to all regions within such State.

Regional operating agencies

(c) (1) The Governor of each State, in consultation with the planning agency designated under subsection (a) of this section, at the time a plan is submitted to the Administrator, shall designate one or more waste treatment management agencies (which may be an existing or newly created local, regional, or State agency or political subdivision) for each area designated under

subsection (a) of this section and submit such designations to the Administrator.

(2) The Administrator shall accept any such designation, unless, within 120 days of such designation, he finds that the designated management agency (or agencies) does not have adequate authority—

(A) to carry out appropriate portions of an areawide waste treatment management plan developed under subsection (b) of this section;

(B) to manage effectively waste treatment works and related facilities serving such area in conformance with any plan required by subsection (b) of this section;

(C) directly or by contract, to design and construct new works, and to operate and maintain new and existing works as required by any plan developed pursuant to subsection (b) of this section;

(D) to accept and utilize grants, or other funds from any source, for waste treatment management purposes;

(E) to raise revenues, including the assessment of waste treatment charges;

(F) to incur short- and long-term indebtedness;

(G) to assure in implementation of an areawide waste treatment management plan that each participating community pays its proportionate share of treatment costs;

(H) to refuse to receive any wastes from any municipality or subdivision thereof, which does not comply with any provisions of an approved plan under this section applicable to such area; and

(I) to accept for treatment industrial wastes.

Conformity of works with area plan

(d) After a waste treatment management agency having the authority required by subsection (c) of this section has been designated under such subsection for an area and a plan for such area has been approved under subsection (b) of this section, the Administrator shall not make any grant for construction of a publicly owned treatment works under section 1281 (g) (1) of this title within such area except to such designated agency and for works in conformity with such plan.

Permits not to conflict with approved plans

(e) No permit under section 1342 of this title shall be issued for any point source which is in conflict with a plan approved pursuant to subsection (b) of this section.

Grants

(f) (1) The Administrator shall make grants to any agency designated under subsection (a) of this section for payment of the reasonable costs of developing and operating a continuing areawide waste treatment management planning process under subsection (b) of this section.

(2) The amount granted to any agency under paragraph (1) of this subsection shall be 100 percentum of the costs of developing and operating a continuing areawide waste treatment management planning process under subsection (b) of this section for each of the fiscal years ending on June 30, 1973, June 30, 1974, and June 30, 1975, and shall not exceed 75 percentum of such costs in each succeeding fiscal year.

(3) Each applicant for a grant under this subsection shall submit to the Administrator for his approval each proposal for which a grant is applied for under this subsection. The Administrator shall act upon such proposal as soon as practicable after it has been submitted, and his approval of that proposal shall be deemed a contractual obligation of the United States for the payment of its contribution to such proposal. There is authorized to be appropriated to carry out this subsection not to exceed $50,000,000 for the fiscal year ending June 30, 1973, not to exceed $100,000,000 for the fiscal year ending June 30, 1974, and not to exceed $150,000,000 for the fiscal year ending June 30, 1975.

Technical assistance by administrator

(g) The Administrator is authorized, upon request of the Governor or the designated planning agency, and without reimbursement, to consult with, and provide technical assistance to, any agency designated under subsection (a) of this section in the development of areawide waste treatment management plans under subsection (b) of this section.

Technical assistance by Secretary of the Army

(h) (1) The Secretary of the Army, acting through the Chief of Engineers, in cooperation with the Administrator is authorized and directed, upon request of the Governor or the designated planning organization, to consult with, and provide technical assistance to, any agency designated under subsection (a) of this section in developing and operating a continuing areawide waste treatment management planning process under subsection (b) of this section.

(2) There is authorized to be appropriated to the Secretary of the Army, to carry out this subsection, not to exceed $50,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974.

June 30, 1948, c. 758, Title II, § 208, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 839.

§ 1289. Basin planning

(a) The President, acting through the Water Resources Council, shall, as soon as practicable, prepare a Level B plan under the Water Resources Planning Act for all basins in the United States. All such plans shall be completed not later than January 1, 1980, except that priority in the preparation of such plans shall be given to those basins and portions thereof which are within those areas designated under paragraphs (2), (3), and (4) of subsection (a) of section 1288 of this title.

(b) The President, acting through the Water Resources Council, shall report annually to Congress on progress being made in carrying out this section. The first such report shall be submitted not later than January 31, 1973.

(c) There is authorized to be appropriated to carry out this section not to exceed $200,000,000.

June 30, 1948, c. 758, Title II, § 209, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 843.

§ 1290. Annual survey

The Administrator shall annually make a survey to determine the efficiency of the operation and maintenance of treatment works constructed with grants made under this chapter, as compared to the efficiency planned at the time the grant was made. The results of such annual survey shall be included in the report required under section 1375(a) of this title.

June 30, 1948, c. 758, Title II, § 210, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 843.

§ 1291. Sewage collection systems

No grant shall be made for a sewage collection system under this subchapter unless such grant (1) is for replacement or major rehabilitation of an existing collection system and is necessary to the total integrity and performance of the waste treatment works servicing such community, or (2) is for a new collection system in an existing community with sufficient existing or planned

capacity adequately to treat such collected sewage and is consistent with section 1281 of this title.
June 30, 1948, c. 758, Title II, § 211, as added Oct. 18, 1972, Pub. L. 92–500, § 2, 86 Stat. 843.

§ 1292. Definitions

As used in this subchapter—

(1) The term "construction" means any one or more of the following: preliminary planning to determine the feasibility of treatment works, engineering, architectural, legal, fiscal, or economic investigations or studies, surveys, designs, plans, working drawings, specifications, procedures, or other necessary actions, erection, building, acquisition, alteration, remodeling, improvement, or extension of treatment works, or the inspection or supervision of any of the foregoing items.

(2) (A) The term "treatment works" means any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature to implement section 1281 of this title, or necessary to recycle or reuse water at the most economical cost over the estimated life of the works, including intercepting sewers, outfall sewers, sewage collection systems, pumping, power, and other equipment, and their appurtenances; extensions, improvements, remodeling, additions, and alterations thereof; elements essential to provide a reliable recycled supply such as standby treatment units and clear well facilities; and any works, including site acquisition of the land that will be an integral part of the treatment process or is used for ultimate disposal of residues resulting from such treatment.

(B) In addition to the definition contained in subparagraph (A) of this paragraph, "treatment works" means any other method or system for preventing, abating, reducing, storing, treating, separating, or disposing of municipal waste, including storm water runoff, or industrial waste, including waste in combined storm water and sanitary sewer systems. Any application for construction grants which includes wholly or in part such methods or systems shall, in accordance with guidelines published by the Administrator pursuant to subparagraph (C) of this paragraph, contain adequate data and analysis demonstrating such proposal to be, over the life of such works, the most cost efficient alternative to comply with sections 1311 or 1312 of this title, or the requirements of section 1281 of this title.

(C) For the purposes of subparagraph (B) of this paragraph, the Administrator shall, within one hundred and eighty days after October 18, 1972, publish and thereafter revise no less often than annually, guidelines for the evaluation of methods, including cost-effective analysis, described in subparagraph (B) of this paragraph.

(3) The term "replacement" as used in this subchapter means those expenditures for obtaining and installing equipment, accessories, or appurtenances during the useful life of the treatment works necessary to maintain the capacity and performance for which such works are designed and constructed.

June 30, 1948, c. 758, Title II, § 212, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 844.

SUBCHAPTER III—STANDARDS AND ENFORCEMENT

§ 1311. Effluent limitations—Illegality of pollutant discharges except in compliance with law

(a) Except as in compliance with this section and sections 1312, 1316, 1317, 1328, 1342, and 1344 of this title, the discharge of any pollutant by any person shall be unlawful.

Timetable for achievement of objectives

(b) In order to carry out the objective of this chapter there shall be achieved—

(1) (A) not later than July 1, 1977, effluent limitations for point sources, other than publicly owned treatment works, (i) which shall require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 1314(b) of this title, or (ii) in the case of a discharge into a publicly owned treatment works which meets the requirements of subparagraph (B) of this paragraph, which shall require compliance with any applicable pretreatment requirements and any requirements under section 1317 of this title; and

(B) for publicly owned treatment works in existence on July 1, 1977, or approved pursuant to section 1283 of this title prior to June 30, 1974 (for which construction must be completed within four years of approval), effluent limitations based upon secondary treatment as defined by the Administrator pursuant to section 1314 (d) (1) of this title; **or,**

(C) not later than July 1, 1977, any more stringent limi-

tation, including those necessary to meet water quality standards, treatment standards, or schedules of compliance, established pursuant to any State law or regulations (under authority preserved by section 1370 of this title) or any other Federal law or regulation, or required to implement any applicable water quality standard established pursuant to this chapter.

(2) (A) not later than July 1, 1983, effluent limitations for categories and classes of point sources, other than publicly owned treatment works, which (i) shall require application of the best available technology economically achievable for such category or class, which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to section 1314(b) (2) of this title, which such effluent limitations shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him (including information developed pursuant to section 1325 of this title), that such elimination is technologically and economically achievable for a category or class of point sources as determined in accordance with regulations issued by the Administrator pursuant to section 1314(b) (2) of this title, or (ii) in the case of the introduction of a pollutant into a publicly owned treatment works which meets the requirements of subparagraph (B) of this paragraph, shall require compliance with any applicable pretreatment requirements and any other requirement under section 1317 of this title; and

(B) not later than July 1, 1983, compliance by all publicly owned treatment works with the requirements set forth in section 1281 (g)(2) (A) of this title.

Modification of timetable

(c) The Administrator may modify the requirements of subsection (b) (2) (A) of this section with respect to any point source for which a permit application is filed after July 1, 1977, upon a showing by the owner or operator of such point source satisfactory to the Administrator that such modified requirements (1) will represent the maximum use of technology within the economic capability of the owner or operator; and (2) will result in reasonable further progress toward the elimination of the discharge of pollutants.

Review and revision of effluent limitations

(d) Any effluent limitation required by paragraph (2) of subsection (b) of this section shall be reviewed at least every five years and, if appropriate, revised pursuant to the procedure established under such paragraph.

All point discharge source application of effluent limitations

(e) Effluent limitations established pursuant to this section or section 1312 of this title shall be applied to all point sources of discharge of pollutants in accordance with the provisions of this chapter.

Illegality of discharge of radiological, chemical, or biological warfare agents or high-level radioactive waste

(f) Notwithstanding any other provisions of this chapter it shall be unlawful to discharge any radiological, chemical, or biological warfare agent or high-level radioactive waste into the navigable waters.

June 30, 1948, c. 758, Title III, § 301, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 844.

§ 1312. Water quality related effluent limitations

(a) Whenever, in the judgment of the Administrator, discharges of pollutants from a point source or group of point sources, with the application of effluent limitations required under section 1311(b) (2) of this title, would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water, effluent limitations (including alternative effluent control strategies) for such point source or sources shall be established which can reasonably be expected to contribute to the attainment or maintenance of such water quality.

(b) (1) Prior to establishment of any effluent limitation pursuant to subsection (a) of this section, the Administrator shall issue notice of intent to establish such limitation and within ninety days of such notice hold a public hearing to determine the relationship of the economic and social costs of achieving any such limitation or limitations, including any economic or social dislocation in the affected community or communities, to the so-

cial and economic benefits to be obtained (including the attainment of the objective of this chapter) and to determine whether or not such effluent limitations can be implemented with available technology or other alternative control strategies.

(2) If a person affected by such limitation demonstrates at such hearing that (whether or not such technology or other alternative control strategies are available) there is no reasonable relationship between the economic and social costs and the benefits to be obtained (including attainment of the objective of this chapter), such limitation shall not become effective and the Administrator shall adjust such limitation as it applies to such person.

(c) The establishment of effluent limitations under this section shall not operate to delay the application of any effluent limitation established under section 1311 of this title.

June 30, 1948, c. 758, Title III, § 302, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 846.

§ 1313. Water quality standards and implementation plans—Existing water quality standards

(a) (1) In order to carry out the purpose of this chapter, any water quality standard applicable to interstate waters which was adopted by any State and submitted to, and approved by, or is awaiting approval by, the Administrator pursuant to this Act as in effect immediately prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, shall remain in effect unless the Administrator determines that such standard is not consistent with the applicable requirements of this Act as in effect immediately prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972. If the Administrator makes such a determination he shall, within three months after October 18, 1972, notify the State and specify the changes needed to meet such requirements. If such changes are not adopted by the State within ninety days after the date of such notification, the Administrator shall promulgate such changes in accordance with subsection (b) of this section.

(2) Any State which, before October 18, 1972, has adopted, pursuant to its own law, water quality standards applicable to intrastate waters shall submit such standards to the Administrator within thirty days after October 18, 1972. Each such standard shall remain in effect, in the same manner and to the same extent as any other water quality standard established

under this chapter unless the Administrator determines that such standard is inconsistent with the applicable requirements of this Act as in effect immediately prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972. If the Administrator makes such a determination he shall not later than the one hundred and twentieth day after the date of submission of such standards, notify the State and specify the changes needed to meet such requirements. If such changes are not adopted by the State within ninety days after such notification, the Administrator shall promulgate such changes in accordance with subsection (b) of this section.

(3) (A) Any State which prior to October 18, 1972, has not adopted pursuant to its own laws water quality standards applicable to intrastate waters shall, not later than one hundred and eighty days after October 18, 1972, adopt and submit such standards to the Administrator.

(B) If the Administrator determines that any such standards are consistent with the applicable requirements of this Act as in effect immediately prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, he shall approve such standards.

(C) If the Administrator determines that any such standards are not consistent with the applicable requirements of this Act as in effect immediately prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, he shall, not later than the ninetieth day after the date of submission of such standards, notify the State and specify the changes to meet such requirements. If such changes are not adopted by the State within ninety days after the date of notification, the Administrator shall promulgate such standards pursuant to subsection (b) of this section.

Proposed regulations

(b) (1) The Administrator shall promptly prepare and publish proposed regulations setting forth water quality standards for a State in accordance with the applicable requirements of this Act as in effect immediately prior to the date of enactment of the Federal Water Pollution Control Act Amendments of 1972, if—

(A) the State fails to submit water quality standards within the times prescribed in subsection (a) of this section.

(B) a water quality standard submitted by such State under subsection (a) of this section is determined by the

Administrator not to be consistent with the applicable requirements of subsection (a) of this section.

(2) The Administrator shall promulgate any water quality standard published in a proposed regulation not later than one hundred and ninety days after the date he publishes any such proposed standard, unless prior to such promulgation, such State has adopted a water quality standard which the Administrator determines to be in accordance with subsection (a) of this section.

Review; revised standards; publication

(c) (1) The Governor of a State or the State water pollution control agency of such State shall from time to time (but at least once each three-year period beginning with October 18, 1972) hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards. Results of such review shall be made available to the Administrator.

(2) Whenever the State revises or adopts a new standard, such revised or new standard shall be submitted to the Administrator. Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses. Such standards shall be such as to protect the public health or welfare, enhance the quality of water and serve the purposes of this chapter. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.

(3) If the Administrator, within sixty days after the date of submission of the revised or new standard, determines that such standard meets the requirements of this chapter, such standard shall thereafter be the water quality standard for the applicable waters of that State. If the Administrator determines that any such revised or new standard is not consistent with the applicable requirements of this chapter, he shall not later than the ninetieth day after the date of submission of such standard notify the State and specify the changes to meet such requirements. If such changes are not adopted by the State within ninety days after the date of notification, the Administrator shall promulgate such standard pursuant to paragraph (4) of this subsection.

(4) The Administrator shall promptly prepare and publish

proposed regulations setting forth a revised or new water quality standard for the navigable waters involved—

(A) if a revised or new water quality standard submitted by such State under paragraph (3) of this subsection for such waters is determined by the Administrator not to be consistent with the applicable requirements of this chapter, or

(B) in any case where the Administrator determines that a revised or new standard is necessary to meet the requirements of this chapter.

The Administrator shall promulgate any revised or new standard under this paragraph not later than ninety days after he publishes such proposed standards, unless prior to such promulgation, such State has adopted a revised or new water quality standard which the Administrator determines to be in accordance with this chapter.

Identification of areas with insufficient controls; maximum daily load

(d) (1) (A) Each State shall identify those waters within its boundaries for which the effluent limitations required by section 1311(b)(1)(A) of this title and section 1311(b)(1)(B) of this title are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters.

(B) Each State shall identify those waters or parts thereof within its boundaries for which controls on thermal discharges under section 1311 of this title are not stringent enough to assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife.

(C) Each State shall establish for the waters identified in paragraph (1) (A) of this subsection, and in accordance with the priority ranking, the total maximum daily load, for those pollutants which the Administrator identifies under section 1314(a)(2) of this title as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

(D) Each State shall estimate for the waters identified in paragraph (1)(B) of this subsection the total maximum daily thermal load required to assure protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife. Such estimates shall take into account the normal water temperatures,

flow rates, seasonal variations, existing sources of heat input, and the dissipative capacity of the identified waters or parts thereof. Such estimates shall include a calculation of the maximum heat input that can be made into each such part and shall include a margin of safety which takes into account any lack of knowledge concerning the development of thermal water quality criteria for such protection and propagation in the identified waters or parts thereof.

(2) Each State shall submit to the Administrator from time to time, with the first such submission not later than one hundred and eighty days after the date of publication of the first identification of pollutants under section 1314(a) (2) (D) of this title, for his approval the waters identified and the loads established under paragraphs (1) (A), (1) (B), (1) (C), and (1) (D) of this subsection. The Administrator shall either approve or disapprove such identification and load not later than thirty days after the date of submission. If the Administrator approves such identification and load, such State shall incorporate them into its current plan under subsection (e) of this section. If the Administrator disapproves such identification and load, he shall not later than thirty days after the date of such disapproval identify such waters in such State and establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters and upon such identification and establishment the State shall incorporate them into its current plan under subsection (e) of this section.

(3) For the specific purpose of developing information, each State shall identify all waters within its boundaries which it has not identified under paragraph (1) (A) and (1) (B) of this subsection and estimate for such waters the total maximum daily load with seasonal variations and margins of safety, for those pollutants which the Administrator identifies under section 1314(a) (2) of this title as suitable for such calculation and for thermal discharges, at a level that would assure protection and propagation of a balanced indigenous population of fish, shellfish and wildlife.

Continuing planning process

(e) (1) Each State shall have a continuing planning process approved under paragraph (2) of this subsection which is consistent with this chapter.

(2) Each State shall submit not later than 120 days after October 18, 1972, to the Administrator for his approval a proposed continuing planning process which is consistent with this

chapter. Not later than thirty days after the date of submission of such a process the Administrator shall either approve or disapprove such process. The Administrator shall from time to time review each State's approved planning process for the purpose of insuring that such planning process is at all times consistent with this chapter. The Administrator shall not approve any State permit program under subchapter IV of this chapter for any State which does not have an approved continuing planning process under this section.

(3) The Administrator shall approve any continuing planning process submitted to him under this section which will result in plans for all navigable waters within such State, which include, but are not limited to, the following:

(A) effluent limitations and schedules of compliance at least as stringent as those required by section 1311(b) (1), section 1311(b) (2), section 1316, and section 1317 of this title, and at least as stringent as any requirements contained in any applicable water quality standard in effect under authority of this section;

(B) the incorporation of all elements of any applicable areawide waste management plans under section 1288 of this title, and applicable basin plans under section 1289 of this title;

(C) total maximum daily load for pollutants in accordance with subsection (d) of this section;

(D) procedures for revision;

(E) adequate authority for intergovernmental cooperation;

(F) adequate implementation, including schedules of compliance, for revised or new water quality standards, under subsection (c) of this section;

(G) controls over the disposition of all residual waste from any water treatment processing;

(H) an inventory and ranking, in order of priority, of needs for construction of waste treatment works required to meet the applicable requirements of sections 1311 and 1312 of this title.

Earlier compliance

(f) Nothing in this section shall be construed to affect any effluent limitation, or schedule of compliance required by any State to be implemented prior to the dates set forth in sections 1311(b) (1) and 1311(b) (2) of this title nor to preclude any

State from requiring compliance with any effluent limitation or schedule of compliance at dates earlier than such dates.

Heat standards

(g) Water quality standards relating to heat shall be consistent with the requirements of section 1326 of this title.

Thermal water quality standards

(h) For the purposes of this chapter the term "water quality standards" includes thermal water quality standards.

June 30, 1948, c. 758, Title III, § 303, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 846.

§ 1314. Information and guidelines—Criteria development and publication

(a) (1) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within one year after October 18, 1972 (and from time to time thereafter revise) criteria for water quality accurately reflecting the latest scientific knowledge (A) on the kind and extent of all identifiable effects on health and welfare including, but not limited to, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics, and recreation which may be expected from the presence of pollutants in any body of water, including ground water; (B) on the concentration and dispersal of pollutants, or their byproducts, through biological, physical, and chemical processes; and (C) on the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication and rates of organic and inorganic sedimentation for varying types of receiving waters.

(2) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish, within one year after October 18, 1972 (and from time to time thereafter revise) information (A) on the factors necessary to restore and maintain the chemical, physical, and biological integrity of all navigable waters, ground waters, waters of the contiguous zone, and the oceans; (B) on the factors necessary for the protection and propagation of shellfish, fish and wildlife for classes and categories of receiving waters and to allow recreational activities in and on the water; and (C) on the measurement and classification of water quality; and (D) for the purpose of section 1313 of this title,

on and the identification of pollutants suitable for maximum daily load measurement correlated with the achievement of water quality objectives.

(3) Such criteria and information and revisions thereof shall be issued to the States and shall be published in the Federal Register and otherwise made available to the public.

Effluent limitation guidelines

(b) For the purpose of adopting or revising effluent limitations under this chapter the Administrator shall, after consultation with appropriate Federal and State agencies and other interested persons, publish within one year of October 18, 1972, regulations, providing guidelines for effluent limitations and, at least annually thereafter, revise, if appropriate, such regulations. Such regulations shall—

(1) (A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable through the application of the best practicable control technology currently available for classes and categories of point sources (other than publicy owned treatment works); and

(B) specify factors to be taken into account in determining the control measures and practices to be applicable to point sources (other than publicly owned treatment works) within such categories or classes. Factors relating to the assessment of best practicable control technology currently available to comply with subsection (b) (1) of section 1311 of this title shall include consideration of the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, and shall also take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate;

(2) (A) identify, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, the degree of effluent reduction attainable through the application of the best control measures and practices achievable including treatment techniques, process and procedure innovations, operating methods, and

other alternatives for classes and categories of point sources (other than publicly owned treatment works); and

(B) specify factors to be taken into account in determining the best measures and practices available to comply with subsection (b) (2) of section 1311 of this title to be applicable to any point source (other than publicly owned treatment works) within such categories or classes. Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate; and

(3) identify control measures and practices available to eliminate the discharge of pollutants from categories and classes of point sources, taking into account the cost of achieving such elimination of the discharge of pollutants.

Pollution discharge elimination procedures

(c) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall issue to the States and appropriate water pollution control agencies within 270 days after October 18, 1972 (and from time to time thereafter) information on the processes, procedures, or operating methods which result in the elimination or reduction of the discharge of pollutants to implement standards of performance under section 1316 of this title. Such information shall include technical and other data, including costs, as are available on alternative methods of elimination or reduction of the discharge of pollutants. Such information, and revisions thereof, shall be published in the Federal Register and otherwise shall be made available to the public.

Secondary treatment information; alternative waste treatment management techniques and systems

(d) (1) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall publish within sixty days after October 18, 1972 (and from time to time thereafter) information, in terms of amounts of constituents and chemical, physical, and biological characteristics of pollutants, on the degree of effluent reduction attainable through the application of secondary treatment.

(2) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall publish within nine months after October 18, 1972 (and from time to time thereafter) information on alternative waste treatment management techniques and systems available to implement section 1281 of this title.

Identification and evaluation of nonpoint sources of pollution; processes, procedures, and methods to control pollution

(e) The Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall issue to appropriate Federal agencies, the States, water pollution control agencies, and agencies designated under section 1288 of this title, within one year after October 18, 1972 (and from time to time thereafter) information including (1) guidelines for identifying and evaluating the nature and extent of nonpoint sources of pollutants, and (2) processes, procedures, and methods to control pollution resulting from—

(A) agricultural and silvicultural activities, including runoff from fields and crop and forest lands;

(B) mining activities, including runoff and siltation from new, currently operating, and abandoned surface and underground mines;

(C) all construction activity, including runoff from the facilities resulting from such construction;

(D) the disposal of pollutants in wells or in subsurface excavations;

(E) salt water intrusion resulting from reductions of fresh water flow from any cause including extraction of ground water, irrigation, obstruction, and diversion; and

(F) changes in the movement, flow, or circulation of any navigable waters or ground waters, including changes caused by the construction of dams, levees, channels, causeways, or flow diversion facilities.

Such information and revisions thereof shall be published in the Federal Register and otherwise made available to the public.

Guidelines for pretreatment of pollutants

(f) (1) For the purpose of assisting States in carrying out programs under section 1342 of this title, the Administrator shall publish, within one hundred and twenty days after October 18, 1972, and review at least annually thereafter and, if appropriate, revise guidelines for pretreatment of pollutants which

he determines are not susceptible to treatment by publicly owned treatment works. Guidelines under this subsection shall be established to control and prevent the discharge into the navigable waters, the contiguous zone, or the ocean (either directly or through publicly owned treatment works) of any pollutant which interferes with, passes through, or otherwise is incompatible with such works.

(2) When publishing guidelines under this subsection, the Administrator shall designate the category or categories of treatment works to which the guidelines shall apply.

Test procedure guidelines

(g) The Administrator shall, within one hundred and eighty days from October 18, 1972, promulgate guidelines establishing test procedures for the analysis of pollutants that shall include the factors which must be provided in any certification pursuant to section 1341 of this title or permit application pursuant to section 1342 of this title.

Guidelines for monitoring, reporting, enforcement, funding, personnel, and manpower

(h) The Administrator shall (1) within sixty days after October 18, 1972, promulgate guidelines for the purpose of establishing uniform application forms and other minimum requirements for the acquisition of information from owners and operators of point sources of discharge subject to any State program under section 1342 of this title, and (2) within sixty days from October 18, 1972, promulgate guidelines establishing the minimum procedural and other elements of any State program under section 1342 of this title which shall include:

(A) monitoring requirements;

(B) reporting requirements (including procedures to make information available to the public);

(C) enforcement provisions; and

(D) funding, personnel qualifications, and manpower requirements (including a requirement that no board or body which approves permit applications or protions thereof shall include, as a member, any person who receives, or has during the previous two years received, a significant portion of his income dirctly or indirectly from permit holders or applicants for a permit).

Restoration and enhancement of publicly owned fresh water lakes

(i) The Administrator shall, within 270 days after October

18, 1972 (and from time to time thereafter), issue such information on methods, procedures, and processes as may be appropriate to restore and enhance the quality of the Nation's publicly owned fresh water lakes.

Agreements with Secretaries of Agriculture, Army, and Interior to provide maximum utilization of programs to achieve and maintain water quality; transfer of funds; authorization of appropriations

(j) (1) The Administrator shall, within six months from October 18, 1972, enter into agreements with the Secretary of Agriculture, the Secretary of the Army, and the Secretary of the Interior to provide for the maximum utilization of the appropriate programs authorized under other Federal law to be carried out by such Secretaries for the purpose of achieving and maintaining water quality through appropriate implementation of plans approved under section 1288 of this title.

(2) The Administrator, pursuant to any agreement under paragraph (1) of this subsection is authorized to transfer to the Secretary of Agriculture, the Secretary of the Army, or the Secretary of the Interior any funds appropriated under paragraph (3) of this subsection to supplement any funds otherwise appropriated to carry out appropriate programs authorized to be carried out by such Secretaries.

(3) There is authorized to be appropriated to carry out the provisions of this subsection, $100,000,000 per fiscal year for the fiscal year ending June 30, 1973, and for the fiscal year ending June 30, 1974.

June 30, 1948, c. 758, Title III, § 304, as added Oct. 18, 1972, Pub.L 92–500, § 2, 86 Stat. 850.

§ 1315. Water quality inventory; State reports; transmittal to Congress

(a) The Administrator, in cooperation with the States and with the assistance of appropriate Federal agencies, shall prepare a report to be submitted to the Congress on or before January 1, 1974, which shall—

(1) describe the specific quality, during 1973, with appropriate supplemental descriptions as shall be required to take into account seasonal, tidal, and other variations, of all navigable waters and the waters of the contiguous zone;

(2) include an inventory of all point sources of discharge (based on a qualitative and quantitative analysis of discharges) of pollutants, into all navigable waters and the waters of the contiguous zone; and

(3) identify specifically those navigable waters, the quality of which—

(A) is adequate to provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water;

(B) can reasonably be expected to attain such level by 1977 or 1983; and

(C) can reasonably be expected to attain such level by any later date.

(b) (1) Each State shall prepare and submit to the Administrator by January 1, 1975, and shall bring up to date each year thereafter, a report which shall include—

(A) a description of the water quality of all navigable waters in such State during the preceding year, with appropriate supplemental descriptions as shall be required to take into account seasonal, tidal, and other variations, correlated with the quality of water required by the objective of this chapter (as identified by the Administrator pursuant to criteria published under section 1314(a) of this title) and the water quality described in subparagraph (B) of this paragraph;

(B) an analysis of the extent to which all navigable waters of such State provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities in and on the water;

(C) an analysis of the extent to which the elimination of the discharge of pollutants and a level of water quality which provides for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreational activities in and on the water, have been or will be achieved by the requirements of this chapter, together with recommendations as to additional action necessary to achieve such objectives and for what waters such additional action is necessary;

(D) an estimate of (i) the environmental impact, (ii) the economic and social costs necessary to achieve the objective of this chapter in such State, (iii) the economic and social benefits of such achievement, and (iv) an estimate of the date of such achievement; and

(E) a description of the nature and extent of nonpoint sources of pollutants, and recommendations as to the programs which must be undertaken to control each category of

such sources, including an estimate of the costs of implementing such programs.

(2) The Administrator shall transmit such State reports, together with an analysis thereof, to Congress on or before October 1, 1975, and annually thereafter.

June 30, 1948, c. 758, Title III, § 305, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 853.

§ 1316. National standards of performance—Definitions

(a) For purposes of this section:

(1) The term "standard of performance" means a standard for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

(2) The term "new source" means any source, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance under this section which will be applicable to such source, if such standard is thereafter promulgated in accordance with this section.

(3) The term "source" means any building, structure, facility, or installation from which there is or may be the discharge of pollutants.

(4) The term "owner or operator" means any person who owns, leases, operates, controls, or supervises a source.

(5) The term "construction" means any placement, assembly, or installation of facilities or equipment (including contractual obligations to purchase such facilities or equipment) at the premises where such equipment will be used, including preparation work at such premises.

Categories of sources; Federal standards of performance for new sources

(b) (1) (A) The Administrator shall, within ninety days after October 18, 1972, publish (and from time to time thereafter shall revise) a list of categories of sources, which shall, at the minimum, include:

pulp and paper mills;
paperboard, builders paper and board mills;
meat product and rendering processing;
dairy product processing;
grain mills;

canned and preserved fruits and vegetables processing;
canned and preserved seafood processing;
sugar processing;
textile mills;
cement manufacturing;
feedlots;
electroplating;
organic chemicals manufacturing;
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 powerplants;
ferroalloy manufacturing;
leather tanning and finishing;
glass and asbestos manufacturing;
rubber processing; and
timber products processing.

(B) As soon as practicable, but in no case more than one year, after a category of sources is included in a list under subparagraph (A) of this paragraph, the Administrator shall propose and publish regulations establishing Federal standards of performance for new sources within such category. The Administrator shall afford interested persons an opportunity for written comment on such proposed regulations. After considering such comments, he shall promulgate, within one hundred and twenty days after publication of such proposed regulations, such standards with such adjustments as he deems appropriate. The Administrator shall, from time to time, as technology and alternatives change, revise such standards following the procedure required by this subsection for promulgation of such standards. Standards of performance, or revisions thereof, shall become effective upon promulgation. In establishing or revising Federal standards of performance for new sources under this section, the Administrator shall take into consideration the cost of achieving such effluent reduction, and any non-water quality environmental impact and energy requirements.

(2) The Administrator may distinguish among classes, types, and sizes within categories of new sources for the purpose of

establishing such standards and shall consider the type of process employed (including whether batch or continuous).

(3) The provisions of this section shall apply to any new source owned or operated by the United States.

State enforcement of standards of performance

(c) Each State may develop and submit to the Administrator a procedure under State law for applying and enforcing standards of performance for new sources located in such State. If the Administrator finds that the procedure and the law of any State require the application and enforcement of standards of performance to at least the same extent as required by this section, such State is authorized to apply and enforce such standards of performance (except with respect to new sources owned or operated by the United States).

Protection from more stringent standards

(d) Notwithstanding any other provision of this chapter, any point source the construction of which is commenced after October 18, 1972, and which is so constructed as to meet all applicable standards of performance shall not be subject to any more stringent standard of performance during a ten-year period beginning on the date of completion of such construction or during the period of depreciation or amortization of such facility for the purposes of section 167 or 169 (or both) of Title 26, whichever period ends first.

Illegality of operation of new sources in violation of applicable standards of performance

(e) After the effective date of standards of performance promulgated under this section, it shall be unlawful for any owner or operator of any new source to operate such source in violation of any standard of performance applicable to such source.

June 30, 1948, c. 758, Title III, § 306, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 854.

§ 1317. Toxic and pretreatment effluent standards; establishment; revision; illegality of source operation in violation of standards

(a) (1) The Administrator shall, within ninety days after October 18, 1972, publish (and from time to time thereafter revise) a list which includes any toxic pollutant or combination of such pollutants for which an effluent standard (which may in-

clude a prohibition of the discharge of such pollutants or combination of such pollutants) will be established under this section. The Administrator in publishing such list shall take into account the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms and the nature and extent of the effect of the toxic pollutant on such organisms.

(2) Within one hundred and eighty days after the date of publication of any list, or revision thereof, containing toxic pollutants or combination of pollutants under paragraph (1) of this subsection, the Administrator, in accordance with section 553 of Title 5, shall publish a proposed effluent standard (or a prohibition) for such pollutant or combination of pollutants which shall take into account the toxicity of the pollutant, its persistence, degradability, the usual or potential presence of the affected organisms in any waters, the importance of the affected organisms and the nature and extent of the effect of the toxic pollutant on such organisms, and he shall publish a notice for a public hearing on such proposed standard to be held within thirty days. As soon as possible after such hearing, but not later than six months after publication of the proposed effluent standard (or prohibition), unless the Administrator finds, on the record, that a modification of such proposed standard (or prohibition) is justified based upon a preponderance of evidence adduced at such hearings, such standard (or prohibition) shall be promulgated.

(3) If after a public hearing the Administrator finds that a modification of such proposed standard (or prohibition) is justified, a revised effluent standard (or prohibition) for such pollutant or combination of pollutants shall be promulgated immediately. Such standard (or prohibition) shall be reviewed and, if appropriate, revised at least every three years.

(4) Any effluent standard promulgated under this section shall be at that level which the Administrator determines provides an ample margin of safety.

(5) When proposing or promulgating any effluent standard (or prohibition) under this section, the Administrator shall designate the category or categories of sources to which the effluent standard (or prohibition) shall apply. Any disposal of dredged material may be included in such a category of sources after consultation with the Secretary of the Army.

(6) Any effluent standard (or prohibition) established pursuant to this section shall take effect on such date or dates as specified in the order promulgating such standard, but in no case more than one year from the date of such promulgation.

(7) Prior to publishing any regulations pursuant to this section the Administrator shall, to the maximum extent practicable within the time provided, consult with appropriate advisory committees, States, independent experts, and Federal departments and agencies.

(b) (1) The Administrator shall, within one hundred and eighty days after October 18, 1972, and from time to time thereafter, publish proposed regulations establishing pretreatment standards for introduction of pollutants into treatment works (as defined in section 1292 of this title) which are publicly owned for those pollutants which are determined not to be susceptible to treatment by such treatment works or which would interfere with the operation of such treatment works. Not later than ninety days after such publication, and after opportunity for public hearing, the Administrator shall promulgate such pretreatment standards. Pretreatment standards under this subsection shall specify a time for compliance not to exceed three years from the date of promulgation and shall be established to prevent the discharge of any pollutant through treatment works (as defined in section 1292 of this title) which are publicly owned, which pollutant interferes with, passes through, or otherwise is incompatible with such works.

(2) The Administrator shall, from time to time, as control technology, processes, operating methods, or other alternatives change, revise such standards following the procedure established by this subsection for promulgation of such standards.

(3) When proposing or promulgating any pretreatment standard under this section, the Administrator shall designate the category or categories of sources to which such standard shall apply.

(4) Nothing in this subsection shall affect any pretreatment requirement established by any State or local law not in conflict with any pretreatment standard established under this subsection.

(c) In order to insure that any source introducing pollutants into a publicly owned treatment works, which source would be a new source subject to section 1316 of this title if it were to discharge pollutants, will not cause a violation of the effluent limitations established for any such treatment works, the Administrator shall promulgate pretreatment standards for the category of such sources simultaneously with the promulgation of standards of performance under section 1316 of this title for the equivalent category of new sources. Such pretreatment standards shall pre-

vent the discharge of any pollutant into such treatment works, which pollutant may interfere with, pass through, or otherwise be incompatible with such works.

(d) After the effective date of any effluent standard or prohibition or pretreatment standard promulgated under this section, it shall be unlawful for any owner or operator of any source to operate any source in violation of any such effluent standard or prohibition or pretreatment standard.

June 30, 1948, c. 758, Title III, § 307, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 856.

§ 1318. Inspections, monitoring, and entry

(a) Whenever required to carry out the objective of this chapter, including but not limited to (1) developing or assisting in the development of any effluent limitation, or other limitation, prohibition, or effluent standard, pretreatment standard, or standard of performance under this chapter; (2) determining whether any person is in violation of any such effluent limitation, or other limitation, prohibition or effluent standard, pretreatment standard, or standard of performance; (3) any requirement established under this section; or (4) carrying out sections 1315, 1321, 1342, and 1364 of this title—

(A) the Administrator shall require the owner or operator of any point source to (i) establish and maintain such records, (ii) make such reports, (iii) install, use, and maintain such monitoring equipment or methods (including where appropriate, biological monitoring methods), (iv) sample such effluents (in accordance with such methods, at such locations, at such intervals, and in such manner as the Administrator shall prescribe), and (v) provide such other information as he may reasonably require; and

(B) the Administrator or his authorized representative, upon presentation of his credentials—

(i) shall have a right of entry to, upon, or through any premises in which an effluent source is located or in which any records required to be maintained under clause (A) of this subsection are located, and

(ii) may at reasonable times have access to and copy any records, inspect any monitoring equipment or method required under clause (A), and sample any effluents which the owner or operator of such source is required to sample under such clause.

(b) Any records, reports, or information obtained under this

section (1) shall, in the case of effluent data, be related to any applicable effluent limitations, toxic, pretreatment, or new source performance standards, and (2) shall be available to the public, except that upon a showing satisfactory to the Administrator by any person that records, reports, or information, or particular part thereof (other than effluent data), to which the Administrator has access under this section, if made public would divulge methods or processes entitled to protection as trade secrets of such person, the Administrator shall consider such record, report, or information, or particular portion thereof confidential in accordance with the purposes of section 1905 of Title 18, except that such record, report, or information may be disclosed to other officers, employees, or authorized representatives of the United States concerned with carrying out this chapter or when relevant in any proceeding under this chapter.

(c) Each State may develop and submit to the Administrator procedures under State law for inspection, monitoring, and entry with respect to point sources located in such State. If the Administrator finds that the procedures and the law of any State relating to inspection, monitoring, and entry are applicable to at least the same extent as those required by this section, such State is authorized to apply and enforce its procedures for inspection, monitoring, and entry with respect to point sources located in such State (except with respect to point sources owned or operated by the United States).

June 30, 1948, c. 758, Title III, § 308, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 858.

§ 1319. Enforcement—State enforcement; compliance orders

(a) (1) Whenever, on the basis of any information available to him, the Administrator finds that any person is in violation of any condition or limitation which implements section 1311, 1312, 1316, 1317, or 1318 of this title in a permit issued by a State under an approved permit program under section 1342 of this title, he shall proceed under his authority in paragraph (3) of this subsection or he shall notify the person in alleged violation and such State of such finding. If beyond the thirtieth day after the Administrator's notification the State has not commenced appropriate enforcement action, the Administrator shall issue an order requiring such person to comply with such condition or limitation or shall bring a civil action in accordance with subsection (b) of this section.

(2) Whenever, on the basis of information available to him,

the Administrator finds that violations of permit conditions or limitations as set forth in paragraph (1) of this subsection are so widespread that such violations appear to result from a failure of the State to enforce such permit conditions or limitations effectively, he shall so notify the State. If the Administrator finds such failure extends beyond the thirtieth day after such notice, he shall give public notice of such finding. During the period beginning with such public notice and ending when such State satisfies the Administrator that it will enforce such conditions and limitations (hereafter referred to in this section as the period of "federally assumed enforcement"), the Administrator shall enforce any permit condition or limitation with respect to any person—

(A) by issuing an order to comply with such condition or limitation, or

(B) by bringing a civil action under subsection (b) of this section.

(3) Whenever on the basis of any information available to him the Administrator finds that any person is in violation of section 1311, 1312, 1316, 1317, or 1318 of this title, or is in violation of any permit condition or limitation implementing any of such sections in a permit issued under section 1342 of this title by him or by a State, he shall issue an order requiring such person to comply with such section or requirement, or he shall bring a civil action in accordance with subsection (b) of this section.

(4) A copy of any order issued under this subsection shall be sent immediately by the Administrator to the State in which the violation occurs and other affected States. Any order issued under this subsection shall be by personal service and shall state with reasonable specificity the nature of the violation, specify a time for compliance, not to exceed thirty days, which the Administrator determines is reasonable, taking into account the seriousness of the violation and any good faith efforts to comply with applicable requirements. In any case in which an order under this subsection (or notice to a violator under paragraph (1) of this subsection) is issued to a corporation, a copy of such order (or notice) shall be served on any appropriate corporate officers. An order issued under this subsection relating to a violation of section 1318 of this title shall not take effect until the person to whom it is issued has had an opportunity to confer with the Administrator concerning the alleged violation.

Civil actions

(b) The Administrator is authorized to commence a civil action for appropriate relief, including a permanent or temporary injunction, for any violation for which he is authorized to issue a compliance order under subsection (a) of this section. Any action under this subsection may be brought in the district court of the United States for the district in which the defendant is located or resides or is doing business, and such court shall have jurisdiction to restrain such violation and to require compliance. Notice of the commencement of such action shall be given immediately to the appropriate State.

Criminal penalties

(c) (1) Any person who willfully or negligently violates section 1311, 1312, 1316, 1317, or 1318 of this title, or any permit condition or limitation implementing any of such sections in a permit issued under section 1342 of this title by the Administrator or by a State, shall be punished by a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or by both. If the conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two years, or by both.

(2) Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this chapter or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this chapter, shall upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both.

(3) For the purposes of this subsection, the term "person" shall mean, in addition to the definition contained in section 1362 (5) of this title, any responsible corporate officer.

Civil penalties

(d) Any person who violates section 1311, 1312, 1316, 1317, or 1318 of this title, or any permit condition or limitation implementing any of such sections in a permit issued under section 1342 of this title by the Administrator, or by a State, and any person who violates any order issued by the Administrator under

subsection (a) of this section, shall be subject to a civil penalty not to exceed $10,000 per day of such violation.

State liability for judgments and expenses

(e) Whenever a municipality is a party to a civil action brought by the United States under this section, the State in which such municipality is located shall be joined as a party. Such State shall be liable for payment of any judgment, or any expenses incurred as a result of complying with any judgment, entered against the municipability in such action to the extent that the laws of that State prevent the municipality from raising revenues needed to comply with such judgment.
June 30, 1948, c. 758, Title III, § 309, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 859.

§ 1320. International pollution abatement—Hearing; participation by foreign nations

(a) Whenever the Administrator, upon receipts of reports, surveys, or studies from any duly constituted international agency, has reason to believe that pollution is occurring which endangers the health or welfare of persons in a foreign country, and the Secretary of State requests him to abate such pollution, he shall give form notification thereof to the State water pollution control agency of the State or States in which such discharge or discharges originate and to the appropriate interstate agency, if any. He shall also promptly call such a hearing, if he believes that such pollution is occurring in sufficient quantity to warrant such action, and if such foreign country has given the United States essentially the same rights with respect to the prevention and control of pollution occurring in that country as is given that country by this subsection. The Administrator, through the Secretary of State, shall invite the foreign country which may be adversely affected by the pollution to attend and participate in the hearing, and the representative of such country shall, for the purpose of the hearing and any further proceeding resulting from such hearing, have all the rights of a State water pollution control agency. Nothing in this subsection shall be construed to modify, amend, repeal, or otherwise affect the provisions of the 1909 Boundary Waters Treaty between Canada and the United States or the Water Utilization Treaty of 1944 between Mexico and the United States (59 Stat. 1219), relative to the control and abatement of pollution in waters covered by those treaties.

Functions and responsibilities of Administrator not affected

(b) The calling of a hearing under this section shall not be construed by the courts, the Administrator, or any person as limiting, modifying, or otherwise affecting the functions and responsibilities of the Administrator under this section to establish and enforce water quality requirements under this chapter.

Hearing board; composition; findings of fact; recommendations; implementation of board's decision

(c) The Administrator shall publish in the Federal Register a notice of a public hearing before a hearing board of five or more persons appointed by the Administrator. A majority of the members of the board and the chairman who shall be designated by the Administrator shall not be officers or employees of Federal, State, or local governments. On the basis of the evidence presented at such hearing, the board shall within sixty days after completion of the hearing make findings of fact as to whether or not such pollution is occurring and shall thereupon by decision, incorporating its findings therein, make such recommendations to abate the pollution as may be appropriate and shall transmit such decision and the record of the hearings to the Administrator. All such decisions shall be public. Upon receipt of such decision, the Administrator shall promptly implement the board's decision in accordance with the provisions of this chapter.

Report by alleged polluter

(d) In connection with any hearing called under this subsection, the board is authorized to require any person whose alleged activities result in discharges causing or contributing to polltion to file with it in such forms as it may prescribe, a report based on existing data, furnishing such information as may reasonably be required as to the character, kind, and quantity of such discharges and the use of facilities or other means to prevent or reduce such discharges by the person filing such a report. Such report shall be made under oath or otherwise, as the board may prescribe, and shall be filed with the board within such reasonable period as it may prescribe, unless additional time is granted by it. Upon a showing satisfactory to the board by the person filing such report that such report or portion thereof (other than effluent data), to which the Administrator has access under this section, if made public would divulge trade secrets or secret processes of such person, the board shall consider such report or portion thereof confidential for the purposes of sec-

tion 1905 of Title 18. If any person required to file any report under this paragraph shall fail to do so within the time fixed by the board for filing the same, and such failure shall continue for thirty days after notice of such default, such person shall forfeit to the United States the sum of $1,000 for each and every day of the continuance of such failure, which forfeiture shall be payable into the Treasury of the United States, and shall be recoverable in a civil suit in the name of the United States in the district court of the United States where such person has his principal office or in any district in which he does business. The Administrator may upon application therefor remit or mitigate any forfeiture provided for under this subsection.

Compensation of board members

(e) Board members, other than officers or employees of Federal, State, or local governments, shall be for each day (including traveltime) during which they are performing board business, entitled to receive compensation at a rate fixed by the Administrator but not in excess of the maximum rate of pay for grade GS–18, as provided in the General Schedule under section 5332 of Title 5, and shall, notwithstanding the limitations of sections 5703 and 5704 of Title 5, be fully reimbursed for travel, subsistence, and related expenses.

Enforcement proceedings

(f) When any such recommendation adopted by the Administrator involves the institution of enforcement proceedings against any person to obtain the abatement of pollution subject to such recommendation, the Administrator shall institute such proceedings if he believes that the evidence warrants such proceedings. The district court of the United States shall consider and determine de novo all relevant issues, but shall receive in evidence the record of the proceedings before the conference or hearing board. The court shall have jurisdiction to enter such judgment and orders enforcing such judgment as it deems appropriate or to remand such proceedings to the Administrator for such further action as it may direct.

June 30, 1948, c. 758, Title III, § 310, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 860.

§1321. Oil and hazardous substance liability—Definitions

(a) For the purpose of this section the term—

(1) "oil" means oil of any kind or in any form, including,

but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil;

(2) "discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping;

(3) "vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel;

(4) "public vessel" means a vessel owned or bareboat-chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce;

(5) "United States" means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands;

(6) "owner or operator" means (A) in the case of a vessel, any person owning, operating, or chartering by demise, such vessel, and (B) in the case of an onshore facility, and an offshore facility, any person owning or operating such onshore facility or off shore facility, and (C) in the case of any abandoned offshore facility, the person who owned or operated such facility immediately prior to such abandonment;

(7) "person" includes an individual, firm, corporation, association, and a partnership;

(8) "remove" or "removal" refers to removal of the oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches;

(9) "continguous zone" means the entire zone established or to be established by the United States under article 24 of the Convention on the Territorial Sea and the Contiguous Zone;

(10) "onshore facility" means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under, any land within the United States other than submerged land;

(11) "offshore facility" means any facility of any kind located in, on, or under, any of the navigable waters of the United States other than a vessel or a public vessel;

(12) "act of God" means an act occasioned by an unanticipated grave natural disaster;

(13) "barrel" means 42 United States gallons at 60 degrees Fahrenheit;

(14) "hazardous substance" means any substance designated pursuant to subsection (b) (2) of this section.

Congressional declaration of policy against discharges of oil or hazardous substances; designation of hazardous substances; determination of removability; liability; penalties

(b) (1) The Congress hereby declares that it is the policy of the United States that there should be no discharges of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone.

(2) (A) The Administrator shall develop, promulgate, and revise as may be appropriate, regulations designating as hazardous substances, other than oil as defined in this section, such elements and compounds which, when discharged in any quantity into or upon the navigable waters of the United States or adjoining shorelines or the waters of the contiguous zone, present an imminent and substantial danger to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, shorelines, and beaches.

(B) (i) The Administrator shall include in any designation under subparagraph (A) of this subsection a determination whether any such designated hazardous substance can actually be removed.

(ii) The owner or operator of any vessel, onshore facility, or offshore facility from which there is discharged during the two-year period beginning on October 18, 1972, any hazardous substance determined not removable under clause (i) of this subparagraph shall be liable, subject to the defenses to liability provided under subsection (f) of this section, as appropriate, to the United States for a civil penalty per discharge established by the Administrator based on toxicity, degradability, and dispersal characteristics of such substance, in an amount not to exceed $50,000, except that where the United States can show that such discharge was a result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States for a civil penalty in such amount as the Administrator shall establish, based upon the toxicity, degradability, and dispersal characteristics of such substance.

(iii) After the expiration of the two-year period referred to in clause (ii) of this subparagraph, the owner or operator of any vessel, onshore facility, or offshore facility, from which there is discharged any hazardous substance determined not removable under clause (i) of this subparagraph shall be liable, subject to the defenses to liability provided in subsection (f) of this section, to the United States for either one or the other of the following penalties, the determination of which shall be in the discretion of the Administrator:

(aa) a penalty in such amount as the Administrator shall establish, based on the toxicity, degradability, and dispersal characteristics of the substance, but not less than $500 nor more than $5,000; or

(bb) a penalty determined by the number of units discharged multiplied by the amount established for such unit under clause (iv) of this subparagraph, but such penalty shall not be more than $5,000,000 in the case of a discharge from a vessel and $500,000 in the case of a discharge from an onshore or offshore facility.

(iv) The Administrator shall establish by regulation, for each hazardous substance designated under subparagraph (A) of this paragraph, and within 180 days of the date of such designation, a unit of measurement based upon the usual trade practice and, for the purpose of determining the penalty under clause (iii) (bb) of this subparagraph, shall establish for each such unit a fixed monetary amount which shall be not less than $100 nor more than $1,000 per unit. He shall establish such fixed amount based on the toxicity, degradability, and dispersal characteristics of the substance.

(3) The discharge of oil or hazardous substances into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone in harmful quantities as determined by the President under paragraph (4) of this subsection, is prohibited, except (A) in the case of such discharges of oil into the waters of the contiguous zone, where permitted under article IV of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended, and (B) where permitted in quantities and at times and locations or under such circumstances or conditions as the President may, by regulation, determine not to be harmful. Any regulations issued under this subsection shall be consistent with maritime safety and with marine and navigation laws and regulations and applicable water quality standards.

(4) The President shall by regulation, to be issued as soon as possible after October 18, 1972 determine for the purposes of this section, those quantities of oil and any hazardous substance the discharge of which, at such times, locations, circumstances, and conditions, will be harmful to the public health or welfare of the United States, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches except that in the case of the discharge of oil into or upon the waters of the contiguous zone, only those discharges which threaten the fishery resources of the contiguous zone or threaten to pollute or contribute to the pollution of the territory or the territorial sea of the United States may be determined to be harmful.

(5) Any person in charge of a vessel or of an onshore facility or an offshore facility shall, as soon as he has knowledge of any discharge of oil or a hazardous substance from such vessel or facility in violation of paragraph (3) of this subsection, immediately notify the appropriate agency of the United States Government of such discharge. Any such person who fails to notify immediately such agency of such discharge shall, upon conviction, be fined not more than $10,000, or imprisoned for not more than one year, or both. Notification received pursuant to this paragraph or information obtained by the exploitation of such notification shall not be used against any such person in any criminal case, except a prosecution for perjury or for giving a false statement.

(6) Any owner or operator of any vessel, onshore facility, or offshore facility from which oil or a hazardous substance is discharged in violation of paragraph (3) of this subsection shall be assessed a civil penalty by the Secretary of the department in which the Coast Guard is operating of not more than $5,000 for each offense. No penalty shall be assessed unless the owner or operator charged shall have been given notice and opportunity for a hearing on such charge. Each violation is a separate offense. Any such civil penalty may be compromised by such Secretary. In determining the amount of the penalty, or the amount agreed upon in compromise, the appropriateness of such penalty to the size of the business of the owner or operator charged, the effect on the owner or operator's ability to continue in business, and the gravity of the violation, shall be considered by such Secretary. The Secretary of the Treasury shall withhold at the request of such Secretary the clearance required by section 91 of Title 46 of any vessel the owner or operator of which is

subject to the foregoing penalty. Clearance may be granted in such cases upon the filing of a bond or other surety satisfactory to such Secretary.

Removal of discharged oil or hazardous substances; National Contingency Plan

(c) (1) Whenever any oil or a hazardous substance is discharged, into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, the President is authorized to act to remove or arrange for the removal of such oil or substance at any time, unless he determines such removal will be done properly by the owner or operator of the vessel, onshore facility, or offshore facility from which the discharge occurs.

(2) Within sixty days after October 18, 1972, the President shall prepare and publish a National Contingency Plan for removal of oil and hazardous substances, pursuant to this subsection. Such National Contingency Plan shall provide for efficient, coordinated, and effective action to minimize damage from oil and hazardous substance discharges, including containment, dispersal, and removal of oil and hazardous substances, and shall include, but not be limited to—

(A) assignment of duties and responsibilities among Federal departments and agencies in coordination with State and local agencies, including, but not limited to, water pollution control, conservation, and port authorities;

(B) identification, procurement, maintenance, and storage of equipment and supplies;

(C) establishment or designation of a strike force consisting of personnel who shall be trained, prepared, and available to provide necessary services to carry out the Plan, including the establishment at major ports, to be determined by the President, of emergency task forces of trained personnel, adequate oil and hazardous substance pollution control equipment and material, and a detailed oil and hazardous substance pollution prevention and removal plan;

(D) a system of surveillance and notice designed to insure earliest possible notice of discharges of oil and hazardous substances to the appropriate Federal agency;

(E) establishment of a national center to provide coordination and direction for operations in carrying out the Plan;

(F) procedures and techniques to be employed in identi-

fying, containing, dispersing, and removing oil and hazardous substances;

(G) a schedule, prepared in cooperation with the States, identifying (i) dispersants and other chemicals, if any, that may be used in carrying out the Plan, (ii) the waters in which such dispersants and chemicals may be used, and (iii) the quantities of such dispersant or chemical which can be used safely in such waters, which schedule shall provide in the case of any dispersant, chemical, or waters not specifically identified in such schedule that the President, or his delegate, may, on a case-by-case basis, identify the dispersants and other chemicals which may be used, the waters in which they may be used, and the quantities which can be used safely in such waters; and

(H) a system whereby the State or States affected by a discharge of oil or hazardous substance may act where necessary to remove such discharge and such State or States may be reimbursed from the fund established under subsection (k) of this section for the reasonable costs incurred in such removal.

The President may, from time to time, as he deems advisable revise or otherwise amend the National Contingency Plan. After publication of the National Contingency Plan, the removal of oil and hazardous substances and actions to minimize damage from oil and hazardous substance discharges shall, to the greatest extent possible, be in accordance with the National Contingency Plan.

Maritime disaster discharges

(d) Whenever a marine disaster in or upon the navigable waters of the United States has created a substantial threat of a pollution hazard to the public health or welfare of the United States, including, but not limited to, fish, shellfish, and wildlife and the public and private shorelines and beaches of the United States, because of a discharge, or an imminent discharge, of large quantities of oil, or of a hazardous substance from a vessel the United States may (A) coordinate and direct all public and private efforts directed at the removal or elimination of such threat; and (B) summarily remove, and, if necessary, destroy such vessel by whatever means are available without regard to any provisions of law governing the employment of personnel or the expenditure of appropriated funds. Any expense incurred under this subsection shall be a cost incurred by the United

States Government for the purposes of subsection (f) of this section in the removal of oil or hazardous substance.

Judicial relief

(e) In addition to any other action taken by a State or local government, when the President determines there is an imminent and substantial threat to the public health or welfare of the United States, including, but not limited to, fish, shellfish, and wildlife and public and private property, shorelines, and beaches within the United States, because of an actual or threatened discharge of oil or hazardous substance into or upon the navigable waters of the United States from an onshore or offshore facility, the President may require the United States attorney of the district in which the threat occurs to secure such relief as may be necessary to abate such threat, and the district courts of the United States shall have jurisdiction to grant such relief as the public interest and the equities of the case may require.

Liability for actual costs of removal

(f) (1) Except where an owner or operator can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any vessel from which oil or a hazardous substance is discharged in violation of subsection (b) (3) of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) of this section for the removal of such oil or substance by the United States Government in an amount not to exceed $100 per gross ton of such vessel or $14,000,000, whichever is lesser, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. Such costs shall constitute a maritime lien on such vessel which may be recovered in an action in rem in the district court of the United States for any district within which any vessel may be found. The United States may also bring an action against the owner or operator of such vessel in any court of competent jurisdiction to recover such costs.

(2) Except where an owner or operator of an onshore facility

can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any such facility from which oil or a hazardous substance is discharged in violation of subsection (b) (3) of this section shall be liable to the United States Government for the actual costs incurred under subsection (c) of this section for the removal of such oil or substance by the United States Government in an amount not to exceed $8,000,000, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such facility in any court of competent jurisdiction to recover such costs. The Administrator is authorized, by regulation, after consultation with the Secretary of Commerce and the Small Business Administration, to establish reasonable and equitable classifications of those onshore facilities having a total fixed storage capacity of 1,000 barrels or less which he determines because of size, type, and location do not present a substantial risk of the discharge of oil or a hazardous substance in violation of subsection (b) (3) of this section, and apply with respect to such classifications differing limits of liability which may be less than the amount contained in this paragraph.

(3) Except where an owner or operator of an offshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any such facility from which oil or a hazardous substance is discharged in violation of subsection (b) (3) of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) of this section for the removal of such oil or substance by the United States Government in an amount not to exceed $8,000,000 except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and

knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such a facility in any court of competent jurisdiction to recover such costs.

Third party liability

(g) In any case where an owner or operator of a vessel, of an onshore facility, or of an offshore facility, from which oil or a hazardous substance is discharged in violation of subsection (b) (3) of this section, proves that such discharge of oil or hazardous substance was caused solely by an act or omission of a third party, or was caused solely by such an act or omission in combination with an act of God, an act of war, or negligence on the part of the United States Government, such third party shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) of this section for removal of such oil or substance by the United States Government, except where such third party can prove that such discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of another party without regard to whether such act or omission was or was not negligent, or any combination of the foregoing clauses. If such third party was the owner or operator of a vessel which caused the discharge of oil or a hazardous substance in violation of subsection (b) (3) of this section, the liability of such third party under this subsection shall not exceed $100 per gross ton of such vessel or $14,000,000, whichever is the lesser. In any other case the liability of such third party shall not exceed the limitation which would have been applicable to the owner or operator of the vessel or the onshore or offshore facility from which the discharge actually occurred if such owner or operator were liable. If the United States can show that the discharge of oil or a hazardous substance in violation of subsection (b) (3) of this section was the result of willful negligence or willful misconduct within the privity and knowledge of such third party, such third party shall be liable to the United States Government for the full amount of such removal costs. The United States may bring an action against the third party in any court of competent jurisdiction to recover such removal costs.

Rights against third parties who caused or contributed to discharge

(h) The liabilities established by this section shall in no way

affect any rights which (1) the owner or operator of a vessel or of an onshore facility or an offshore facility may have against any third party whose acts may in any way have caused or contributed to such discharge, or (2) the United States Government may have against any third party whose actions may in any way have caused or contributed to the discharge of oil or hazardous substance.

Recovery of removal costs

(i) (1) In any case where an owner or operator of a vessel or an onshore facility or an offshore facility from which oil or a hazardous substance is discharged in violation of subsection (b) (3) of this section acts to remove such oil or substance in accordance with regulations promulgated pursuant to this section, such owner or operator shall be entitled to recover the reasonable costs incurred in such removal upon establishing, in a suit which may be brought against the United States Government in the United States Court of Claims, that such discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether such act or omission was or was not negligent, or of any combination of the foregoing causes.

(2) The provisions of this subsection shall not apply in any case where liability is established pursuant to the Outer Continental Shelf Lands Act.

(3) Any amount paid in accordance with a judgment of the United States Court of Claims pursuant to this section shall be paid from the funds established pursuant to subsection (k) of this section.

Regulations; penalty

(j) (1) Consistent with the National Contingency Plan required by subsection (c) (2) of this section, as soon as practicable after October 18, 1972, and from time to time thereafter, the President shall issue regulations consistent with maritime safety and with marine and navigation laws (A) establishing methods and procedures for removal of discharged oil and hazardous substances, (B) establishing criteria for the development and implementation of local and regional oil and hazardous substance removal contingency plans, (C) establishing procedures, methods, and equipment and other requirements for equipment to prevent discharges of oil and hazardous substances from vessels and from onshore facilities and offshore facilities, and to contain

such discharges, and (D) governing the inspection of vessels carrying cargoes of oil and hazardous substances and the inspection of such cargoes in order to reduce the likelihood of discharges of oil from vessels in violation of this section.

(2) Any owner or operator of a vessel or an onshore facility or an offshore facility and any other person subject to any regulation issued under paragraph (1) of this subsection who fails or refuses to comply with the provisions of any such regulations, shall be liable to a civil penalty of not more than $5,000 for each such violation. Each violation shall be a separate offense. The President may assess and compromise such penalty. No penalty shall be assessed until the owner, operator, or other person charged shall have been given notice and an opportunity for a hearing on such charge. In determining the amount of the penalty, or the amount agreed upon in compromise, the gravity of the violation, and the demonstrated good faith of the owner, operator, or other person charged in attempting to achieve rapid compliance, after notification of a violation, shall be considered by the President.

Authorization of appropriations

(k) There is hereby authorized to be appropriated to a revolving fund to be established in the Treasury not to exceed $35,000,000 to carry out the provisions of subsections (c), (d), (i), and (*l*) of this section. Any other funds received by the United States under this section shall also be deposited in said fund for such purposes. All sums appropriated to, or deposited in, said fund shall remain available until expended.

Administration

(*l*)The President is authorized to delegate the administration of this section to the heads of those Federal departments, agencies, and instrumentalities which he determines to be appropriate. Any moneys in the fund established by subsection (k) of this section shall be available to such Federal departments, agencies, and instrumentalities to carry out the provisions of subsections (c) and (i) of this section. Each such department, agency, and instrumentality, in order to avoid duplication of effort, shall, whenever appropriate, utilize the personnel, services, and facilities of other Federal departments, agencies, and instrumentalities.

Boarding and inspection of vessels; arrest; execution of warrants or other process

(m) Anyone authorized by the President to enforce the provisions of this section may, except as to public vessels, (A) board and inspect any vessel upon the navigable waters of the United States or the waters of the contiguous zone, (B) with or without a warrant arrest any person who violates the provisions of this section or any regulation issued thereunder in his presence or view, and (C) execute any warrant or other process issued by an officer or court of competent jurisdiction.

Jurisdiction

(n) The several district courts of the United States are invested with jurisdiction for any actions, other than actions pursuant to subsection (i) (1) of this section, arising under this section. In the case of Guam and the Trust Territory of the Pacific Islands, such actions may be brought in the district court of Guam, and in the case of the Virgin Islands such actions may be brought in the district court of the Virgin Islands. In the case of American Samoa and the Trust Territory of the Pacific Islands, such actions may be brought in the District Court of the United States for the District of Hawaii and such court shall have jurisdiction of such actions. In the case of the Canal Zone, such actions may be brought in the United States District Court for the District of the Canal Zone.

Obligation for damages unaffected; local authority not preempted; existing Federal authority not modified or affected

(o) (1) Nothing in this section shall affect or modify in any way the obligations of any owner or operator of any vessel, or of any owner or operator of any onshore facility or offshore facility to any person or agency under any provision of law for damages to any publicly owned or privately owned property resulting from a discharge of any oil or hazardous substance or from the removal of any such oil or hazardous substance.

(2) Nothing in this section shall be construed as preempting any State or political subdivision thereof from imposing any requirement or liability with respect to the discharge of oil or hazardous substance into any waters within such State.

(3) Nothing in this section shall be construed as affecting or modifying any other existing authority of any Federal department, agency, or instrumentality, relative to onshore or offshore facilities under this chapter or any other provision of law, or to affect any State or local law not in conflict with this section.

Financial responsibility

(p) (1) Any vessel over three hundred gross tons, including any barge of equivalent size, but not including any barge that is not self-propelled and that does not carry oil or hazardous substances as cargo or fuel, using any port or place in the United States or the navigable waters of the United States for any purpose shall establish and maintain under regulations to be prescribed from time to time by the President, evidence of financial responsibility of $100 per gross ton, or $14,000,000, whichever is the lesser, to meet the liability to the United States which such vessel could be subjected under this section. In cases where an owner or operator owns, operates, or charters more than one such vessel, financial responsibility need only be established to meet the maximum liability to which the largest of such vessels could be subjected. Financial responsibility may be established by any one of, or a combination of, the following methods acceptable to the President: (A) evidence of insurance, (B) surety bonds, (C) qualification as a self-insurer, or (D) other evidence of financial responsibility. Any bond filed shall be issued by a bonding company authorized to do business in the United States.

(2) The provisions of paragraph (1) of this subsection shall be effective April 3, 1971, with respect to oil and one year after October 18, 1972, with respect to hazardous substances. The President shall delegate the responsibility to carry out the provisions of this subsection to the appropriate agency head within sixty days after October 18, 1972. Regulations necessary to implement this subsection shall be issued within six months after October 18, 1972.

(3) Any claim for costs incurred by such vessel may be brought directly against the insurer or any other person providing evidence of financial responsibility as required under this subsection. In the case of any action pursuant to this subsection such insurer or other person shall be entitled to invoke all rights and defenses which would have been available to the owner or operator if an action had been brought against him by the claimant, and which would have been available to him if an action had been brought against him by the owner or operator.

(4) Any owner or operator of a vessel subject to this subsection, who fails to comply with the provisions of this subsection or any regulation issued thereunder, shall be subject to a fine of not more than $10,000.

(5) The Secretary of the Treasury may refuse the clearance required by section 91 of Title 46 to any vessel subject to this subsection, which does not have evidence furnished by the Presi-

dent that the financial responsibility provisions of paragraph (1) of this subsection have been complied with.

(6) The Secretary of the Department in which the Coast Guard is operated may (A) deny entry to any port or place in the United States or the navigable waters of the United States, to, and (B) detain at the port or place in the United States from which it is about to depart for any other port or place in the United States, any vessel subject to this subsection, which upon request, does not produce evidence furnished by the President that the financial responsibility provisions of paragraph (1) of this subsection have been complied with.

June 30, 1948, c. 758, Title III, § 311, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 862, and amended Dec. 28, 1973, Pub.L. 93–207, § 1 (4), 87 Stat. 906.

§ 1322. Marine sanitation devices—Definitions

(a) For the purpose of this section, the term—

(1) "new vessel" includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on the navigable waters, the construction of which is initiated after promulgation of standards and regulations under this section;

(2) "existing vessel" includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on the navigable waters, the construction of which is initiated before promulgation of standards and regulations under this section;

(3) "public vessel" means a vessel owned or bareboat chartered and operated by the United States, by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce;

(4) "United States" includes the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Canal Zone, and the Trust Territory of the Pacific Islands;

(5) "marine sanitation device" includes any equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage, and any process to treat such sewage;

(6) "sewage" means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes;

(7) "manufacturer" means any person engaged in the

manufacturing, assembling, or importation of marine sanitation devices or of vessels subject to standards and regulations promulgated under this section;

(8) "person" means an individual, partnership, firm, corporation, or association, but does not include an individual on board a public vessel;

(9) "discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping.

Federal standards of performance

(b) (1) As soon as possible, after October 18, 1972, and subject to the provisions of section 1254(j) of this title, the Administrator, after consultation with the Secretary of the department in which the Coast Guard is operating, after giving appropriate consideration to the economic costs involved, and within the limits of available technology, shall promulgate Federal standards of performance for marine sanitation devices (hereafter in this section referred to as "standards") which shall be designed to prevent the discharge of untreated or inadequately treated sewage into or upon the navigable waters from new vessels and existing vessels, except vessels not equipped with installed toilet facilities. Such standards shall be consistent with maritime safety and the marine and navigation laws and regulations and shall be coordinated with the regulations issued under this subsection by the Secretary of the department in which the Coast Guard is operating. The Secretary of the department in which the Coast Guard is operating shall promulgate regulations, which are consistant with standards promulgated under this subsection and with maritime safety and the marine and navigation laws and regulations governing the design, construction, installation, and operation of any marine sanitation device on board such vessels.

(2) Any existing vessel equipped with a marine sanitation device on the date of promulgation of initial standards and regulations under this section, which device is in compliance with such initial standards and regulations, shall be deemed in compliance with this section until such times as the device is replaced or is found not to be in compliance with such initial standards and regulations.

Initial standards; effective dates; revision; waiver

(c) (1) Initial standards and regulations under this section shall become effective for new vessels two years after promulga-

tion; and for existing vessels five years after promulgation. Revisions of standards and regulations shall be effective upon promulgation, unless another effective date is specified, except that no revision shall take effect before the effective date of the standard or regulation being revised.

(2) The Secretary of the department in which the Coast Guard is operating with regard to his regulatory authority established by this section, after consultation with the Administrator, may distinguish among classes, type, and sizes of vessels as well as between new and existing vessels, and may waive applicability of standards and regulations as necessary or appropriate for such classes, types, and sizes of vessels (including existing vessel equipped with marine sanitation devices on the date of promulgation of the initial standards required by this section), and, upon application, for individual vessels.

Vessels owned and operated by the United States

(d) The provisions of this section and the standards and regulations promulgated hereunder apply to vessels owned and operated by the United States unless the Secretary of Defense finds that compliance would not be in the interest of national security. With respect to vessels owned and operated by the Department of Defense, regulations under the last sentence of subsection (b) (1) of this section and certifications under subsection (g) (2) of this section shall be promulgated and issued by the Secretary of Defense.

Pre-promulgation consultation

(e) Before the standards and regulations under this section are promulgated, the Administrator and the Secretary of the department in which the Coast Guard is operating shall consult with the Secretary of State; the Secretary of Health, Education, and Welfare; the Secretary of Defense; the Secretary of the Treasury; the Secretary of Commerce; other interested Federal agencies; and the States and industries interested; and otherwise comply with the requirements of section 553 of Title 5.

Regulation by States or political subdivisions thereof; complete prohibition upon discharge of sewage

(f) (1) After the effective date of the initial standards and regulations promulgated under this section, no State or political subdivision thereof shall adopt or enforce any statute or regulation of such State or political subdivision with respect to the

design, manufacture, or installation or use of any marine sanitation device on any vessel subject to the provisions of this section.

(2) If, after promulgation of the initial standards and regulations and prior to their effective date, a vessel is equipped with a marine sanitation device in compliance with such standards and regulations and the installation and operation of such device is in accordance with such standards and regulations, such standards and regulations shall, for the purposes of paragraph (1) of this subsection, become effective with respect to such vessel on the date of such compliance.

(3) After the effective date of the initial standards and regulations promulgated under this section, if any State determines that the protection and enhancement of the quality of some or all of the waters within such State require greater environmental protection, such State may completely prohibit the discharge from all vessels of any sewage, whether treated or not, into such waters, except that no such prohibition shall apply until the Administrator determines that adequate facilities for the safe and sanitary removal and treatment of sewage from all vessels are reasonably available for such water to which such prohibition would apply. Upon application of the State, the Administrator shall make such determination within 90 days of the date of such application.

(4) If the Administrator determines upon application by a State that the protection and enhancement of the quality of specified waters within such State requires such a prohibition, he shall by regulation completely prohibit the discharge from a vessel of any sewage (whether treated or not) into such waters.

Sales limited to certified devices; certification of test device; recordkeeping; reports

(g) (1) No manufacturer of a marine sanitation device shall sell, offer for sale, or introduce or deliver for introduction in interstate commerce, or import into the United States for sale or resale any marine sanitation device manufactured after the effective date of the standards and regulations promulgated under this section unless such device is in all material respects substantially the same as a test device certified under this subsection.

(2) Upon application of the manufacturer, the Secretary of the department in which the Coast Guard is operating shall so certify a marine sanitation device if he determines, in accordance with

the provisions of this paragraph, that it meets the appropriate standards and regulations promulgated under this section. The Secretary of the department in which the Coast Guard is operating shall test or require such testing of the device in accordance with procedures set forth by the Administrator as to standards of performance and for such other purposes as may be appropriate. If the Secretary of the department in which the Coast Guard is operating determines that the device is satisfactory from the standpoint of safety and any other requirements of maritime law or regulation, and after consideration of the design, installations, operation, material, or other appropriate factors, he shall certify the device. Any device manufactured by such manufacturer which is in all material respects substantially the same as the certified test device shall be deemed to be in conformity with the appropriate standards and regulations established under this section.

(3) Every manufacturer shall establish and maintain such records, make such reports, and provide such information as the Administrator or the Secretary of the department in which the Coast Guard is operating may reasonably require to enable him to determine whether such manufacturer has acted or is acting in compliance with this section and regulations issued thereunder and shall, upon request of an officer or employee duly designated by the Administrator or the Secretary of the department in which the Coast Guard is operating, permit such officer or employee at reasonable times to have access to and copy such records. All information reported to or otherwise obtained by the Administrator or the Secretary of the department in which the Coast Guard is operating or their representatives pursuant to this subsection which contains or relates to a trade secret or other matter referred to in section 1905 of Title 18 shall be considered confidential for the purpose of that section, except that such information may be disclosed to other officers or employees concerned with carrying out this section. This paragraph shall not apply in the case of the construction of a vessel by an individual for his own use.

Sale and resale of properly equipped vessels; operability of certified marine sanitation devices

(h) After the effective date of standards and regulations promulgated under this section, it shall be unlawful—

(1) for the manufacturer of any vessel subject to such standards and regulations to manufacture for sale, to sell or offer for sale, or to distribute for sale or resale any such

vessel unless it is equipped with a marine sanitation device which is in all material respects substantially the same as the appropriate test device certified pursuant to this section;

(2) for any person, prior to the sale or delivery of a vessel subject to such standards and regulations to the ultimate purchaser, wrongfully to remove or render inoperative any certified marine sanitation device or element of design of such device installed in such vessel;

(3) for any person to fail or refuse to permit access to or copying of records or to fail to make reports or provide information required under this section; and

(4) for a vessel subject to such standards and regulations to operate on the navigable waters of the United States, if such vessel is not equipped with an operable marine sanitation device certified pursuant to this section.

Jurisdiction to restrain violations; contempts

(i) The district courts of the United States shall have jurisdictions to restrain violations of subsection (g) (1) of this section and subsections (h) (1) through (3) of this section. Actions to restrain such violations shall be brought by, and in, the name of the United States. In case of contumacy or refusal to obey a subpena served upon any person under this subsection, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony or to appear and produce documents, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

Penalties

(j) Any person who violates subsection (g) (1) of this section or clause (1) or (2) of subsection (h) of this section shall be liable to a civil penalty of not more than $5,000 for each violation. Any person who violates clause (4) of subsection (h) of this section or any regulation issued pursuant to this section shall be liable to a civil penalty of not more than $2,000 for each violation. Each violation shall be a separate offense. The Secretary of the department in which the Coast Guard is operating may assess and compromise any such penalty. No penalty shall be assessed until the person charged shall have been given notice and an opportunity for a hearing on such charge. In determining

the amount of the penalty, or the amount agreed upon in compromise, the gravity of the violation, and the demonstrated good faith of the person charged in attempting to achieve rapid compliance, after notification of a violation, shall be considered by said Secretary.

Enforcement authority

(k) The provisions of this section shall be enforced by the Secretary of the department in which the Coast Guard is operating and he may utilize by agreement, with or without reimbursement, law enforcement officers or other personnel and facilities of the Administrator, other Federal agencies, or the States to carry out the provisions of this section.

Boarding and inspection of vessels; execution of warrants and other process

(*l*) Anyone authorized by the Secretary of the department in which the Coast Guard is operating to enforce the provisions of this section may, except as to public vessels, (1) board and inspect any vessel upon the navigable waters of the United States and (2) execute any warrant or other process issued by an officer or court of competent jurisdiction.

Enforcement in United States possessions

(m) In the case of Guam and the Trust Territory of the Pacific Islands, actions arising under this section may be brought in the district court of Guam, and in the case of the Virgin Islands such actions may be brought in the district court of the Virgin Islands. In the case of American Samoa and the Trust Territory of the Pacific Islands, such actions may be brought in the District Court of the United States for the District of Hawaii and such court shall have jurisdiction of such actions. In the case of the Canal Zone, such actions may be brought in the District Court for the District of the Canal Zone.

June 30, 1948, c. 758, Title III, § 312, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 871.

§ 1323. Federal facilities pollution control

Each department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which may result, in the discharge or runoff of pollutants shall comply with Federal, State, interstate, and local requirements respecting control and abatement of

pollution to the same extent that any person is subject to such requirements, including the payment of reasonable service charges. The President may exempt any effluent source of any department, agency, or instrumentality in the executive branch from compliance with any such a requirement if he determines it to be in the paramount interest of the United States to do so; except that no exemption may be granted from the requirements of section 1316 or 1317 of this title. No such exemptions shall be granted due to lack of appropriation unless the President shall have specifically requested such appropriation as a part of the budgetary process and the Congress shall have failed to make available such requested appropriation. Any exemption shall be for a period not in excess of one year, but additional exemptions may be granted for periods of not to exceed one year upon the President's making a new determination. The President shall report each January to the Congress all exemptions from the requirements of this section granted during the preceding calendar year, together with his reason for granting such exemption.

June 30, 1948, c. 758, Title III, § 313, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 875.

§ 1324. Clean lakes

(a) Each State shall prepare or establish, and submit to the Administrator for his approval—

(1) an identification and classification according to eutrophic condition of all publicly owned fresh water lakes in such State;

(2) procedures, processes, and methods (including land use requirements), to control sources of pollution of such lakes; and

(3) methods and procedures, in conjunction with appropriate Federal agencies, to restore the quality of such lakes.

(b) The Administrator shall provide financial assistance to States in order to carry out methods and procedures approved by him under this section.

(c) (1) The amount granted to any State for any fiscal year under this section shall not exceed 70 percentum of the funds expended by such State in such year for carrying out approved methods and procedures under this section.

(2) There is authorized to be appropriated $50,000,000 for the fiscal year ending June 30, 1973; $100,000,000 for the fiscal year 1974; and $150,000,000 for the fiscal year 1975 for grants to

States under this section which such sums shall remain available until expended. The Administrator shall provide for an equitable distribution of such sums to the States with approved methods and procedures under this section.

June 30, 1948, c. 758, Title III, § 314, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 875.

§ 1325. National Study Commission—Establishment

(a) There is established a National Study Commission, which shall make a full and complete investigation and study of all of the technological aspects of achieving, and all aspects of the total economic, social, and environmental effects of achieving or not achieving, the effluent limitations and goals set forth for 1983 in section 1311(b) (2) of this title.

Membership; chairman

(b) Such Commission shall be composed of fifteen members, including five members of the Senate, who are members of the Public Works committee, appointed by the President of the Senate, five members of the House, who are members of the Public Works committee, appointed by the Speaker of the House, and five members of the public appointed by the President. The Chairman of such Commission shall be elected from among its members.

Contract authority

(c) In the conduct of such study, the Commission is authorized to contract with the National Academy of Sciences and the National Academy of Engineering (acting through the National Research Council), the National Institute of Ecology, Brookings Institution, and other nongovernmental entities, for the investigation of matters within their competence.

Cooperation of departments, agencies, and instrumentalities of executive branch

(d) The heads of the departments, agencies and instrumentalities of the executive branch of the Federal Government shall cooporate with the Commission in carrying out the requirements of this section, and shall furnish to the Commission such information as the Commission deems necessary to carry out this section.

Report to Congress

(e) A report shall be submitted to the Congress of the results of such investigation and study, together with recommendations, not later than three years after October 18, 1972.

Compensation and allowances

(f) The members of the Commission who are not officers or employees of the United States, while attending conferences or meetings of the Commission or while otherwise serving at the request of the Chairman shall be entitled to receive compensation at a rate not in excess of the maximum rate of pay for grade GS–18, as provided in the General Schedule under section 5332 of Title 5, including traveltime and while away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence as authorized by law for persons in the Government service employed intermittently.

Appointment of personnel

(g) In addition to authority to appoint personnel subject to the provisions of Title 5 governing appointments in the competitive service, and to pay such personnel in accordance with the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, the Commission shall have authority to enter into contracts with private or public organizations who shall furnish the Commission with such administrative and technical personnel as may be necessary to carry out the purpose of this section. Personnel furnished by such organizations under this subsection are not, and shall not be considered to be, Federal employees for any purposes, but in the performance of their duties shall be guided by the standards which apply to employees of the legislative branches under rules 41 and 43 of the Senate and House of Representatives, respectively.

Authorization of appropriation

(h) There is authorized to be appropriated, for use in carrying out this section, not to exceed $15,000,000.

June 30, 1948, c. 758, Title III, § 315, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 875, and amended Dec. 28, 1973. Pub.L. 93–207, § 1(5), 87 Stat. 906.

§ 1326. Thermal discharges—Effluent limitations that will assure protection and propagation of balanced, indigenous population of shellfish, fish, and wildlife.

(a) With respect to any point source otherwise subject to the provisions of section 1311 of this title or section 1316 of this

title, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the projection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, the Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections for such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water.

Cooling water intake structures

(b) Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

Period of protection from more stringent effluent limitations following discharge point source modification commenced after October 18, 1972

(c) Notwithstanding any other provision of this chapter, any point source of a discharge having a thermal component, the modification of which point source is commenced after October 18, 1972, and which, as modified, meets effluent limitations established under section 1311 of this title or, if more stringent, effluent limitations established under section 1313 of this title and which effluent limitations will assure protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in or on the water into which the discharge is made, shall not be subject to any more stringent effluent limitation with respect to the thermal component of its discharge during a ten year period beginning on the date of completion of such modification or during the period of depreciation or amortization of such facility for the purpose of section 167 or 169 (or both) of Title 26, which ever period ends first.

June 30, 1948, c. 758, Title III, § 316, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 876.

§ 1327. Investigation and study of feasibility of alternate methods of financing the cost of preventing, controlling, and abating pollution

(a) The Administrator shall continue to investigate and study the feasibility of alternate methods of financing the cost of preventing, controlling and abating pollution as directed in the Water Quality Improvement Act of 1970, including, but not limited to, the feasibility of establishing a pollution abatement trust fund. The results of such investigation and study shall be reported to the Congress not later than two years after enactment of this title, together with recommendations of the Administrator for financing the programs for preventing, controlling and abating pollution for the fiscal years beginning after fiscal year 1976, including any necessary legislation.

(b) There is authorized to be appropriated for use in carrying out this section, not to exceed $1,000,000.

June 30, 1948, c. 758, Title III, § 317, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 877.

§ 1328. Aquaculture

(a) The Administrator is authorized, after public hearings, to permit the discharge of a specific pollutant or pollutants under controlled conditions associated with an approved aquaculture project under Federal or State supervision.

(b) The Administrator shall by regulation, not later than January 1, 1974, establish any procedures and guidelines he deems necessary to carry out this section.

June 30, 1948, c. 758, Title III, § 318, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 877.

SUBCHAPTER IV—PERMITS AND LICENSES

§ 1341. Certification—Compliance with applicable requirements; application; procedures; license suspension

(a) (1) Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the ap-

plicable provisions of sections 1311, 1312, 1316, and 1317 of this title. In the case of any such activity for which there is not an applicable effluent limitation or other limitation under sections 1311(b) and 1312 of this title, and there is not an applicable standard under sections 1316 and 1317 of this title, the State shall so certify, except that any such certification shall not be deemed to satisfy section 1371(c) of this title. Such State or interstate agency shall establish procedures for public notice in the case of all applications for certification by it and, to the extent it deems appropriate, procedures for public hearings in connection with specific applications. In any case where a State or interstate agency has no authority to give such a certification, such certification shall be from the Administrator. If the State, interstate agency, or Administrator, as the case may be, fails or refuses to act on a request for certification, within a reasonable period of time (which shall not exceed one year) after receipt of such request, the certification requirements of this subsection shall be waived with respect to such Federal application. No license or permit shall be granted until the certification required by this section has been obtained or has been waived as provided in the preceding sentence. No license or permit shall be granted if certification has been denied by the State, interstate agency, or the Administrator, as the case may be.

(2) Upon receipt of such application and certification the licensing or permitting agency shall immediately notify the Administrator of such application and certification. Whenever such a discharge may affect, as determined by the Administrator, the quality of the waters of any other State, the Administrator within thirty days of the date of notice of application for such Federal license or permit shall so notify such other State, the licensing or permitting agency, and the applicant. If, within sixty days after receipt of such notification, such other State determines that such discharge will affect the quality of its waters so as to violate any water quality requirement in such State, and within such sixty-day period notifies the Administrator and the licensing or permitting agency in writing of its objection to the issuance of such license or permit and requests a public hearing on such objection, the licensing or permitting agency shall hold such a hearing. The Administrator shall at such hearing submit his evaluation and recommendations with respect to any such objection to the licensing or permitting agency. Such agency, based upon the recommendations of such State, the Administrator, and upon any additional evidence, if any, presented

to the agency at the hearing, shall condition such license or permit in such manner as may be necessary to insure compliance with applicable water quality requirements. If the imposition of conditions cannot insure such compliance such agency shall not issue such license or permit.

(3) The certification obtained pursuant to paragraph (1) of this subsection with respect to the construction of any facility shall fulfill the requirements of this subsection with respect to certification in connection with any other Federal license or permit required for the operation of such facility unless, after notice to the certifying State, agency, or Administrator, as the case may be, which shall be given by the Federal agency to whom application is made for such operating license or permit, the State, or if appropriate, the interstate agency or the Administrator, notifies such agency within sixty days after receipt of such notice that there is no longer reasonable assurance that there will be compliance with the applicable provisions of sections 1311, 1312, 1316, and 1317 of this title because of changes since the construction license or permit certification was issued in (A) the construction or operation of the facility, (B) the characteristics of the waters into which such discharge is made, (C) the water quality criteria applicable to such waters or (D) applicable effluent limitations or other requirements. This paragraph shall be inapplicable in any case where the applicant for such operating license or permit has failed to provide the certifying State, or, if appropriate, the interstate agency or the Administrator, with notice of any proposed changes in the construction or operation of the facility with respect to which a construction license or permit has been granted, which changes may result in violation of section 1311, 1312, 1316, or 1317 of this title.

(4) Prior to the initial operation of any federally licensed or permitted facility or activity which may result in any discharge into the navigable waters and with respect to which a certification has been obtained pursuant to paragraph (1) of this subsection, which facility or activity is not subject to a Federal operating license or permit, the licensee or permittee shall provide an opportunity for such certifying State, or, if appropriate, the interstate agency or the Administrator to review the manner in which the facility or activity shall be operated or conducted for the purposes of assuring that applicable effluent limitations or other limitations or other applicable water quality requirements will not be violated. Upon notification by the certifying State,

or if appropriate, the interstate agency or the Administrator that the operation of any such federally licensed or permitted facility or activity will violate applicable effluent limitations or other limitations or other water quality requirements such Federal agency may, after public hearing, suspend such license or permit. If such license or permit is suspended, it shall remain suspended until notification is received from the certifying State, agency, or Administrator, as the case may be, that there is reasonable assurance that such facility or activity will not violate the applicable provisions of section 1311, 1312, 1316, or 1317 of this title.

(5) Any Federal license or permit with respect to which a certification has been obtained under paragraph (1) of this subsection may be suspended or revoked by the Federal agency issuing such license or permit upon the entering of a judgment under this chapter that such facility or activity has been operated in violation of the applicable provisions of section 1311, 1312, 1316, or 1317 of this title.

(6) No Federal agency shall be deemed to be an applicant for the purposes of this subsection.

(7) Except with respect to a permit issued under section 1342 of this title, in any case where actual construction of a facility has been lawfully commenced prior to April 3, 1970, no certification shall be required under this subsection for a license or permit issued after April 3, 1970, to operate such facility, except that any such license or permit issued without certification shall terminate April 3, 1973, unless prior to such termination date the person having such license or permit submits to the Federal agency which issued such license or permit a certification and otherwise meets the requirements of this section.

Compliance with other provisions of law setting applicable water quality requirements

(b) Nothing in this section shall be construed to limit the authority of any department or agency pursuant to any other provision of law to require compliance with any applicable water quality requirements. The Administrator shall, upon the request of any Federal department or agency, or State or interstate agency, or applicant, provide, for the purpose of this section, any relevant information on applicable effluent limitations, or other limitations, standards, regulations, or requirements, or water quality criteria, and shall, when requested by any such de-

partment or agency or State or interstate agency, or applicant, comment on any methods to comply with such limitations, standards, regulations, requirements, or criteria.

Authority of Secretary of the Army to permit use of spoil disposal areas by Federal licensees or permittees

(c) In order to implement the provisions of this section, the Secretary of the Army, acting through the Chief of Engineers, is authorized, if he deems it to be in the public interest, to permit the use of spoil disposal areas under his jurisdiction by Federal licensees or permittees, and to make an appropriate charge for such use. Moneys received from such licensees or permittees shall be deposited in the Treasury as miscellaneous receipts.

Limitations and monitoring requirements of certification

(d) Any certification provided under this section shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with any applicable effluent limitations and other limitations, under section 1311 or 1312 of this title, standard of performance under section 1316 of this title, or prohibition, effluent standard, or pretreatment standard under section 1317 of this title, and with any other appropriate requirement of State law set forth in such certification, and shall become a condition on any Federal license or permit subject to the provisions of this section.

June 30, 1948, c. 758, Title IV, § 401, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 877.

§ 1342. National pollutant discharge elimination system—Permits for discharge of pollutants

(a) (1) Except as provided in sections 1328 and 1344 of this title, the Administrator may, after opportunity for public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 1311(a) of this title, upon condition that such discharge will meet either all applicable requirements under sections 1311, 1312, 1316, 1317, 1318, and 1343 of this title, or prior to the taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this chapter.

(2) The Administrator shall prescribe conditions for such permits to assure compliance with the requirements of paragraph (1) of this subsection, including conditions on data and information collection, reporting, and such other requirements as he deems appropriate.

(3) The permit program of the Administrator under paragraph (1) of this subsection, and permits issued thereunder, shall be subject to the same terms, conditions, and requirements as apply to a State permit program and permits issued thereunder under subsection (b) of this section.

(4) All permits for discharges into the navigable waters issued pursuant to section 407 of this title, shall be deemed to be permits issued under this title, and permits issued under this title shall be deemed to be permits issued under section 407 of this title, and shall continue in force and effect for their term unless revoked, modified, or suspended in accordance with the provisions of this chapter.

(5) No permit for a discharge into the navigable waters shall be issued under section 407 of this title after October 18, 1972. Each application for a permit under section 407 of this title, pending on October 18, 1972, shall be deemed to be an application for a permit under this section. The Administrator shall authorize a State, which he determines has the capability of administering a permit program which will carry out the objective of this chapter, to issue permits for discharges into the navigable waters within the jurisdiction of such State. The Administrator may exercise the authority granted him by the preceding sentence only during the period which begins on October 18, 1972, and ends either on the ninetieth day after the date of the first promulgation of guidelines required by section 1314(h) (2) of this title, or the date of approval by the Administrator of a permit program for such State under subsection (b) of this section, whichever date first occurs, and no such authorization to a State shall extend beyond the last day of such period. Each such permit shall be subject to such conditions as the Administrator determines are necessary to carry out the provisions of this chapter. No such permit shall issue if the Administrator objects to such issuance.

State permit programs

(b) At any time after the promulgation of the guidelines required by subsection (h) (2) of section 1314 of this title, the Governor of each State desiring to administer its own permit program for discharges into navigable waters within its juris-

diction may submit to the Administrator a full and complete description of the program its proposes to establish and administer under State law or under an interstate compact. In addition, such State shall submit a statement from the attorney general (or the attorney for those State water pollution control agencies which have independent legal counsel), or from the chief legal officer in the case of an interstate agency, that the laws of such State, or the interstate compact, as the case may be, provide adequate authority to carry out the described program. The Administrator shall approve each such submitted program unless he determines that adequate authority does not exist:

(1) To issue permits which—

(A) apply, and insure compliance with, any applicable requirements of sections 1311, 1312, 1316, 1317, and 1343 of this title;

(B) are for fixed terms not exceeding five years; and

(C) can be terminated or modified for cause including, but not limited to, the following:

(i) violation of any condition of the permit;

(ii) obtaining a permit by misrepresentation, or failure to disclose fully all relevant facts;

(iii) change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

(D) control the disposal of pollutants into wells;

(2) (A) To issue permits which apply, and insure compliance with, all applicable requirements of section 1318 of this title, or

(B) To inspect, monitor, enter, and require reports to at least the same extent as required in section 1318 of this title;

(3) To insure that the public, and any other State the waters of which may be affected, receive notice of each application for a permit and to provide an opportunity for public hearing before a ruling on each such application;

(4) To insure that the Administrator receives notice of each application (including a copy thereof) for a permit;

(5) To insure that any State (other than the permitting State), whose waters may be affected by the issuance of a permit may submit written recommendations to the permitting State (and the Administrator) with respect to any permit application and, if any part of such written recommendations are not accepted by the permitting State, that the permitting State will notify such affected State (and the Administrator) in writing of

its failure to so accept such recommendations together with its reasons for so doing;

(6) To insure that no permit will be issued if, in the judgment of the Secretary of the Army acting through the Chief of Engineers, after consultation with the Secretary of the department in which the Coast Guard is operating, anchorage and navigation of any of the navigable waters would be substantially impaired thereby;

(7) To abate violations of the permit or the permit program, including civil and criminal penalties and other ways and means of enforcement;

(8) To insure that any permit for a discharge from a publicly owned treatment works includes conditions to require adequate notice to the permitting agency of (A) new introductions into such works of pollutants from any source which would be a new source as defined in section 1316 of this title if such source were discharging pollutants, (B) new introductions of pollutants into such works from a source which would be subject to section 1311 of this title if it were discharging such pollutants, or (C) a substantial change in volume or character of pollutants being introduced into such works by a source introducing pollutants into such works at the time of issuance of the permit. Such notice shall include information on the quality and quantity of effluent to be introduced into such treatment works and any anticipated impact of such change in the quantity or quality of effluent to be discharged from such publicly owned treatment works; and

(9) To insure that any industrial user of any publicly owned treatment works will comply with sections 1284(b), 1317, and 1318 of this title.

Suspension of federal program upon submission of State program; withdrawal of approval of State program

(c) (1) Not later than ninety days after the date on which a State has submitted a program (or revision thereof) pursuant to subsection (b) of this section, the Administrator shall suspend the issuance of permits under subsection (a) of this section as to those navigable waters subject to such program unless he determines that the State permit program does not meet the requirements of subsection (b) of this section or does not conform to the guidelines issued under section 1314(h) (2) of this title. If the Administrator so determines, he shall notify the State of any revisions or modifications necessary to conform to such requirements or guidelines.

(2) Any State permit program under this section shall at all times be in accordance with this section and guidelines promulgated pursuant to section 1314(h) (2) of this title.

(3) Whenever the Administrator determines after public hearing that a State is not administering a program approved under this section in accordance with requirements of this section, he shall so notify the State and, if appropriate corrective action is not taken within a reasonable time, not to exceed ninety days, the Administrator shall withdraw approval of such program. The Administrator shall not withdraw approval of any such program unless he shall first have notified the State, and made public, in writing, the reasons for such withdrawal.

Notification of Administrator

(d) (1) Each State shall transmit to the Administrator a copy of each permit application received by such State and provide notice to the Administrator of every action related to the consideration of such permit application, including each permit proposed to be issued by such State.

(2) No permit shall issue (A) if the Administrator within ninety days of the date of his notification under subsection (b) (5) of this section objects in writing to the issuance of such permit, or (B) if the Administrator within ninety days of the date of transmittal of the proposed permit by the State objects in writing to the issuance of such permit as being outside the guidelines and requirements of this chapter.

(3) The Administrator may, as to any permit application, waive paragraph (2) of this subsection.

Waiver of notification requirement

(e) In accordance with guidelines promulgated pursuant to subsection (h) (2) of section 1314 of this title, the Administrator is authorized to waive the requirements of subsection (d) of this section at the time he approves a program pursuant to subsection (b) of this section for any category (including any class, type, or size within such category) of point sources within the State submitting such program.

(f) The Administrator shall promulgate regulations establishing categories of point sources which he determines shall not be subject to the requirements of subsection (d) of this section in

Point source categories

any State with a program approved pursuant to subsection (b) of this section. The Administrator may distinguish among classes, types, and sizes within any category of point sources.

Other regulations for safe transportation, handling, carriage, storage, and stowage of pollutants

(g) Any permit issued under this section for the discharge of pollutants into the navigable waters from a vessel or other floating craft shall be subject to any applicable regulations promulgated by the Secretary of the department in which the Coast Guard is operating, establishing specifications for safe transportation, handling, carriage, storage, and stowage of pollutants.

Violation of permit conditions; restrictions or prohibition upon introduction of pollutant by source not previously utilizing treatment works

(h) In the event any condition of a permit for discharges from a treatment works (as defined in section 1292 of this title) which is publicly owned is violated, a State with a program approved under subsection (b) of this section or the Administrator, where no State program is approved, may proceed in a court of competent jurisdiction to restrict or prohibit the introduction of any pollutant into such treatment works by a source not utilizing such treatment works prior to the finding that such condition was violated.

Federal enforcement not limited

(i) Nothing in this section shall be construed to limit the authority of the Administrator to take action pursuant to section 1319 of this title.

Public information

(j) A copy of each permit application and each permit issued under this section shall be available to the public. Such permit application or permit, or portion thereof, shall further be available on request for the purpose of reproduction.

Compliance with permits

(k) Compliance with a permit issued pursuant to this section shall be deemed compliance, for purposes of sections 1319 and 1365 of this title, with sections 1311, 1312, 1316, 1317, and 1343

of this title, except any standard imposed under section 1317 of this title for a toxic pollutant injurious to human health. Until December 31, 1974, in any case where a permit for discharge has been applied for pursuant to this section, but final administrative disposition of such application has not been made, such discharge shall not be a violation of (1) section 1311, 1316, or 1342 of this title, or (2) section 407 of this title, unless the Administrator or other plaintiff proves that final administrative disposition of such application has not been made because of the failure of the applicant to furnish information reasonably required or requested in order to process the application. For the 180-day period beginning on October 18, 1972, in the case of any point source discharging any pollutant or combination of pollutants immediately prior to such date of enactment which source is not subject to section 407 of this title, the discharge by such source shall not be a violation of this chapter if such a source applies for a permit for discharge pursuant to this section within such 180-day period.

June 30, 1948, c. 758, Title IV, § 402, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 880.

§ 1343. Ocean discharge criteria

(a) No permit under section 1342 of this title for a discharge into the territorial sea, the waters of the contiguous zone, or the oceans shall be issued, after promulgation of guidelines established under subsection (c) of this section, except in compliance with such guidelines. Prior to the promulgation of such guidelines, a permit may be issued under such section 1342 of this title if the Administrator determines it to be in the public interest.

(b) The requirements of subsection (d) of section 1342 of this title may not be waived in the case of permits for discharges into the territorial sea.

(c) (1) The Administrator shall, within one hundred and eighty days after October 18, 1972 (and from time to time thereafter), promulgate guidelines for determining the degradation of the waters of the territorial seas, the contiguous zone, and the oceans, which shall include:

(A) the effect of disposal of pollutants on human health or welfare, including but not limited to plankton, fish, shellfish, wildlife, shorelines, and beaches;

(B) the effect of disposal of pollutants on marine life including the transfer, concentration, and dispersal of pol-

lutants or their byproducts through biological, physical, and chemical processes; changes in marine ecosystem diversity, productivity, and stability; and species and community population changes;

(C) the effect of disposal of pollutants on esthetic, recreation, and economic values;

(D) the persistence and permanence of the effects of disposal of pollutants;

(E) the effect of the disposal at varying rates, of particular volumes and concentrations of pollutants;

(F) other possible locations and methods of disposal or recycling of pollutants including land-based alternatives; and

(G) the effect on alternate uses of the oceans, such as mineral exploitation and scientific study.

(2) In any event where insufficient information exists on any proposed discharge to make a reasonable judgment on any of the guidelines established pursuant to this subsection no permit shall be issued under section 1342 of this title.

June 30, 1948, c. 758, Title IV, § 403, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 883.

§ 1344. Permits for dredged or fill material

(a) The Secretary of the Army, acting through the Chief of Engineers, may issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into the navigable waters at specified disposal sites.

(b) Subject to subsection (c) of this section, each such disposal site shall be specified for each such permit by the Secretary of the Army (1) through the application of guidelines developed by the Administrator, in conjunction with the Secretary of the Army, which guidelines shall be based upon criteria comparable to the criteria applicable to the territorial seas, the contiguous zone, and the ocean under section 1343(c) of this title, and (2) in any case where such guidelines under clause (1) alone would prohibit the specification of a site, through the application additionally of the economic impact of the site on navigation and anchorage.

(c) The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he deter-

mines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall consult with the Secretary of the Army. The Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection.

June 30, 1948, c. 758, Title IV, § 404, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 884.

§ 1345. Disposal of sewage sludge

(a) Notwithstanding any other provision of this chapter or of any other law, in any case where the disposal of sewage sludge resulting from the operation of a treatment works as defined in section 1292 of this title (including the removal of in-place sewage sludge from one location and its deposit at another location) would result in any pollutant from such sewage sludge entering the navigable waters, such disposal is prohibited except in accordance with a permit issued by the Administrator under this section.

(b) The Administrator shall issue regulations governing the issuance of permits for the disposal of sewage sludge subject to this section. Such regulations shall require the application to such disposal of each criterion, factor, procedure, and requirement applicable to a permit issued under section 1342 of this title, as the Administrator determines necessary to carry out the objective of this chapter.

(c) Each State desiring to administer its own permit program for disposal of sewage sludge within its jurisdiction may do so if upon submission of such program the Administrator determines such program is adequate to carry out the objective of this chapter.

June 30, 1948, c. 758, Title IV, § 405, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 884.

SUBCHAPTER V—GENERAL PROVISIONS

§ 1361. Administration—Authority of Administrator to prescribe regulations

(a) The Administrator is authorized to prescribe such regulations as are necessary to carry out his functions under this chapter.

Utilization of other agency officers and employees

(b) The Administrator, with the consent of the head of any other agency of the United States, may utilize such officers and employees of such agency as may be found necessary to assist in carrying out the purposes of this chapter.

Recordkeeping

(c) Each recipient of financial assistance under this chapter shall keep such records as the Administrator shall prescribe, including records which fully disclose the amount and disposition by such recipient of the proceeds of such assistance, the total cost of the project or undertaking in connection with which such assistance is given or used, and the amount of that portion of the cost of the project or undertaking supplied by other sources, and such other records as will facilitate an effective audit.

Audit

(d) The Administrator and the Comptroller General of the United States, or any of their duly authorized representatives, shall have access, for the purpose of audit and examination, to any books, documents, papers, and records of the recipients that are pertinent to the grants received under this chapter.

Awards for outstanding technological achievement or innovative processes, methods, or devices in waste treatment and pollution abatement programs

(e) (1) It is the purpose of this subsection to authorize a program which will provide official recognition by the United States Government to those industrial organizations and political subdivisions of States which during the preceding year demonstrated an outstanding technological achievement or an innovative process, method, or device in their waste treatment and pollution abatement programs. The Administrator shall, in consultation with the appropriate State water pollution control agencies, establish regulations under which such recognition may be applied for and granted, except that no applicant shall be eligible for an award under this subsection if such applicant is not in total compliance with all applicable water quality requirements under this chapter, or otherwise does not have a satisfactory record with respect to environmental quality.

(2) The Administrator shall award a certificate or plaque of suitable design to each industrial organization or political subdivision which qualifies for such recognition under regulations established under this subsection.

(3) The President of the United States, the Governor of the appropriate State, the Speaker of the House of Representatives, and the President pro tempore of the Senate shall be notified of the award by the Administrator and the awarding of such recognition shall be published in the Federal Register.

Detail of Environmental Protection Agency personnel to State water pollution control agencies

(f) Upon the request of a State water pollution control agency, personnel of the Environmental Protection Agency may be detailed to such agency for the purpose of carrying out the provisions of this chapter.

June 30, 1948, c. 758, Title V, § 501, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 885.

§ 1362. Definitions

Except as otherwise specifically provided, when used in this chapter:

(1) The term "State water pollution control agency" means the State agency designated by the Governor having responsibility for enforcing State laws relating to the abatement of pollution.

(2) The term "interstate agency" means an agency of two or more States established by or pursuant to an agreement or compact approved by the Congress, or any other agency of two or more States, having substantial powers or duties pertaining to the control of pollution as determined and approved by the Administrator.

(3) The term "State" means a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Trust Territory of the Pacific Islands.

(4) The term "municipality" means a city, town, borough, county, parish, district, association, or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 1288 of this title.

(5) The term "person" means an individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, or any interstate body.

(6) The term "pollutant" means dredged spoil, solid waste,

incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. This term does not mean (A) "sewage from vessels" within the meaning of section 1322 of this title; or (B) water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if such State determines that such injection or disposal will not result in the degradation of ground or surface water resources.

(7) The term "navigable waters" means the waters of the United States, including the territorial seas.

(8) The term "territorial seas" means the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of three miles.

(9) The term "contiguous zone" means the entire zone established or to be established by the United States under article 24 of the Convention of the Territorial Sea and the Contiguous Zone.

(10) The term "ocean" means any portion of the high seas beyond the contiguous zone.

(11) The term "effluent limitation" means any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance.

(12) The term "discharge of a pollutant" and the term "discharge of pollutants" each means (A) any addition of any pollutant to navigable waters from any point source, (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft.

(13) The term "toxic pollutant" means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the en-

vironment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) of physical deformations, in such organisms or their offspring.

(14) The term "point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

(15) The term "biological monitoring" shall mean the determination of the effects on aquatic life, including accumulation of pollutants in tissue, in receiving waters due to the discharge of pollutants (A) by techniques and procedures, including sampling of organisms representative of appropriate levels of the food chain appropriate to the volume and the physical, chemical, and biological characteristics of the effluent, and (B) at appropriate frequencies and locations.

(16) The term "discharge" when used without qualification includes a discharge of a pollutant, and a discharge of pollutants.

(17) The term "schedule of compliance" means a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard.

(18) The term "industrial user" means those industries identified in the Standard Industrial Classification Manual, Bureau of the Budget, 1967, as amended and supplemented, under the category "Division D—Manufacturing" and such other classes of significant waste producers as, by regulation, the Administrator deems appropriate.

(19) The term "pollution" means the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.

June 30, 1948, c. 758, Title V, § 502, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 886.

§ 1363. Water Pollution Control Advisory Board

(a) (1) There is hereby established in the Environmental Protection Agency a Water Pollution Control Advisory Board, composed of the Administrator or his designee, who shall be Chair-

man, and nine members appointed by the President, none of whom shall be Federal officers or employees. The appointed members, having due regard for the purposes of this chapter, shall be selected from among representatives of various State, interstate, and local governmental agencies, of public or private interests contributing to, affected by, or concerned with pollution, and of other public and private agencies, organizations, or groups demonstrating an active interest in the field of pollution prevention and control, as well as other individuals who are expert in this field.

(2) (A) Each member appointed by the President shall hold office for a term of three years, except that (i) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term, and (ii) the terms of office of the members first taking office after June 30, 1956, shall expire as follows: three at the end of one year after such date, three at the end of two years after such date, and three at the end of three years after such date, as designated by the President at the time of appointment, and (iii) the term of any member under the preceding provisions shall be extended until the date on which his successor's appointment is effective. None of the members appointed by the President shall be eligible for reappointment within one year after the end of his preceding term.

(B) The members of the Board who are not officers or employees of the United States, while attending conferences or meetings of the Board or while otherwise serving at the request of the Administrator, shall be entitled to receive compensation at a rate to be fixed by the Administrator, but not exceeding $100 per diem, including traveltime, and while away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by law for persons in the Government service employed intermittently.

(b) The Board shall advise, consult with, and make recommendations to the Administrator on matters of policy relating to the activities and functions of the Administrator under this chapter.

(c) Such clerical and technical assistance as may be necessary to discharge the duties of the Board shall be provided from the personnel of the Environmental Protection Agency.

June 30, 1948, c. 758, Title V, § 503, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 887.

§ 1364. Emergency powers

Notwithstanding any other provision of this chapter, the Administrator upon receipt of evidence that a pollution source or combination of sources is presenting an imminent and substantial endangerment to the health of persons or to the welfare of persons where such endangerment is to the livelihood of such persons, such as inability to market shellfish, may bring suit on behalf of the United States in the appropriate district court to immediately restrain any person causing or contributing to the alleged pollution to stop the discharge of pollutants causing or contributing to such pollution or to take such other action as may be necessary.

June 30, 1948, c. 758, Title V, § 504, as added Oct. 18, 1972, Pub.-L. 92–500, § 2, 86 Stat. 888.

§ 1365. Citizen suits—Authorization; jurisdiction

(a) Except as provided in subsection (b) of this section, any citizen may commence a civil action on his own behalf—

(1) against any person (including (i) the United States, and (ii) any other governmental instrumentality or agency to the extent permitted by the eleventh amendment to the Constitution) who is alleged to be in violation of (A) an effluent standard or limitation under this chapter or (B) an order issued by the Administrator or a State with respect to such a standard or limitation, or

(2) against the Administrator where there is alleged a failure of the Administrator to perform any act or duty under this chapter which is not discretionary with the Administrator.

The district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties, to enforce such as effluent standard or limitation, or such an order, or to order the Administrator to perform such act or duty, as the case may be, and to apply any appropriate civil penalties under section 1319(d) of this title.

Notice

(b) No action may be commenced—

(1) under subsection (a) (1) of this section—

(A) prior to sixty days after the plaintiff has given notice of the alleged violation (i) to the Administrator (ii) to the State in which the alleged violation occurs,

and (iii) to any alleged violator of the standard, limitation, or order, or

(B) if the Administrator or State has commenced and is diligently prosecuting a civil or criminal action in a court of the United States, or a State to require compliance with the standard, limitation, or order, but in any such action in a court of the United States any citizen may intervene as a matter of right.

(2) under subsection (a) (2) of this section prior to sixty days after the plaintiff has given notice of such action to the Administrator,

except that such action may be brought immediately after such notification in the case of an action under this section respecting a violation of sections 1316 and 1317(a) of this title. Notice under this subsection shall be given in such manner as the Administrator shall prescribe by regulation.

Venue; intervention by Administrator

(c) (1) Any action respecting a violation by a discharge source of an effluent standard or limitation or an order respecting such standard or limitation may be brought under this section only in the judicial district in which such source is located.

(2) In such action under this section, the Administrator, if not a party, may intervene as a matter of right.

Litigation costs

(d) The court, in issuing any final order in any action brought pursuant to this section, may award costs of litigation (including reasonable attorney and expert witness fees) to any party, whenever the court determines such award is appropriate. The court may, if a temporary restraining order or preliminary injunction is sought, require the filing of a bond or equivalent security in accordance with the Federal Rules of Civil Procedure.

Statutory or common law rights not restricted

(e) Nothing in this section shall restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any effluent standard or limitation or to seek any other relief (including relief against the Administrator or a State agency).

Effluent standard or limitation

(f) For purposes of this section, the term "effluent standard or limitation under this chapter" means (1) effective July 1, 1973,

an unlawful act under subsection (a) of section 1311 of this title; (2) an effluent limitation or other limitation under section 1311 or 1312 of this title; (3) standard of performance under section 1316 of this title; (4) prohibition, effluent standard or pretreatment standards under section 1317 of this title; (5) certification under section 1341 of this title; or (6) a permit or condition thereof issued under section 1342 of this title, which is in effect under this chapter (including a requirement applicable by reason of section 1323 of this title).

Citizen

(g) For the purposes of this section the term "citizen" means a person or persons having an interest which is or may be adversely affected.

Civil action by State Governors

(h) A Governor of a State may commence a civil action under subsection (a) of this section, without regard to the limitations of subsection (b) of this section, against the Administrator where there is alleged a failure of the Administrator to enforce an effluent standard or limitation under this chapter the violation of which is occurring in another State and is causing an adverse effect on the public health or welfare in his State, or is causing a violation of any water quality requirement in his State.

June 30, 1948, c. 758, Title V, § 505, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 888.

§ 1366. Appearance

The Administrator shall request the Attorney General to appear and represent the United States in any civil or criminal action instituted under this chapter to which the Administrator is a party. Unless the Attorney General notifies the Administrator within a reasonable time, that he will appear in a civil action, attorneys who are officers or employees of the Environmental Protection Agency shall appear and represent the United States in such action.

June 30, 1948, c. 758, Title V, § 506, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 889.

§ 1367. Employee protection—Discrimination against persons filing, instituting, or testifying in proceedings under this chapter prohibited

(a) No person shall fire, or in any other way discriminate against, or cause to be fired or discriminated against, any em-

ployee or any authorized representative of employees by reason of the fact that such employee or representative has filed, instituted, or caused to be filed or instituted any proceeding under this chapter, or has testified or is about to testify in any proceeding resulting from the administration or enforcement of the provisions of this chapter.

Application for review; investigation; hearing; review

(b) Any employee or a representative of employees who believes that he has been fired or otherwise discriminated against by any person in violation of subsection (a) of this section may, within thirty days after such alleged violation occurs, apply to the Secretary of Labor for a review of such firing or alleged discrimination. A copy of the application shall be sent to such person who shall be the respondent. Upon receipt of such application, the Secretary of Labor shall cause such investigation to be made as he deems appropriate. Such investigation shall provide an opportunity for a public hearing at the request of any party to such review to enable the parties to present information relating to such alleged violation. The parties shall be given written notice of the time and place of the hearing at least five days prior to the hearing. Any such hearing shall be of record and shall be subject to section 554 of Title 5. Upon receiving the report of such investigation, the Secretary of Labor shall make findings of fact. If he finds that such violation did occur, he shall issue a decision, incorporating an order therein and his findings, requiring the party committing such violation to take such affirmative action to abate the violation as the Secretary of Labor deems appropriate, including, but not limited to, the rehiring or reinstatement of the employee or representative of employees to his former position with compensation. If he finds that there was no such violation, he shall issue an order denying the application. Such order issued by the Secretary of Labor under this subparagraph shall be subject to judicial review in the same manner as orders and decisions of the Administrator are subject to judicial review under this chapter.

Costs and expenses

(c) Whenever an order is issued under this section to abate such violation, at the request of the applicant, a sum equal to the aggregate amount of all costs and expenses (including the attorney's fees), as determined by the Secretary of Labor, to have been reasonably incurred by the applicant for, or in connection

with, the institution and prosecution of such proceedings, shall be assessed against the person committing such violation.

Deliberate violations by employee acting without direction from his employer or his agent

(d) This section shall have no application to any employee who, acting without direction from his employer (or his agent) deliberately violates any prohibition of effluent limitation or other limitation under section 1311 or 1312 of this title, standards of performance under section 1316 of this title, effluent standard, prohibition or pretreatment standard under section 1317 of this title, or any other prohibition or limitation established under this chapter.

Investigations of employment reductions

(e) The Administrator shall conduct continuing evaluations of potential loss or shifts of employment which may result from the issuance of any effluent limitation or order under this chapter, including, where appropriate investigating threatened plant closures or reductions in employment allegedly resulting from such limitation or order. Any employee who is discharged or laid-off, threatened with discharge or lay-off, or otherwise discriminated against by any person because of the alleged results of any effluent limitation or order issued under this chapter, or any representative of such employee, may request the Administrator to conduct a full investigation of the matter. The Administrator shall thereupon investigate the matter and, at the request of any party, shall hold public hearings on not less than five days notice, and shall at such hearings require the parties, including the employer involved, to present information relating to the actual or potential effect of such limitation or order on employment and on any alleged discharge, lay-off, or other discrimination and the detailed reasons or justification therefor. Any such hearing shall be of record and shall be subject to section 554 of Title 5. Upon receiving the report of such investigation, the Administrator shall make findings of fact as to the effect of such effluent limitation or order on employment and on the alleged discharge, lay-off, or discrimination and shall make such recommendations as he deems appropriate. Such report, findings, and recommendations shall be available to the public. Nothing in this subsection shall be construed to require or authorize the Administrator to modify or withdraw any effluent limitation or order issued under this chapter.

June 30, 1948, c. 758, Title V, § 507, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 890.

§ 1368. Federal procurement—Contracts with violators prohibited

(a) No Federal agency may enter into any contract with any person, who has been convicted of any offense under section 1319(c) of this title, for the procurement of goods, materials, and services if such contract is to be performed at any facility at which the violation which gave rise to such conviction occurred, and if such facility is owned, leased, or supervised by such person. The prohibition in the preceding sentence shall continue until the Administrator certifies that the condition giving rise to such conviction has been corrected.

Notification of agencies

(b) The Administrator shall establish procedures to provide all Federal agencies with the notification necessary for the purposes of subsection (a) of this section.

Implementation by Presidential order

(c) In order to implement the purposes and policy of this chapter to protect and enhance the quality of the Nation's water, the President shall, not more than one hundred and eighty days after October 18, 1972, cause to be issued an order (1) requiring each Federal agency authorized to enter into contracts and each Federal agency which is empowered to extend Federal assistance by way of grant, loan, or contract to effectuate the purpose and policy of this chapter in such contracting or assistance activities, and (2) setting forth procedures, sanctions, penalties, and such other provisions, as the President determines necessary to carry out such requirement.

Exemptions

(d) The President may exempt any contract, loan, or grant from all or part of the provisions of this section where he determines such exemption is necessary in the paramount interest of the United States and he shall notify the Congress of such exemption.

Annual report to Congress

(e) The President shall annually report to the Congress on measures taken in compliance with the purpose and intent of this section, including, but not limited to, the progress and problems associated with such compliance.

June 30, 1948, c. 758, Title V, § 508, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 891.

§ 1369. Administrative procedure and judicial review

(a) (1) For purposes of obtaining information under section 1315 of this title, or carrying out section 1367(e) of this title, the Administrator may issue subpenas for the attendance and testimony of witnesses and the production of relevant papers, books, and documents, and he may administer oaths. Except for effluent data, upon a showing satisfactory to the Administrator that such papers, books, documents, or information or particular part thereof, if made public, would divulge trade secrets or secret processes, the Administrator shall consider such record, report, or information or particular portion thereof, confidential in accordance with the purposes of section 1905 of Title 18, except that such paper, book, document, or information may be disclosed to other officers, employees, or authorized representatives of the United States concerned with carrying out this chapter, or when relevant in any proceeding under this chapter. Witnesses summoned shall be paid the same fees and mileage that are paid witnesses in the courts of the United States. In case of contumacy or refusal to obey a subpena served upon any person under this subsection, the district court of the United States for any district in which such person is found or resides or transacts business, upon application by the United States and after notice to such person, shall have jurisdiction to issue an order requiring such person to appear and give testimony before the Administrator, to appear and produce papers, books, and documents before the Administrator, or both, and any failure to obey such order of the court may be punished by such court as a contempt thereof.

(2) The district courts of the United States are authorized, upon application by the Administrator, to issue subpenas for attendance and testimony of witnesses and the production of relevant papers, books, and documents, for purposes of obtaining information under sections 1314(b) and (c) of this title. Any papers, books, documents, or other information or part thereof, obtained by reason of such a subpena shall be subject to the same requirements as are provided in paragraph (1) of this subsection.

(b) (1) Review of the Administrator's action (A) in promulgating any standard of performance under section 1316 of this title, (B) in making any determination pursuant to section 1316(b) (1) (C) of this title, (C) in promulgating any effluent standard, prohibition, or pretreatment standard under section 1317 of this title, (D) in making any determination as to a State permit program submitted under section 1342(b) of this

title, (E) in approving or promulgating any effluent limitation or other limitation under section 1311, 1312, or 1316 of this title, and (F) in issuing or denying any permit under section 1342 of this title, may be had by any interested person in the Circuit Court of Appeals of the United States for the Federal judicial district in which such person resides or transacts such business upon application by such person. Any such application shall be made within ninety days from the date of such determination, approval, promulgation, issuance or denial, or after such date only if such application is based solely on grounds which arose after such ninetieth day.

(2) Action of the Administrator with respect to which review could have been obtained under paragraph (1) of this subsection shall not be subject to judicial review in any civil or criminal proceeding for enforcement.

(c) In any judicial proceeding brought under subsection (b) of this section in which review is sought of a determination under this chapter required to be made on the record after notice and opportunity for hearing, if any party applies to the court for leave to adduce additional evidence, and shows to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for the failure to adduce such evidence in the proceeding before the Administrator, the court may order such additional evidence (and evidence in rebuttal thereof) to be taken before the Administrator, in such manner and upon such terms and conditions as the court may deem proper. The Administrator may modify his findings as to the facts, or make new findings, by reason of the additional evidence so taken and he shall file such modified or new findings, and his recommendation, if any, for the modification or setting aside of his original determination, with the return of such additional evidence.

June 30, 1948, c. 758, Title V, § 509, as added Oct. 18, 1972, Pub. L. 92–500, § 2, 86 Stat. 891, and amended Dec. 28, 1973, Pub.L. 93–207, § 1 (6), 87 Stat. 906.

§ 1370. State authority

Except as expressly provided in this chapter, nothing in this chapter shall (1) preclude or deny the right of any State or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution; except that if an effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard,

or standard of performance is in effect under this chapter, such State or political subdivision or interstate agency may not adopt or enforce any effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance which is less stringent than the effluent limitation, or other limitation, effluent standard, prohibition, pretreatment standard, or standard of performance under this chapter; or (2) be construed as impairing or in any manner affecting any right or jurisdiction of the States with respect to the waters (including boundary waters) of such States.

June 30, 1948, c. 758, Title V, § 510, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 893.

§ 1371. Authority under other laws and regulations

(a) This chapter shall not be construed as (1) limiting the authority or functions of any officer or agency of the United States under any other law or regulation not inconsistent with this chapter; (2) affecting or impairing the authority of the Secretary of the Army (A) to maintain navigation or (B) under the Act of March 3, 1899; except that any permit issued under section 1344 of this title shall be conclusive as to the effect on water quality of any discharge resulting from any activity subject to section 403 of this title, or (3) affecting or impairing the provisions of any treaty of the United States.

(b) Discharges of pollutants into the navigable waters subject to the Rivers and Harbors Act of 1910 and the Supervisory Harbors Act of 1888 shall be regulated pursuant to this chapter, and not subject to such Act of 1910 and the Act of 1888 except as to effect on navigation and anchorage.

(c) (1) Except for the provision of Federal financial assistance for the purpose of assisting the construction of publicly owned treatment works as authorized by section 1281 of this title, and the issuance of a permit under section 1342 of this title for the discharge of any pollutant by a new source as defined in section 1316 of this title, no action of the Administrator taken pursuant to this chapter shall be deemed a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969; and

(2) Nothing in the National Environmental Policy Act of 1969 shall be deemed to—

(A) authorize any Federal agency authorized to license or permit the conduct of any activity which may result in the

discharge of a pollutant into the navigable waters to review any effluent limitation or other requirement established pursuant to this chapter or the adequacy of any certification under section 1341 of this title; or

(B) authorize any such agency to impose, as a condition precedent to the issuance of any license or permit, any effluent limitation other than any such limitation established pursuant to this chapter.

(d) Notwithstanding this chapter or any other provision of law, the Administrator (1) shall not require any State to consider in the development of the ranking in order of priority of needs for the construction of treatment works (as defined in subchapter II of this chapter), any water pollution control agreement which may have been entered into between the United States and any other nation, and (2) shall not consider any such agreement in the approval of any such priority ranking.

June 30, 1948, c. 758, Title V, § 511, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 893, and amended Jan. 2, 1974, Pub.L. 93–243, § 3, 87 Stat. 1069.

§ 1372. Labor standards

The Administrator shall take such action as may be necessary to insure that all laborers and mechanics employed by contractors or subcontractors on treatment works for which grants are made under this chapter shall be paid wages at rates not less than those prevailing for the same type of work on similar construction in the immediate locality, as determined by the Secretary of Labor, in accordance with the Davis-Bacon Act. The Secretary of Labor shall have, with respect to the labor standards specified in this subsection, the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 and section 276c of Title 40.

June 30, 1948, c. 758, Title V, § 513, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 894.

§ 1373. Public health agency coordination

The permitting agency under section 1342 of this title shall assist the applicant for a permit under such section in coordinating the requirements of this chapter with those of the appropriate public health agencies.

June 30, 1948, c. 758, Title V, § 514, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 894.

§ 1374. Effluent Standards and Water Quality Information Advisory Committee—Establishment; membership; term

(a) (1) There is established an Effluent Standards and Water Quality Information Advisory Committee, which shall be composed of a Chairman and eight members who shall be appointed by the Administrator within sixty days after October 18, 1972.

(2) All members of the Committee shall be selected from the scientific community, qualified by education, training, and experience to provide, assess, and evaluate scientific and technical information on effluent standards and limitations.

(3) Members of the Committee shall serve for a term of four years and may be reappointed.

Action on proposed regulations

(b) (1) No later than one hundred and eighty days prior to the date on which the Administrator is required to publish any proposed regulations required by section 1314(b) of this title, any proposed standard of performance for new sources required by section 1316 of this title, or any proposed toxic effluent standard required by section 1317 of this title, he shall transmit to the Committee a notice of intent to propose such regulations. The Chairman of the Committee within ten days after receipt of such notice may publish a notice of a public hearing by the Committee, to be held within thirty days.

(2) No later than one hundred and twenty days after receipt of such notice, the Committee shall transmit to the Administrator such scientific and technical information as is in its possession, including that presented at any public hearing, related to the subject matter contained in such notice.

(3) Information so transmitted to the Administrator shall constitute a part of the administrative record and comments on any proposed regulations or standards as information to be considered with other comments and information in making any final determinations.

(4) In preparing information for transmittal, the Committee shall avail itself of the technical and scientific services of any Federal agency, including the United States Geological Survey and any national environmental laboratories which may be established.

Secretary; legal counsel; compensation

(c) (1) The Committee shall appoint and prescribe the duties of a Secretary, and such legal counsel as it deems necessary. The

Committee shall appoint such other employees as it deems necessary to exercise and fulfill its powers and responsibilities. The compensation of all employees appointed by the Committee shall be fixed in accordance with chapter 51 and subchapter III of chapter 53 of Title 5.

(2) Members of the Committee shall be entitled to receive compensation at a rate to be fixed by the President but not in excess of the maximum rate of pay for grade GS–18, as provided in the General Schedule under section 5332 of Title 5.

Quorum; Special panel

(d) Five members of the Committee shall constitute a quorum, and official actions of the Committee shall be taken only on the affirmative vote of at least five members. A special panel composed of one or more members upon order of the Committee shall conduct any hearing authorized by this section and submit the transcript of such hearing to the entire Committee for its action thereon.

Rules

(e) The Committee is authorized to make such rules as are necessary for the orderly transaction of its business.

June 30, 1948, c. 758, Title V, § 515, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 894.

§ 1375. Reports to Congress

(a) Within ninety days following the convening of each session of Congress, the Administrator shall submit to the Congress a report, in addition to any other report required by this chapter, on measures taken toward implementing the objective of this chapter, including, but not limited to, (1) the progress and problems associated with developing comprehensive plans under section 1252 of this title, areawide plans under section 1288 of this title, basin plans under section 1289 of this title, and plans under section 1813(e) of this title; (2) a summary of actions taken and results achieved in the field of water pollution control research, experiments, studies, and related matters by the Administrator and other Federal agencies and by other persons and agencies under Federal grants or contracts; (3) the progress and problems associated with the development of effluent limitations and recommended control techniques; (4) the status of State programs, including a detailed summary of the progress obtained as compared to that planned under State program plans

for development and enforcement of water quality requirements; (5) the identification and status of enforcement actions pending or completed under this chapter during the preceding year; (6) the status of State, interstate, and local pollution control programs established pursuant to, and assisted by, this chapter; (7) a summary of the results of the survey required to be taken under section 1290 of this title; (8) his activities including recommendations under sections 1259 through 1261 of this title; and (9) all reports and recommendations made by the Water Pollution Control Advisory Board.

(b) (1) The Administrator, in cooperation with the States, including water pollution control agencies and other water pollution control planning agencies, shall make (A) a detailed estimate of the cost of carrying out the provisions of this chapter; (B) a detailed estimate, biennially revised, of the cost of construction of all needed publicly owned treatment works in all of the States and of the cost of construction of all needed publicly owned treatment works in each of the States; (C) a comprehensive study of the economic impact on affected units of government of the cost of installation of treatment facilities; and (D) 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 his chapter or applicable State law. The Administrator shall submit such detailed estimate and such comprehensive study of such cost to the Congress no later than February 10 of each odd-numbered year. Whenever the Administrator, pursuant to this subsection, requests and receives an estimate of cost from a State, he shall furnish copies of such estimate together with such detailed estimate to Congress.

(2) Notwithstanding the second sentence of paragraph (1) of this subsection, the Administrator shall make a preliminary detailed estimate called for by subparagraph (B) of such paragraph and shall submit such preliminary detailed estimate to the Congress no later than September 3, 1974. The Administrator shall require each State to prepare an estimate of cost for such State, and shall utilize the survey form EPA–1, O.M.B. No. 158–R0017, prepared for the 1973 detailed estimate, except that such estimate shall include all costs of compliance with section 1281 (g)(2)(A) of this title and water quality standards established pursuant to section 1313 of this title, and all costs of treatment works as defined in section 1292(2) of this title, including all eligible costs of constructing sewage collection systems and cor-

recting excessive infiltration or inflow and all eligible costs of correcting combined storm and sanitary sewer problems and treating storm water flows. The survey form shall be distributed by the Administrator to each State no later than January 31, 1974. June 30, 1948, c. 758, Title V, § 516, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 895, and amended Jan. 2, 1974, Pub.L. 93–243, § 4, 87 Stat. 1069.

§ 1376. Authorization of appropriations

There are authorized to be appropriated to carry out this chapter, other than sections 1254, 1255, 1256(a), 1257, 1258, 1262, 1263, 1264, 1265, 1286, 1287, 1288(f) and (h), 1289, 1314, 1321(c), (d), (i), (*l*), and (k), 1324, 1325, and 1327, $250,000,000 for the fiscal year ending June 30, 1973, $300,000,000 for the fiscal year ending June 30, 1974, and $350,000,000 for the fiscal year ending June 30, 1975.

June 30, 1948, c. 758, Title V, § 517, as added Oct. 18, 1972, Pub.L. 92–500, § 2, 86 Stat. 896.

1.2q FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS

December 28, 1973, P.L. 93–207, 87 Stat. 906.

AN ACT

To amend the Federal Water Pollution Control Act, as amended.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Federal Water Pollution Control Act (86 Stat. 816; 33 U.S.C. 1251 et seq.) is amended—

(1) in section 104(u)(2), by striking out "fiscal year 1973" and inserting in lieu thereof "fiscal years 1973 and 1974";

(2) in section 206(e), by striking out "$2,000,000,000" and inserting in lieu thereof "$2,600,000,000";

(3) in section 207, by inserting "206(e)," after "sections";

(4) in section 311—

(A) by striking out "(b)(2)" wherever it appears in paragraphs (1), (2), and (3), of subsection (f), and inserting in lieu thereof "(b)(3)";

(B) by striking out "Secretary" in the last sentence of paragraph (2) of subsection (f), and inserting in lieu thereof "Administrator"; and

(C) by striking out "(b) (2)" wherever it appears in subsections (g) and (i), and inserting in lieu thereof "(b) (3)";

(5) in section 315, by redesignating subsection (g) as subsection (h), and by adding a new subsection (g) to read as follows:

"(g) In addition to authority to appoint personnel subject to the provisions of title 5, United States Code, governing appointments in the competitive service, and to pay such personnel in accordance with the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, the Commission shall have authority to enter into contracts with private or public organizations who shall furnish the Commission with such administrative and technical personnel as may be necessary to carry out the purpose of this section. Personnel furnished by such organizations under this subsection are not, and shall not be considered to be, Federal employees for any purposes, but in the performance of their duties shall be guided by the standards which apply to employees of the legislative branches under rules 41 and 43 of the Senate and House of Representatives, respectively."; and

(6) in section 509(b)(1)(C), by striking out "treatment and inserting in lieu thereof "pretreatment".

SEC. 2. Notwithstanding the requirements of subsection (c) of section 206 of the Federal Water Pollution Control Act (86 Stat. 838), applications for assistance under section 206 may be filed with the Administrator of the Environmental Protection Agency until January 31, 1974.

SEC. 3. Funds available for reimbursement under Public Law 92–399 shall be allocated in accordance with subsection (d) of section 206 of the Federal Water Pollution Control Act (86 Stat. 838), pro rata among all projects eligible under subsection (a) of such section 206 for which applications have been submitted and approved by the Administrator pursuant to such Act. Notwithstanding the provisions of subsection (d) of such section 206, (1) the Administrator is authorized to make interim payments to each such project for which an application has been approved on the basis of estimates of maximum pro rata entitlement of all applicants under section 206(a) and (2) for the purpose of determining allocation of sums available under Public

Law 92–399, the unpaid balance of reimbursement due such projects shall be computed as of January 31, 1974. Upon completion by the Administrator of his audit and approval of all projects for which an application has been filed under subsection (a) of such section 206, the Administrator shall, within the limits of appropriated funds, allocate to each such qualified project the amount remaining, if any, of its total entitlement. Amounts allocated to projects which are later determined to be in excess of entitlement shall be available for reallocation, until expended, to other qualified projects under subsection (a) of such section 206. In no event, however, shall any payments exceed the Federal share of the cost of construction incurred to the date of the voucher covering such payment plus the Federal share of the value of the materials which have been stockpiled in the vicinity of such construction in conformity to plans and specifications for the project.

1.2q (1) Senate Committee on Public Works

S. REP. No. 93–269, 93rd Cong., 1st Sess. (1973).

EXTENSION OF WASTEWATER TREATMENT PLANT OPERATORS TRAINING PROGRAM

JUNE 27 (legislative day, JUNE 25), 1973.—Ordered to be printed

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Mr. RANDOLPH (for Mr. CLARK), from the Committee on Public Works, submitted the following

REPORT

[To accompany S. 1776]

The Committee on Public Works, to which was referred the bill (S. 1776) to amend the Federal Water Pollution Control Act, as amended, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

GENERAL STATEMENT

On May 10, 1973, Senator Dick Clark with the cosponsorship of Senator Howard Baker introduced a bill (S. 1776) providing for a 1-year extension of the pilot operator training program for

waste-water treatment plants, set up under section 104(g) (1) of the Federal Water Pollution Control Act.

The program was introduced first by Senator Muskie and Senator Scott of Pennsylvania, and was incorporated into the 1970 Water Quality Improvement Act (P. L. 91–224). Kept alive by continuing resolution during 1972, it was then included in the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92–500). Unlike all other research, development or training programs authorized by that act, which continue at least through fiscal year 1974, section 104(g) (1) was authorized only through fiscal year 1973. The purpose of this bill is to continue the program at the same level of funding through fiscal year 1974.

Approximately 16,000 operators of wastewater treatment plants have been trained under the Environmental Protection Agency pilot operator training programs and 4,200 have been enrolled in field study courses. The total cost of 120 grants involving trainees from all 50 States has been approximately $3,225,000.

[p. 1]

This program is the only operator training program operated solely by EPA, though the Agency administers four others through interagency agreements. Two of those four are scheduled for termination. Thus, whatever, happens to the 104(g) (1) program, the number of people being trained will be cut sharply.

In March of 1972, when EPA forecasted manpower and training needs, the greatest need indicated was for more trained operators. The number of operators engaged in wastewater treatment in 1971 was 49,300; the requirements in 1976 were forecasted to be 92,900—an 88-percent increase. In addition, many plants are being upgraded with new and more sophisticated equipment, and their current operators need additional training. It is likely that the Federal Water Pollution Control Act Amendments of 1972 will increase these needs. Studies by EPA, the General Accounting Office and Harbridge House, Inc. show that understaffing and understraining of operators are already creating water quality problems as a result of inadequately operated treatment plants.

The committee is concerned that training programs are being cut back just when trained operators are most needed. Therefore, the committee recommends the extension of this valuable training program conducted by the Environmental Protection Agency. In addition, the committee is recommending a number

of technical amendments to the Federal Water Pollution Control Act, as amended by the Public Law 92–500. These are corrections of oversights or incorrect references, and do not alter the substance of the act or depart from the original intent of the Congress in any way.

AGENCY VIEWS

U.S. ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. March 29, 1973.

Hon. JENNINGS RANDOLPH,
Chairman, Committee on Public Works, U.S. Senate,
Washington, D.C.

DEAR MR. CHAIRMAN: Section 104(g) (1) of the Federal Water Pollution Control Act Amendments of 1972 provides that the Administrator of the Environmental Protection Agency shall finance pilot programs of manpower development and training and retraining of persons for maintenance of treatment works and related activities. Section 104(g) (2) authorizes the Administrator to enter into agreements to develop and maintain an effective system for forecasting the supply of, and demand for various occupational categories for pollution prevention, reduction, and elimination. A report to Congress on these activities, among others, is required by December 31, 1973, under section 104(g) (4).

The authorization of appropriations in section 104(u), however, covers only fiscal year 1973. In view of the fact that the report to Congress is not required until the end of the calendar year, we believe that the figure "1973" was an inadvertent error and that funds should be authorized through fiscal year 1974.

[p. 2]

Accordingly, we recommend that this apparent oversight be corrected so as to authorize the funds for fiscal years 1973 and 1974. A draft of a proposed amendment which would accomplish this is enclosed.

Sincerely yours,

WILLIAM D. RUCKELSHAUS,
Administrator.

COST OF THE LEGISLATION

Section 252(a)(1) of the Legislative Reorganization Act of 1970 requires publication in this report of the committee's esti-

mate of the costs of reported legislation, together with estimates prepared by any Federal agency. Enactment of the bill would authorize $7,500,000 for fiscal year 1974 to carry out section 104(g)(1) of the Federal Water Pollution Control Act.

ROLLCALL VOTES

Section 133 of the Legislative Reorganization Act of 1970 and the rules of the Committee on Public Works require that any rollcall votes be announced in this report. During the committee's consideration of this bill, no rollcall votes were taken. The measure was on voice vote unanimously ordered reported.

[p. 3]

CHANGES IN EXISTING LAW

In compliance with subsection (4) of rule XXIX of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

THE FEDERAL WATER POLLUTION CONTROL ACT

* * * * * * *

RESEARCH, INVESTIGATIONS, TRAINING, AND INFORMATION

SEC. 104.

* * * * * * *

(u) There is authorized to be appropriated (1) $100,000,000 per fiscal year for the fiscal year ending June 30, 1973, and the fiscal year ending June 30, 1974, for carrying out the provisions of this section other than subsections (g)(1) and (2), (p), (r), and (t); (2) not to exceed $7,500,000 for [fiscal year 1973] *fiscal years 1973 and 1974,* for carrying out the provisions of subsection (g)(1); (3) not to exceed $2,500,000 for fiscal year 1973 for carrying out the provisions of subsection (g)(2); (4) not to exceed $10,000,000 for each of the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (p); (5) not to exceed $15,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (r); and (6) not to exceed $10,000,000 per fiscal year for the fiscal years ending

June 30, 1973 and June 30, 1974, for carrying out the provisions of subsection (t).

* * * * * * *

AUTHORIZATION

SEC. 207. There is authorized to be appropriated to carry out this title, other than sections *206* (*e*), 208 and 209, for the fiscal year ending June 30, 1973, not to exceed $5,000,000,000, for the fiscal year ending June 30, 1974, not to exceed $6,000,000,000, and for the fiscal year ending June 30, 1975, not to exceed $7,000,000,000.

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OIL AND HAZARDOUS SUBSTANCE LIABILITY

SEC. 311.

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(f)(1) Except where an owner or operator can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D)

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an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any vessel from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] (*b*)(*3*) of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the United States Government in an amount not to exceed $100 per gross ton of such vessel or $14,000,000, whichever is lesser, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. Such costs shall constitute a maritime lien on such vessel which may be recovered in an action remain in the district court of the United States for any district within which any vessel may be found. The United States may also bring an action against the owner or operator of such vessel in any court of competent jurisdiction to recover such costs.

(2) Except where an owner or operator of an onshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any such facility from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] *(b)(3)* of this section shall be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the United States Government in an amount not to exceed $8,000,000, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such facility in any court of competent jurisdiction to recover such costs. The [Secretary] *Administrator* is authorized, by regulation, after consultation with the Secretary of Commerce and the Small Business Administration, to establish reasonable and equitable classifications of those onshore facilities having a total fixed storage capacity of 1,000 barrels or less which he determines because of size, type, and location do not present a substantial risk of the discharge of oil or a hazardous substance in violation of subsection [(b)(2)] *(b)(3)* of this section, and apply with respect to such classifications differing limits of liability which may be less than the amount contained in this paragraph.

(3) Except where an owner or operator of an offshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any

[p. 6]

such facility from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] *(b)(3)* of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the United States Government in an amount not to exceed

$8,000,000, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such a facility in any court of competent jurisdiction to recover such costs.

(g) In any case where an owner or operator of a vessel, of an onshore facility, or of an offshore facility, from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] *(b)(3)* of this section, proves that such discharge of oil or hazardous substance was caused solely by an act of omission of a third party, or was caused solely by such an act or omission in combination with an act of God, an act of war, or negligence on the part of the United States Government, such third party shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for removal of such oil or substance by the United States Government, except where such third party can prove that such discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of another party without regard to whether such act or omission was or was not negligent, or any combination of the foregoing clauses. If such third party was the owner or operator of a vessels which caused the discharge of oil or a hazardous substance in violation of subsection [(b)(2)] *(b)(3)* of this section, the liability of such third party under this subsection shall not exceed $100 per gross ton of such vessel or $14,000,000, whichever is the lesser. In any other case the liability of such third party shall not exceed the limitation which would have been applicable to the owner or operator of the vessel or the onshore or offshore facility from which the discharge actually occurred if such owner or operator were liable. If the United States can show that the discharge of oil or a hazardous substance in violation of subsection [(b)(2)] *(b)(3)* of this section was the result of willful negligence or willful misconduct within the privity and knowledge of such third party, such third party shall be liable to the United States Government for the full amount of such removal costs. The United States may bring an action against the third party in any court of competent jurisdiction to recover such removal costs.

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(i)(1) In any case where an owner or operator of a vessel or

an onshore facility or an offshore facility from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] (*b*)(*3*) of this section acts to remove such oil or substance in accordance with regulations promulgated pursuant to this section, such owner or operator shall be entitled too recover the reasonable costs incurred in such

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removal upon establishing, in a suit which may be brought against the United States Government in the United States Court of Claims, that such discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act of omission of a third party without regard to whether such act or omission was or was not negligent, or of any combination of the foregoing causes.

(2) The provisions of this subsection shall not apply in any case where liability is established pursuant to the Outer Continental Shelf Lands Act.

(3) Any amount paid in accordance with a judgment of the United States Court of Claims pursuant to this section shall be paid from the funds established pursuant to subsection (k).

* * * * * * *

ADMINISTRATION PROCEDURE AND JUDICAL REVIEW

SEC. 509.

* * * * * * *

(b)(1) Review of the Administrator's action (A) in promulgating any standard of performance under section 306, (B) in making any determination pursuant to section 306(b)(1)(C), (C) in promulgating any effluent standard, prohibition, or [treatment] *pretreatment* standard under section 307, (D) in making any determination as to a State permit program submitted under section 402(b), (E) in approving or promulgating any effluent limitation or other limitation under section 301, 302, or 306, and (F) in issuing or denying any permit under section 402, may be had by any interested person in the Circuit Court of Appeals of the United States for the Federal judicial district in which such person resides or transacts such business upon application by such person. Any such application shall be made within ninety days from the date of such determination, approval, promulgation, issuance or denial, or after such date only if such application is based solely on grounds which arose after such ninetieth day.

(2) Action of the Administrator with respect to which review could have been obtained under paragraph (1) of this subsection shall not be subject to judicial review in any civil or criminal proceeding for enforcement.

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1.2q(2) House Committee on Public Works
H.R. REP. No. 93-680, 93rd Cong., 1st Sess. (1973)

FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS

NOVEMBER 29, 1973.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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Mr. BLATNIK, from the Committee on Public Works, submitted the following

REPORT

[To accompany S. 1776]

The Committee on Public Works, to whom was referred the bill (S. 1776) to amend the Federal Water Pollution Control Act, as amended, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

The amendment strikes out all after the enacting clause and inserts a substitute text which appears in italic type in the reported bill.

STATEMENT

S. 1776, as amended, combines the provisions of S. 1776 and S.J. Res. 158 as they passed the Senate and adds a clarifying legislative proposal requested by the National Commission on Water Quality, established by the Federal Water Pollution Control Act.

Section 1 of the bill authorizes a one year extension of the pilot operator training program for wastewater treatment plants, set up under section 104(g)(1) of the Federal Water Pollution Control Act. The program, initiated in 1970, was included in the Federal Water Pollution Control Act Amendments of 1972 (P.L.

92–500). Unlike all other research, development or training programs authorized by that act, which continue at least through fiscal year 1974, section 104(g)(1) was authorized only through fiscal year 1973. The purpose of this legislation is to authorize the program at the same level of funding through fiscal year 1974.

There is a continuing and growing need for trained operators for the increasing number of water treatment plants. The new and more sophisticated equipment being added to upgrade plants add to the need for operator training. Accordingly, the Committee recommends the extension of this valuable training program. [p. 1]

This section also amends Section 206(e) of the Federal Water Pollution Control Act by increasing from $2,000,000,000 to $2,600,000,000 the authorization for reimbursement of up to 55 percent of project costs for eligible sewage treatment plants on which construction was initiated between June 30, 1966 and July 1, 1972.

Section 206 provides for the reimbursement to those agencies that constructed waste treatment works but did not receive the full authorized amount of Federal contribution. It was the desire of Congress to redeem the federal pledge to make reimbursement payments and to provide the financial assistance necessary to enable such agencies to continue with their own water pollution control program.

Section 206 provides that publicly owned treatment works on which construction was started after June 30, 1966, but before July 1, 1972, will be reimbursed for the difference between the amount they did receive as federal financial support and 50 percent of total cost, provided the project was approved by the appropriate state water pollution control agency and met the requirements of the Water Pollution Control Act in effect at the time the project was initiated. If the project was, in addition, constructed in conformity with a comprehensive metropolitan treatment plan, it would receive an additional 5 percent of total cost.

When the Federal Water Pollution Control Act Amendments were passed in 1972, the Environmental Protection Agency furnished the estimate that approximately $2,000,000,000 was needed to carry out the reimbursement provisions of Section 206(a). Since that time the estimate has been refined, and is now $2,600,000,000. The increase in the authorization for appropriations would provide for full funding of section 206(a).

Section 1 also contains a number of technical amendments to the Federal Water Pollution Control Act. These are corrections of oversights or incorrect references, and do not alter the substance of the Act or depart from the original intent of the Congress.

Section 2 of S. 1776, as amended, provides that notwithstanding the requirements of section 206 of the Federal Water Pollution Control Act, applicants for reimbursement under that section may be filed with the Administrator of the Environmental Protection Agency until January 31, 1973. A deadline of October 18, 1973 was originally set in section 206. However, some states and communities have been uncertain as to which projects are eligible for reimbursement, resulting in incomplete compilations of eligible projects. The difficulty has been compounded by the fact that regulations concerning reimbursement and subsequent revisions were not promulgated by the Environmental Protection Agency until late September of this year. Accordingly, the legislation extends the deadline in order to give all concerned parties adequate time to prepare their applications.

Section 3 of the bill authorizes the Administrator of the Environmental Protection Agency to make interim payments to projects for which an application has been approved on the basis of estimates of maximum pro rata entitlement of all applicants under subsections 206(a) and (d). It has become evident that many eligible recipients would be forced to incur expenses and delays in new projects or risk failure of projects under construction if payments were made only after complete review and determination on all applications. The

[p. 2]

large number of applications for reimbursement will require extensive processing by the Environmental Protection Agency before full payment on each can be made. Section 3 of the legislation authorizes preliminary interim reimbursement of funds to projects which can be easily approved on the basis of available documentation pending final processing of all projects. This would include nearly all projects for which there had been any Federal financial assistance in the past, from the Environmental Protection Agency or other source. This will prevent undue disruption in community plans and also facilitate an orderly cash flow by the United States Government. It is expected that the Environmental Protection Agency will immediately implement the interim payment provisions of this section.

COST OF THE LEGISLATION

Rule XIII(7) of the Rules of the House of Representatives requires a statement of the estimated costs to the United States which would be incurred in carrying out S. 1776, as reported, in Fiscal Year 1974 and each of the following five years.

The extension of the wastewater treatment plant operator training program would authorize $7,500,000 for fiscal year 1974 to continue the program. It is not possible at this time to predict the rate of reimbursement for waste treatment facilities, the construction of which was commenced between June 30, 1966 and July 1, 1972. Accordingly, the estimate prepared by the Committee is based on the total amount of increased authorization for the six fiscal year period. That amount is $600,000,000. No additional costs to the Federal Government are involved with the clarification of the National Study Commission's authority to hire consultants as staff.

VOTE

The Committee ordered the bill reported by voice vote.

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of Rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

FEDERAL WATER POLLUTION CONTROL ACT

* * * * * * *

TITLE I—RESEARCH AND RELATED PROGRAMS

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RESEARCH, INVESTIGATIONS, TRAINING, AND INFORMATION

SEC. 104. (a)* * *

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[p. 3]

(u) There is authorized to be appropriated (1) $100,000,000 per fiscal year for the fiscal year ending June 30, 1973, and the fiscal year ending June 30, 1974, for carrying out the provisions

of this section other than subsections (g) (1) and (2), (p), (r), and (t); (2) not to exceed $7,500,000 for [fiscal year 1973] *fiscal years 1973 and 1974* for carrying out the provisions of subsection (g)(1); (3) not to exceed $2,500,000 for fiscal year 1973 for carrying out the provisions of subsection (g)(2); (4) not to exceed $10,000,000 for each of the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (p); (5) not to exceed $15,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (r); and (6) not to exceed $10,000,000 per fiscal year for the fiscal years ending June 30, 1973, and June 30, 1974, for carrying out the provisions of subsection (t).

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TITLE II—GRANTS FOR CONSTRUCTION OF TREATMENT WORKS

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REIMBURSEMENT AND ADVANCED CONSTRUCTION

SEC. 206. (a)* * *

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(e) There is authorized to be appropriated to carry out subsection (a) of this section not to exceed [$2,000,000,000] *$2,600,000,000* and, to carry out subsection (b) of this section, not to exceed $750,000,000. The authorizations contained in this subsection shall be the sole source of funds for reimbursements authorized by this section.

* * * * * * *

AUTHORIZATION

SEC. 207. There is authorized to be appropriated to carry out this title, other than sections *206(e)*, 208 and 209, for the fiscal year ending June 30, 1973, not to exceed $5,000,000,000, for the fiscal year ending June 30, 1974, not to exceed $6,000,000,000, and for the fiscal year ending June 30, 1975, not to exceed $7,000,000,000.

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TITLE III—STANDARDS AND ENFORCEMENT

* * * * * * *

OIL AND HAZARDOUS SUBSTANCE LIABILITY

SEC. 311. (a) * * *

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(f)(1) Except where an owner or operator can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of

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the foregoing clauses, such owner or operator of any vessel from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] (*b*)(*3*) of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the United States Government in an amount not to exceed $100 per gross ton of such vessel or $14,000,000 whichever is lesser, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. Such costs shall constitute a maritime lien on such vessel which may be recovered in an action in rem in the district court of the United States for any district within which any vessel may be found. The United States may also bring an action against the owner or operator of such vessel in any court of competent jurisdiction to recover such costs.

(2) Except where an owner or operator of an onshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any such facility from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] (*b*)(*3*) of this section shall be liable to the United States Government for the actual costs incurred under subsection (c) for the removal of such oil or substance by the

United States Government in an amount not to exceed $8,000,000, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such facility in any court of competent jurisdiction to recover such costs. The [Secretary] *Administrator* is authorized, by regulation, after consultation with the Secretary of Commerce and the Small Business Administration, to establish reasonable and equitable classifications of those onshore facilities having a total fixed storage capacity of 1,000 barrels or less which he determines because of size, type, and location do not present a substantial risk of the discharge of oil or a hazardous substance in violation of subsection [(b)(2)] *(b)(3)* of this section, and apply with respect to such classifications differing limits of liability which may be less than the amount contained in this paragraph.

(3) Except where an owner or operator of an offshore facility can prove that a discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of a third party without regard to whether any such act or omission was or was not negligent, or any combination of the foregoing clauses, such owner or operator of any such facility from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] *(b)(3)* of this section shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for the

[p. 5]

removal of such oil or substance by the United States Government in an amount not to exceed $8,000,000, except that where the United States can show that such discharge was the result of willful negligence or willful misconduct within the privity and knowledge of the owner, such owner or operator shall be liable to the United States Government for the full amount of such costs. The United States may bring an action against the owner or operator of such a facility in any court of competent jurisdiction to recover such costs.

(g) In any case where an owner or operator of a vessel, of an onshore facility, or of an offshore facility, from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] *(b)(3)* of this section, proves that such discharge of

oil or hazardous substance was caused solely by an act or omission of a third party, or was caused solely by such an act or omission in combination with an act of God, an act of war, or negligence on the part of the United States Government, such third party shall, notwithstanding any other provision of law, be liable to the United States Government for the actual costs incurred under subsection (c) for removal of such oil or substance by the United States Government, except where such third party can prove that such discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an act or omission of another party without regard to whether such act or omission was or was not negligent, or any combination of the foregoing clauses. If such third party was the owner or operator of a vessel which caused the discharge of oil or a hazardous substance in violation of subsection [(b)(2)] *(b)(3)* of this section, the liability of such third party under this subsection shall not exceed $100 per gross ton of such vessel of $14,000,000, whichever is the lesser. In any other case the liability of such third party shall not exceed the limitation which would have been applicable to the owner or operator of the vessel or the onshore or offshore facility from which the discharge actually occurred if such owner or operator were liable. If the United States can show that the discharge of oil or a hazardous substance in violation of subsection [(b)(2)] *(b)(3)* of this section was the result of willful negligence or willful misconduct within the privity and knowledge of such third party, such third party shall be liable to the United States Government for the full amount of such removal costs. The United States may bring an action against the third party in any court of competent jurisdiction to recover such removal costs.

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(i)(1) In any case where an owner or operator of a vessel or an onshore facility or an offshore facility from which oil or a hazardous substance is discharged in violation of subsection [(b)(2)] *(b)(3)* of this section acts to remove such oil or substance in accordance with regulations promulgated pursuant to this section, such owner or operator shall be entitled to recover the reasonable costs incurred in such removal upon establishing, in a suit which may be brought against the United States Government in the United States Court of Claims, that such discharge was caused solely by (A) an act of God, (B) an act of war, (C) negligence on the part of the United States Government, or (D) an

act or omission of a third party without regard to whether such act or omission was or was not negligent, or of any combination of the foregoing causes.

[p. 6]

(2) The provisions of this subsection shall not apply in any case where liability is established pursuant to the Outer Continental Shelf Lands Act.

(3) Any amount paid in accordance with a judgment of the United States Court of Claims pursuant to this section shall be paid from the funds established pursuant to subsection (k).

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NATIONAL STUDY COMMISSION

SEC. 315. (a) * * *

* * * * * * *

(g) In addition to authority to appoint personnel subject to the provisions of title 5, United States Code, governing appointments in the competitive service, and to pay such personnel in accordance with the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, the Commission shall have authority to enter into contracts with private or public organizations who shall furnish the Commission with such administrative and technical personnel as may be necessary to carry out the purpose of this section. Personnel furnished by such organizations under this subsection are not, and shall not be considered to be, Federal employees for any purposes, but in the performance of their duties shall be guided by the standards which apply to employees of the legislative branches under rules 41 and 43 of the Senate and House of Representatives, respectively.

[(g)] *(h)* There is authorized to be appropriated, for use in carrying out this section, not to exceed $15,000,000.

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TITLE V—GENERAL PROVISIONS

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ADMINISTRATIVE PROCEDURE AND JUDICIAL REVIEW

SEC. 509. (a) * * *

* * * * * * *

(b)(1) Review of the Administrator's action (A) in promulgating any standard of performance under section 306, (B) in

making any determination pursuant to section 306(b)(1)(C), (C) in promulgating any effluent standard, prohibition, or [treatment] *pretreatment* standard under section 307, (D) in making any determination as to a State permit program submitted under section 402(b), (E) in approving or promulgating any effluent limitation or other limitation under section 301, 302, or 306, and (F) in issuing or denying any permit under section 402, may be had by any interested person in the Circuit Court of Appeals of the United States for the Federal judicial district in which such person resides or transacts such business upon application by such person. Any such application shall be made within ninety days from the date of such determination, approval, promulgation, issuance or denial, or after such date only if such application is based solely on grounds which arose after such ninetieth day.

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[p. 7]

1.2q(3) CONGRESSIONAL RECORD, VOL. 119(1973):

1.2q(3)(a) June 28: Considered and passed Senate, pp. S 12371

EXTENSION OF WASTEWATER TREATMENT PLANT OPERATORS TRAINING PROGRAM

The Senate proceeded to consider the bill (S. 1776) to amend the Federal Water Pollution Control Act, as amended, which had been reported from the Committee on Public Works with an amendment on page 1, after line 8, insert:

SEC. 2. Paragraphs (1), (2), and (3) of subsection (f), and subsections (g) and (i) of section 311 of the Federal Water Pollution Control Act, as amended (86 Stat. 866–868), are amended by striking "(b) (2)" wherever it appears and inserting in lieu thereof "(b) (3)".

SEC. 3. The last sentence of paragraph (2) of subsection (f) of section 311 of the Federal Water Pollution Control Act, as amended (86 Stat. 867), is amended by striking "Secretary" and inserting in lieu thereof "Administrator".

SEC. 4. Section 207 of the Federal Water Pollution Control Act, as amended (86 Stat. 839), is amended by inserting "206(e)," after "sections".

SEC. 5. Section 509(b)(1)(C) of the Federal Water Pollution Control Act, as amended (86 Stat. 892), is amended by striking "treatment" and inserting in lieu thereof "pretreatment".

So as to make the bill read:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That subsection (u) of section 104 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1151 et seq.), is amended by striking the phrase "fiscal year 1973" where it appears in paragraph numbered (2) thereof, and substituting therefor the phrase "fiscal years 1973 and 1974".

SEC. 2. Paragraphs (1), (2), and (3) of subsection (f), and subsections (g) and (i) of section 311 of the Federal Water Pollution Control Act, as amended (86 Stat. 866–868), are amended by striking "(b) (2)" wherever it appears and inserting in lieu thereof "(b) (3)".

SEC. 3. The last sentence of paragraph (2) of subsection (f) of section 311 of the Federal Water Pollution Control Act, as amended (86 Stat. 867), is amended by striking "Secretary" and inserting in lieu thereof "Administrator".

SEC. 4. Section 207 of the Federal Water Pollution Control Act, as amended (86 Stat. 839), is amended by inserting "206(e)," after "sections".

SEC. 5. Section 509(b)(1)(C) of the Federal Water Pollution Control Act, as amended (86 Stat. 892), is amended by striking "treatment" and inserting in lieu thereof "pretreatment".

The amendment was agreed to.

The bill was ordered to be engrossed for a third reading, read the third time, and passed.

[p. S12371]

1.2q(3)(b) Dec. 3: Considered and passed Senate, pp. H 10517–H 10520

FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS

Mr. BLATNIK. Mr. Speaker, I move to suspend the rules and pass the Senate bill (S. 1776) to amend the Federal Water Pollution Control Act, as amended.

The Clerk read as follows:

S. 1776

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Federal Water Pollution Control Act (86 Stat. 816; 33 U.S.C. 1251 et seq.) is amended—

(1) in section 104(u)(2), by striking out "fiscal year 1973" and inserting in lieu thereof "fiscal years 1973 and 1974";

(2) in section 206(e), by striking out "$2,000,000,000" and inserting in lieu thereof "$2,600,000,000";

(3) in section 207, by inserting "206(e)," after "sections";

(4) in section 311—

(A) by striking out "(b)(2)" wherever it appears in paragraphs (1), (2), and (3), of subsection (f), and inserting in lieu thereof "(b)(3)";

(B) by striking out "Secretary" in the last sentence of paragraph (2) of subsection (f), and inserting in lieu thereof "Administrator"; and

(C) by striking out "(b)(2)" wherever it appears in subsections (g) and (i), and inserting in lieu thereof "(b)(3)";

(5) in section 315, by redesignating subsection (g) as subsection (h), and by adding a new subsection (g) to read as follows:

"(g) In addition to authority to appoint personnel subject to the provisions of title 5, United States Code, governing appointments in the competitive service, and to pay such personnel in accordance with the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, the Commission shall have authority to enter into contracts with private or public organization who shall furnish the Commission with such administrative and technical personnel as may be necessary to carry out the purpose of this section. Personnel furnished by such organizations under this subsection are not, and shall not be considered to be, Federal employees for any purposes, but in the performance of their duties shall be guided by the standards which apply to employees of the legislative branches under rules 41 and 43 of the Senate and House of Representatives, respectively."; and

(6) in section 509(b)(1)(C), by striking out "treatment" and inserting in lieu thereof "pretreatment".

SEC. 2. Notwithstanding the requirements of subsection (c) of section 206 of the Federal Water Pollution Control Act (86 Stat. 838), applications for assistance under section 206 may be filed with the Administrator of the Environmental Protection Agency until January 31, 1974.

SEC. 3. Funds available for reimbursement under Public Law 92–399 shall be allocated in accordance with subsection (d) of section 206 of the Federal Water Pollution Control Act (86 Stat. 838), pro rata among all projects eligible under subsection (a) of such section 206 for which applications have been submitted and approved by the Administrator pursuant to such Act. Notwithstanding the provisions of subsection (d) of such section 206, (1) the Administrator is authorized to make interim payments to each such project for which an application has been approved on the basis of estimates of maximum pro rata entitlement of all applicants under section 206(a) and (2) for the purpose of determining allocation of sums available under Public Law 92–399, the unpaid balance of reimbursement due such projects shall be computed as of January 31, 1974. Upon completion by the Administrator of his audit and approval of all projects for which an application has been filed under subsection (a) of such section 206, the Administrator shall, within the limits of appropriated funds, allocate to each such qualified project the amount remaining, if any, of its total entitlement. Amounts allocated to projects which are later determined to be in excess of entitlement shall be available for reallocation, until expended, to other qualified projects under subsection (a) of such section 206. In no event, however, shall any payments exceed the Federal share of the cost of construction incurred to the date of the voucher covering such payment plus the Federal share of the value of the materials which have been stockpiled in the vicinity of such construction in conformity to plans and specifications for the project.

The SPEAKER. Is a second demanded?

Mr. DON H. CLAUSEN. Mr. Speaker, I demand a second.

The SPEAKER. Without objection, a second will be considered as ordered.

There was no objection.

(Mr. BLATNIK asked and was

given permission to revise and extend his remarks.)

Mr. BLATNIK. Mr. Speaker, I rise in support of S. 1776, as amended. I commend the distinguished chairman of our Water Resources Subcommittee, the gentleman from Texas (Mr. ROBERTS) for the outstanding job he has done in bringing this bill to the floor. I wish also to extend my appreciation to the ranking minority member of the full committee, the gentleman from Ohio (Mr. HARSHA), and to the ranking minority member of the Subcommittee on Water Resources, the gentleman from California (Mr. DON H. CLAUSEN), for their very able assistance and cooperation on this bill.

This is an important and needed bill. When Congress passed the Federal Water Pollution Control Act Amendments in 1972, it authorized reimbursement to those States and communities which had continued their treatment plant construction program but did not receive the full amount of Federal financial assistance to which they were entitled. The amount of the authorization, which was based on the best estimate then available of $2 billion, has turned out to be too low. This legislation increases it by $600 million, so that all eligible applicants will be able to get the reimbursement they are entitled to. The deadline for filing reimbursement applications is also extended from October 18 of this year to January 31 of 1974. This will give the States and communities sufficient time to get their applications to the Environmental Protection Agency.

I also wish to point out the value of the treatment plant operator training program which the legislation extends for another year. We must have qualified operators if these plants are to operate effectively to clean up our waters.

I now yield to the distinguished chairman of the subcommittee, the gentleman from Texas (Mr. ROBERTS).

(Mr. ROBERTS asked and was given permission to revise and extend his remarks.)

Mr. ROBERTS. I thank our distinguished chairman for yielding.

Mr. Speaker, on behalf of the Committee on Public Works I am pleased to bring to the floor for consideration S. 1776, as reported amending the Federal Water Pollution Control Act.

S. 1776, as amended, combines the provisions of S. 1776 and Senate Joint Resolution 158 as they passed the Senate, and adds a clarifying legislative proposal requested by the National Commission on Water Quality, established by the Federal Water Pollution Control Act.

Section 1 of the bill authorizes a 1-year extension of the pilot operator training program for wastewater treatment plants, set up under section 104(g) (1) of the Federal Water Pollution Control Act. The program, initiated in 1970, was included in the Federal Water Pollution Control Act Amendments of

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1972—Public Law 92-500. Unlike all other research, development, or training programs authorized by that act, which continue at least through fiscal year 1974, section 104(g)(1) was authorized only through fiscal year 1973. The purpose of this legislation is to authorize the program at the same level of funding through fiscal year 1974.

This section also amends section 206 (e) of the Federal Water Pollution Control Act by increasing from $2 billion to $2,600 million the authorization for reimbursement of up to 55 percent of project costs for eligible sewage treatment plants on which construction was initiated between June 30, 1966, and July 1, 1972.

Section 206 provides that such publicly owned treatment works will be reimbursed for the difference between

the amount they did receive as Federal financial support and 50 percent of total cost, provided the project was approved by the appropriate State water pollution control agency and met the requirements of the Water Pollution Control Act in effect at the time the project was initiated. If the project was, in addition, constructed in conformity with a comprehensive metropolitan treatment plan, it would receive an additional 5 percent of total cost.

When the Federal Water Pollution Control Act amendments were passed in 1972, the best estimate was that approximately $2 billion was needed to carry out the reimbursement provisions of section 206(a). Since that time the estimate has been refined, and is now $2,600 million. The increase in the authorization will permit full implementation of section 206 (a) and assure that all eligible applicants will in time receive the full amount of reimbursement to which they are entitled.

Section 2 of the legislation extends the deadline for filing reimbursement applications from October 18, 1973, to January 31, 1974. This extension is needed to give States and communities adequate time to prepare and file applications after the promulgation of the Environmental Protection Agency's guidelines which just came out this September.

Section 3 authorizes the Administrator of the Environmental Protection Agency to make interim payments to projects for which an application has been approved on the basis of estimates of maximum pro rata entitlement of all applicants under subsections 206 (a) and (d).

The large number of applications for reimbursement will require extensive processing by the Environmental Protection Agency before full payment on each can be made. This section authorizing interim reimbursement of funds to projects which can be easily approved on the basis of available documentation pending final processing of all projects will prevent undue disruption in community plans and also facilitate an orderly cash flow by the U.S. Government.

I am, as always, deeply appreciative of the splendid leadership of the chairman of this committee, the gentleman from Minnesota (Mr. BLATNIK), the gentleman from Alabama (Mr. JONES), and the cooperation given by the ranking minority member of the committee, the gentleman from Ohio (Mr. HARSHA), and the ranking minority member of the Subcommittee on Water Resources, the gentleman from California (Mr. DON H. CLAUSEN).

Mr. DON H. CLAUSEN. Mr. Speaker, I yield myself such time as I may consume.

(Mr. DON H. CLAUSEN asked and was given permission to revise and extend his remarks.)

Mr. DON H. CLAUSEN. Mr. Speaker, I rise in support of S. 1776 as reported by the Committee on Public Works. This bill addresses certain immediate needs of the water pollution control program and I urge its support.

I compliment the distinguished chairman of the Water Resources Subcommittee of the Committee on Public Works, my good friend RAY ROBERTS, of Texas, for his leadership in bringing this bill to the floor today as well as for his cogent explanation of the provisions of S. 1776.

Mr. ROBERTS has explained the details of S. 1776, and I shall not be repetitive. There are, however, two provisions in this bill which I believe should be expanded upon. As you remember, last year in the development of the 1972 amendments to the Federal Water Pollution Control Act, the Congress developed legislation providing for reimbursement to those projects on which construction was initiated between June 30, 1966, and

July 1, 1972, Reimbursement payments would be the difference between the amount projects did receive as Federal financial support and either 50 or 55 percent of total cost depending upon whether or not the treatment works was constructed in conformity with an applicable, comprehensive, metropolitan treatment plan.

At the time we developed the reimbursement provision in the 1972 amendments, the Environmental Protection Agency had provided an estimate that the provisions for reimbursement in the existing committee drafts would require appropriations of over $1.9 billion. We, therefore, provided an authorization for the appropriation of $2 billion for reimbursements for the 1966–72 period. Subsequent tabulations of outstanding reimbursables indicated that the reimbursement provisions in the conference report would require an appropriation of approximately $2.6 billion. Because the total dollar needs were underestimated, the authorization would only provide 77 percent of the required funds. The additional $600 million authorized by S. 1776 would allow full payment of outstanding reimbursables.

Furthermore, the Environmental Protection Agency promulgated regulations for the payments of reimbursables which were clearly not consistent with the law. These regulations would have penalized certain of our States. When we realized the implications, the committee took immediate steps to rectify the problem. After a number of conferences between representatives of the Environmental Protection Agency and committee members and staffs in both bodies of the Congress, the Environmental Protection Agency rescinded the unlawful regulations and promulgated new regulations consistent with the law which provide for pro rata distribution of the limited available funds. Now, with S. 1776 and after necessary appropriations by the Congress and budgeting by the Executive, repayment of all outstanding reimbursable could be made at 100 percent.

I would like to call to your attention the provisions in section 3 which authorized interim reimbursement of funds to projects which can be easily approved on the basis of available documentation, pending final processing of all projects. This provision will allow the Administrator to immediately begin making payments at a level approaching 77 percent of the Federal share of the cost of all projects for which there is adequate documentation.

An amendment to section 2 incorporated by the Public Works Committee would extend the final date for submittal of applications for reimbursement to January 31, 1974. In so doing, we know that there might be a tendency for the Environmental Protection Agency to utilize the provision in section 3 for interim payments. We expect him immediately to start making such interim payments. These moneys are needed by the States to carry out the non-Federal portion of water pollution control construction, and we consider it to be a most important provision in our bill.

I would like to ask the gentleman from Texas (Mr. ROBERTS) if he concurs in the view I have expressed. I yield to him for this question.

Mr. ROBERTS. Mr. Speaker, I appreciate the gentleman's yielding.

I certainly concur in his statement. It is the only way I know of that some of these smaller cities and States can operate, or get the money to operate, to do the job required by the Federal Water Pollution Control Act.

Mr. DON H. CLAUSEN. I thank the gentleman for his comments. It is important for all to understand

that we expect prompt implementation of section 3.

In closing, let me say that I appreciate the cooperation I received from my colleagues on the Committee on Public Works, from our staff and from Environmental Protection Agency personnel. I urge you to vote for S. 1776.

Mr. STEIGER of Wisconsin, Mr. Speaker, will the gentleman yield?

Mr. Don H. CLAUSEN. I yield to the gentleman from Wisconsin.

Mr. STEIGER of Wisconsin. I appreciate the gentleman's yielding.

(Mr. STEIGER of Wisconsin asked and was given permission to revise and extend his remarks and to include extraneous matter.)

Mr. STEIGER of Wisconsin. Mr. Speaker, I find myself in a difficult position because I represent one of those areas of the country containing a major sewage treatment project for which the original EPA reimbursement formula was favorable.

Unfortunately, the bill before use today includes two bads along with one good, but I think the good outweighs the

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bads. I am pleased that an effort is being made to provide sufficient funds to reimburse all eligible projects and that a clause is included to allow the interim payments needed to avoid further delays.

My concern here is that we have no assurance that the administration will be willing to provide the additional funds this bill authorizes. Would the gentleman from Texas, the able chairman of the subcommittee (Mr. ROBERTS) give us any idea as to where the $2.6 billion authorized stands with respect to the possibilities for appropriation and actual expenditure?

Mr. ROBERTS. In response to the gentleman's comments, it might be well to review the background of the reimbursement provisions of S. 1776.

In developing the Federal Water Pollution Control Act Amendments of 1972, consideration was given to those communities which constructed sewage treatment facilities for which they received no Federal assistance or assistance at a level substantially lower than that contemplated in the 1972 act. It was the belief of the Congress that fairness dictated that those communities which invested their own funds should not be penalized because of the failure of the Federal Government to make available its promised share. Section 206 of the Federal Water Pollution Control Act of 1972 provided for the reimbursement of up to 55 percent of the project cost for all publicly owned sewage treatment works on which construction was initiated between June 30, 1966, and July 1, 1972. Subsection (d) of section 206 provides that in any year in which available appropriated funds are not equal to the total amount of reimbursement due on such projects, each qualified project—and I stress qualified project—shall be allocated its proportional share of available funds. No distinction was drawn between the types of projects which were qualified. Public Law 92-399 appropriated $1.9 billion for such reimbursements in fiscal year 1973.

EPA published proposed regulations on June 26, 1973, which had the effect of establishing classes and allocating all the appropriated funds into only one class of qualified project, creating a priority scheme for the distribution of these funds which was totally inconsistent with Public Law 92-500.

This allocation would result in 24 States failing to receive any reimbursement funds and 19 other States receiving substantially less than the equitable distribution which was intended by that act.

EPA has rescinded these regulations on the basis of a review of the law and has proposed new regulations doing away with these classes. The committee is satisfied that the new regulations are in conformity with section 206 of the Federal Water Pollution Control Act.

As I have previously pointed out, the purpose of S. 1776 is merely to provide sufficient authorizations to carry out the purpose of the section and to provide a means of making interim payments.

Mr. STEIGER of Wisonsin. I must say that I remain concerned over the future availability of the funds authorized in this bill. Unfortunately, because the EPA has already made the change in its regulations this legislation offers the only real chance for full reimbursement, and I suspect that I have no choice but to vote for the bill.

Another part of the bill that worries me is the extension of the deadline. I wonder if the gentleman from Texas will indicate whether or not it is their considered judgment that the deadline extension into January will unduly slow down EPA's handling of applications.

Mr. ROBERTS. No; it will not, because, as the gentleman realizes, we do have the interim payment provision, and those ready can be paid immediately. This is the reason we put it in there. We hope we are speeding it up. As I said before, some of them, particularly the middlesized cities, are in dire circumstances. We hope this really is going to take care of it.

Mr. STEIGER of Wisconsin. I hope that it will.

Mr. DON H. CLAUSEN. Mr. Speaker, will the gentleman yield?

Mr. STEIGER of Wisconsin. I yield to the gentleman from California.

Mr. DON H. CLAUSEN. I thank the gentleman for yielding.

That is precisely the reason we put the interim language in our legislation here today, hopefully to send the signal downtown that we here on the committee and in the Congress expect them to follow it.

Mr. STEIGER of Wisconsin. I appreciate the gentleman's comments.

Mr. Speaker, I feel that it might prove instructive to examine the impact on one sewage treatment project in my district.

The Neenah-Menasha Sewerage Commission has been assured for years that full reimbursement will be provided to cover the costs of a wastewater treatment plant expansion. Now, unless the funds authorized in this bill are actually made available, a large portion of the promised reimbursement will be withdrawn.

I think that the plight of Neenah-Menasha and, no doubt, that of many other communities across the country, can best be understood by reading a letter addressed to me by the sewerage commission's manager. This letter, along with the related comments I have already directed to the distinguished chairman of the Public Works Committee, Mr. BLATNIK, follow:

NEENAH-MENASHA SEWERAGE COMMISSION,
Menasha, Wis., October 15, 1973.

Representative WILLIAM STEIGER,
Longworth Office Building,
Washington, D.C.

DEAR REPRESENTATIVE STEIGER: I have just been advised of a proposed joint Senate-House resolution declaring recently adopted Environmental Protection Agency reimbursement regulations void and ordering preparations of new regulations. As I understand, Senator Jennings Randolph (D-W. Va.) and 38 Co-sponsors are advocating adoption of this resolution, which will seriously cripple the past four years of work by the Neenah-Menasha Sewerage Commission to get an expansion project of our wastewater treatment plant underway.

The guidelines under attack relate to the PL86-440 and PL92-399 reimbursement provisions and particularly the priority system for disbursement of the appropriated $1.9 billion. Officials of the Cities of Neenah and Menasha, and the Neenah-Menasha Sewerage Commission

have been assured for years that we would receive federal grants of 55% on our project, and we have proceeded with bonding, industrial contract negotiations, and project planning on that basis. The recently adopted EPA regulations assured us of getting that 55% since our project and those of the Cities of Green Bay and Manitowoc were placed in priority A, which is the highest priority.

Suggested revisions in Senator Randolph's proposal will result in a substantially reduced reimbursement to Wisconsin cities, qualifying under PL92–399 and 84–660 and in the case of Neenah-Menasha could result in approximately $3 million reduction in federal reimbursements. This is based on the proposal to proportion the appropriated funds by using a formula which would multiply the 55% federal grant by a fraction, the numerator of which is the appropriated funds ($1.9 billion) and the denominator of which is the total applications ($2.4). If our project bids total close to our estimated cost of $27 million, then, our local share to be bonded for and paid directly by our local citizens will increase from $5.4 million to $8.4 millions.

Your strongest efforts to defeat the proposed resolution are appreciated.

Sincerely,

NEENAH-MENASHA SEWERAGE COMMISSION,
ROBERT W. BUES, P.E., *Manager*.

P.S.—An alternative solution might be to increase appropriations to equal the applications.

HOUSE OF REPRESENTATIVES,
Washington, D.C., November 13, 1973.

Hon. JOHN A. BLATNIK,
Chairman, Committee on Public Works, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: I was disappointed to learn that the pending resolutions to establish a formula for distributing reimbursement grants for sewage treatment facilities construction will be considered without the benefit of hearings.

Nevertheless, I thank you for the opportunity to submit my views. I am enclosing a copy of a letter I received from Robert Bues, Manager of the Neenah-Menasha Sewerage Commission. He gives a clear explanation of the plight of those municipal systems which will suffer from the revised distribution formula.

Two points deserve special attention. First, the letter conveys the sense of betrayal felt by city officials who had been assured for years that their early approval for reimbursement meant a priority position for available funds. Because they believed these assurances, cities across the nation will now be forced to absorb unexpected costs often as large as several million dollars.

Second, the postscript offers the alternative solution of increased appropriations to allow full reimbursement to all applicants. The authorization included within the pending resolutions takes the first step in this direction. Although I find some encouragement in this aspect of the proposal, it will be rendered meaningless unless those who vote to approve this legislation keep the need for these funds in mind when the time comes to make the actual appropriation.

Again, thank you for giving me the opportunity to bring these comments to the attention of the Subcommittee.

With kind regards,

Sincerely yours,

WILLIAM A. STEIGER,
Member of Congress.

Mr. MATSUNAGA. Mr. Speaker, I rise in support of S. 1776, the Federal water pollution control amendment.

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As a sponsor of identical legislation, I heartily congratulate Chairman BLATNIK of the House Public Works Committee, Chairman RANDOLPH of the Senate committee, their respective committee members, and the numerous cosponsors of this legislation for their tireless efforts toward enacting this important measure. I commend the membership of both committees, additionally, for their earlier success in persuading the Environmental Protection Agency to revise their regulations governing the allocation of grants to the States under section 206 of the Federal Water Pollution Control Act. That regulation would have totally deprived 24 States of any Federal funds under section 206. Fourteen other States would have received substantially less than their entitlement. These States owe their current allocation to the efforts of these able committees.

The job, however, has not been completed, and it is for this reason we must act on this bill today. Under the existing law, the States will receive only 80 percent or less of the Federal share promised them by Congress. Last year, replying on EPA studies, we underestimated the amount needed to fund reimbursement grants under section 206. We authorized $2 million

to cover the promised Federal share of 50 percent of the cost of water treatment facilities constructed by the States between mid-1966 and mid-1972. This authorization fell more than 20 percent short of the actual amount needed and promised to the several States, all of which answered the call to clean up the Nation's waterways and shorelines. S. 1776 will finally fulfill and Federal pledge by authorizing an additional $600 million, the amount estimated to fund fully section 206 projects.

Further, the bill will permit State water pollution control administrators to submit applications for funds until January 31, 1974. The previous deadline of October 15 was unrealistic given the confusion created by the amorphous EPA regulations that governed application requirements and grant allocations. S. 1776 will make available the additional time State administrators are pleading for all over the country.

The third essential element of the bill will authorize the Director of EPA to make interim grants to those States which will have qualified particular projects before the new deadline.

Mr. Speaker, there is no valid argument that can be raised against this bill. There are two simple objectives sought by this bill. One is to fulfill a solemn Federal pledge made to the States to match State dollars spent to combat water pollution. The other is to reassert Congress commitment to the Nation that we will do our part, if not lead the way, to restoring the purity of our waterways and shorelines for the health and enjoyment of this generation of Americans and all future ones.

Mr. Speaker, I urge approval of this vital legislation.

The SPEAKER. The question is on the motion offered by the gentleman from Minnesota (Mr. BLATNIK) that the House suspend the rules and pass the Senate bill S. 1776, as amended.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the Senate bill as amended was passed.

A motion to reconsider was laid on the table.

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1.2q(3)(c) Dec. 14: Senate agreed to House amendments, pp. S 22973—22974

AMENDMENT OF FEDERAL WATER POLLUTION CONTROL ACT

Mr. MUSKIE. Mr. President, I ask the Chair to lay before the Senate a message from the House of Representatives on S. 1776.

The PRESIDING OFFICER (Mr. NUNN) laid before the Senate the amendment of the House of Representatives to the bill (S. 1776), to amend the Federal Water Pollution Control Act, as amended, which was to strike out all after the enacting clause, and insert:

That the Federal Water Pollution Control Act (86 Stat. 816; 33 U.S.C. 1251 et seq.) is amended—

(1) in section 104(u)(2), by striking out "fiscal year 1973" and inserting in lieu thereof "fiscal years 1973 and 1974";

(2) in section 206(e), by striking out "$2,000,000,000" and inserting in lieu thereof "$2,600,000,000";

(3) in section 207, by inserting "206(e)," after "sections";

(4) in section 311—

(A) by striking out "(b)(2)" wherever it appears in paragraphs (1), (2), and (3), of subsection (f), and inserting in lieu thereof "(b)(3)";

(B) by striking out "Secretary" in the last sentence of paragraph (2) of subsection (f), and inserting in lieu thereof "Administrator"; and

(C) by striking out "(b)(2)" wherever it appears in subsections (g) and (i), and inserting in lieu thereof "(b)(3)";

(5) in section 315, by redesignation subsec-

tion (g) as subsection (h), and by adding a new subsection (g) to read as follows:

"(g) In addition to authority to appoint personnel subject to the provisions of title 5, United States Code, governing appointments in the competitive service, and to pay such personnel in accordance with the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, the Commission shall have authority to enter into contracts with private or public organizations who shall furnish the Commission with such administrative and technical personnel as may be necessary to carry out the purpose of this section. Personnel furnished by such organizations under this subsection are not, and shall not be considered to be, Federal employees for any purposes, but in the performance of their duties shall be guided by the standards which apply to employees of the legislative branches under rules 41 and 43 of the Senate and House of Representatives, respectively,"; and

(6) in section 509(b)(1)(C), by striking out "treatment" and inserting in lieu thereof "pretreatment".

SEC. 2. Notwithstanding the requirements of subsection (c) of section 206 of the Federal Water Pollution Control Act (86 Stat. 338), applications for assistance under section 206 may be filed with the Administrator of the Environmental Protection Agency until January 31, 1974.

SEC. 3. Funds available for reimbursement under Public Law 92-399 shall be allocated in accordance with subsection (d) of section 206 of the Federal Water Pollution Control Act (36 Stat. 838), pro rata among all projects eligible under subsection (a) of such section 206 for which applications have been submitted and approved by the Administrator pursuant to such Act. Notwithstanding the provisions of subsection (d) of such section 206, (1) the Administrator is authorized to make interim payments to each such project for which an application has been approved on the basis of estimates of maximum pro rata entitlement of all applicants under section 206(a) and (2) for the purpose of determining allocation of sums available under Public Law 92-399, the unpaid balance of reimbursement due such projects shall be computed as of January 31, 1974. Upon completion by the Administrator of his audit and approval of all projects for which an application has been filed under subsection (a) of such section 206, the Administrator shall, within the limits of appropriated funds, allocate to each such qualified project the amount remaining, if any, of its total entitlement. Amounts allocated to projects which are later determined to be in excess of entitlement shall be available for reallocation, until expended, to other qualified projects under subsection (a) of such section 206. In no event, however, shall any payments exceed the Federal share of the cost of construction incurred to the date of the voucher covering such payment plus the Federal share of the value of the materials which have been stockpiled in the vicinity of such construction in conformity to plans and specifications for the project.

Mr. MUSKIE. Mr. President, on May 10, 1973, Senator CLARK introduced S. 1776 to amend the Federal Water Pollution Control Act, as amended, to authorize a 1-year extension of the pilot operator training program for waste water treatment plants under section 104(g)(1) of Public Law 92-500. The act has authorized funds for this program only through fiscal year 1973. On June 18, the Senate passed S. 1776. Section 1 of the bill before us incorporates the origi-

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nal provisions of S. 1776 as passed by the Senate.

Also incorporated in this bill is the language of Senate Joint Resolution 158, as passed by the Senate on October 11, 1973. This resolution would have amended section 206 of the Federal Water Pollution Control Act, which provides for reimbursement to those agencies that initiated construction on waste treatment plants between June 30, 1966, and July 1, 1972, but did not receive the maximum authorized Federal grant. Reimbursement would be for the difference between the amount of Federal funds received, if any, and 50 percent of total cost, or 55 percent if the project was constructed in conformity with a comprehensive metropolitan plan.

Senate Joint Resolution 158 would have raised the authorization for reimbursement for the 1966 to 1972 period from $2 billion to $2.6 billion as a result of revised EPA estimates. The House-passed version of S. 1776 incorporates this provision.

Because of the delay in promulgation of final regulations and confusion among States and local governments about eligibility under this pro-

gram, the Senate resolution extended the deadline for filing applications for reimbursement from October 18, 1973, to December 31, 1973. The House-passed version moves that extension to January 31, 1974.

The Senate resolution provided for preliminary disbursement of funds to projects which could be quickly approved for reimbursement on the basis of available documentation, without waiting for final processing of all projects. These advance payments would prevent disruption in community plans and facilitate an orderly cash flow in the U.S. Government. The House-passed version retains this provision.

The House, in its consideration of this legislation, added new language amending section 315 of the Federal Water Pollution Control Act. That section created the National Commission on Water Quality, composed of five Members of the Senate, five Members of the House, and five presidentially appointed members, to review and independently evaluate for Congress the economic, social and environmental implications of the regulatory aspects of that act. The Commission report must be submitted to the Congress no later than October 18, 1975.

The five Senate Members were designated on January 29, 1973; the House Members on February 5, 1973; and the public members on March 15, 1973. At the Commission's initial meeting on May 15, Governor Rockefeller was elected Chairman and Congressman JONES and myself were elected Vice Chairmen.

From the initial meeting until the present, the Commission, in response to the conference committee charge that the study must be funded, staffed, and initiated with expedition, has been searching for competent staff to expedite the necessary studies. A concerted effort was made by all members of the Commission to identify candidates for the top staff positions. Part of those efforts culminated in a determination that Lt. Gen. Frederick J. Clarke, retired, former Chief of the Corps of Engineers, was the most qualified person presently available for the position of Executive Director. Because of the 2-year life of the Commission, General Clarke was reluctant to accept employment without proper permanent arrangements. His services were then made available to the Commission under terms of a contract with the engineering firm of Tippetts-Abbett-McCarthy-Stratton.

The committee is pleased that the National Commission on Water Quality was able to obtain General Clarke's services. He has dealt with this committee many times on many issues and his record is exemplary. He has a long and distinguished record in solving complex water problems and brings this experitise to the vitally important work of the Commission. He is—by any standards—the best available person for this job. The General Accounting Office, however, advised that the contractual arrangement presents legal difficulties because it results in a non-Federal employee supervising Federal employees. The GAO then advised Governor Rockefeller—the Chairman of the National Commission on Water Quality—that an amendment to section 315 would alleviate this problem. The legislative change was recommended to the Committee on Public Works by the Chairman of the Commission.

Our intention is that the exemption provided in this legislation is to be used exclusively for the services of General Clarke as Executive Director of that Commission. General Clarke will do no work for his engineering firm for compensation. He will receive no compensation from the engineering firm other than that stipulated in the contract between the

National Commission on Water Quality and Tippetts-Abbett-McCarthy-Stratton. Finally, that firm will do no work for the National Commission on Water Quality other than as provided under the current contract.

S. 1776, as amended, also includes several technical amendments to correct oversights and incorrect references and are not substantive in nature.

Mr. BENTSEN. Mr. President, I believe the compromise reached by the committee was the most equitable solution to a very complex and difficult problem. I had originally proposed, and the committee accepted, an allocation formula based 50 percent on population and 50 percent on table 1 of the "needs study" EPA submitted to the Congress in October. However, a review of the impact of this adjustment in the formula revealed that several States would be severely affected by the proposed change. The formula finally approved, which contains a 25-percent allocation based on population and 75 percent on table 1, is a temporary measure, designed to correct some of the imbalances in the straight EPA needs allocation, in the form it was submitted to the Congress.

I should stress that I do not oppose a needs formula as the basis for allocating funds for wastewater treatment facilities; however, the needs test conducted by the EPA was incomplete and created distortions in the allocations of funds among the States.

I was particularly concerned that the needs study did not place a proper emphasis on the need for advanced waste treatment. My own State, Texas, has required secondary treatment for some 40 years, because it is a water-poor State. Some of our rivers are composed in the summertime of a high percentage of return flows, or effluents. With ever-increasing population growth, secondary treatment is no longer sufficient in all cases, and my State must now turn to advanced waste treatment to keep our rivers in acceptable condition.

The EPA needs study excluded the cost of advanced waste treatment in determining a State's need unless such treatment was required by legally binding Federal, State, or local actions taken prior to the conduct of the survey. In actual practice, this required a State permit reflecting advanced treatment, a court order, or an EPA-approved water quality management plan. At the time of the survey, only a small percentage of State permits required advanced waste treatment, and no EPA-approved water quality management plans existed.

I strongly support committee actions requiring EPA to produce more acceptable criteria for determining actual State needs. This bill only changes the formula for 1 year; in the intervening year, we should have more adequate data upon which to base our judgments.

I realize that the formula gives my State approximately $30 million less than the originally approved 50–50 split between population and the EPA recommendation; however, in view of the dislocations that would occur in other States from correcting entirely the obviously unfair Texas situation, I support this compromise solution.

Mr. MUSKIE. Mr. President, I move that the Senate concur in the House amendment.

The PRESIDING OFFICER. The question is on agreeing to the motion to concur in the House amendment. Without objection, the motion is agreed to.

Mr. MUSKIE. Mr. President, I suggest the absence of a quorum.

The PRESIDING OFFICER. The clerk will call the roll.

The second assistant legislative clerk proceeded to call the roll.

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The VICE PRESIDENT. Without objection, it is so ordered.

[p. S22974]

1.2r FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS, January 2, 1974, P.L. 93-243, 87 Stat. 1069.

An Act

To amend the Federal Water Pollution Control Act to establish the ratio for allocation of treatment works construction grant funds, to insure that grants may be given for other than operable units, and to clarify the requirements for development of priorities.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) subsection (a) of section 205 of the Federal Water Pollution Control Act is amended by inserting immediately after the third sentence thereof the following new sentence: "For the fiscal year ending June 30, 1975, such ratio shall be determined one-half on the basis of table I of House Public Works Committee Print Numbered 93–28 and one-half on the basis of table II of such print, except that no State shall receive an allotment less than that which it received for the fiscal year ending June 30, 1972, as set forth in table III of such print.".

(b) The last sentence of subsection (a) of section 205 of the Federal Water Pollution Control Act is amended by striking out "June 30, 1974," and inserting in lieu thereof "June 30, 1975,".

SEC. 2. Section 203 of the Federal Water Pollution Control Act is amended by adding at the end thereof the following new subsection:

"(d) Nothing in this Act shall be construed to require, or to authorize the Administrator to require, that grants under this Act for construction of treatment works be made only for projects which are operable units usable for sewage collection, transportation, storage, waste treatment, or for similar purposes without additional construction.".

SEC. 3. Section 511 of the Federal Water Pollution Control Act is amended by adding at the end thereof the following new subsection:

"(d) Notwithstanding this Act or any other provision of law, the Administrator (1) shall not require any State to consider in the development of the ranking in order of priority of needs

for the construction of treatment works (as defined in title II of this Act), any water pollution control agreement which may have been entered into between the United States and any other nation, and (2) shall not consider any such agreement in the approval of any such priority ranking.".

SEC. 4. Subsection (b) of section 516 of the Federal Water Pollution Control Act, as amended (86 Stat. 895), is amended by inserting "(1)" after "(b)"; by striking "(1)", "(2)", "(3)", and "(4)" and inserting in lieu thereof "(A)", "(B)", "(C)", and "(D)", respectively; and by adding the following new paragraph:

"(2) Notwithstanding the second sentence of paragraph (1) of this subsection, the Administrator shall make a preliminary detailed estimate called for by subparagraph (B) of such paragraph and shall submit such preliminary detailed estimate to the Congress no later than September 3, 1974. The Administrator shall require each State to prepare an estimate of cost for such State, and shall utilize the survey form EPA–1, O.M.B. No. 158–R0017, prepared for the 1973 detailed estimate, except that such estimate shall include all costs of compliance with section 201(g)(2)(A) of this Act and water quality standards established pursuant to section 303 of this Act, and all costs of treatment works as defined in section 212(2), including all eligible costs of constructing sewage collection systems and correcting excessive infiltration or inflow and all eligible costs of correcting combined storm and sanitary sewer problems and treating storm water flows. The survey form shall be distributed by the Administrator to each State no later than January 31, 1974.".

Approved January 2, 1974.

1.2r(1) SENATE COMMITTEE ON PUBLIC WORKS

S. REP. No. 93-630, 93rd Cong., 1st Sess. (1973).

WASTE TREATMENT FUND ALLOCATIONS

DECEMBER 13, 1973.—Ordered to be printed

Mr. MUSKIE, from the Committee on Public Works, submitted the following

REPORT

together with

ADDITIONAL VIEWS

[To accompany S. 2812]

The Committee on Public Works, reports an original bill (S. 2812) to authorize a formula for the allocation of funds authorized for fiscal year 1975 for sewage treatment construction grants, and for other purposes, and recommends that the bill do pass.

PURPOSE OF LEGISLATION

This bill amended the Federal Water Pollution Control Act, as amended, to provide a formula for the allocation of sewage treatment facility construction grant funds authorized for fiscal year 1975. The bill requires the Environmental Protection Agency to conduct a new survey of the needs for publicly owned treatment works before fiscal year 1976 construction grant funds are allocated. And, one provision of the bill clarifies the intent of Congress in the 1972 amendment to the Federal Water Pollution Control Act (P.L. 92-500) to specifically approve the practice of phased funding of large waste treatment works.

GENERAL STATEMENT

The Committee on Public Works has considered various alternatives to the authorization of grant allocations for 1975 and subsequent fiscal years for waste water treatment facilities in accordance with section 205(a) of the 1972 Federal Water Pollution Control Act Amendments (P.L. 92-500). That section re-

quires that (1) such allocations be made only in accordance with revised estimates of the cost of con-

[p. 1]

structing all needed publicy owned treatment works development under section 516(b) of that Act, and (2) the Congress approve such revised cost estimates by a subsequently enacted law.

Pursuant to section 516(b) requirements, the Administrator of the Environmental Protection Agency prepared a survey in 1973 to ascertain the cost estimates for needed treatment works among the various States. The information received from the survey provided the basis for the Environmental Protection Agency's "needs survey" report which the Administrator submitted to Congress in October 1973. (A final edition with revised tables was submitted in November 1973.)

On October 31 and November 1, 1973, the Committee held hearings on the "needs survey". Testimony was received from State, local and Federal officials. Much of the testimony was directed to the thoroughness of the survey and the accuracy and reliability of the cost estimates contained therein. Subsequently, the Committee held several executive sessions to consider legislation establishing a formula for allocation based on the revised cost estimate.

HISTORY

Prior to passage of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92–500), Congress based the allocation of sewage treatment facility construction grant funds to the States on various formulae.

The Water Pollution Control Act of 1948 (P.L. 80–845), appropriated to the Federal Security Agency an annual sum of $1,000,000 each year for five years for prevention and control of water pollution caused by industrial wastes. Section 8(a) of that Act required that these sums:

> Be alloted equitably and paid to the States for expenditure by or under the direction of their respective State water pollution agencies * * * for expenditure by them, for the conduct of investigations, research, surveys, and studies related to the prevention and control of water pollution caused by industrial wastes.

In 1956, Congress changed the manner of grant allocation when it amended the Water Pollution Control Act (P.L. 84–660). Section 6 of that Act provided for payments of 30 percent of

the cost of construction of "* * * necessary treatment works to prevent the discharge of untreated or inadequately treated sewage or waste into any waters." Section 6(c) made the following provisions for allocation:

> The sums appropriated pursuant to subsection (d) for any fiscal year shall be allotted by the Surgeon General from time to time * * * as follows: (1) 50 per centum of such sums in the ratio that the population of each State bears to the population of all the States, and (2) 50 per centum of such sums in the ratio that the quotient obtained by dividing the per capita income of the United States by the per capita income of each State bears to the sum of such quotients for all the States.
>
> [p. 2]

In 1965, Congress again changed the method of allocating grant money to the States when it amended the Federal Water Pollution Control Act (P.L. 89–234). Section 8(c) provided:

> All sums in excess of $100,000,000 appropriated pursuant to subsection (d) for each fiscal year beginning on or after July 1, 1965, shall be allotted by the Secretary from time to time, in accordance with regulations, in the ratio that the population of each State bears to the population of all States.

This formula remained in use until passage of the 1972 Amendments (P.L. 92–500) to the Federal Water Pollution Control Act. That Act replaced the prior law's formula based on population with one that uses the acutal waste treatment needs of each State. Section 205(a) provided:

> Such sums shall be allotted among the States by the Administrator in accordance with regulations promulgated by him, in the ratio that the estimated cost of constructing all needed publicly owned treatment works in each State bears to the estimated cost of construction of all needed publicly owned treatment works in all of the States.

Section 205(a) reflected the House amendment to the Senate bill. This section as it passed the Senate, had provided that allocation for sewage treatment construction grants be made on the basis of population. Concerning the utility of a needs formula, the House Report on H.R. 11896 (Report No. 92–911) stated in section 205:

> [The] needs formula is a sound basis for alloting funds since our experience to date clearly demonstrates that there is no necessary correlation between the financial assistance needed for waste treatment works in a given State and its population.

In that same report, the House Committee on Public Works noted that:

> [A]t the present time [March 1972] there is no satisfactory estimate of the total funds required by the States for the construction of publicly owned treatment works. (Date added.)

For the fiscal years 1973 and 1974, the new law provided that the ratios used in section 205 were to be based on the estimate of needs prepared by the Environmental Protection Agency in December, 1971. For those allotments to be made for fiscal year 1975 and subsequent years, the law requires that they be made according to a revised cost estimate prepared by the Administrator of the Environmental Protection agency.

The 1972 Act, therefore, became the first water pollution control legislation that connects inventories "needs" for treatment facilities and the allotment of construction grant funds.

THE "NEEDS" APPROACH AND ALLOCATION LEVELS

The new law authorized $5 billion and $6 billion respectively for fiscal years 1973 and 1974, only $2 billion for fiscal year 1973 and $3

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billion for fiscal year 1974 were actually allocated to the States in accordance with the needs formula approved in the law. (The Administrator, on the direction of the President, refused to allocate the full amount, and the legality of the impoundment or failure to fully allocate is being challenged in the Federal courts.)

For several States, the transition from population to needs as a basis for allocation was not a favorable one. Under the new law's authorization of $5 billion, the States were to receive greater allocations for fiscal year 1973 than for fiscal year 1972. Unfortunately, the total amounts allocated for fiscal year 1973 remained at the 1972 level ($2 billion). Thus, several States received substantially fewer dollars under the new needs allocation formula than under the 1972 population allocation formula. These reduced allocations were attributable to major reductions in several States' percentage share of the total funds available for allocation.

For example, Texas dropped from 5.327 percent of the total under a population formula to 2.771 under the 1973 needs formula, a difference of 2.556 percent of the total. North Carolina, Alabama, and Georgia similarly suffered by incurring reductions of 1.533, 1.332 and 1.247 percent respectively. New Jersey on the other hand, enjoyed an increase of 4.290 of the total amount allocated under this formula. Michigan gained 3.761 percent and Mayland increased 2.369 percent.

These allocation changes produced many inequitable effects for those States which received substantially reduced allocations. Among these, the most significant was reduced funding and an associated setback of water pollution control and abatement programs. Equally important was the impact of reduced funding on program momentum.

Some of the weaknesses of the development of the needs allocation for fiscal years 1973 and 1974, as well as the inequitable results produced by the allocations, were recognized when the 1972 Act was enacted. To overcome these problems, section 516(b)(2) of the Act required the Administrator of the Environmental Protection Agency with the cooperation of the States, to prepare a detailed biennial estimate of the total national cost of construction of all needed publicly owned treatment works, as well as a similar estimate of the costs of construction of such facilities in each State. In enacting sections 205 and 516, the Congress had intended to obtain more accurate estimates of all of the States' costs for development of waste treatment facilities.

LIMITATIONS OF THE EPA SURVEY

The Administrator of the Environmental Protection Agency, in October, 1973, submitted to the Congress revised cost estimates based on the 1973 survey among the States. Revised tables in a final report were submitted in November. The Agency, however, was explicit in identifying several major shortcomings in the manner in which the survey was conducted, the restrictions on data requested, the reliability of data requested, and the reliability of data submitted. These limitations were confirmed in the hearings conducted by the Subcommittee on Air and Water Pollution.

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In contradiction to statements by the Environmental Protection Agency that treatment needs beyond secondary treatment cannot yet be adequately defined to estimate cost, no fewer than

17 States have stated that they had sufficient knowledge to produce accurate data on their treatment needs beyond secondary treatment. More importantly, section 201(g)(2) of the Act requires that all facilities to be constructed with fiscal year 1975 funds (those which would be allotted on the basis of this survey) shall provide for the best practicable treatment technology.

Third, the Environmental Protection Agency required that all "costs were to be estimated in the survey for facilities which would be designed to serve no more than the 1990 population."

Fourth, the Environmental Protection Agency, by taking no less than five months to develop the survey, limited the time for States to respond to this survey to six weeks. The States which have commented on this time limitation have reported that the time allowed was insufficient to develop adequate estimates of cost. These States have stated that they need at least two additional months to collect and report data sufficient to develop an estimate of costs. These States have stated that they need at least two additional months to collect and report data sufficient to develop an estimate of their entire needs for waste water treatment.

The survey conducted by the Environmental Protection Agency utilized six categories for reporting costs:

(1) Improvement of treatment plants to achieve secondary treatment.

(2) Improvement of treatment plants to achieve treatment more stringent than secondary levels limited in cases where binding court action or Environmental Protection Agency-approved water quality standards requirement.

(3) Rehabilitation of sewers to correct infiltration and inflow.

(4) (a) Eligible new interceptors, force mains, and pumping stations.

(b) Eligible new collectors.

(5) Connection of overflows from combined sewers.

The Environmental Protection Agency in its "needs survey" recommended that only those costs identified in categories 1, 2 and 4(a) serve as the basis for an allocation formula. The Agency recommended not using categories 3, 4(b) and (5) for the following reasons:

(*1*) *Category 3: Infiltration/Inflow*

The Environmental Protection Agency noted that few cities had completed evaluation studies required in the survey to support cost estimates for facilities in this category.

Moreover, cities could show costs for rehabilitating sewers only if made in accordance with Federal guidelines and if the evaluation studies indicated that it cost less than construction, operation and maintenance of that portion of facilities necessary to transport and treat the extra flow of wastewater resulting from infiltration and inflow.

Several States, however, have objected to these Federal guidelines, and have protested the Agency's failure to accept their estimates, claiming that their estimates were substantially accurate and justifiable.

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(2) Category 4(b): Eligible new collectors

Pursuant to the requirements of the 1972 Act and the survey guidelines, costs were to be reported only for communities in existence at time of enactment of the 1972 law, and only for violations due to raw discharges or seepages to waterways or the like. EPA's review of the survey questionnaires revealed that many States reported costs for sewering a large proportion of their current population now using septic tanks, and for providing sewers for increased population which would inhabit new communities. Because of this, EPA concluded that a substantial proportion of these costs are beyond the scope of the survey.

Despite the Environmental Protection Agency's conclusions, no fewer than 12 States have projects for collection sewers on their priority list for fiscal year 1975 which would receive a substantial share of their anticipated allocations. If allocations for 1975 are reduced as they were in 1974 and 1973, eight of those States would still have collection sewer projects on their priority list.

(3) Category 5: Combined sewer overflows

Costs reported in this category for facilities to reduce pollution from combined sewer overflows also reflected only a portion of the total expenditures which could have been justified nationally under the survey guidelines if more cities had completed the required studies. EPA estimates, from the new studies available to date, that costs for facilities to reduce by 50–80% of the major pollutant concentrations in combined sewer overflows throughout the country would cost from $40 to $80 billion—and would roughly double the reported costs for all six categories.

No fewer than 10 States have reported that they would have

projects for correction of stormwater overflows from combined sewers on their priority list for fiscal year 1975 involving a substantial share of their allocation.

COMMITTEE VIEWS

The Committee, recognizing the shortcomings of the 1973 needs survey, is in agreement with the Environmental Protection Agency in identifying categories 1, 2 and 4(a) as having the more accurate estimates of their respective needs than the other three categories. The Committee, however, noted two other factors. First, by adopting only categories 1, 2 and 4(a), consideration of cost estimates for those items covered by categories 3, 4(b) and 5 will be excluded. Second, the survey restrictions outlined above have prevented an accurate reflection in all categories of the cost estimates of all needed publicly-owned treatment works.

Additionally, an allocation formula based solely on categories 1, 2 and 4(a) would produce inequities similar to those under the 1973–74 allocation. For example, under the Environmental Protection Agency recommended formula, Texas would receive only $127.8 million of the $7 billion authorization. Under the 1973–74 formula, the State would have received $193.9 million, and under a population basis, Texas would have received $391.6 million.

To overcome these deficiencies in the cost estimates, prevent insufficient and inequitable allocation to several States, and provide a more uniform transition to the needs approach, the Committee makes two recommendations in this legislation.

First, the Committee recommends that grants for wastewater treatment facilities for fiscal year 1975 be allocated on the following basis: 75 percent of the total funds to be allotted shall be allocated among the States according to the cost estimates established in Table I of the "needs survey", i.e., categories 1, 2 and 4(a); the remaining 25 percent of the total funds to be alloted shall be allocated among the States in the ratio that the 1972 population of each State bears to the population of all the States.

This results in allotment among the States in the ratio indicated in the following table.

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State	Percentage	Allocation of authorized funds (millions)
Alabama	1.064	$74.480
Alaska	.358	25.060
Arizona	.550	38.472
Arkansas	.705	49.371
California	12.320	862.428
Colorado	.927	64,897
Connecticut	1.262	88.361
Delaware	.487	34.118
District of Columbia	.198	13.832
Florida	4.190	293.286
Georgia	2,183	152,782
Hawaii	1.013	70.938
Idaho	.248	17,367
Illinois	5.856	409.913
Indiana	1,757	123,011
Iowa	1.221	85.435
Kansas	.962	67.319
Kentucky	1.588	111.145
Louisiana	.966	67.648
Maine	.664	46.508
Maryland	1,696	118,748
Massachusetts	2,275	159,243
Michigan	4.115	288,078
Minnesota	1.582	110.754
Mississippi	.733	51.282
Missouri	2.191	153.342
Montana	.208	14.553
Nebraska	.475	33.271
Nevada	.491	34.384
New Hampshire	.800	55.972
New Jersey	6.362	445.347
New Mexico	.265	18.557
New York	10.872	761.005
North Carolina	2.182	152.740
North Dakota	.138	9.639
Ohio	5.113	357.931
Oklahoma	1.324	92.701
Oregon	.856	59.906
Pennsylvania	4.656	325.913
Rhode Island	.453	31.703
South Carolina	1.506	105.448
South Dakota	.164	11.480
Tennessee	1.457	101.997
Texas	2.748	191.989
Utah	.488	34.188
Vermont	.295	20.622
Virginia	2,648	185,367
Washington	1,524	106,666
West Virginia	.887	62.083
Wisconsin	1.550	108.528
Wyoming	.104	7 252
Guam	.053	3.696
Puerto Rico	1.157	81.018
Virgin Islands	.075	5.278
American Samoa	.018	1.274
Pacific Island Territory	.024	1.673

Second, the bill reported by the Committee directs the Environmental Protection Agency to reassess on an accelerated basis the cost estimates of construction of all needed publicly owned treatment works, The results of this expanded needs survey will be utilized for allocating the fiscal year 1976 grant funds.

Except for the restrictive guidelines and instructions which accompanied it, the existing survey form used in the 1973 needs survey should be adequate for reporting data in the new survey. This form, with new instructions reflecting the expanded scope of the new survey, enactment and, if practicable, State responses

should be returned no later than May 1, 1974. The Committee expects the States to quantify, analyze and organize available data rather than simply submit locally prepared cost figures. Should the States need technical assistance to

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develop a single Statewide estimate, the Committee expects the Environmental Protection Agency to detail the necessary staff. Finally, the Committee would expect the Agency to transmit the State submission with the final report as required by section 516(b).

This reassessment should ensure that new cost estimates from the States more accurately reflect the total needs which States will incur under the 1972 Federal Water Pollution Control Act Amendments than did the 1973 "needs survey". It should be encumbered by a minimum number of restrictions as to what costs may be reported and what criteria those costs should meet to be included in the survey.

This reassessment should provide the State with sufficient time to collect data and make necessary studies to support their cost estimates. The reassessment should be submitted to the Congress no later than June 30, 1974.

The Committee remains firmly committed to the concept of allocating sewage treatment facility construction grant funds on the basis of the needs for such facilities. It is the intention of the Committee to use an estimate of need for such facilities as the sole basis for allocation as soon as a comprehensive reliable needs survey is available. That is the purpose of requiring the early resurvey.

Early transmittal of the reassessment to the Congress will permit ample opportunity for enactment of any necessary authorization and adoption of a new allocation formula based on need for fiscal year 1976. The Committee notes that funds authorized in the 1972 Act were directed primarily at the backlog of needed treatment works, construction of which is to be completed by mid-1977 or 1978. The Congress has not addressed funding of facilities not required by the Act, nor has the Congress articulated any policy concerning the extent to which Federal grant funds should be used to construct facilities solely or primarily to service "new growth". The Committee directs the Environmental Protection Agency to evaluate known needs in terms of "new growth" versus "backlog", reporting the Agency's finding by June 30, 1974.

PHASED FUNDING

Section 3 of the bill will rectify a major error by the Environmental Protection Agency in its legal interpretation of the intent of P.L. 92–500 (the Federal Water Pollution Control Act Amendments of 1972). Section 203 of that legislation granted to the States the flexibility to split individual sewage treatment works into separately funded component parts or projects.

Such a procedure was intended to augment State flexibility, allowing each State to achieve the goal of clean water as effectively and efficiently as possible.

In its explanation of the intent of Section 203, the Conference Report (Sen. Report 92–1236) stated:

> When funding the construction of waste treatment plants, the Administrator, upon the request of a State, could encourage the use of a phased approach to the construction of treatment works, and the funding thereof, on a State's priority list. Such a phased program, which the Committee notes has
>
> [p. 9]
>
> been developed and approved in the State of Delaware has enabled the State to accelerate the construction of sewage treatment facilities, and thus accelerate the attainment of clean water.

Many States—including Delaware and Tennessee—have requested such flexibility as a tool in implementing their total pollution control program.

While there are practical differences in the "phased-funding" approach that may be used by the various States, each would allow a State to use its annual allocation of grant funds among as many projects on its priority list as it wishes, on the basis of what can be accomplished in a given year, rather than to tie up all its funds in a few large projects at the top of a State's priority list.

The Committee believes that many States can achieve far more progress toward clean water when a number of treatment works projects are funded serially over several years than if the State fully funds a few projects each year.

Basically, the Environmental Protection Agency has placed a restrictive interpretation of section 203 of P.L. 92–500 which permits funding in three steps. Within the third (construction) step, that Agency's interpretation permits funding of "complete and operable treatment works". It is the latter interpretation

which the Committee finds overly restrictive in not allowing complete operable works to be broken down further into construction segments, or furthermore, in not permitting the financial phasing of such works over more than one fiscal year. Therefore, such States as Tennessee and Delaware, contrary to the express intent of the 1972 Amendments to the Act and the legislative history of those amendments, are not able to carry out proposed programs to begin construction of much needed treatment works.

To rectify the Agency's misinterpretation of the law, this bill incorporates the substance of S. 1594.

For example, a State could seek approval in fiscal year 1975 of a 75 percent grant toward the first $1,000,000 of a project eventually to cost $3,000,000, then seek approval for additional grants toward the project in successive years. Or a State could seek approval for one year of a primary treatment phase of a plant, followed up the following year by the secondary treatment phase. The choice shall be that of the State or the community. And in pursuing this approach, the Committee intends the Environmental Protection Agency to minimize to the greatest extent possible any paper work or increased administrative costs for subsequent grants toward a project, once it has received its initial phased grant.

The Environmental Protection Agency has sought to justify its interpretation by arguing that phased funding would create "a pool or equitable claims similar to the reimbursement claims created under Section 8 of the old Act, but quite clearly no longer permissible under P.L. 92–500."

This new language—as was true in P.L. 92–500—does not establish a list of reimbursable claims against the Federal government. Any State or community wishing to go forward on a "phased-funding" approach must recognize that approval of such a program does not

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guarantee that a project receiving phased-funding will eventually receive full funding.

Should Federal law fail to authorize sufficient funds to complete work for all sewage treatment works approved for phased funding, the State and cities shall have no claim toward an ultimate 75 percent grant toward the full cost of the project. In fact, the Committee would expect a commitment from the local or State grant recipient to complete construction of Federally funded project whether or not future Federal funds are made available.

COST OF THE LEGISLATION

Section 252(a) (1) of the Legislative Reorganization Act of 1970 requires publication in this report of the committee's estimate of the costs of reported legislation, together with estimates prepared by any Federal agency. There is no expenditure of funds authorized by this legislation. Although no estimate of costs has been prepared by the Environmental Protection Agency, it is reasonable to expect an increase in administrative costs due to the acceleration of the next needs survey from February 10, 1975, to June 30, 1974.

ROLLCALL VOTES

The Committee ordered reported legislation containing the two areas covered by this bill by two separate rollcall votes, conducted on December 5, 1973. Pursuant to section 133 of the Legislative Reorganization Act of 1970 and the Rules of the Committee on Public Works, these votes are announced here.

Senator Bentsen moved the adoption of legislation directing the Administrator of the Environmental Protection Agency to allocate funds authorized for fiscal year 1975 for sewage treatment facility construction grants among the States 50 per cent on the basis of population and 50 per cent on the basis of the formula for allocation recommended by the Environmental Protection Agency, and to conduct a further complete survey of the need for such treatment facilities before fiscal year 1976 funds are allocated. The motion carried, 8–3, with Senators Bentsen, Burdick, Domenici, Gravel, McClure, Montoya, Muskie, and Randolph voting in the affirmative and Senators Biden, Buckley, and Stafford voting in the negative.

Senator Biden proposed legislation containing the substance of S. 1594, clarifying the intent of the Congress in P.L. 92–500 and specifically approving phased Federal funding of sewage treatment facilities. This proposal was adopted, 11–0, with Senators Baker, Bentsen, Biden, Buckley, Burdick, Gravel, McClure, Montoya, Muskie Randolph, and Stafford voting in the affirmative.

Subsequently, on December 12, 1973, Senator Burdick moved that the Committee reconsider in part its action of December 5 on sewage treatment fund allocation and adopt instead a formula allocating fiscal year 1975 funds 75 per cent on the basis of the formula for allocation recommended by the Environmental Protection Agency and 25 per cent on the basis of population, and to report the original bill in this form. The motion carried by voice vote.

ADDITIONAL VIEWS OF SENATOR BENTSEN

I believe the compromise reached by the Committee was the most equitable solution to a very complex and difficult problem. I had originally proposed, and the Committee accepted, an allocation formula based 50% on population and 50% on Table 1 of the "needs study" E.P.A. submitted to the Congress in October. However, review of the impact of this adjustment in the formula revealed that several states would be severely affected by the proposed change. The formula finally approved, which contains a 25% allocation based on population and 75% on Table 1, is a temporary measure, designed to correct some of the imbalances in the straight E.P.A. "needs" allocation, in the form it was submitted to the Congress.

I should stress that I do not oppose a "needs" formula as the basis for allocating funds for wastewater treatment facilities; however, the "needs test" conducted by the E.P.A. was incomplete and created distortions in the allocations of funds among the states.

I was particularly concerned that the needs study did not place a proper emphasis on the need for advanced waste treatment. My own state, Texas, has required secondary treatment for some 40 years, because it is a water-poor state. Some of our rivers are composed in the summertime of a high percentage of return flows, or effluents. With ever increasing population growth, secondary treatment is no longer sufficient in all cases, and my state must now turn to advanced waste treatment to keep our rivers in acceptable condition.

The E.P.A. needs study excluded the cost of advanced waste treatment in determining a state's needs unless such treatment was required by legally binding federal, state, or local actions taken prior to the conduct of the survey. In actual practice, this required a state permit reflecting advanced treatment, a court order, or an E.P.A.-approved water quality management plan. At the time of the survey, only a small percentage of state permits required advanced waste treatment, and no E.P.A.-approved water quality management plans existed.

I strongly support the Committee's action in requiring E.P.A. to produce more acceptable criteria for determining actual state needs. This measure is not a retreat from the "needs" approach; it only changes the formula for one year. In the intervening year, we should have more adequate data upon which to base our judgments.

I realize that the formula gives my state approximately $35

million less than the originally-approved 50–50 split between population and the E.P.A. recommendation; however, in view of the dislocations that would occur in other states from correcting entirely the obviously unfair Texas situation, I support this compromise solution.

LLOYD BENTSEN.
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ADDITIONAL VIEWS OF SENATOR JAMES A. McCLURE

Although I agree with the allocation formula for fiscal year 1975 funds which the Senate Committee on Public Works has adopted for waste treatment plant construction, and the reaffirmation of the requirement for phased funding, I believe that it is unwise for us to mandate that EPA conduct a new needs survey by June 1974, prior to the complete review of the needs survey process which the Committee intends to make early in the next session.

A sound needs survey should indeed be the best basis for allocating funds among the States. However, limitations imposed on the States and localities as to what they could report, the brief period in which they had to prepare their submission and the limited experience of some in assessing their needs all contributed to a survey which even EPA admitted was faulty and which did not reflect fully the needs of some States. The formula the Committee has adopted, which requires EPA to allocate the authorized funds 25% on the basis of population and 75% on the basis of needs as recommended by EPA (based on the total cost of required secondary treatment works; higher requirements to meet water quality standards and new interceptor sewers, force mains and pumping stations) maintains primary reliance on needs but lessens the harshness with which any of formulas based solely on needs would treat certain States.

The phased funding approach, which Senator Howard H. Baker, Jr. (Tenn.) proposed in S. 1594 and which the Committee unanimously adopted, will require EPA to fund as projects any physical or financial phases or segments of waste treatment works. This will permit a large construction project to be started without preventing construction of other needed projects on a State's priority list.

I voted for these provisions in the expectation that, based on the Committee's review of the entire needs survey process early next session, we could assure that, for 1976 and subsequent years, the formula be based on surveys which reflect much more

accurately the respective needs of the States and thus are more equitable to all of the States. As it is, the Committee bill calls for EPA to begin a new survey within 30 days and to complete it by June 30. This survey should be better than the last one, because the bill we have reported provides guidance to EPA based on the hearings we have held, the States will have more time to respond, and all parties concerned will have the benefit of what was learned during the last survey. However, I question whether the survey—and thus the resulting allocation for FY 1976—will be significantly better than those which we now have before us if the Committee has not held the additional hearings we have proposed. Rather than require EPA, the States and the municipalities to devote considerable effort and expense to another needs

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survey, so soon after the previous one and without the promise of a markedly better result, I would prefer that we provide an allocation for FY 1976 now on the admittedly imperfect basis we are using for FY 1975 and let EPA and the States conduct the next survey in the second half of calendar 1974 when they will have the benefit of further Committee hearings and recommendations. I fear that our present course of action will bring us to a situation a year from now in which we will have no better basis for a valid formula than we do now.

JAMES A. MCCLURE.

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CHANGES IN EXISTING LAW

In compliance with subsection (4) of rule XXIX of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

THE FEDERAL WATER POLLUTION CONTROL ACT

* * * * * * *

PLANS, SPECIFICATIONS, ESTIMATES, AND PAYMENTS

SEC. 203. (a) Each applicant for a grant shall submit to the Administrator for his approval, plans, specifications, and estimates for each proposed project for the construction of treatment works for which a grant is applied for under section 201(g)

(1) from funds allotted to the State under section 205 and which otherwise meets the requirements of this Act. The Administrator shall act upon such plans, specifications, and estimates as soon as practicable after the same have been submitted, and his approval of any such plans, specifications, and estimates shall be deemed a contractual obligation of the United States for the payment of its proportional contribution to such project. *The Administrator shall approve as a project each physical or financial phase of a treatment works which otherwise meets the requirements of this Act.*

(b) The Administrator shall, from time to time as the work progresses, make payments to the recipient of a grant for costs of construction incurred on a project. These payments shall at no time exceed the Federal share of the cost of construction incurred to the date of the voucher covering such payment plus the Federal share of the value of the materials which have been stockpiled in the vicinity of such construction in conformity to plans and specifications for the project.

(c) After completion of a project and approval of the final voucher by the Administrator, he shall pay out of the appropriate sums the unpaid balance of the Federal share payable on account of such project.

* * * * * * *

ALLOTMENT

SEC. 205. (a)(1) Sums authorized to be appropriated pursuant to section 207 for each fiscal year beginning after June 30, 1972, shall be allotted by the Administrator not later than the January 1st immediately preceding the beginning of the fiscal year for which authorized, except that the allotment for fiscal year 1973 shall be made not later than 30 days after the date of enactment of the Federal Water

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Pollution Control Act Amendments of 1972. Such sums shall be allotted among the States by the Administrator in accordance with regulations promulgated by him, in the ratio that the estimated cost of constructing all needed publicly owned treatment works in each State bears to the estimated cost of construction of all needed publicly owned treatment works in all of the States. For the fiscal years ending June 30, 1973, and June 30, 1974, such ratio shall be determined on the basis of table III of House Public Works Committee Print No. 92–50. Allotments for fiscal years which begin after the fiscal year ending June 30, 1974, shall be made only in accordance with a revised cost estimate made

and submitted to Congress in accordance with section 516(b) of this Act and only after such revised cost estimate shall have been approved by law specifically enacted hereafter.

(2) Sums authorized to be appropriated for the fiscal year ending June 30, 1975, shall be allotted by the Administrator among the States in the following ratio:

State:	Percentage
Alabama	*1.064*
Alaska	*.358*
Arizona	*.550*
Arkansas	*.705*
California	*12.320*
Colorado	*.927*
Connecticut	*1.262*
Delaware	*.487*
District of Columbia	*.198*
Florida	*4.190*
Georgia	*2.183*
Hawaii	*1.013*
Idaho	*.248*
Illinois	*5.856*
Indiana	*1.757*
Iowa	*1.221*
Kansas	*.962*
Kentucky	*1.588*
Louisiana	*.966*
Maine	*.664*
Maryland	*1.696*
Massachusetts	*2.275*
Michigan	*4.115*
Minnesota	*1.582*
Mississippi	*.733*
Missouri	*2.191*
Montana	*.208*
Nebraska	*.475*
Nevada	*.491*
New Hampshire	*.800*
New Jersey	*6.362*
New Mexico	*.265*
New York	*10.872*
North Carolina	*2.182*
North Dakota	*.138*
Ohio	*5.113*
Oklahoma	*1.324*
Oregon	*.850*
Pennsylvania	*4.656*
Rhode Island	*.453*
South Carolina	*1.506*
South Dakota	*.164*
Tennessee	*1.457*
Texas	*2.748*
Utah	*.488*
Vermont	*.295*
Virginia	*2.648*
Washington	*1.524*
West Virginia	*.887*
Wisconsin	*1.550*
Wyoming	*.104*
Guam	*.053*
Puerto Rico	*1.157*
Virgin Island	*.075*
American Samoa	*.018*
Pacific island territory	*.024*

(b)(1) Any sums allotted to a State under subsection (a) shall be available for obligation under section 203 on and after the date of such allotment. Such sums shall continue available for obligation in such State for a period of one year after the close of the fiscal year

for which such sums are authorized. Any amounts so allotted which are not obligated by the end of such one-year period shall be immediately reallotted by the Administrator, in accordance with regulations promulgated by him, generally on the basis of the ratio used in making the last allotment of sums under this section. Such reallotted sums shall be added to the last allotments made to the States. Any sum made available to a State by reallotment under this subsection shall be in addition to any funds otherwise allotted to such State for grants under this title during any fiscal year.

(2) Any sums which have been obligated under section 203 and which are released by the payment of the final voucher for the project shall be immediately credited to the State to which such sums were last allotted. Such released sums shall be added to the amounts last allotted to such State and shall be immediately available for obligation in the same manner and to the same extent as such last allotment.

* * * * * * *

REPORTS TO CONGRESS

SEC. 516. (a) Within ninety days following the convening of each session of Congress, the Administrator shall submit to the Congress a report, in addition to any other report required by this Act, on measures taken toward implementing the objective of this Act, including, but not limited to, (1) the progress and problems associated with developing comprehensive plans under section 102 of this Act, area-wide plans under section 208 of this Act, basin plans under section 209 of this Act, and plans under section 303(e) of this Act; (2) a summary of actions taken and results achieved in the field of water pollution control research, experiments, studies, and related matters by the Administrator and other Federal agencies and by other persons and agencies under Federal grants or contracts; (3) the progress and problems associated with the development of effluent limitations and recommended control techniques; (4) the status of State programs, including a detailed summary of the progress obtained as compared to that planned under State program plans for development and enforcement of water quality requirements; (5) the identification and status of enforcement actions pending or completed under such Act during the preceeding year; (6) the status of State, interstate, and local pollution control programs established pursuant to, and assisted by, this Act; (7) a summary of the results of the survey required to be taken under section 210 of this Act; (8) his activities including recom-

mendations under sections 109 through 111 of this Act; and (9) all reports and recommendations made by the Water Pollution Control Advisory Board.

(b)(*1*) The Administrator, in cooperation with the States, including water pollution control agencies and other water pollution control planning agencies, shall make [(1)] (*A*) a detailed estimate of the cost of carrying out the provisions of this Act; [(2)] (*B*) a detailed estimate, biennially revised, of the cost of construction of all needed publicly owned treatment works in all of the States and of the cost of construction of all needed publicly owned treatment works in each of the States; [(3)] (*C*) a comprehensive study of the economic im-

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pact on affected units of government of the cost of installation of treatment facilities; and [(4)] (*D*) 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 Administrator shall submit such detailed estimate and such comprehensive study of such cost to the Congress no later than February 10 of each odd-numbered year. Whenever the Administrator, pursuant to this subsection, requests and receives an estimate of cost from a State, he shall furnish copies of such estimate together with such detailed estimate to Congress.

(*2*) *Notwithstanding the second sentence of paragraph (1) of this subsection, the Administrator shall make a detailed estimate called for by subparagraph (B) of such paragraph and shall submit such detailed estimate to the Congress no later than June 30, 1974. The Administrator shall require each State to prepare an estimate of cost for such State, and shall utilize the survey form EPA–1, O.M.B. No. 158–R0017, prepared for the 1973 detailed estimate, except that such estimate shall include all costs of compliance with section 201(g)(2)(A) of this Act or water quality standards established pursuant to section 303 of this Act, and all costs of treatment works as defined in section 212(2), including all eligible costs of constructing sewage collection systems and correcting excessive infiltration or inflow and all eligible costs of correcting combined storm and sanitary sewer problems and treating storm water flows. The survey form shall be distributed by the Administrator to each State no later than January 31, 1974.*

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1.2r(2) House Committee on Public Works

HR. REP. No. 93-735, 93rd Cong., 1st Sess. (1973).

AMENDING THE FEDERAL WATER POLLUTION CONTROL ACT

DECEMBER 14, 1973.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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Mr. BLATNIK, from the Committee on Public Works, submitted the following

REPORT

[To accompany H.R. 11928]

The Committee on Public Works, to whom was referred the bill (H.R. 11928) to amend the Federal Water Pollution Control Act to establish the ratio for allocation of treatment works construction grant funds, to insure that grants may be given for other than operable units, and to clarify the requirements for development of priorities, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

The amendment is as follows:

On page 2, strike out line 21 and all that follows down through line 5 on page 3 and insert in lieu thereof the following:

> "(d) Notwithstanding this Act or any other provision of law, the Administrator (1) shall not require any State to consider in the development of the ranking in order of priority of needs for the construction of treatment works (as defined in title II of this Act), any water pollution control agreement which may have been entered into between the United States and any other nation, and (2) shall not consider any such agreeement in the approval of any such priority ranking.".

GENERAL STATEMENT

Section 516(b)(2) of the Federal Water Pollution Control Act requires the Environmental Protection Agency to submit to Congress biennally a detailed estimate of the cost of construction

of all needed publicly owned treatment works in all of the States and in each of the States. The Environmental Protection Agency recently submitted their assessment of needs—"Cost of Construction of Publicly-Owned Wastewater Treatment Works," November 1973. Section 1 of H.R. 11928

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amends section 205(a) of the Federal Water Pollution Control Act to set forth a formula for allotment of treatment works construction grant funds during the fiscal years June 30, 1975, and June 30, 1976, based upon the "needs" report submitted by the Environmental Protection Agency.

The Environmental Protection Agency "needs" report included a tabulation of the following eligible needs as set forth in table I of the House Public Works Committee Print No. 93–28:

(*a*) Provide treatment works to achieve secondary treatment,

(*b*) Achieve treatment "more stringent" than secondary treatment as required by water quality standards,

(*c*) Inspect and rehabilitate sewers to correct infiltration and inflow,

(*d*) Construct eligible new collector systems,

(*e*) Construct interceptor sewers, force mains and pumping stations, and

(*f*) Reduce combined sewer overflows.

The Environmental Protection Agency has, however, recommended that only the costs for the following needs which are set forth in table II of the committee print be used as a basis for allotment:

(*a*) Provide treatment works to achieve secondary treatment,

(*b*) Achieve treatment "more stringent" than secondary treatment as required by Water Quality standards, and

(*c*) Construct interceptor sewers, force mains and pumping stations.

The committee reviewed many possible allotment formulas. On the one hand, the clear intent of Congress as expressed in the Federal Water Pollution Control Act was that projects for infiltration and inflow, collector systems, and the reduction of combined sewer overflows be eligible for grants. On the other hand, the Environmental Protection Agency testified that there were inaccuracies in the determination of the needs for infiltration and inflow, collector sewers and reduction of overflows from combined sewers.

It would be unfortunate and unfair to turn back from the mandate of the act that all categories of authorized needs be considered in the development of an allotment formula. However, to give full weight for allotment to those categories of the needs evaluation which are subject to possible inaccuracies as pointed out by the Environmental Protection Agency would also be unfair. Thus, the bill as reported recognizes all needs while at the same time reducing the impact of the possible inaccuracies.

H.R. 11928 provides a method for determining the basic allotment for fiscal years 1975 and 1976, 50 percent upon the total assessment of needs (table I of committee print 93–28) and 50 percent upon the Environmental Protection Agency's recommendation (table II of committee print 93–28).

The utilization of needs as a basis for allotment of construction grant funds as required by the Federal Water Pollution Control Act for the fiscal year ending June 30, 1973, and thereafter has resulted in a reduction of the water pollution control effort in certain States in the fiscal years ending June 30, 1973, and June 30, 1974, because the President did not allot all of the available grant funds. Section 1 of H.R. 11928 rectifies this reduction in effort by providing that

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the actual allotments to the individual States for the fiscal years ending June 30, 1975, and June 30, 1976, shall in no case be less than the allotment received in the fiscal year ending June 30, 1972.

Table III of Committee Print 93–28 sets forth the actual allotments to the individual States of the $2 billion allotted for the fiscal year ending June 30, 1972. No State shall receive an allotment less than that set forth in table III.

The appendix to this report sets forth the method for calculation of the allotments to the individual States.

The Federal Water Pollution Control Act contains provisions similar to those in title 23 of the United States Code pertaining to the granting of funds for the construction of highway projects. Public Law 92–500 authorizes the Administrator to fund construction segments of a given overall treatment works construction project. This intent was embodied in section 212(1) which sets forth the definition of the term "construction" and section 212(2) which sets forth the definition of the term "treatment works." It was intended that physical subparts of any treatment works construction program could be funded by in-

dependent grants. It was not intended that grants be only for operable units.

The Environmental Protection Agency, in the implementation of the act, required in its regulations with exceptions for only a minimum number of circumstances, that each grant shall be for an "operable unit." Section 2 of H.R. 11928 which amends section 203 of the Federal Water Pollution Control Act is intended to overrule the Environmental Protection Agency's erroneous interpretation of the law. It is and always has been the clear intent of Congress that the Environmental Protection Agency must make grants for projects which are otherwise eligible and not just those which are for "operable units."

Section 3 of H.R. 11928 is intended to rectify a problem which was brought to the committee's attention during our recent hearings on the Environmental Protection Agency's "needs" report. Certain States which border the Great Lakes and Canada and the States bordering Mexico have been pressured by the Environmental Protection Agency to give precedence in the development of the ranking, in order of priority, of needs within that State for construction of those waste treatment works required to meet international agreements of the United States with other nations. It was not and is not intended that such international agreements be a basis for the Administrator to require States in the development of their ranking of needed works in order of priority to consider these international agreements.

As introduced, section 3 of H.R. 11928 would have precluded either the States or the Environmental Protection Agency from considering such international agreements in the development of their ranking priority. Section 3 was amended by the committee to provide that the Administrator shall not require any State to consider international agreements when they develop their ranking in order of priority of needs for the construction of treatment works. Further, section 3 provides that the Administrator shall not consider any such agreements in the approval of priority rankings submitted by the State. This means that if the States decide that it would be in their interest to

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consider international water pollution control agreements in the development of the ranking in order of priority of needs they may, but the Administrator is clearly precluded from requiring that international agreements be considered. However, if a State considers an international agreement in developing its priorities,

the Administrator is authorized to approve such priority ranking if it is in accordance with the requirements of the law.

APPENDIX

The following is the method for calculation of allotments to the several States in accordance with the provisions of section 1 of H.R. 11928.

1. Determine the allotment of 50 percent of the total sum being allotted to the individual States in accordance with the ratio of each State's needs to the total national needs as set forth in table I of Committee on Public Works Print No. 93–28.

2. Determine the allotment of the remaining 50 percent in accordance with the ratio of each State's needs to the national needs as set forth in table II of House Public Works Committee Print No. 93–28.

3. Determine the sum of the two determinations for each State calculated in steps 1 and 2.

4. Compare the sums for each State determined in step 3 with that State's allotment for fiscal year 1972 as set forth in table III of House Public Works Committee Print No. 93–28.

5. If the allotment as set forth in such table III for any State is more than that amount determined in step 3, the allotment to that State shall be that set forth in such table III.

6. Subtract the sum of allotments for those States for which allotments would be as set forth in such table III from the total sum being allotted to the individual States.

7. The remainder as determined by step 6 shall then be distributed 50 percent in the ratio of needs as determined by table I, not including needs for those States for which allotments were made under step 5 in accordance with table III, and 50 percent in the ratio of needs as determined by table II, not including needs for those States for which allotments were made under step 5 in accordance with table III.

8. If the allotments as determined in accordance with step 7 for any State is less than its allotments set forth in table III, the allotment for such State shall be that set forth in table III. If this occurs, iterations, as necessary, of steps 6 through 8 shall be made to determine each State's allotment.

Whenever all allotments as determined in accordance with step 7 are equal to or greater than the allotments given in such table III, the determination is completed.

COST TO THE UNITED STATES

Rule XIII (7) of the Rules of the House of Representatives

requires a statement of the estimated costs to the United States which would be incurred in carrying out H.R. 11928, as reported, in fiscal year 1974 and each of the following 5 years. Enactment of this legislation will not result in any additional cost to the United States.

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VOTE

The committee ordered the bill reported by voice vote.

CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

FEDERAL WATER POLLUTION CONTROL ACT

* * * * * * *

TITLE II—GRANTS FOR CONSTRUCTION OF TREATMENT WORKS

* * * * * * *

PLANS, SPECIFICATIONS, ESTIMATES, AND PAYMENTS

SEC. 203. (a) Each applicant for a grant shall submit to the Administrator for his approval, plans, specifications, and estimates for each proposed project for the construction of treatment works for which a grant is applied for under section 201(g)(1) from funds allotted to the State under section 205 and which otherwise meets the requirements of this Act. The Administrator shall act upon such plans, specifications, and estimates as soon as practicable after the same have been submitted, and his approval of any such plans, specifications, and estimates shall be deemed a contractual obligation of the United States for the payment of its proportional contribution to such project.

(b) The Administrator shall, from time to time as the work progresses, make payments to the recipient of a grant for costs of construction incurred on a project. These payments shall at no time exceed the Federal share of the cost of construction incurred to the date of the voucher covering such payment plus the Federal share of the value of the materials which have been

stockpiled in the vicinity of such construction in conformity to plans and specifications for the project.

(c) After completion of a project and approval of the final voucher by the Administrator, he shall pay out of the appropriate sums the unpaid balance of the Federal share payable on account of such project.

(d) Nothing in this Act shall be construed to require, or to authorize the Administrator to require, that grants under this Act for construction of treatment works be made only for projects which are operable units usable for sewage collection, transportation, storage, waste treatment, or for similar purposes without additional construction.

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ALLOTMENT

SEC. 205. (a) Sums authorized to be appropriated pursuant to section 207 for each fiscal year beginning after June 30, 1972, shall be allotted by the Administrator not later than the January 1st immediately preceding the beginning of the fiscal year for which authorized, except that the allotment for fiscal year 1973 shall be made not later than 30 days after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972. Such sums shall be allotted among the States by the Administrator in accordance with regulations promulgated by him, in the ratio that the estimated cost of constructing all needed publicly owned treatment works in each State bears to the estimated cost of construction of all needed publicly owned treatment works in all of the States. For the fiscal years ending June 30, 1973, and June 30, 1974, such ratio shall be determined on the basis of table III of House Public Works Committee Print No. 92–50. *For the fiscal years ending June 30, 1975, and June 30, 1976, such ratio shall be determined one-half of the basis of Table I of House Public Works Committee Print No. 93–28 and one-half on the basis of Table II of such print, except that no State shall receive an allotment less than that which it received for the fiscal year ending June 30, 1972, as set forth in Table III of such print.* Allotments for fiscal years which begin after the fiscal year ending June 30, [1974] *1976*, shall be made only in accordance with a revised cost estimate made and submitted to Congress in accordance with section 516(b) of this Act and only after such revised cost estimate shall have been approved by law specifically enacted hereafter.

* * * * * * *

TITLE V—GENERAL PROVISIONS

* * * * * * *

OTHER AFFECTED AUTHORITY

SEC. 511. (a) This Act shall not be construed as (1) limiting the authority or functions of any officer or agency of the United States under any other law or regulation not inconsistent with this Act; (2) affecting or impairing the authority of the Secretary of the Army (A) to maintain navigation or (B) under the Act of March 3, 1899, (30 Stat. 1112); except that any permit issued under section 404 of this Act shall be conclusive as to the effect on water quality of any discharge resulting from any activity subject to section 10 of the Act of March 3, 1899, or (3) affecting or impairing the provisions of any treaty of the United States.

(b) Discharges of pollutants into the navigable waters subject to the Rivers and Harbors Act of 1910 (36 Stat. 593; 33 U.S.C. 421) and the Supervisory Harbors Act of 1888 (25 Stat. 209; 33 U.S.C. 441—451b) shall be regulated pursuant to this Act, and not subject to such Act of 1910 and the Act of 1888 except as to effect on navigation and anchorage.

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(c)(1) Except for the provision of Federal financial assistance for the purpose of assisting the construction of publicly owned treatment works as authorized by section 201 of this Act, and the issuance of a permit under section 402 of this Act for the discharge of any pollutant by a new source as defined in section 306 of this Act, no action of the Administration taken pursuant to this Act shall be deemed a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act of 1969 (83 Stat. 852); and

(2) Nothing in the National Environmental Policy Act of 1969 (83 Stat. 852) shall be deemed to—

(A) authorize any Federal agency authorized to license or permit the conduct of any activity which may result in the discharge of a pollutant into the navigable waters to review any effluent limitation or other requirement established pursuant to this Act or the adequacy of any certification under section 401 of this Act; or

(B) authorize any such agency to impose, as a condition precedent to the issuance of any license or permit, any ef-

fluent limitation other than any such limitation established pursuant to this Act.

(d) *Notwithstanding this Act or any other provision of law, the Administrator (1) shall not require any State to consider in the development of the ranking in order of priority of needs for the construction of treatment works (as defined in title II of this Act), any water pollution control agreement which may have been entered into between the United States and any other nation, and (2) shall not consider any such agreement in the approval of any such priority ranking.*

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1.2r(3)(a) Dec. 14: Considered and passed Senate, pp. S22970-S22973.

WASTE FUND TREATMENT FUND ALLOCATIONS

Mr. MANSFIELD. Mr. President, I ask unanimous consent that the pending business be laid aside temporarily and that the Senate turn to the consideration of Calendar No. 604, S. 2812; but before the Chair rules, I wish to say that this is one of the bills which, in response to a question raised by the distinguished acting Republican leader yesterday, I stated we would try to bring up today.

The PRESIDING OFFICER. Senators will please be seated so that the Senator can be heard.

The bill will be stated by title.

The legislative clerk read as follows:

A bill (S. 2812) to authorize a formular for the allocation of funds authorized for fiscal year 1975 for treatment construction grants, and for other purposes.

The Senate proceeded to consider the bill.

Mr. MUSKIE. Mr. President, I ask unanimous consent that during consideration of and voting on H.R. 11372 and S. 2812 the following staff members of the Committee on Public Works be granted the privilege of access to the floor:

Mr. Barry Meyer, John W. Yago, Philip T. Cummings, Ron Katz, Bailey Guard, Kathy Cudlipp, Harold Brayman, Rick Herod, Leon G. Billings, Sally W. Walker, James Readle, and Jacqueline Schafer.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. MUSKIE. Mr. President, one of the innovative and controversial features of the 1972 clean water law was the provision for determining distribution of construction grant funds among the States.

Prior to 1972, water pollution construction funds were distributed among the States on the basis of population. Under the new law, allocation of funds was to be based on needs. Construction grant funds for 1973 and 1974 were distributed on the basis of a "needs" survey which EPA had submitted to the Congress in early 1972. Next year's funds—fiscal year 1975—were to be allocated on January 1, 1974, on the basis of a new "needs" survey which was conducted by the Environmental Protection Agency and submitted to Congress in October of this year.

The committee, after holding hearings and reviewing the "needs" survey, recognized two major problems

with the recommended formula. First, as the Environmental Protection Agency recognized in their report to Congress, the survey of the States had major limitations, including the survey methodology and the types of costs which States could expect.

Second, the recommended formula, if adopted as the basis for allocation, would limit the amount of grants to several States substantially below their estimated needs—needs which EPA omitted in their survey.

While the committee believes that the "needs" approach is preferable, the limitations of the current survey required consideration of other factors in developing an allocation formula that would: First, estimate needs not covered by the "needs" survey; and second, reduce the inequities to several States created by the transition to allocation based entirely on needs. The legislation reported by the committee meets these criteria.

Mr. President, section 205(a) of the Federal Water Pollution Control Act directs the Administrator of the Environmental Protection Agency to allocate 1975 grants for construction of wastewater treatment facilities among the States. Section 207 of that act has authorized $7 billion for fiscal year 1975.

The Environmental Protection Agency, pursuant to section 516, in its "needs" survey recommended that Congress base its allocation of 1975 grant funds to the States in the same ratio that their costs in three categories bear to the total costs of these categories to all the States. The costs covered in these categories included: First providing the facilities to meet secondary treatment required by the 1972 act; second, providing facilities for meeting State or local requirements more stringent than secondary treatment; and third, providing eligible new interceptors, force mains, and pumping stations.

The bill reported today requires the Administrator to allocate the authorized funds on a ratio developed on the following basis: 75 percent of the total funds according to the Environmental Protection Agency's recommended formula described in the 1973 "needs" survey; 25 percent in the ratio that the population of each State bears to the population of all the States.

The committee, however, has agreed to limit the use of this allocation formula to fiscal year 1975.

Because of the limitations on the survey, the legislation requires the Administrator of the Environmental Protection Agency to make another "needs" survey in 1974, which is to be initiated within 30 days, utilizing the forms approved last year. This survey is to provide Congress

[p. S22970]

with new data no later than June 30, 1974, and is to serve as the basis for allocating grant funds for 1976. Unlike the 1973 survey, the new survey shall include all costs which States expect to incur to comply with the 1972 act.

The committee expects the Administrator to insist that the States submit a complete form for the entire State rather than multiple forms for communities in the State. And the committee expects the States to submit estimates of needs for all "treatment works" as defined in section 212(2) (A) and (B) and the estimate of costs for best practicable waste treatment technology defined in section 201 and required by section 301.

On a related matter, the committee bill addresses the issue of "phased funding" of needed treatment works.

Section 3 rectifies the Environmental Protection Agency's misinterpretation of section 203 of the Water Pollution Control Act. Under its present regulations, that Agency restricts complete operable works from receiv-

ing funding for separate construction segments. Furthermore, that Agency's misinterpretation of section 203 prohibits financial phasing of construction works over more than 1 fiscal year.

This section imposes no additional costs to the Federal Government nor would commitment to one phase of a project constitute an obligation on the part of the Federal Government to fund the remainder of the project. Conversely, the committee would expect EPA to obtain a commitment from any community or State utilizing phased funding, to complete the project even if future Federal funding is not assured.

Mr. President, this legislation represents a compromise—a compromise which reflects the needs for an equitable distribution of available construction grant funds and the limitations of the EPA needs survey. I think it is fair and equitable to all States. It represents the best judgment and unanimous recommendation of the Committee on Public Works.

I urge the Senate to pass the bill.

Mr. BUCKLEY. Mr. President, will the Senator yield?

Mr. MUSKIE. Yes, I yield to the Senator from New York.

Mr. BUCKLEY. Mr. President, I would like to begin by thanking the Senator from Maine for his full and active cooperation and work in resolving the difficulties that were met in applying the needs formula.

Mr. President, I agree with the distinguished Senator from Maine (Mr. MUSKIE) that S. 2812 represents a workable compromise considering the committee's declared intent to use State needs as the basis for allocating waste treatment funds, the admitted shortcomings of the EPA's recent needs survey, and the fact that many States were unable, on short notice, to adequately document their needs.

I supported the adoption of a needs based formula in Public Law 92–500, the 1972 amendments to the Federal Water Pollution Control Act. I had hoped that EPA, in cooperation with the States, would have been able to identify with precision the expected cost of construction for all municipal treatment works on a State-by-State basis. Our hearings this fall, however, pointed out a number of shortcomings on the part of EPA and the States. EPA, largely as a result of the OMB forms clearance process consumed more than 5 months of the time available for completion of the survey, leaving only 6 weeks for the States and cities to complete and forward the forms to Washington. Some States without staffing and funding adequate to the task, failed to fully identify eligible needs; other States merely bundled up the numerous municipal forms and sent them to EPA without even preparing a State total. These difficulties are typical of the results of instituting a new Federal-State process.

In view of these difficulties the committee adopted in S. 2812 a two-part formula for allocation of funds; 25 percent based on the ratio of each State's population to the population of all the States and 75 percent based on EPA's suggested formula. EPA in its report to the Congress, based on section 516 of the act, suggested that we base the allocation of fiscal 1975 grant funds on the ratio of a States needs in three categories to the total costs in these categories for all States. These three categories which EPA believed were most fully documented include, first, the cost of secondary treatment as a uniform base line for municipalities under the act; second, the need to meet requirements more stringent than secondary treatment in some areas; and third, the need for new interceptor sewers, force mains and pumping stations. We should make clear that, as EPA

testified, to base all or part of the allocation formula on these three categories does not prejudice the funding of other types of treatment works which are eligible under the act—for example, collector sewers and combined storm sewers. One very beneficial aspect of this bill is the provision sponsored by Senator BAKER which reaffirms the intention expressed in the act that EPA shall fund as a project any financial or physical phase of construction which is otherwise eligible. This rectifies an error in legal interpretation by EPA, provides needed flexibility for States and municipalities to begin construction of as many needed projects as possible, and prevents the situation in which approval of a large project will prevent other projects on a States priority list from being funded.

Mr. President, I would like, if I may, to be parochial for a moment. During the hearing of the committee on the issue of an allocation formula, a very fine statement was presented to us by Mr. Dwight Metzler, deputy commissioner of the New York State Department of Environmental Conservation.

The following is his summary of the position of New York State on the application of the needs survey to the allocation of the fiscal year 1975 authorization for title II construction grants:

(a) The authorization of seven billion dollars in Section 207 of the Act should be allocated in its entirely.

(b) The allocations should be based on the unadjusted total estimates of the States as determined by the 1973 Needs Survey.

(c) If it appears that inequities result from allocations made in accordance with (b) above, adjustments can be made in the allocations for fiscal year 1976, by implementing Section 206(f) of the Act which permits advanced construction funding.

(d) Congress should make it clear that the program of Federal construction grant assistance will continue beyond June 30, 1975. Authorizations for subsequent years should be seven billion dollars per year or greater.

(e) Congress should reiterate its intent for funding of projects on a phased approach to the construction of treatment works as urged on Page 111 of the Conference Report No. 92-1465. Although this procedure was approved for the District of Columbia's "Blue Plains" project, it has been denied elsewhere.

(f) Allocation is only a part of the picture. Definite steps should be taken so allocated funding authority is obligated by prompt approval of projects.

There may be some feeling that New York supports the allocation on the basis of the total costs of 65.604 billion dollars rather than the EPA proposed figure of 36.6 billion dollars because it gets the larger share that way. It is the converse that is true.

New York's needs are large, and it should have a large allocation. New York is the only State in the Union that has both a Great Lakes and an ocean coastline. In the Great Lakes, New York has the responsibility for the implementation of the Nixon-Trudeau agreement on boundary waters. This is exercised through New York's membership on the International Joint Commission—United States and Canada.

New York is a member of seven interstate pollution control compacts, viz:

The New England Interstate Water Pollution Control Compact.

The Ohio River Valley Water Sanitation Compact.

The Tri-State Compact and Interstate Sanitation Commission.

The Delaware River Basin Compact.

The Great Lakes Basin Compact.

The Champlain Basin Compact.

The Susquehanna River Basin Compact.

In all of these compacts, New York is the upstream member and we will not discharge polluted water to our downstream neighbors.

The ocean shore of New York provides recreation facilities for the greatest concentration of population anywhere in the country and handles more shipping and receives more passengers in its port than almost anywhere else in the world.

Lastly, New York is one of those several states that have advanced farthest in planning for abatement of pollution. We are seeking only our due.

I supported this position during the discussion of the appropriate formula in the Public Works Committee and I continue to endorse it. I have the assurance of my colleagues on the committee that the adoption of a formula based in part on population in no way signals a retreat from our commitment to a "needs" approach.

Clearly, we must know the full costs of meeting the high water quality standards mandated by the Federal Water Pollution Control Act and we can learn this only by ascertaining actual needs, State by State.

I am hopeful that another provision of the bill, which calls for EPA and the States to begin a new needs survey within 30 days and to complete it by June 30, 1974, will mean that a year from now, we will be able to return to our first choice—an allocation formula based solely on needs which will distribute funds for fiscal year 1976 in a manner that is equitable to all the States.

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I compliment the chairman of the committee, Mr. RANDOLPH; the chairman of the subcommittee, Mr. MUSKIE; the ranking minority member of the committee, Mr. BAKER; and the other Senators who participated in this decision for dealing with this very knotty problem in their typically thorough and fair manner.

Mr. JAVITS. Mr. President, will the Senator yield?

Mr. BUCKLEY. I yield.

Mr. JAVITS. I wish to associate myself with the remarks of my colleague from New York. I think he has put the situation exactly right, and I wish to express my appreciation to him for contending for principles and policies with respect to this legislation which would be equitable to the Nation and equitable to our State.

We of New York have constantly taken the position that water is a national resource and have shown it in many policies we have adopted. The Senator has referred to the policy of the State. We would certainly hope that States which are not riparian States would take the same position that the needs standard is the basis for the country.

We realize that political problems occasionally arise which may make it necessary to do less than the optimum, but I think the decision of the Senator from Maine (Mr. MUSKIE) and the Senator from West Virginia (Mr. RANDOLPH) to put it on a 1-year basis in respect of so vital a matter as the national resource of the water table is a very desirable and wise one.

One other thing which is very important to me: Often we almost see an attitude of being contrary simply because it is the major industrial States that are involved. Yet, they are the most productive in terms of population to service the Nation in war or peace, in terms of goods produced, and facilities providing a tax income raised for the benefit of all of us.

All too often there is a tendency here to look at the chart and determine the number of States that do best in the chart and they prevail, whatever may be the total national interest.

Mr. President, it is therefore refreshing to me—and I have been here a long time—when statesmanship rears its noble head and some effort is made to rearrange these aid programs in the basic need of the country.

Mr. President, I would have been deeply disappointed if the committee had gone to the 50-percent figure which was originally discussed. I think it is encouraging that it has gone to the 75-percent figure.

We in New York have been just as vigorous in spending money for others when it will do us no good but will do the Nation good, as we have done in irrigation matters, dams, flood control, to take some of the more bread-and-butter aspects of the matter here.

We have a natural resource—water. And when a conservation measure is made to apply the test to

that, it is very refreshing to my mind and to the country as a whole.

Mr. BUCKLEY. Mr. President, I thank my distinguished colleague for pointing out the equities involved in the measure.

Mr. MUSKIE. Mr. President, I express my appreciation to the two Senators from New York and to the Senator from West Virginia (Mr. RANDOLPH), the chairman of the committee, and to all members of the committee.

As has been customary and traditional in the committee, the issues are discussed rather fully and with a rather full attendance. Votes tend to cross party lines.

It is encouraging that once again a matter has come from the committee in this fashion. Although we did not all agree, we will made an effort to adhere to this formula. It was worked out in that spirit.

I am most grateful for the continuing cooperation of the Senator from New York (Mr. BUCKLEY) in urging approval of the bill.

Mr. BAKER. Mr. President, I wish to state my strong support for S. 2812. This bill incorporates two essential elements to the operation of our future water pollution control grant program.

First, the bill establishes an allocation formula for the distribution of fiscal year 1975 sewage grants. While there was substantial discussion in committee over what would be the most equitable formula, I believe we reached a compromise that is fair. The formula is grounded in the demonstrated needs for pollution control funds. I anticipate that a new needs study, mandated by this bill, should enable the Congress to support fully the needs concept next year.

The bill also contains a restatement of the intent of the Congress on "phased funding" of projects, as expressed in the conference report on Public Law 92–500. In that document, the Congress said that the Environmental Protection Agency should allow any State that so wishes to apply and receive grants for portions of treatment facilities.

EPA, unfortunately, did not allow such an approach. That decision hampered the ability of many State water pollution control agencies to develop the most effective and logical control program. Often funding of a large project prevented the start of construction of other needed projects on a State's priority list.

To rectify this EPA error, I introduced S. 1594 earlier this year. I am pleased that the committee bill contains the language of S. 1594 in section 3.

While the committee report explains the phased funding intent quite clearly, I would just add this word of explanation: This section will give to the States the right and ability to seek approval—and for EPA to grant such approval—for 75 percent grants toward a portion of a treatment works, whether that portion is selected in a financial or physical basis. A community might, for example, seek initially a grant for one-fifth of the total cost of construction of a plant. It might seek funds for the primary phase of a treatment plant, or it might seek funds for the first 1,000 feet of an interceptor sewer. In future years, the applicant would come back for further grants to finish each project.

EPA must not discriminate against such applications. Rather, EPA should view them as an opportunity for flexibility to get more projects on line more quickly and thus to achieve our national goal of clean water more expeditiously.

I wish to pay my respects, as always, to the chairman of the full committee, Mr. RANDOLPH; the chairman of the Subcommittee on Air and Water Pollution, Mr. MUSKIE; and the ranking minority member of the

subcommittee, Mr. BUCKLEY, for their leadership in reaching the compromise on this legislation.

Further, I would like to express my thanks to the junior Senator from Delaware (Mr. BIDEN) for his strong support for the phased-funding language. I know that phased-funding is an issue that has as great interest for the people of Delaware as it does for Tennessee. And I commend him on his leadership on this point.

WASTE TREATMENT CONSTRUCTION SHOULD PROCEED—EQUITY NEEDED

Mr. RANDOLPH. Mr. President, when the Committee on Public Works began to consider the question of how to allocate waste treatment construction grant funds for the 1975 fiscal year, we knew that it would be difficult to develop an equitable formula fair to the large majority of the States, and impossible to find an allocation formula which pleased every one.

When the Congress enacted the Federal Water Pollution Control Act Amendments of 1972, Public Law 92–500, we expected that a formula for allocation in accordance with the need in each of the States for construction of publicly owned sewage treatment works would flow naturally from the "needs" survey the Environmental Protection Agency was required to conduct under section 516 (b) (2). After the publication of that survey in October of this year, however, it became apparent that the limitations of that survey required action by the Congress to produce a measure of equity in the distribution of sewage treatment funds. Those limitations are detailed in the report of the committee on S. 2812.

The committee approached its deliberations on the fund allocation in an extremely statesman-like manner. Though cognizant of the effect on their own States, the members of the committee were not bound in their consideration or in their final position by the narrow parochial view of what would be best for the States they represented. I believe that as a result of the work of the committee a formula for allocation has been developed which is fair. It improves the position of those States which would have been most severely inhibited in their water pollution abatement programs by the formula recommended by the Environmenlal Protection Agency, and it maintains the commitment of the Congress to allocate waste treatment funds on the basis of need for such facilities.

The committee remains firm in its desire to allocate funds for the construction of waste treatment works solely on the basis of the need. The limitations of the 1973 needs survey prevented that desire from being realized with respect to fiscal year 1975 funds.

In order to return to that approach at the earliest possible moment in the allocation of fiscal year 1976 waste treatment funds, the bill would require the

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Environmental Protection Agency to conduct another needs survey assessing the complete needs for all types of treatment works mandated by the act and to submit that survey by June 30, 1974. The report of the committee provides a clear direction to the Environmental Protection Agency as to the expanded basis of this resurvey requiring the reporting of data on all eligible treatment works including the provision of the best practicable treatment technology as required for fiscal year 1975 grants under section 201(g)(2) of the act.

Mr. President. I urge the passage of this bill.

The PRESIDING OFFICER. The bill is open to amendment. If there be no amendment to be proposed, the question is on the engrossment and third reading of the bill.

The bill was ordered to be engrossed for a third reading and was read the third time.

The PRESIDING OFFICER. The bill having been read the third time, the question is, Shall the bill pass?

The bill (S. 2812) was passed, as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. Section (a) of section 205 of the Federal Water Pollution Control Act as amended (86 Stat. 837), is amended by inserting "(1)" after "(a)" and by adding the following new paragraph:

"(2) Sums authorized to be appropriated for the fiscal year ending June 30, 1975, shall be allotted by the Administrator among the States in the following ratio:

State	*Percentage*
"Alabama	1.064
Alaska	.358
Arizona	.550
Arkansas	.705
California	12.320
Colorado	.927
Connecticut	1.262
Delaware	.487
District of Columbia	.198
Florida	4.190
Georgia	2.183
Hawaii	1.013
Idaho	.248
Illinois	5.856
Indiana	1.757
Iowa	1.221
Kansas	.962
Kentucky	1.588
Louisiana	.996
Maine	.644
Maryland	1.696
Massachusetts	2.275
Michigan	4.115
Minnesota	1.582
Mississippi	.733
Missouri	2.191
Montana	.208
Nebraska	.475
Nevada	.491
New Hampshire	.800
New Jersey	6.362
New Mexico	.265
New York	10.872
North Carolina	2.182
North Dakota	.138
Ohio	5.113
Oklahoma	1.324
Oregon	.856
Pennsylvania	4.656
Rhode Island	.453
South Carolina	1.506
South Dakota	.164
Tennessee	1.457
Texas	2.748
Utah	.488
Vermont	.295
Virginia	2.648
Washington	1.524
West Virginia	.887
Wisconsin	1.550
Wyoming	.104
Guam	.053
Puerto Rico	1.157
Virgin Islands	.075
American Samoa	.018
Pacific Island Territory	.024"

SEC. 2. Subsection (b) of section 516 of the Federal Water Pollution Control Act, as amended (86 Stat. 895), is amended by inserting "(1)" after "(b)"; by striking "(1)", "(2)", "(3)", and "(4)" and inserting in lieu thereof "(A)", "(B)", and "(C)", and "(D)", respectively; and by adding the following new paragraph:

"(2) Notwithstanding the second sentence of paragraph (1) of this subsection, the Administrator shall make a detailed estimate called for by subparagraph (B) of such paragraph and shall submit such detailed estimate to the Congress no later than June 30, 1974. The Administrator shall require each State to prepare an estimate of cost for such State, and shall utilize the survey form EPA-1, O.M.B. No. 158-R0017, prepared for the 1973 detailed estimate, except that such estimate shall include all costs of compliance with section 201(g)(2)(A) of this Act or water quality standards established pursuant to section 303 of this Act, and all costs of treatment works as defined in section 212(2), including all eligible costs of constructing sewage collection systems and correcting excessive infiltration or inflow and all eligible costs of correcting combined storm and sanitary sewer problems and treating storm water flows. The survey form shall be distributed by the Administrator to each State no later than January 31, 1974."

SEC. 3. Subsection (a) of section 203 of the Federal Water Pollution Control Act, as amended (86 Stat. 935), is amended to add at the end thereof the following sentence: "The Administrator shall approve as a project each physical or financial phase of a treatment works which otherwise meets the requirements of this Act."

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1.2r(3)(b) Dec 18: Considered and passed House amended in lieu of H.R. 11928, pp. H 11628–H 11633

AMENDING THE FEDERAL WATER POLLUTION CONTROL ACT

Mr. ROBERTS. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 11928) to amend the Federal Water Pollution Control Act to establish the ratio for allocation of treatment works construction grant funds, to insure that grants may be given for other than operable units, and to clarify the requirements for development of priorities, as amended.

The Clerk read as follows:

H.R. 11928

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) subsection (a) of section 205 of the Federal Water Pollution Control Act is amended by inserting immediately after the third sentence thereof the following new sentence: "For the fiscal years ending June 30, 1975, and June 30, 1976, such ratio shall be determined one-half on the basis of table I of House Public Works Committee Print Numbered 93–28 and one-half on the basis of table II of such print, except that no State shall receive an allotment less than that which is received for the fiscal year ending June 30, 1972, as set forth in table III of such print."

(b) The last sentence of subsection (a) of section 205 of the Federal Water Pollution Control Act is amended by striking out "June 30, 1974," and inserting in lieu thereof "June 30, 1976.".

SEC. 2. Section 203 of the Federal Water Pollution Control Act is amended by adding at the end thereof the following new subsection:

"(d) Nothing in this Act shall be construed to require, or to authorize the Administrator to require, that grants under this Act for construction of treatment works be made only for projects which are operable units usable for sewage collection, transportation, storage, waste treatment, or for similar purposes without additional construction.".

SEC. 3. Section 511 of the Federal Water Pollution Control Act is amended by adding at the end thereof the following new subsection:

"(d) Notwithstanding this Act or any other provision of law, the Administrator (1) shall not require any State to consider in the development of the ranking in order of priority of needs for the construction of treatment works (as defined in title II of this Act), any water pollution control agreement which may have been entered into between the United States and any other nation, and (2) shall not consider any such agreement in the approval of any such priority ranking.".

The SPEAKER. Is a second demanded?

Mr. HARSHA. Mr. Speaker, I demand a second.

The SPEAKER. Without objection, a second will be considered as ordered.

There was no objection.

Mr. ROBERTS. Mr. Speaker, section 516(b)(2) of the Federal Water Pollution Control Act requires the Environmental Protection Agency to submit to Congress biennially a detailed estimate of the cost of construction of all needed publicly owned treatment works in all of the States and in each of the States. The Environmental Protection Agency recently submitted their assessment of needs—"Cost of Construction of Publicly-Owned Wastewater Treatment Works," revised November 1973. Section 1 of H.R. 11928 amends section 205(a) of the Federal Water Pollution Control Act to set forth a formula for allotment of treatment works construction grant funds during the fiscal years June 30, 1975, and June 30, 1976, based upon the needs report submitted by the Environmental Protection Agency.

The Environmental Protection Agency needs report included a tabulation of the following eligible needs as set forth in table I of the House Public Works Committee Print No. 93–28:

(a) Provide treatment works to achieve secondary treatment,

(b) Achieve treatment "more stringent" than secondary treatment as required by water quality standards,

(c) Inspect and rehabilitate sewers to correct infiltration and inflow,

(d) Construct eligible new collector systems,
(e) Construct interceptor sewers, force mains and pumping stations, and
(f) Reduce combined sewer overflows.

The Environmental Protection Agency has, however, recommended that only the costs of providing treatment works to achieve secondary treatment, of achieving treatment "more stringent" than secondary treatment as required by water quality standards, and of constructing eligible new interceptor sewers, force mains and pumping stations be used as a basis for allotment.

The committee reviewed many possible allotment formulas. On the one hand, the clear intent of Congress as expressed in the Federal Water Pollution Control Act was that projects for infiltration and inflow, collector systems, and the reduction of combined sewer overflows be eligible for grants. On the other hand, the Environmental Protection Agency testified that there were inaccuracies in the determination of the needs for infiltration and inflow, collector sewers and reduction of overflows from combined sewers.

It would be unfortunate and unfair to turn back from the mandate of the act that all categories of authorized needs be considered in the development of an allotment formula. However, to give full weight for allotment to those categories of the needs evaluation, which are subject to possible inaccuracies as pointed out by the Environmental Protection Agency would also be unfair. Thus, the bill as reported recognizes all needs while at the same time reducing the impact of the possible inaccuracies.

H.R. 11928 provides a method for determining the basic allotment for fiscal years 1975 and 1976, 50 percent upon the total assessment of needs—table I of committee print 93–28—and 50 percent upon the Environmental Protection Agency's recommendation—table II of committee print 93–28.

The utilization of needs as a basis for allotment of construction grant funds as

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required by the Federal Water Pollution Control Act for the fiscal year ending June 30, 1973, and thereafter has resulted in a reduction of the water pollution control effort in certain States in the fiscal years ending June 30, 1973, and June 30, 1974, because the President did not allot all of the available grant funds. Section 1 of H.R. 11928 rectifies this reduction in effort by providing that the actual allotments to the individual States for the fiscal years ending June 30, 1975, and June 30, 1976, shall in no case be less than the allotment received in the fiscal year ending June 30, 1972—table III of committee print 93–28. This provides an interim solution for those States which were severely affected by the changeover from population to needs in fiscal year 1973. This will permit these States to continue their program at a reasonable level until they are able to more accurately assess their true needs.

Section 2 of H.R. 11928 amends section 203 of the Federal Water Pollution Control Act so as to overrule an erroneous interpretation of that section by the Environmental Protection Agency. The Environmental Protection Agency has limited grants for portions of treatment works to "operate units." This was not the intent of the Congress and section 2 clarifies what was intended.

Section 3 of H.R. 11928 is intended to rectify a problem which was brought to the committee's attention during our recent hearings on the Environmental Protection Agency's needs report. Certain States which border the Great Lakes and Canada and the States bordering Mexico have been pressured by the Environmental

Protection Agency to give precedence in the development of the ranking, *in order of priority*, of needs within that State for construction of those waste treatment works required to meet international agreements of the United Sates with other nations. It was not and is not intended that such international agreements be a basis for the Administrator to require States in the development of their ranking of needed works in *order of priority to consider* these international agreements. If it is the desire of the administration to have the international agreements implemented as a priority item, we would suggest that they submit appropriate legislation authorizing the construction and providing a source of appropriations for the necessary works.

In concluding, I would point out that the Federal Water Pollution Control Act of 1972 mandated the allocation of $7 billion in fiscal year 1975. However, in view of the fact that the administration has released only $5 billion of the $11 billion authorized for fiscal year 1973–74, I would caution all of my colleagues that the release of the $7 billion in 1975 is not assured.

I would ask permission to include in the Record at this point a table which would show the allotments to each State based upon H.R. 11928. This table indicates the amounts each State will receive, should $3, $4, or $7 billion be allotted.

ALLOTMENTS OF FEDERAL SEWAGE TREATMENT PLANT GRANT FUNDS, BY STATE, FOR FISCAL 1975
[in millions]

	$3 billion allotment	$4 billion allotment	$7 billion allotment
Alabama	[1] $33.9	[1] $33.8	$55.9
Alaska	10.9	15.0	26.5
Arizona	[1] 17.7	[1] 17.7	28.6
Arkansas	[1] 19.4	24.0	42.6
California	338.5	457.8	813.8
Colorado	22.5	31.1	55.2
Connecticut	50.7	69.7	123.6
Delaware	15.8	21.7	39.1
Dist. of Columbia	27.9	38.2	67.8
Florida	120.0	164.4	292.7
Georgia	55.6	70.0	135.5
Hawaii	30.0	41.2	73.4
Idaho	[1] 7.8	7.9	14.0
Illinois	183.9	252.4	449.2
Indiana	[1] 50.0	69.7	113.2
Iowa	28.7	39.3	69.9
Kansas	29.2	40.1	71.3
Kentucky	47.6	65.2	116.0
Louisiana	[1] 35.6	[1] 35.6	51.0
Maine	19.1	26.2	46.8
Maryland	39.6	54.3	96.4
Massachusetts	65.7	90.3	160.7
Michigan	137.6	108.8	336.0
Minnesota	46.8	64.6	114.6
Mississippi	[1] 22.3	[1] 22.3	37.7
Missouri	54.3	74.5	132.7
Montana	[1] 7.5	[1] 7.5	9.3
Nebraska	15.3	21.0	37.0
Nevada	18.7	18.7	33.5
New Hampshire	25.6	35.2	62.2
New Jersey	185.8	254.7	453.2
New Mexico	[1] 10.7	[1] 10.7	13.3
New York	357.5	490.6	873.2
North Carolina	51.5	70.4	125.7
North Dakota	[1] 6.9	[1] 6.9	[1] 6.9
Ohio	141.0	198.2	344.4
Oklahoma	34.1	46.8	83.8
Oregon	24.8	34.1	80.8
Pennsylvania	162.5	222.5	396.1
Rhode Island	15.3	21.0	37.0
South Carolina	40.4	55.8	90.9
South Dakota	[1] 7.3	[1] 7.3	[1] 7.3
Tennessee	38.2	48.3	85.9
Texas	[1] 106.9	[1] 106.9	116.0
Utah	12.2	16.5	29.3
Vermont	8.5	12.0	21.0
Virginia	71.9	98.5	175.3
Washington	47.1	64.8	115.3
West Virginia	27.4	37.8	67.1
Wisconsin	42.6	52.4	92.9
Wyoming	[1] 4.0	[1] 4.0	5.6
Guam	[1] 2.2	[1] 2.2	3.5
Puerto Rico	29.8	40.8	72.7
Virgin Islands	2.3	3.0	5.6
American Samoa	.5	.7	.7
Pacific Island Territories	.3	.7	.7
Wake Island			

[1] Based on 1972 allocation.

Note: The 3 columns indicate the amount each State would receive depending on how much the administration ultimately allocates.

Mr. JAMES V. STANTON. Mr. Speaker, will the gentleman yield?

Mr. ROBERTS. I will be pleased to yield to the gentleman from Ohio, a member of the committee.

Mr. JAMES V. STANTON. Mr.

Speaker, I am concerned about section 3 of H.R. 11928 and its implementation relating to the carrying out of our international agreements. Recently, the Governments of the United States and Canada agreed to undertake actions which would eventually restore the quality of our international waters, specifically the Great Lakes. I would ask the gentleman from Texas, is it not correct that section 3 of H.R. 11928 was amended by the committee so as to preserve the authority of the State to grant a priority to waste treatment works which would implement the agreement with Canada?

Mr. ROBERTS. The gentleman from Ohio is quite correct. The original provision in H.R. 11928 may well be described as a classic case of overkill. The committee was confronted with a situation where the Environmental Protection Agency has been pressuring the Great Lakes States to put their top priorities in those projects which might implement the agreement. In many cases a State was willing to go along with certain of the projects but also recognized problems which existed in other parts of its State which also needed to be corrrected with similar high priorities. However, in drafting the original bill to correct this situation, the language of section 3 went a little too far—it precluded a State from considering such international agreements in the development of their ranking priority. This was not intended. What was intended was that the Environmental Protection Agency could not insist that a State must determine its ranking of priority on this basis. The amended section 3 permits a State if it decides that it would be in its interest to consider international water pollution control agreements it may do so. If it does not want to do it, it does not have to.

Mr. BLATNIK. Mr. Speaker, will the gentleman yield?

Mr. ROBERTS. Mr. Speaker, I yield to the distinguished chairman of the committee.

Mr. BLATNIK. Mr. Speaker, I want to join my colleague and friend from Cleveland, Ohio, in his question. I appreciate the responses being made by the very able and respected chairman of the subcommittee on water resources (Mr. ROBERTS).

Mr. Speaker, I would like to add further that the committee was not unmindful of the obligation of the Federal Government in its agreement with Canada—with its friends from the north—to improve the status of all of the five Great Lakes and of the St. Lawrence River. In some areas, a great deal ought to be done, to improve the quality of the water, in other areas we must maintain the existing high quality of the water.

But, to arbitrarily tell the people in a given sovereign state, "You must give first priority to the Great Lakes basin regardless of the needs of the remaining areas in the various States. I am very much familiar with the waters of the Great Lakes and of the St. Lawrence River, but I would like the record to show that our committee authorized $11 billion for the program of giving grants for waste treatment works to municipalities who cannot carry this enormous multibillion dollar program alone. For the Federal Government it is a proper objective to assure that funding of projects are justified; but the Federal Government has no justification whatsoever for allocating only $5 billion for 1973 and 1974 when this Congress authorized $11 billion for that period.

Therefore, we are going to pound a few doors downtown at the so-called OMB—it is getting to sound like a mysterious organization in

some subbasement—at the Office of Management and

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Budget to remind them that when the Federal Government makes commitments, it must fulfill them and not try to shove its responsibility on to the individual States.

Mr. ROBERTS. Mr. Speaker, I wish to thank my distinguished chairman, who is also the chairman of the Conference of Great Lakes Congressmen.

Mr. JAMES V. STANTON. Mr. Speaker, if the gentleman will yield further, if a State such as my State of Ohio decides that it believes the implementation of the international agreement is of vital importance and gives a priority to treatment works in the Cleveland area based on this reason, does section 3 require the Environmental Protection Agency to reject this ranking of priority?

Mr. ROBERTS. Absolutely not. The Administrator of the Environmental Protection Agency is authorized to approve such priority ranking if it is in accordance with the requirements of the Federal Water Pollution Control Act. However, what the Administrator could not do is force the State to consider the international agreements.

Mr. JAMES V. STANTON. If under H.R. 11928 the State is not required to consider the implementation of the international agreement, how then does the committee expect that the international agreement will ever be implemented?

Mr. ROBERTS. As I noted in my original statement, the committee, in my opinion, would certainly give favorable consideration to a proposal for legislation authorizing the construction and providing a source of appropriations for the necessary treatment works.

This is not unlike other international agreements which our country has entered into and where either the President or the State Department has sought and obtained special legislation to carry out the requirements of international agreements.

Mr. JAMES V. STANTON. Based on the answers of the gentleman from Texas, particularly his assurance that a State may, if it chooses, take into consideration international agreements in determining ranking of priorities and his stated opinion that the committee would look favorably upon a legislative proposal implementing the international agreement which would provide a source of funding, I will support H.R. 11928. I wish to make my position as clear as possible that I believe we cannot delay any longer in cleaning up the Great Lakes. This problem which we have discussed of the Environmental Protection Agency's requiring a State to consider international agreements in ranking of priorities would probably never have arisen if the administration had funded the water pollution control program at the levels recommended by the Committee on Public Works of which I am a member and authorized by the Congress in the Federal Water Pollution Control Act Amendments of 1972.

Mr. ROBERTS. Mr. Speaker, I thank the distinguished gentleman, I appreciate his efforts in the committee.

Mr. VANIK. Mr. Speaker, I want to state to the gentleman in the well that I certainly appreciate the responses that he made to the questions that were submitted by my colleague from Ohio.

I would say, Mr. Speaker, that it is about time that the EPA paid some attention to the Great Lakes and encouraged the States to take necessary steps to save our lakes. I believe that when the President goes to Ottawa and makes a pledge to the Canadian people that our Government will spend $2 billion to clean up the

lakes, the States should certainly cooperate in fulfilling that pledge.

If the gentleman will permit, I would like to ask one question.

Under the difference between the Senate formula and the gentleman's formula, it appears that there is more provided under the Senate formula, and I would like to hear some comment concerning that aspect.

Mr. Speaker, I rise to question H.R. 11928, the Water Pollution Act amendments designed to clarify the ranking or order of priority for construction of new water pollution control treatment works.

I am concerned that the House allocation formula does not appear to be as good for many States as the Senate formula, and, second, that the bill downplays the importance of cleaning up the Great Lakes.

If at least $2 billion is provided for waste treatment construction in fiscal year 1975—it is my hope that at least that amount is provided—then my own large, industrial State of Ohio, for example, will do better under the Senate allocation formula than under the House formula we are approving today. Assuming an appropriation of $2 billion under the House formula, Ohio would receive about $98.3 million while under the Senate formula, my calculations indicate that the State would be eligible for about $102.3 million. Thanks to a hold-harmless clause which insures that no State will get less than it received in fiscal year 1972, Ohio would receive $101.6 million—about $700 million less than it would receive under the Senate formula.

Equally important, I am very concerned about section 3 of the bill which provides that:

> Notwithstanding this Act or any other provision of law, the Administrator (1) shall not require any State to consider in the development of the ranking in order of priority of needs for the construction of treatment works . . . any water pollution control agreement which may have been entered into between the United States and any other nation. . . .

It can be pointed out that this provision is—from a strictly practical point of view—relatively meaningless. There is no other provision of law requiring that EPA or the States make a special effort to live up to our commitment with Canada to clean up the Great Lakes. The committee justifies this provision by saying that "certain States which border the Great Lakes and Canada and the States bordering Mexico have been pressured by the Environmental Protection Agency to give precedence in the development of the ranking, in order of priority, of needs within that State for construction of those waste treatment works required to meet international agreements of the United States and other nations."

My comment would be that it is about time that EPA paid some attention to the Great Lakes and encouraged the States to make the necessary effort to save our lakes. I believe that when the President travels to Ottawa and makes a pledge to the Canadian people that our Government will spend $2 billion by the end of 1975 to clean up the Great Lakes, then the EPA and the States should cooperate in fulfilling that pledge.

The language in this bill, however, will discourage the emphasis to provide special funding for the Great Lakes. It will be a setback of our cleanup efforts on the lakes.

I believe that we are beginning to make improvements on the qualities of the lakes. But a great, great deal more needs to be done. I believe that the language on international agreements—which is not included in the Senate bill—should be deleted so that the "psychological" emphasis for a full-scale cleanup of the lakes can continue.

(Mr. VANIK asked and was given

permission to revise and extend his remarks.)

(Mr. BLATNIK asked and was given permission to revise and extend his remarks.)

Mr. BLATNIK. Mr. Speaker, this legislation represents an outstanding effort on the part of the Public Works Committee in working out a fair solution to the problem of allocating Federal grant funds for waste treatment works.

The Environmental Protection Agency proposed two tables for allocation of the grant funds to the States. One was based on all of the needs of the States, including rehabilitation of sewer systems to correct infiltration problems, the construction of new collector sewers, and the reduction of combined sewer overflows. The other table was based on only part of the needs—secondary and more advanced treatment works and new interceptor sewers. The committee heard testimony from several States, some of which would receive more funds under one table and some of which would receive more under the other table. In addition, some States found that under the needs concept they would receive less than they had previously when funds were allocated on the basis of population. The primary reason for this appears to be that these States have not yet accurately identified their true needs for wastewater treatment facilities.

The committee is very much committed to the allocation of funds on the basis of need. After much consideration, we determined that the most equitable solution would be to allocate the funds for the next 2 fiscal years on the basis of 50 percent of each of the two tables, with no State receiving less than its allocation of 1972. While some States may receive a little less under the committee's solution, all States will benefit greatly in the long run.

Mr. HARSHA. Mr. Speaker, there is some urgency about this legislation, because the bill must be passed before the 31st of December of this year. Under the law, the administration must allocate the money to the various States before

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January 1, 1974. So I rise in support of the legislation.

I offer my compliments to the gentleman from Texas for his clear explanation of H.R. 11928.

The members and the staff of the Committee on Public Works had to work very hard to develop a formula for allocation of treatment works construction grant funds for the fiscal years ending June 30, 1975 and June 30, 1976. As Mr. ROBERTS explained, there are many and varied possible formulas which could be used for allotment of construction grant funds.

I can say to you today that our committee looked at 9 or 10 different formulas with 3 objectives in mind. Those objectives were to arrive at a formula: first, which clearly was based upon needs; second, which recognized the need not to cause significant decreases in effort in the individual States, and third, which resulted in a formula which was most fair to the States.

Our committee brought the 1972 amendments to the Federal Water Pollution Control Act to this floor over a year and a half ago. The resulting Public Law 92–500 which is now being implemented is complex and difficult. We provided that the costs for construction of eligible new collector sewer systems, the cost to inspect and rehabilitate sewers are to correct infiltration and inflow, and the cost to reduce combined sewer overflows are eligible for grants. There was no misunderstanding on anyone's part. Such costs are eligible for grants. Therefore, the Environmental Protection Agency included

in its development of costs for the recently completed needs study the costs for infiltration, collector sewers, an costs for infiltration, collector sewers, and combined sewers. Because these costs are eligible for grants, the Committee on Public Works was adamant in that they should be recognized in the development of a formula for the allocation of grant funds. However, we also recognize that the Environmental Protection Agency testified before our committee that there was some inaccuracy in the development of these costs. Therefore, in the formula that we developed, we reduced the emphasis given to these three items. Fifty percent of the allocation formula is based upon a full assessment of costs including these three items and 50 percent is based upon a partial tabulation of costs excluding these items.

I might note that even though our formula has reduced the emphasis on these three items for purposes of allocation, we in no way will condone the Environmental Protection Agency's using this action on our part as a basis for minimizing grants for infiltration, collector sewers, and combined sewers. These are clear requirements in Public Law 92–500, and we fully expect the Environmental Protection Agency to vigorously pursue construction programs in these three areas.

Mr. Speaker, I and a number of the other members of the committee were contacted by our State water pollution control agencies about the inequities that were imposed upon certain of our States which border the Great Lakes and Mexico. The United States of America has quite properly entered into treaties with Mexico and Canada for the control of water pollution of our boundary waters. These treaties are important both to the United States of America and to our neighbors. These treaties, however, set strict time tables for actions for cleanup of the United States parts of the boundary waters. In order to accomplish the required cleanup, the Environmental Protection Agency has been emphasizing the international agreements in the Environmental Protection Agency's review and approval of the priority list for treatment works construction established pursuant to the law by the individual States.

Mr. Speaker, this has meant that States such as my own State of Ohio which are located on our boundary with Canada or Mexico are being required by the Environmental Protection Agency to put a large portion of their treatment works construction grant funds into border areas to assist in the fulfilling of our treaty obligations with our neighbors.

I admit we should fulfill our treaty obligations. However, I refuse to concede in so doing that we should deprive those parts of our border States which are removed from our boundary waters of their fair share of the treatment works construction grant funds allotted to their States. I submit that if we are to meet our treaty obligations we should not do it at the expense of the people who live in border States but who are removed from the drainage basins of our boundary waters.

I urge the President to consider immediately submitting to the Congress a proposal for new legislation which would provide a second source of funds to meet our treaty obligations. I am suggesting this because I think it to be only fair for treaty obligations of the United States of America which inure to the benefit of all the States, to be funded separately and apart from a particular State's share. To do otherwise is to place an unfair burden on border States.

Mr. Speaker, section 2 of H.R. 11928, which pertains to the funding of individual projects contains a most

important provision. It must be properly implemented. I urge the General Counsel of the Environmental Protection Agency to sit down with the General Counsel of the Federal Highway Administration to ascertain the procedures utilized by the Federal Highway Administration in the highway grant program. We adopted language of the Federal Highway Administration when we set out the details for the water pollution control construction grant program.

We did not then and still do not now intend that grants only be for "operable units." The interpretation by the Environmental Protection Agency of the language of Public Law 92–500 was erroneous. We had made it clear to the Environmental Protection Agency that their interpretation was erroneous and they chose to ignore our intent. Section 2 of H.R. 11928 will make sure that the Environmental Protection Agency will not ignore any longer the intent of the Congress.

In section 2, we do not intend to mean that States may break down projects purely upon financial phases alone. We expect that there shall be a reasonable relationship between the definition of subprojects and engineering reason. Further, we expect that there shall be a reasonable relationship between the total number of projects or subprojects funded in any fiscal year and the expected availability of construction grant funds in future years. I must emphasize that we are in no way shape or form establishing a new program for reimbursement. Any construction agency which receives a grant for less than the full amount required to construct the whole project should understand clearly that we are not creating a contractual obligation of the United States to fund the Federal share of the balance of the total project.

Our committee has heard that the Environmental Protection Agency has regularly delayed the awarding of grants to agencies for the construction of treatment works. We hear regularly that each month finds a new requirement imposed upon the construction agencies which further delays their receiving of grants. Let me now say, and say it clearly, that this committee does not expect that section 2 of H.R. 11928 shall become a basis for delay. We expect just the opposite. We believe that section 2 of H.R. 11928 will result in the increasing rate of new construction starts.

In order to give the Environmental Protection Agency some guidelines on this, I would expect that regulations to implement section 2 would be promulgated within 120 days after enactment and that funding in accordance with section 2 would be initiated in the absolute latest by the beginning of the next fiscal year.

Mr. Speaker, I would like to ask my distinguished friend and colleague, the gentleman from Minnesota, the chairman of the Public Works Committee, if he concurs in my remarks.

Mr. BLATNIK. The gentleman's remarks are correct.

The distinguished gentleman from Ohio raised a question on the provision regarding international agreements.

Mr. Speaker, I might point out that the reason we put in the special section with which the gentleman is concerned is the fact that the Environmental Protection Agency requires the various border States to give the highest priority to those treatment works required to meet our international agreements. This is contrary to the law. We wrote specifically in the law that each State was to set its own priority.

In the State of Ohio, as an example, there are some $500 million

worth of projects required on Lake Erie to meet our international agreements.

They need to be constructed immediately, if we are to meet the agreements. This means that the allocation for the State of Ohio for the next 2 fiscal years or more would be used only on the shores of Lake Erie. There are other areas in the State that have equal priority. H.R. 11928 would preclude the Administrator from making this unlawful requirement.

Mr. STEIGER of Wisconsin. Mr. Speaker, will the gentleman yield?

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Mr. HARSHA. I yield to the gentleman from Wisconsin.

Mr. STEIGER of Wisconsin. Mr. Speaker, I appreciate very much the gentleman from Ohio yielding to me.

I want to raise a question on this determination of need. One of the difficulties that I have with this bill is that the new formula, as we have it in this bill, rather effectively damages, for example, the State of Wisconsin.

We have 2 percent of the population, and we end up if I read the tables correctly, with about 1.3 percent of the allocation of funds, when it is determined on the basis, as the gentleman explained, of 50 percent plus 50 percent of need, because the communities in Wisconsin had a good record of meeting their needs well in advance of a lot of the work that was done in other States.

I am not as yet sure why the decision was made by the Committee on Public Works, to disregard any kind of population analysis from its allocation under this kind of a formula.

Mr. HARSHA. Mr. Speaker, I would say to my distinguished friend from Wisconsin that we are not providing for reimbursement of past expenditures. This is a formula for the distribution or allocation of funds to construct new projects. We are providing for existing needs.

Wisconsin provided ahead of many of the other State.

That is certainly an admirable position for a State to be in, but we have many other needs. The proposed allocation formula is based upon the ratio of the needs a State has sent to EPA to the total needs of all the rest of the country.

Mr. STEIGER of Wisconsin. I understand that, may I say to the gentleman from Ohio. I do recognize that. But when I get through looking at all of the charts and tables that go with this I see we still end up in Wisconsin at a point less than we would if we would consider, for example, straight population.

Mr. HARSHA. I am sure we can pick out specific instances whereby in using a needs formula some States will receive more and some States will receive less than they would on the basis of a population formula. However, with all of the factors being considered, the needs formula was considered to be more equitable to get at the problem which exists throughout the entire country.

In addition to that, we included a provision whereby Wisconsin, for example, would not receive less than the allotment for fiscal year 1972. I am sure under the new formula with a reasonable total allotment, Wisconsin will receive more than it did in the past under the population formula.

Mr. STEIGER of Wisconsin. I am deeply grateful to the gentleman for his explanation and the continual good work he has done as well as the Committee on Public Works have done.

The difficulty comes in part related to the point that the distinguished chairman of the full committee made. We can receive more only if, in fact, we get more of an appropriation for the money that has been distributed

under this act. That is one of the concerns I may say I have about what is being done today.

Mr. HARSHA. Of course, we provided for contract authority in the legislation hoping to circumvent the problems we had in the past with getting appropriations through the Administration and the OMB. Apparently we still have that problem, but that cannot be rectified in this particular legislation.

Mr. STEIGER of Wisconsin. I do understand that, and I thank the gentleman.

Mr. HARSHA. I yield to the gentleman from California.

Mr. DON H. CLAUSEN. I thank the gentleman for yielding.

Mr. Speaker, I rise in support of H.R. 11928. In so doing, I must say that this bill presented a difficult task to be accomplished by the Committee on Public Works. We worked very hard to develop a formula for the allocation of grant funds for treatment works construction which would be most fair to all of the States.

It was interesting to me to note when we held hearings on this bill that we had, I believe, 14 States come before the Committee on Public Works to testify. All but one advocated a formula which would provide maximum funding to their States. That one State, in fact, advocated a formula which would have provided the maximum 2 years hence. Each witness was interested solely in maximum funding for his State.

We on the committee also were interested in what was best for our States or region. As important as this was to each of us, it was even more important for the committee to do what was fair to all of the States. We did this.

It was suggested that we approve an allotment formula for only 1 year. This suggestion was properly rejected. The next study is due to be submitted in 14 months. This study will require this time. Our hearings indicated that an interim study as passed by the other body could not be completed in time. A 1-year allotment will result in an incomplete and possibly inaccurate study in 1975.

While some may say there is some inequity in the allotment formula we have reported I want to remind you that needs evaluation is the only equitable basis to allot grant funds. A new and more complete study will be available in 14 months.

What we have brought to you today is a formula for allocation which is fair to all the States and I urge your support of H.R. 11928.

Mr. HARSHA. Just to elaborate on the gentleman's statement, this allotment formula is only for a 2-year period. Every 2 years we must come back with a new cost estimate and therefore a new allotment formula will come from the Congress every 2 years. If you find from past experience that your needs have not been met, then the next needs report should reflect the additional needs of your particular State.

I now yield to my friend from North Carolina (Mr. MIZELL).

Mr. MIZELL asked and was given permission to revise and extend his remarks.)

Mr. MIZELL, Mr. Speaker. I want to commend the Public Works Subcommittee on Water Resources for the work it has done in preparing the Water Pollution Control Amendments of 1973.

The subcommittee has established a new formula for allocation of clean water funds, and this new formula would give my State of North Carolina, for example, $24 million more than it received from this program in fiscal year 1973.

The Senate version of this bill is even more generous to my State, and a majority of other States as well, and while I fully appreciate the great care and considerable study that

went into the preparation of the House version of this bill, I must continue to hope that the House-Senate conference will resolve the differences between these two formulas in a way that will benefit North Carolina and the majority of States to the fullest possible extent.

I am proposing today a compromise formula that would combine the House-inspired hold-harmless provision with the Senate's needs formula in a way that benefits 32 States over the House version, and still provides the other 17 States a great deal more money than they received in fiscal 1972.

The tables showing State allocations for a $3 billion allotment under the House formula, the Senate formula, and the formula I am proposing today are included in the RECORD at this point for my colleagues' information and review.

I would hope this compromise formula would receive the special consideration of the Members who will sit on the conference committee. I am convinced this formula represents the fairest and most equitable method of distribution of these funds that we could devise for these clean water funds.

[In millions]

	Senate version	House version	Mizell formula
Alabama	$31.92	$33.8	$44.3
Alaska	10.74	10.9	7.1
Arizona	16.50	17.7	23.2
Arkansas	21.15	19.4	26.6
California	369.60	383.5	312.8
Colorado	27.81	22.5	31.9
Connecticut	37.86	50.7	41.9
Delaware	14.61	15.8	10.3
District of Columbia	5.94	27.9	9.3
Florida	125.70	120.0	107.0
Georgia	65.49	55.6	66.2
Hawaii	30.39	30.0	18.2
Idaho	7.44	7.8	9.3
Illinois	175.68	183.9	164.5
Indiana	52.71	50.0	67.6
Iowa	36.63	28.7	39.8
Kansas	28.86	29.2	31.7
Kentucky	47.64	47.6	47.5
Louisiana	28.98	35.6	45.3
Maine	19.92	19.1	17.9
Maryland	50.88	39.6	54.9
Massachusetts	68.25	65.7	77.4
Michigan	123.45	137.6	126.
Minnesota	47.5	46.8	52.1
Mississippi	22.0	22.3	29.7
Missouri	65.7	54.3	67.8
Montana	6.2	7.5	9.7
Nebraska	14.3	15.3	19.7
Nevada	14.7	13.7	10.2
New Hampshire	24.0	25.6	15.9
New Jersey	190.9	185.8	132.2
New Mexico	8.0	10.7	13.3
New York	326.2	357.5	281.6
North Carolina	65.5	51.5	70.9
North Dakota	4.1	6.0	8.2
Ohio	153.4	141.0	152.7
Oklahoma	39.7	34.1	38.4
Oregon	25.7	24.8	29.3
Pennsylvania	139.7	162.5	161.0
Rhode Island	13.6	15.3	14.2
South Carolina	45.2	40.4	42.8
South Dakota	4.9	7.3	8.9
Tennessee	43.7	38.2	52.9
Texas	82.4	105.9	134.4
Utah	14.0	12.2	15.9
Vermont	8.9	8.5	8.2
Virginia	79.4	71.9	71.4
Washington	45.7	47.1	48.2
West Virginia	26.6	27.4	26.7
Wisconsin	46.5	42.6	58.1
Wyoming	3.1	4.0	5.1
Guam	1.6	2.2	.2
Puerto Rico	34.7	29.8	2.7
Virgin Islands	2.3	2.3	38.7
American Samoa	.5	.5	2.8
Trust Territory Pacific Island	.7	.3	.2
Total	3,000.2	2,999.9	

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STATES GAINING UNDER MIZELL FORMULA

Alabama	Montana
Arizona	Nebraska
Arkansas	New Mexico
Colorado	North Carolina
Georgia	North Dakota
Idaho	Ohio
Indiana	Oklahoma
Iowa	Oregon
Kansas	South Carolina
Louisiana	South Dakota
Maryland	Tennessee
Massachusetts	Texas
Michigan	Utah
Minnesota	Washington
Mississippi	Wyoming
Missouri	

Mr. HARSHA. Mr. Speaker, I yield to the gentleman from California (Mr. DON H. CLAUSEN).

Mr. DON H. CLAUSEN. Mr. Speaker, I thank the gentleman for yielding to me.

Mr. DON H. CLAUSEN asked and was given permission to revise and extend his remarks.)

[Mr. DON H. CLAUSEN addressed the House. His remarks will appear hereafter in the Extensions of Remarks.]

Mr. HARSHA. Mr. Speaker, I yield to the gentleman from Wyoming (Mr. RONCALIO) who is a member of the committee.

(Mr. RONCALIO of Wyoming asked and was given permission to revise and extend his remarks.)

Mr. RONCALIO of Wyoming. Mr. Speaker, I thank the minority Member for yielding time to me on this side of the aisle.

I might say in answer to the inquiry of the gentleman from Ohio (Mr. STANTON) that I do not believe we can look to international help in this area because the International Joint Commission of the United States and Canada is limited as to funds, and until the very able chairman on our side and his Canadian counterpart can secure the kind of adequate funding they need, there will be very little they can do in this connection. So, the bill before us is the best bet we have for this purpose, and we hope that it can serve to improve boundary water quality between us and our Canadian neighbors.

I commend my colleagues on the committee for this legislation.

The SPEAKER. The question is on the motion offered by the gentleman from Texas (Mr. ROBERTS) that the House suspend the rules and pass the bill (H.R. 11928) as amended.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the bill, as amended, was passed.

Mr. ROBERTS. Mr. Speaker, I ask unanimous consent that the Committee on Public Works be discharged from further consideration of the Senate bill (S. 2812) to authorize a formula for the allocation of funds authorized for fiscal year 1975 for sewage treatment construction grants, and for other purposes, and ask for its immediate consideration.

The Clerk read the title of the Senate bill.

The SPEAKER. Is there objection to the request of the gentleman from Texas?

There was no objection.

The Clerk read the Senate bill, as follows:

S. 2812

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Section 1. Section (a) of section 205 of the Federal Water Pollution Control Act, as amended (86 Stat. 337), is amended by inserting "(1)" after "(a)" and by adding the following new paragraph:

"(2) Sums authorized to be appropriated for the fiscal year ending June 30, 1975, shall be allotted by the Administrator among the States in the following ratio:

State	*Percentage*
"Alabama	1.064
Alaska	.358
Arizona	.550
Arkansas	.705
California	12.320
Colorado	.927
Connecticut	1.262
Delaware	.487
District of Columbia	.198
Florida	4.190
Georgia	2.183
Hawaii	1.013
Idaho	.248
Illinois	5.856
Indiana	1.757
Iowa	1.221
Kansas	.962
Kentucky	1.588
Louisiana	.966
Maine	.664
Maryland	1.696
Massachusetts	2.275
Michigan	4.115
Minnesota	1.582

State	*Percentage*
Mississippi	.733
Missouri	2.191
Montana	.208
Nebraska	.475
Nevada	.491
New Hampshire	.800
New Jersey	6.362
New Mexico	.265
New York	10.872
North Carolina	2.182
North Dakota	.138
Ohio	5.113
Oklahoma	1.324
Oregon	.856
Pennsylvania	4.656
Rhode Island	.453
South Carolina	1.506
South Dakota	.164
Tennessee	1.457
Texas	2.748
Utah	.488
Vermont	.295
Virginia	2.648
Washington	1.524
West Virginia	.887
Wisconsin	1.550
Wyoming	0.104
Guam	.053
Puerto Rico	1.157
Virgin Islands	.075
America Samoa	.018
Pacific Island Territory	.042"

SEC. 2. Subsection (b) of section 516 of the Federal Water Pollution Control Act, as amended (86 Stat. 895), is amended by inserting "(1)" after "(b)"; by striking "(1)", "(2)", "(3)", and "(4)" and inserting in lieu thereof "(A)", "(B)", "(C)", and "(D)", respectively; and by adding the following new paragraph:

"(2) Notwithstanding the second sentence of paragraph (1) of this subsection, the Administrator shall make a detailed estimate called for by subparagraph (B) of such paragraph and shall submit such detailed estimate to the Congress no later than June 30, 1974. The Administrator shall require each State to prepare an estimate of cost for such State, and shall utilize the survey form EPA–1, O.M.B. No. 158–R0017, prepared for the 1973 detailed estimate, except that such estimate shall include all costs of compliance with section 201(g)(2)(A) of this Act or water quality standards established pursuant to section 303 of this Act, and all costs of treatment works as defined in section 212(2), including all eligible costs of constructing sewage collection systems and correcting excessive infiltration or inflow and all eligible costs of correcting combined storm and sanitary sewer problems and treating storm water flows. The survey form shall be distributed by the Administrator to each State no later than January 31, 1974.".

SEC. 3. Subsection (a) of section 203 of the Federal Water Pollution Control Act, as amended (86 Stat. 835), is amended to add at the end thereof the following sentence: "The Administrator shall approve as a project each physical or financial phase of a treatment works which otherwise meets the requirements of this Act.".

MOTION OFFERED BY MR. ROBERTS

Mr. ROBERTS. Mr. Speaker, I offer a motion.

The Clerk read as follows:

Mr. ROBERTS moves to strike out all after the enacting clause of the Senate bill S. 2812, and insert in lieu thereof the provisions of H.R. 11928, as passed by the House.

The motion was agreed to.

The Senate bill was ordered to be read a third time, was read the third time, and passed.

The title was amended so as to read: "To amend the Federal Water Pollution Control Act to establish the ratio for allocation of treatment works construction grant funds, to insure that grants may be given for other than operable units, and to clarify the requirements for development of priorities."

A motion to reconsider was laid on the table.

A similar House bill (H.R. 11928) was laid on the table.

[p. H11633]

1.2r(3)(c) Dec. 21: Senate agreed to House amendments with amendments, House concurred in Senate amendments, pp. S 23819-S 23821, H 11946-H 11947.

SEWAGE TREATMENT CONSTRUCTION GRANTS—MESSAGE FROM THE HOUSE.

Mr. MUSKIE. Mr. President, I ask the Chair to lay before the Senate a message from the House of Representatives on S. 2812.

The PRESIDING OFFICER laid before the Senate the amendments of the House of Representatives to the bill (S. 2812) to authorize a formula for the allocation of funds authorized for fiscal year 1975 for sewage treatment construction grants, and for other purposes, which were to strike out all after the enacting clause, and insert:

That (a) subsection (a) of section 205 of the Federal Water Pollution Control Act is amended by inserting immediately after the third sentence thereof the following new sentence: "For the fiscal years ending June 30, 1975, and June 30, 1976, such ratio shall be determined one-half on the basis of table I of House Public Works Committee Print Numbered 93-28 and one-half on the basis of table II of such print, except that no State shall receive an allotment less than that which it received for the fiscal year ending June 30, 1972, as set forth in table III of such print.".

(b) The last sentence of subsection (a) of section 205 of the Federal Water Pollution Control Act is amended by striking out "June 30, 1974," and inserting in lieu thereof "June 30, 1976.".

SEC. 2. Section 203 of the Federal Water Pollution Control Act is amended by adding at the end thereof the following new subsection:

"(d) Nothing in this Act shall be construed to require, or to authorize the Administrator to require, that grants under this Act for construction of treatment works be made only for projects which are operable units usable for sewage collection, transportation, storage, waste treatment, or for similar purposes without additional construction.".

SEC. 3. Section 511 of the Federal Water Pollution Control Act is amended by adding at the end thereof the following new subsection:

"(d) Notwithstanding this Act or any other provision of law, the Administrator (1) shall not require any State to consider in the development of the ranking in order of priority of needs for the construction of treatment works (as defined in title II of this Act), any water pollution control agreement which may have been entered into between the United States and any other nation, and (2) shall not consider any such agreement in the approval of any such priority ranking,", amend the title so as to read: "An Act to amend the Federal Water Pollution Control Act to establish the ratio for allocation of treatment works construction grant funds, to insure that grants may be given for other than operable units, and to clarify the requirements for development of priorities."

Mr. MUSKIE. Mr. President. I move that the Senate concur in the House amendments with certain amendments which I send to the desk.

The PRESIDING OFFICER. The amendments will be stated.

The assistant legislative clerk read as follows:

On page 1, line 4 of the text of the amendment strike "years" and insert in lieu thereof "year";

On page 1, line 4 and 5 of the text of the amendment, strike "and June 30, 1976.";

On page 2, line 2, strike "1976" and insert in lieu therof "1975"; and

On page 2, after line 23, add the following new section:

SEC. 4. Subsection (b) of section 516 of the Federal Water Pollution Control Act, as amended (86 Stat. 895), is amended by inserting "(1)" after "(b)"; by striking "(1)", "(2)", "(3)", and "(4)" and inserting in lieu thereof "(A)", "(B)", "(C)", and "(D)", respectively; and by adding the following new paragraph:

"(2) Notwithstanding the second sentence of paragraph (1) of this subsection, the Administrator shall make a preliminary detailed estimate called for by subparagraph (B) of such paragraph and shall submit such preliminary detailed estimate to the Congress no later than September 3, 1974. The Administrator shall require each State to prepare an estimate of cost for such State, and shall

[p. S23819]

utilize the survey form EPA-1, O.M.B. No. 158-R0017, prepared for the 1973 detailed estimate, except that such estimate shall include all costs of compliance with section 201(g)(2)(A) of this Act or water quality standards established pursuant to section 303 of this Act, and all costs of treatment works

as defined in section 212(2), including all eligible costs of constructing sewage collection systems and correcting excessive infiltration or inflow and eligible costs of correcting combined storm and sanitary sewer problems and treating storm water flows. The survey form shall be distributed by the Administrator to each State no later than January 31, 1974.".

Mr. MUSKIE. Mr. President, one week ago today the Senate passed S. 2812 authorizing a formula for the allocation of funds authorized for fiscal year 1975 for sewage construction grants and for other purposes.

This past week the House amended this bill in several significant respects.

The House has substituted a different ratio for the allocation of wastewater treatment grants. That ratio is to be determined one-half on the basis of table I of House Public Works Committee print No. 93–28 and one-half on the basis of table II of such print. Under this amendment, no State shall receive for fiscal year 1975 an allotment less than that which it received for the fiscal year ending June 30, 1972, as set forth in table III of the House Public Works Committee print.

The House amendment required that this ratio be used for allocating funds for both fiscal years 1975 and 1976.

Mr. President, the amendment. I propose would limit the use of the House ratio to fiscal year 1975 only as was proposed in the original Senate version of S. 2812.

The amendment I propose would restore the Senate requirement that the Administrator of the Environmental Protection Agency accelerate the "needs" survey required under section 516(b) of the Federal Water Pollution Control Act of 1972. This amendment requires the Administrator to submit a preliminary detailed cost estimate to Congress no later than September 3, 1974. The final results will be expected no later than February 10, 1975 as required in section 516(b).

This is a modification, as to date, of the Senate provision, but in other respects is similar in intent and purpose to the original Senate bill. The Administrator need only transmit a summary of categorized costs that States submit. If the Administrator has time, he may also accompany the report with appropriate analysis and a recommendation.

In adopting these amendments, the Public Works Committee of each House expects the Environmental Protection Agency to do three things: First, to insure an accurate estimate of all needs for all treatment works, the agency should develop more definitive statements and definitions of which costs will be eligible. Second, the Agency should consult with the Committees on Public Works of both Houses prior to going forward with the survey. Third, the agency should provide monthly reports to Congress on the progress of the preliminary detailed estimate of survey needs.

In amending section 203 of Public Law 92–500, the House has included substitute language on the issue of phased funding. The Senate and House amendments overrule an erroneous interpretation by the Environmental Protection Agency on how projects are to be funded. Presently, the Agency limits grants for portions of treatment works which are "operable units." As the House and Senate noted, this was not the intent of the Congress. The difference between the two bills is related to whether grants are made to financial phases or engineering phases of projects. The House, in requiring that grants be made for projects which are operable units, narrows the Senate's provision, but corrects the basic flaw in Agency interpretation.

Finally, the House included an additional provision which prohibits the Environmental Protection Agency from requiring States to establish,

in their construction grant priority lists, a preference for projects which treat wastes to be discharged into international waters.

I recommend the Senate accept this amendment.

The basic cause of the problem we face in fulfilling obligations to clean up international treaties stems from earlier action by this administration. If the administration had not impounded water pollution control allocations, there could have been adequate funds available to meet our international commitments as well as meet the needs of the States for construction of other waste treatment facilities. The attempt by the administration to pressure the States to place international projects at the top of their priority list is an unacceptable response to the failure to release adequate funds.

The illegal decision to impound water pollution funds has created tremendous problems. The administration is now feeling the rebound of that action. The correct policy would be to release the impounded allocations.

SENATOR RANDOLPH SUPPORTS EQUITABLE DISTRIBUTION OF WATER TREATMENT FUNDS

Mr. RANDOLPH. Mr. President, the Federal Water Pollution Control Act which became law a year ago committed the Federal Government to a major new effort to end the discharge of pollutants into our country's waters.

To bring that commitment into being, the act authorized the expenditure of substantial sums to assist States and local governments in providing the physical facilities needed to reduce water pollution.

The legislation before the Senate establishes the formula for allocating funds among the States for the construction of waste treatment facilities in fiscal year 1975. Approval of this formula was a right the Congress held to itself when the act was developed.

Utilizing information as to the needs for these facilities which has been gathered by the Environmental Protection Agency, the Congress will approve the formula by which Federal assistance will be distributed. The bill before us makes this allocation in an equitable manner. Its provisions were worked out in meetings with Members of the House of Representatives. Through this procedure we have avoided the necessity for a Senate-House conference at this late date in the congressional session.

This bill is a compromise of the positions previously taken by the Senate and House of Representatives. The formula provides for the allocations of half of waste treatment construction funds in the manner recommended by the Environmental Protection Agency. The other half will be allocated on the basis of the Agency's table 3 which reflects its assessment of all categories of national needs. No State will receive less than it received for the 1972 fiscal year, as in the House bill.

Mr. President, this legislation allocates funds only for fiscal year 1975 as provided in the original Senate bill. A 2-year allocation formula, as adopted by the House, has been deleted.

In developing this bill earlier this month, the Senate Committee on Public Works was concerned that the needs study of the Environmental Protection Agency did not accurately reflect needs. We, therefore, agreed to require an additional survey next year before allocating funds for fiscal year 1976.

The bill reflects this concern with the procedures used for ascertaining waste treatment facility needs. It directs the Administrator of the Agency to restudy needs and report to the Congress by September 3, 1974. This report is viewed as a preliminary ver-

sion of the report required by law to be submitted on February 10, 1975. The September preliminary report will be the basis for allocating 1976 funds.

Mr. President, this bill is intended to permit States and communities to meet the responsibilities imposed under the Federal Water Pollution Control Act to halt pollution.

It will not be successful, however, so long as the executive branch continues to make impossible the allocation of all the funds authorized.

For fiscal years 1973 and 1974 the act authorized $11 billion, but only $5 billion was allocated. There are $7 billion authorized for fiscal year 1975, but we have been led to believe that a substantial portion of this amount also will be impounded.

Mr. President, the denial of this construction authority to the States can seriously undermine the thrust of the total water pollution control program. Ambitious goals were set in the 1972 act, goals that are attainable if we are willing to address ourselves to the task. We have the technology and we have the resources. The continued impoundment of these funds by the administration brings into doubt whether it has the determination to make this program succeed.

Under the law, the allocation formula must be approved by the Congress before the end of this month. Approval will permit the orderly continuation of this important program. I urge approval of this bill.

Mr. DOMENICI. Mr. President, I am here in behalf of the Senator from Tennessee (Mr. BAKER), the ranking member of the committee involved. The Sena-

[p. S23820]

tor from Tennessee is detained because of transportation problems. He has a prepared statement indicating the consensus on the Republican side. We compliment the chairman for his work.

I ask unanimous consent that the statement of the Senator from Tennessee be printed in the RECORD.

The PRESIDING OFFICER. Without objection, it is so ordered.

STATEMENT BY SENATOR BAKER

Mr. President, I wish to express my support for S. 2812, legislation authorizing the allocation of Fiscal 1975 sewage construction funds.

There are two facets of significance in this legislation. This bill authorizes the distribution of sewage treatment funds based entirely on the needs of the states. The needs formula is not as generous to some states as was the earlier Senate formula based partly on needs, partly on population. I support this change because I believe that a "needs" formula, however flawed, is the proper basis for the distribution of funds under this program. It is my expectation that EPA and the states will develop a more realistic needs formula in time for the fiscal 1976 distribution.

The other vital aspect of this bill involves Congressional restatement of the authority for a state to permit phased funding of sewage-treatment projects. P.L. 92–500 recognized the reasonableness of such an approach, including language that permits states and communities to finance portions of projects in any given year, then obtaining further funds in subsequent years.

Unfortunately, the Environmental Protection Agency failed to allow such "phasing". That decision hampered the ability of many state water pollution control agencies to develop the most effective and logical control program. Often funding of a large project prevented the start of construction of other needed projects on a State's priority list.

This bill will rectify that EPA error and it will assure states the ability to phase-fund projects.

While this language is somewhat different from language I introduced as S. 1594, subsequently incorporated into an earlier version of this bill, this new language will have the same impact and intent as S. 1594.

This section will give to the States the right and ability to seek approval—and for EPA to grant such approval—for 75 percent grants toward a portion of a treatment works, whether that portion is selected in a financial or physical basis. A community might, for example, seek initially a grant for one-fifth of the total cost of construction of a plant. Or it might seek funds for the first 1,000 feet of an interceptor sewer. In future years, the applicant would come back for further grants to finish each project.

EPA should view phasing as an opportunity

for flexibility to get more projects on line more quickly, and thus to achieve our national goal of clean water more expeditiously.

I urge the adoption of this bill.

The PRESIDING OFFICER. The question is on agreeing to the motion of the Senator from Maine.

The motion was agreed to.

[p. S23821]

AUTHORIZING A FORMULA FOR THE ALLOCATION OF FUNDS AUTHORIZED FOR 1975 FOR SEWAGE TREATMENT CONSTRUCTION GRANTS

Mr. ROBERTS. Mr. Speaker, I ask unanimous consent to take from the Speaker's table the Senate bill (S. 2812) to authorize a formula for the allocation of funds authorized for fiscal year 1975 for sewage treatment construction grants, and for other purposes, with the House amendments to the bill and the Senate amendments to the House amendments, and consider the Senate amendments to the House amendments.

The Clerk read the title of the Senate bill.

The Clerk read the Senate amendments, as follows:

Page 1, line 5, of the House engrossed amendments, strike out "years" and insert "year".

Page 1, lines 5 and 6, of the House engrossed amendments, strike out "and June 30, 1976,".

Page 2, line 2, of the House engrossed amendments, strike out "1976,"." and insert "1975,".".

Page 2, after line 23, of the House engrossed amendments, insert:

SEC. 4. Subsection (b) of section 516 of the Federal Water Pollution Control Act, as amended (86 Stat. 895), is amended by inserting "(1)" after "(b)"; by striking "(1)", "(2)", "(3)", and "(4)" and inserting in lieu thereof "(A)", "(B)", "(C)", and "(D)", respectively; and by adding the following new paragraph:

"(2) Notwithstanding the second sentence of paragraph (1) of this subsection, the Administrator shall make a preliminary detailed estimate called for by subparagraph (B) of such paragraph and shall submit such preliminary detailed estimate to the Congress no later than September 3, 1974. The Administrator shall require each State to prepare an estimate of cost for such State, and shall utilize the survey form EPA–1, O.M.B. No. 158–R0017, prepared for the 1973 detailed estimate, except that such estimate shall include all costs of compliance with section 201(g)(2)(A) of this Act and water quality standards established pursuant to section 303 of this Act, and all costs of treatment works as defined in section 212(2), including all eligible costs of constructing sewage collection systems and correcting excessive infiltration or inflow and all eligible costs of correcting combined storm and sanitary sewer problems and treating storm water flows. The survey form shall be distributed by the Administrator to each State no later than January 31, 1974.".

The SPEAKER. Is there objection to the request of the gentleman from Texas?

There was no objection.

The SPEAKER. The Chair recognizes the gentleman from Texas (Mr. ROBERTS).

Mr. ROBERTS. Mr. Speaker, S. 2812, as amended by the Senate, is different from the House version which passed this body on December 18, in several rather minor respects.

The Senate would limit the application of the allocation formula in the bill for grants for waste treatment works for 1 year, fiscal year 1975, whereas the House version would have the formula used for 2 fiscal years. This is not a major change since there are no authorizations in the basic water pollution control act at this time for fiscal year 1976. This is a matter we will deal with next year. This amendment requires changing the date in two places.

The Senate also added a provision which would require the Environmental Protection Agency to prepare with the States and submit to the Congress by September 3, 1974, an interim needs study. The Federal Water Pollution Control Act requires the next needs survey report to be submitted in February 1975. An interim submittal in September 1974 would be very helpful in our legislative consideration next year. This does not change the requirement for EPA to submit a report in February 1975.

My friend, Mr. CLAUSEN, of California, will also discuss S. 2812, as amended. His remarks reflect the intent of this legislation.

I urge the approval of S. 2812, as amended.

(Mr. ROBERTS asked and was given permission to revise and extend his remarks.)

(Mr. DON H. CLAUSEN asked and was given permission to revise and extend his remarks.)

Mr. DON H. CLAUSEN. Mr. Speaker, I rise in support of S. 2812 as amended today by the other body. As you remember, the Committee on Public Works brought to the floor on December 18 H.R. 11928 which was passed. We then passed a motion to strike all after the enacting clause of S. 2812 and inserted in lieu thereof the provisions of our bill H.R. 11928.

Today the other body further amended S. 2812 and we now bring this bill to you with the recommendation that you support. This bill, as originally passed by this House, provided a formula for allocation which would be utilized for the fiscal years ending June 30, 1975, and June 30, 1976. The amendment by the other body revised this to provide that the allotment formula as passed by the House will be utilized only for the fiscal year ending June 30, 1975.

The amendment further provides that the Environmental Protection Agency shall provide to the Congress on September 3, 1974, a preliminary report on the report which is due to be submitted pursuant to the requirements of section 511 on February 10, 1975. This preliminary report could be utilized as the basis for allotments for the fiscal year ending June 30, 1976.

It is absolutely necessary that the Environmental Protection Agency meet the September 3 report date. It will be incumbent upon the Congress to approve by law the allotment formula for the fiscal year ending June 30, 1976, before the 93d Congress adjourns. It is anticipated that the Congress could adjourn by October 1. Any delays by the Environmental Protection Agency would be unacceptable.

We expect the Environmental Protection Agency to initiate immediately those planning steps and other actions necessary to meet the dates in this act. Further, we expect the Environmental Protection Agency to submit monthly reports defining the schedule for completion of the preliminary and final reports, milestones, and the progress in meeting the milestones.

Because the forms and procedures utilized by the Environmental Protection Agency to develop the assessment of

[p. H11946]

needs are very important to the success of the effort and because we expect this report to reflect the intent of the Congress, I want to say now that we expect the representatives of the Environmental Protection Agency to meet early and regularly with our committee. The assessment of needs is too important for us to find possibly at a late date, that the study does not reflect our intent.

We expect the Environmental Protection Agency to take all steps necessary to include in the September 3 perliminary report the needs required to meet best practicable technology. We also expect the Environmental Protection Agency to coordinate very closely with the States to incorporate the needs required to meet new water quality standards. We recognize that the regulations for these new water quality standards might not be promulgated until next summer. However, the proposed regulations will be available and they should be utilized for the determination of needs whenever possible. We heard during our recent hearings that such a preliminary report would impact upon the

quality of the report due February 10, 1975. We recognize this possibility but hope it will not be the case. We, therefore, urge the Environmental Protection Agency to evaluate the time requirements for submitting the February 10, 1975, report. I want to say now that we would be willing to consider a reasonable extension of this date if the Environmental Protection Agency believes it is necessary. If such an extension would assure a report of the highest quality, thoroughness, and accuracy, I am sure there will be no difficulty in extending the dates next fall at the same time the allotment formula for the fiscal year ending June 30, 1976, is established.

I want to caution the States that they must immediately initate their efforts to provide the information and data necessary to thoroughly and accurately report their needs. We will not look favorably upon excuses by the States that they were not ready or did not submit all of their needs. Remember, the basis for allotment for fiscal year ending June 30, 1976, could be the preliminary report which must must be submitted on September 3.

Alltoments for the fiscal year ending June 30, 1977, and June 30, 1978, will be based upon the February 10, 1975, final report. The States now have the task of developing the information and data upon which allotments will be based for the next 3 fiscal years. The joint task by the States and the Environmental Protection Agency must be complete and thorough.

I am sure my remarks reflect the view of our full committee and I urge you to support S. 2812 as amended.

MOTION OFFERED BY MR. ROBERTS

Mr. ROBERTS. Mr. Speaker, I offer a motion.

The Clerk read as follows:

Mr. ROBERTS moves that the House concur in the Senate amendments to the House amendments.

The Senate amendments to the House amendments were concurred in.

A motion to reconsider was laid on the table.

[p. H11947]

POLLUTION OF THE SEA BY OIL

Sec.

1001. Definitions.
1002. Prohibition against discharge of oil or oily mixtures; permissible discharges; regulations.
1003. Excepted discharges; securing safety of ship; prevention of damage to ship or cargo; saving life; damaged ship or unavoidable leakage; residue from purification or clarification.
1004. Excepted discharges; oily mixtures from bilges.
1004a. United States tankers; construction standards [New].
(a) Tank arrangement and tank size limitation pursuant to provisions of annex C to the convention; building contracts placed on or after effective date.
(b) Same; building contracts placed or keel laid before effective date.
(c) Domestic tankers without certificate of compliance or exemption prohibited from engaging in domestic or foreign trade.
(d) Foreign tankers with foreign registry but without certificate of compliance; consultation with foreign government; denial of access.
(e) Foreign tankers without foreign registry; denial of access.
1005. Penalties for violations; liability of vessel.

Sec.
1006. Repealed.
1007. Personnel for enforcement of provisions; arrest of offenders and procedure; ship fittings and equipment; civil penalty.
1008. Oil record book.
(a) Printing; regulations by Secretary.
(b) Book supplied without charge; inspection and surrender.
(c) Operations requiring recordation.
(d) Entries; signatures.
(e) Rules and regulations.
(f) Penalties.
1009. Regulations.
1010. Boarding of ships; production of records; evidence of violations by foreign ships.
1011. Repealed.
1012. Repealed.
1013. Appropriations.
1014. Effect on other laws.
1015. Repealed.
1016. Effective date of 1973 Amendments [New].
(a) General provision.
(b) Savings provision.
(c) Special provision.

§ 1001. Definitions

As used in this chapter, unless the context otherwise requires—

(a) The term "convention" means the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended;

(b) The term "discharge" in relation to oil or to an oily mixture means any discharge or escape howsoever caused;

(c) The term "instantaneous rate of discharge of oil content" means the rate of discharge of oil in liters per hour at any instant divided by the speed of the ship in knots at the same instant;

(d) The term "heavy diesel oil" means diesel oil, other than those distillates of which more than 50 per centum, by volume distills at a temperature not exceeding three hundred and forty degrees centigrade when tested by American Society for Testing and Materials standard method D. 86/59;

(e) The term "mile" means a nautical mile of six thousand and eighty feet or one thousand eight hundred and fifty-two meters;

(f) The term "oil" means crude oil, fuel oil, heavy diesel oil, and lubricating oil, and "oily" shall be construed accordingly; an "oily mixture" means a mixture with any oil content;

(g) The term "person" means an individual, partnership, cor-

poration, or association; and any owner, operator, agent, master, officer, or employee or a ship;

(h) The term "Secretary" means the Secretary of the department in which the Coast Guard is operating;

(i) The term "ship", subject to the exceptions provided in paragraph (1) of this subsection, means any seagoing vessel of any type whatsoever of American registry or nationality, including floating craft, whether self-propelled or towed by another vessel making a sea voyage; and "tanker", as a type included within the term "ship", means a ship in which the greater part of the cargo space is constructed or adapted for the carriage of liquid cargoes in bulk and which is not, for the time being, carrying a cargo other than oil in that part of its cargo space.

(1) The following categories of vessels are excepted from all provisions of this chapter:

(i) tankers of under one hundred anf fifty gross tonnage and other ships of under five hundred tons gross tonnage.

(ii) ships for the time being engaged in the whaling industry when actually employed on whaling operations.

(iii) ships for the time being navigating the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of Saint Lambert lock at Montreal in the Province of Quebec, Canada.

(iv) naval ships and ships for the time being used as naval auxiliaries.

(j) The term "from the nearest land" means from the baseline from which the territorial sea of the territory in question is established in accordance with the Geneva Convention on the Territorial Sea and the Contiguous Zone, 1958; except that, for the purpose of this chapter "from the nearest land" off the northeastern coast of Australia means a line drawn from a point on the coast of Australia in latitude 11 degrees south, longitude 142 degrees 08 minutes east to a point in latitude 10 degrees 35 minutes south, longitude 141 degrees 55 minutes east—

thence to a point latitude 10 degrees 00 minutes south, longitude 142 degrees 00 minutes east;

thence to a point latitude 9 degrees 10 minutes south, longitude 143 degrees 52 minutes east;

thence to a point latitude 9 degrees 00 minutes south, longitude 144 degrees 30 minutes east;

thence to a point latitude 13 degrees 00 minutes south, longitude 144 degrees 00 minutes east;

thence to a point latitude 15 degrees 00 minutes south, longitude 146 degrees 00 minutes east;

thence to a point latitude 18 degrees 00 minutes south, longitude 147 degrees 00 minutes east;

thence to a point latitude 21 degrees 00 minutes south, longitude 153 degrees 00 minutes east;

thence to a point on the coast of Australia in latitude 24 degrees 42 minutes south, longitude 153 degrees 15 minutes east. As amended Pub.L. 93–119, § 2(1), Oct. 4, 1973, 87 Stat. 424.

§ 1002. Prohibition against discharge of oil or oily mixtures; permissible discharges

Subject to the provisions of sections 1003 and 1004 of this title, the discharge of oil or oily mixture from a ship is prohibited unless—

(a) the ship is proceeding en route; and

(b) the instantaneous rate of discharge of oil content does not exceed sixty liters per mile, and

(c)(1) for a ship, other than a tanker—

(i) the oil content of the discharge is less than one hundred parts per one million parts of the mixture, and

(ii) the discharge is made as far as practicable from the nearest land;

(2) for a tanker, except discharges from machinery space bilges which shall be governed by the above provisions for ships other than tankers—

(i) the total quantity of oil discharged on a ballast voyage does not exceed one fifteen-thousandths of the total cargo-carrying capacity, and

(ii) the tanker is more than fifty miles from the nearest land.

Pub.L. 87–167, § 3, Aug. 30, 1961, 75 Stat. 402; Pub.L. 89–551, § 1(3), Sept. 1, 1966, 80 Stat. 373, and amended, Oct. 4, 1973, Pub.L. 93–119, 32(2), 87 Stat. 425.

§ 1003. Excepted discharges; securing safety of ship; prevention of damage to ship or cargo; saving life; damaged ship or unavoidable leakage

Section 1002 of this title does not apply to—

(a) the discharge of oil or oily mixture from a ship for the purpose of securing the safety of a ship, preventing damage to a ship or cargo, or saving life at sea; or

(b) the escape of oil, or of oily mixture, resulting from damage to a ship or unavoidable leakage, if all reasonable precautions have been taken after the occurrence of the

damage or discovery of the leakage for the purpose of preventing or minimizing the escape.

(c) Repealed. Pub.L. 93–119, § 2(3)(C), Oct. 4, 1973, 87 Stat. 425.

As amended Pub.L 93–119, § 2(3), Oct. 4, 1973, 87 Stat. 425.

§ 1004. Excepted discharges; tanker ballast from cargo tank

Section 1002 of this title does not apply to the discharge of tanker ballast from a cargo tank which, since the cargo was last carried therein, has been so cleaned that any effluent therefrom, if it were discharged from a stationary tanker into clean calm water on a clear day, would produce no visible traces of oil on the surface of the water.

As amended Pub.L. 93–119, § 2(4), Oct. 4, 1973, 87 Stat. 425.

§ 1004a. United States tankers; construction standards—Tank arrangement and tank size limitation pursuant to provisions of annex C to the convention; building contracts placed on or after effective date

(a) Every tanker to which this chapter applies and built in the United States and for which the building contract is placed on or after the effective date of this section shall be constructed in accordance with the provisions of annex C to the convention, relating to tank arrangement and limitation of tank size.

Same; building contracts or keel laid before effective date

(b) Every tanker to which this chapter applies and built in the United States and for which the building contract is placed, or in the absence of a building contract the keel of which is laid or which is at a similar state of construction, before the effective date of this section, shall, within two years after that date, comply with the provisions of annex C of the convention if—

(1) the delivery of the tanker is after January 1, 1977; or

(2) the delivery of the tanker is not later than January 1, 1977, and the building contract is placed after January 1, 1972, or in cases where no building contract has previously been placed, the keel is laid or the tanker is at a similar stage of construction, after June 30, 1972.

Domestic tankers without certificate of compliance or exemption prohibited from engaging in domestic or foreign trade

(c) A tanker required under this section to be constructed in accordance with annex C to the convention and so constructed shall carry on board a certificate issued by the Secretary attest-

ing to that compliance. A tanker which is not required to be constructed in accordance with annex C to the convention shall carry on board a certificate to that effect issued by the Secretary, or if a tanker does comply with annex C though not required to do so, she may carry on board a certificate issued by the Secretary attesting to that compliance. Tankers under the flag of the United States are prohibited from engaging in domestic or foreign trade without an appropriate certificate issued under this section.

Foreign tankers with foreign registry but without certificate of compliance; consultation with foreign government; denial of access

(d) Certificates issued to foreign tankers pursuant to the convention by other nations party thereto shall be accepted by the Secretary as of the same force as certificates issued by him. If the Secretary has clear grounds for believing that a foreign tanker required under the convention to be constructed in accordance with annex C entering ports of the United States or using offshore terminals under United States control does not in fact comply with annex C, he may request the Secretary of State to seek consultation with the government with which the tanker is registered. If after consultation or otherwise, the Secretary is satisfied that such tanker does not comply with annex C, he may for this reason deny such tanker access to ports of the United States or to offshore terminals under United States control until such time as he is satisfied that the tanker has been brought into compliance.

Foreign tankers without foreign registry; denial of access

(e) If the Secretary is satisfied that any other foreign tanker which, if registered in a country party to the convention, would be required to be constructed in accordance with annex C, does not in fact comply with the standards relating to tank arrangement and limitation of tank size of annex C, then he may deny such tanker access to ports of the United States or to offshore terminals under United States control.

Pub.L. 87–167, § 6, as added Pub.L. 93–119, § 2(5), Oct. 4, 1973, 87 Stat. 425.

§ 1005. Penalties for violations—Criminal penalties for willful violations; separate violations

(a) Any person who willfully discharges oil or oily mixture from a ship in violation of this chapter or the regulations thereunder shall be fined not more than $10,000 for each violation or imprisoned not more than one year, or both.

Civil penalties for willful or negligent and other violations; separate violations

(b) In addition to any other penalty prescribed by law any person who willfully or negligently discharges oil or oily mixture from a ship in violation of this chapter or any regulation thereunder shall be liable to a civil penalty of not more than than $10,000 for each violation, and any person who otherwise violates this chapter or any regulation thereunder shall be liable to a civil penalty of not more than $5,000 for each violation.

Liability of vessel; venue

(c) A ship from which oil or oily mixture is discharged in violation of this chapter or any regulation thereunder is liable for any pecuniary penalty under this section and may be proceeded against in the district court of any district in which the vessel may be found.

Administrative proceedings: assessment of civil penalties; remission, mitigation, or compromise of any penalty; notice and hearing; judicial proceedings: civil actions by Attorney General for collection of penalties; trial de novo

(d) The Secretary may assess any civil penalty incurred under this chapter or any regulation thereunder and, in his discretion, remit, mitigate, or compromise any penalty. No penalty may be assessed unless the alleged violator shall have been given notice and the opportunity to be heard on the alleged violation. Upon any failure to pay a civil penalty assessed under this chapter, the Secretary may request the Attorney General to institute a civil action to collect the penalty. In hearing such action, the district court shall have authority to review the violation and the assessment of the civil penalty de novo.

Pub.L. 87–167, § 7, formerly § 6, Aug. 30, 1961, 75 Stat. 403, renumbered and amended Pub.L. 93–119, § 2(6), Oct. 4, 1973, 87 Stat. 426.

§ 1006. Suspension or revocation of license of officers of offending vessels

Pub.L. 93–119, § 2(7), Oct. 4, 1973, 87 Stat. 427, renumbered section 7 to be 8 of Pub.L. 87–167, Aug. 30, 1961, 75 Stat. 403.

§ 1007. Personnel for enforcement of provisions; arrest of offenders and procedure; ship fittings and equipment

(a) In the administration of sections 1001 to 1010 of this title, the Secretary may utilize by agreement, with or without

reimbursement, law enforcement officers or other personnel, facilities, or equipment of other Federal agencies or the States. For the better enforcement of the provisions of said sections, officers of the Coast Guard and other persons employed by or acting under the authority of the Secretary shall have power and authority and it shall be their duty to swear out process and to arrest and take into custody, with or without process, any person who may violate any of said provisions: *Provided,* That no person shall be arrested without process for a violation not committed in the presence of some one of the aforesaid officials: *And provided further,* That whenever any arrest is made under the provisions of said sections the person so arrested shall be brought forthwith before a commissioner, judge, or court of the United States for examination of the offenses alleged against him; and such commissioner, judge, or court shall proceed in respect thereto as authorized by law in cases of crimes against the United States. Representatives of the Secretary and of the Coast Guard of the United States may go on board and inspect any ship as may be necessary for enforcement of this chapter.

(b) To implement article VII of the convention, ship fittings and equipment, and operating requirements thereof, shall be in accordance with regulations prescribed by the Secretary.

Pub.L. 87–167, § 9, formerly § 8, Aug. 30, 1961, 75 Stat. 403, renumbered and amended Pub.L. 93–119, § 2(8), Oct. 4, 1973, 87 Stat. 427.

§ 1008. Oil record book—Printing; regulations by Secretary

(a) The Secretary shall have printed separate oil record books, containing instructions and spaces for inserting information in the form prescribed by the Convention, which shall be published in regulations prescribed by the Secretary.

Book supplied without charge, inspection and surrender.

(b) If subject to this chapter, every ship using oil fuel and every tanker shall be provided, without charge, an oil record book which shall be carried on board. The provisions of section 140 of Title 5 shall not apply. The ownership of the booklet shall remain in the United States Government. This book shall be available for inspection as provided in this chapter and for surrender to the United States Government pursuant to regulations of the Secretary.

(c) The oil record book shall be completed on each occasion, on a tank-to-tank basis, whenever any of the following operations take place in the ship:

(1) for tankers—
(i) loading of oil cargo;
(ii) transfer of oil cargo during voyage;
(iii) discharge of oil cargo;
(iv) ballasting of cargo tanks;
(v) cleaning of cargo tanks;
(vi) discharge of dirty ballast;
(vii) discharge of water from slop tanks;
(viii) disposal of residues;
(ix) discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate logbook;

(2) for ships other than tankers—
(i) ballasting or cleaning of bunker fuel tanks;
(ii) discharge of dirty ballast or cleaning water from bunker fuel tanks;
(iii) disposal of residues;
(iv) discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate logbook. In the event of such discharge or escape of oil or oily mixture as is referred to in section 1003 of this title, a statement shall be made in the oil record book of the circumstances of, and reason for, the discharge or escape.

Entries; signatures

(d) Each operation described in subsection (c) of this section shall be fully recorded without delay in the oil record book so that all the entries in the book appropriate to that operation are completed. Each page of the book shall be signed by the officer or officers in charge of the operations concerned and, when the ship is manned, by the master of the ship.

Rules and regulations

(e) Oil record books shall be kept in such manner and for such length of time as set forth in the regulations prescribed by the Secretary.

(f) Repealed. Pub.L. 93–119, § 2(9)(C), Oct. 4, 1973, 87 Stat. 428. Pub.L. 87–167, § 10, formerly, § 9, Aug. 30, 1961, 75 Stat. 404, amended Pub.L. 89–551, § 1(6), Sept. 1, 1966, 80 Stat. 374,

renumbered and amended Pub.L. 93–119, § 2(9), Oct. 4, 1973, 87 Stat. 427.

§ 1009. Regulations

The Secretary may make regulations for the administration of sections 1002, 1003, 1004, 1004a, 1005, 1007, and 1008 of this title.

Pub.L. 87–167, § 11, formerly § 10, Aug. 30, 1961, 75 Stat. 404, amended Pub.L. 89–551, § 1(7), Sept. 1, 1966, 80 Stat. 375, renumbered and amended Pub.L. 93–119, § 2(10), Oct. 4, 1973, 87 Stat. 428.

§ 1010. Boarding of ships; production of records; evidence of violations by foreign ships

(a) The Secretary may make regulations empowering such persons as may be designated to go on board any ship to which the convention applies, while the ship is within the territorial jurisdiction of the United States, and to require production of any records required to be kept in accordance with the convention.

(b) Should evidence be obtained that a ship registered in another country party to the convention has discharged oil in violation of the convention but outside the territorial sea of the United States such evidence should be forwarded to the State Department for action in accordance with article X of the convention.

Pub.L. 87–167, § 12, formerly § 11, Aug. 30, 1961, 75 Stat. 404, renumbered and amended Pub.L. 93–119, § 2(11), Oct. 4, 1973, 87 Stat. 428.

§ 1011. Repealed. Pub.L. 93–119, § 2(12), Oct. 4, 1973, 87 Stat. 428

§ 1012. Repealed. Pub. L. 89–551, § 1(9), Sept. 1, 1966, 80 Stat. 375

§ 1013. Appropriations

Pub.L. 93–119, § 2(13), Oct. 4, 1973, 87 of Pub.L. 87–167, Aug. 30, 1961, 75 Stat. Stat. 428 renumbered section 14 to be 13 407.

§ 1014. Effect on other laws

Nothing in this chapter or in regulations issued hereunder shall be construed to modify or amend the provisions of section 1321 of this title or of section 89 of Title 14.

Pub.L. 87–167, § 15, formerly § 16, Aug. 30, 1961, 75 Stat. 407, renumbered and amended Pub.L. 93–119, § 2(14), Oct. 4, 1973, 87 Stat. 428.

§ 1015. Repealed. Pub.L. 93–119, § 2(15), Oct. 4, 1973, 87 Stat. 428

§ 1016. Effective date of 1973 Amendments—General provision

(a) Except as provided in subsection (c) of this section, this amending Act is effective upon the date of its enactment or upon the date amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended, adopted by the Assembly of the Inter-Governmental Maritime Consultative Organization on October 21, 1969, October 12, 1971, and October 15, 1971, are ratified or accepted with the advice and consent of the Senate of the United States, whichever is the later date.

Savings provision

(b) Any rights or liabilities existing on the effective date of this Act shall not be affected by the enactment of this Act. Any regulations or procedures promulgated or effected pursuant to this chapter, as previously amended, remain in effect until modified or superseded under the authority of this chapter, as amended by this Act. Any reference to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, in any law or regulation shall be deemed to be a reference to the convention as revised or amended by the latest amendments in respect of which the United States has deposited an instrument of ratification or acceptance.

Special provision

(c) Notwithstanding the foregoing provisions of this section, subsections (d) and (e) of section 1004a of this title, shall be effective upon the date of their enactment or upon the date the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended by the amendments adopted by the Assembly of the Inter-Govermental Marine Consultative Organization on October 15, 1971, enters into force pursuant to article XVI of that convention, as amended, whichever is later; and no authority shall be exercised pursuant to article VI bis (3) and (4) of such amendments prior to the effective date of such subsections.

Pub.L. 93–119, § 3, Oct. 4, 1973, 87 Stat. 428.

1.3c Oil Pollution Act Amendments of 1973

October 4, 1973, P.L. 93–119, 87 Stat. 424.

An Act

To amend the Oil Pollution Act, 1961 (75 Stat. 402), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended; and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Oil Pollution Act Amendments of 1973".

SEC. 2. The Oil Pollution Act, 1961 (75 Stat. 402), as amended (33 U.S.C. 1001–1015), is amended as follows:

(1) Section 2 (33 U.S.C. 1001) is amended—

(A) by repealing subsection (g);

(B) by redesignating subsections (c), (d), (e), and (f), as subsections (d), (e), (f), and (g), respectively;

(C) by adding a new subsection (c) to read:

"(c) The term 'instantaneous rate of discharge of oil content' means the rate of discharge of oil in liters per hour at any instant divided by the speed of the ship in knots at the same instant;";

(D) in subsection (c) (redesignated (d) by subparagraph (B) of this paragraph):

(1) by deleting the word "marine"; and

(2) by deleting the words "American Society for the the Testing of Materials" and substituting therefor the words "American Society for Testing and Materials";

(E) in subsection (e) (redesignated (f) by subparagraph (B) of this paragraph) by changing the period to a semicolon at the end of the first sentence thereof and by amending the second sentence to read "an 'oily mixture' means a mixture with any oil content;";

(F) by amending subsection (h) to read "The term 'Secretary' means the Secretary of the department in which the Coast Guard is operating;"; and

(G) in subsection (j) by changing the period to a semicolon and by adding the following to the sentence: "except that, for the purpose of this Act 'from the nearest land' off the northeastern coast of Australia means a line drawn from a point on the coast of Australia in latitude 11 degrees south, longitude 142 degrees 08 minutes east to a point in latitude

10 degrees 35 minutes south, longitude 141 degrees 55 minutes east—

"thence to a point latitude 10 degrees 00 minutes south, longitude 142 degrees 00 minutes east;

"thence to a point latitude 9 degrees 10 minutes south, longitude 143 degrees 52 minutes east;

"thence to a point latitude 9 degrees 00 minutes south, longitude 144 degrees 30 minutes east;

"thence to a point latitude 13 degrees 00 minutes south, longitude 144 degrees 00 minutes east;

"thence to a point latitude 15 degrees 00 minutes south, longitude 146 degrees 00 minutes east;

"thence to a point latitude 18 degrees 00 minutes south, longitude 147 degrees 00 minutes east;

"thence to a point latitude 21 degrees 00 minutes south, longitude 153 degrees 00 minutes east;

"thence to a point on the coast of Australia in latitude 24 degrees 42 minutes south, longitude 153 degrees 15 minutes east.".

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(2) Section 3 (33 U.S.C. 1002) is amended to read as follows:

"SEC. 3. Subject to the provisions of sections 4 and 5, the discharge of oil or oily mixture from a ship is prohibited unless—

"(a) the ship is proceeding en route; and

"(b) the instantaneous rate of discharge of oil content does not exceed sixty liters per mile, and

"(c)(1) for a ship, other than a tanker—

"(i) the oil content of the discharge is less than one hundred parts per one million parts of the mixture, and

"(ii) the discharge is made as far as practicable from the nearest land;

"(2) for a tanker, except discharges from machinery space bilges which shall be governed by the above provisions for ships other than tankers—

"(i) the total quantity of oil discharged on a ballast voyage does not exceed one fifteen-thousandths of the total cargo-carrying capacity, and

"(ii) the tanker is more than fifty miles from the nearest land.".

(3) Section 4 (33 U.S.C. 1003) is amended—

(A) by changing the word "shall" to "does" in the introductory clause thereof;

(B) by changing the semicolon to a period at the end of subsection (b) thereof; and

(C) by repealing subsection (c) thereof.

(4) Section 5 (33 U.S.C. 1004) is amended to read as follows: "SEC. 5. Section 3 does not apply to the discharge of tanker ballast from a cargo tank which, since the cargo was last carried therein, has been so cleaned that any effluent therefrom, if it were discharged from a stationary tanker into clean calm water on a clear day, would produce no visible traces of oil on the surface of the water.".

(5) Insert a new section 6, to read as follows, following section 5: "SEC. 6. (a) Every tanker to which this Act applies and built in the United States and for which the building contract is placed on or after the effective date of this section shall be constructed in accordance with the provisions of annex C to the convention, relating to tank arrangement and limitation of tank size.

"(b) Every tanker to which this Act applies and built in the United States and for which the building contract is placed, or in the absence of a building contract the keel of which is laid or which is at a similar state of construction, before the effective date of this section, shall, within two years after that date, comply with the provisions of annex C of the convention if—

"(1) the delivery of the tanker is after January 1, 1977; or

"(2) the delivery of the tanker is not later than January 1, 1977, and the building contract is placed after January 1, 1972, or in cases where no building contract has previously been placed, the keel is laid or the tanker is at a similar stage of construction, after June 30, 1972.

"(c) A tanker required under this section to be constructed in accordance with annex C to the convention and so constructed shall carry on board a certificate issued by the Secretary attesting to that compliance. A tanker which is not required to be constructed in accordance with annex C to the convention shall carry on board a certificate to that effect issued by the Secretary, or if a tanker does comply with annex C though not required to do so, she may carry on board a certificate issued by the Secretary attesting to that compliance. Tankers under the flag of the United States are prohibited from engaging in domestic or foreign trade without an appropriate certificate issued under this section.

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"(d) Certificates issued to foreign tankers pursuant to the convention by other nations party thereto shall be accepted by

the Secretary as of the same force as certificates issued by him. If the Secretary has clear gounds for believing that a foreign tanker required under the convention to be constructed in accordance with annex C entering ports of the United States or using offshore terminals under United States control does not in fact comply with annex C, he may request the Secretary of State to seek consultation with the government with which the tanker is registered. If after consultation or otherwise, the Secretary is satisfied that such tanker does not comply with annex C, he may for this reason deny such tanker access to ports of the United States or to offshore terminals under United States control until such time as he is satisfied that the tanker has been brought into compliance.

"(e) If the Secretary is satisfied that any other foreign tanker which, if registered in a country party to the convention, would be required to be constructed in accordance with annex C, does not in fact comply with the standards relating to tank arrangement and limitation of tank size of annex C, then he may deny such tanker access to ports of the United States or to offshore terminals under United States control."

(6) Section 6 (33 U.S.C. 1005) is renumbered section 7 and is amended to read as follows:

"SEC. 7. (a) Any person who willfully discharges oil or oily mixture from a ship in violation of this Act or the regulations thereunder shall be fined not more than $10,000 for each violation or imprisoned not more than one year, or both.

"(b) In addition to any other penalty prescribed by law any person who willfully or negligently discharges oil or oily mixture from a ship in violation of this Act or any regulation thereunder shall be liable to a civil penalty of not more than $10,000 for each violation, and any person who otherwise violates this Act or any regulation thereunder shall be liable to a civil penalty of not more than $5,000 for each violation.

"(c) A ship from which oil or oily mixture is discharged in violation of this Act or any regulation thereunder is liable for any pecuniary penalty under this section and may be proceeded against in the district court of any district in which the vessel may be found.

"(d) The Secretary may assess any civil penalty incurred under this Act or any regulation thereunder and, in his discretion, remit, mitigate, or compromise any penalty. No penalty may be assessed unless the alleged violator shall have been given notice and the opportunity to be heard on the alleged violation. Upon

any failure to pay a civil penalty assessed under this Act, the Secretary may request the Attorney General to institute a civil action to collect the penalty. In hearing such action, the district court shall have authority to review the violation and the assessment of the civil penalty de novo."

(7) Section 7 is renumbered section 8.

(8) Section 8 (33 U.S.C. 1007) is renumbered section 9 and is amended—

(A) in subsection (a) by amending the first sentence to read as follows: "In the administration of sections 1–12 of this Act, the Secretary may utilize by agreement, with or without reimbursement, law enforcement officers or other personnel, facilities, or equipment of other Federal agencies or the States.";

(B) in subsection (a) by amending the first part of the second sentence which precedes the first use of the word "shall" to read: "For the better enforcement of the provisions of said sections, officers of the Coast Guard and other persons employed by or acting under the authority of the Secretary";

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(C) in subsection (a) by deleting from the last sentence thereof the words "Bureau of Customs and" and the words "in a prohibited zone or in a port of the United States"; and

(D) in subsection (b) by deleting in the first sentence thereof the words "of the Department in which the Coast Guard is operating" and by deleting the second sentence thereof in its entirety.

(9) Section 9 (33 U.S.C. 1008) is renumbered section 10 and is amended—

(A) by amending subsection (c) to read as follows:

"(c) The oil record book shall be completed on each occasion, on a tank-to-tank basis, whenever any of the following operations take place in the ship:

"(1) for tankers—

"(i) loading of oil cargo;

"(ii) transfer of oil cargo during voyage;

"(iii) discharge of oil cargo;

"(iv) ballasting of cargo tanks;

"(v) cleaning of cargo tanks;

"(vi) discharge of dirty ballast;

"(vii) discharge of water from slop tanks;

"(viii) disposal of residues;

"(ix) discharge overbroad of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate logbook;

"(2) for ships other than tankers—

"(i) ballasting or cleaning of bunker fuel tanks;

"(ii) discharge of dirty ballast or cleaning water from bunker fuel tanks;

"(iii) disposal of residues;

"(iv) discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate logbook. In the event of such discharge or escape of oil or oily mixture as is referred to in section 4 of this Act, a statement shall be made in the oil record book of the circumstances of, and reason for, the discharge or escape.";

(B) by changing the figure "9" in subsection (d) to read "10"; and

(C) by repealing subsection (f).

(10) Section 10 (33 U.S.C. 1009) is renumbered section 11 and is amended to make the sectional enumeration read as follows: "Sections 3,4,5,6,7,9, and 10."

(11) Section 11 is renumbered section 12 and is amended by deleting the words "any prohibited zone" in subsection (b) thereof and by substituting therefor the words "violation of the convention but outside the territorial sea of the United States".

(12) Section 12 (33 U.S.C. 1011) is repealed.

(13) Sections 14 and 15 are renumbered sections 13 and 14, respectively.

(14) Section 16 (33 U.S.C. 1014) is renumbered section 15 and is amended by adding between the words "provisions of" and the word "the" the words "section 311 of", and by deleting the words "Oil Pollution Act, 1924 (33 U.S.C. 431–437),", and substituting therefor the words "Federal Water Pollution Control Act, as amended,".

(15) Section 17 (33 U.S.C. 1015) is repealed.

SEC. 3. (a) Except as provided in subsection (c) of this section, this amending Act is effective upon the date of its enactment or upon the

date amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended, adopted by the Assembly of the Inter-Governmental Maritime Consultative Organization on October 21, 1969, October 12, 1971, and October 15, 1971, are ratified or accepted with the advice and consent of the Senate of the United States, whichever is the later date.

(b) Any rights or liabilities existing on the effective date of this Act shall not be affected by the enactment of this Act. Any regulations or procedures promulgated or effected pursuant to the Oil Pollution Act, 1961, as previously amended, remain in effect until modified or superseded under the authority of the Oil Pollution Act, 1961, as amended by this Act. Any reference to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, in any law or regulation shall be deemed to be a reference to the convention as revised or amended by the latest amendments in respect of which the United States has deposited an instrument of ratification or acceptance.

(c) Notwithstanding the foregoing provisions of this section, subsections (d) and (e) of section 6 of the Oil Pollution Act, 1961, as amended by section 2 of this bill, shall be effective upon the date of their enactment or upon the date the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended by the amendments adopted by the Assembly of the Inter-Governmental Marine Consultative Organization on October 15, 1971, enters into force pursuant to article XVI of that convention, as amended, whichever is later; and no authority shall be exercised pursuant to article VI bis (3) and (4) of such amendments prior to the effective date of such subsections.

Approved October 4, 1973.

1.3c (1) HOUSE COMMITTEE ON MERCHANT MARINE AND FISHERIES

H.R. REP. No. 93-137, 93rd Cong., 1st Sess. (1973).

OIL POLLUTION ACT AMENDMENTS OF 1973

APRIL 13, 1973.—Committed to the Committee on the Whole House on the State of the Union and ordered to be printed

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Mrs. SULLIVAN, from the Committee on Merchant Marine and Fisheries, submitted the following

REPORT

[To accompany H.R. 5451]

The Committee on Merchant Marine and Fisheries, to whom was referred the bill (H.R. 5451) to amend the Oil Pollution Act, 1961 (75 Stat. 402), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended; and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

The amendment is as follows:

Strike all after the enacting clause and insert in lieu thereof the following:

That this Act may be cited as the "Oil Pollution Act Amendments of 1973".

SEC. 2. The Oil Pollution Act, 1961 (75 Stat. 402), as amended (33 U.S.C. 1001–1015), is amended as follows:

(1) Section 2 (33 U.S.C. 1001) is amended—

(A) by repealing subsection (g);

(B) by redesignating subsections (c), (d), (e), and (f), as subsections (d), (e), (f), and (g), respectively;

(C) by adding a new subsection (c) to read:

"(c) The term 'instantaneous rate of discharge of oil content' means the rate of discharge of oil in liters per hour at any instant divided by the speed of the ship in knots at the same instant;";

(D) in subsection (c) (redesignated (d) by subparagraph (B) of this paragraph):

(1) by deleting the word "marine"; and

(2) by deleting the words "American Society for the Testing of Materials" and substituting therefor the words "American Society for Testing and Materials";

(E) in subsection (e) (redesignated (f) by subparagraph (B) of this paragraph) by changing the period to a semicolon at the end of the first sentence thereof and by amending the second sentence to read "an 'oily mixture' means a mixture with any oil content;";

(F) by amending subsection (h) to read "The term 'Secretary' means the Secretary of the department in which the Coast Guard is operating;"; and

(G) in subsection (j) by changing the period to a semicolon and adding the following to the sentence: "except that, for the purpose of this Act 'from the nearest land' off the northeastern coast of Australia means a line drawn from a point on the coast of Australia in latitude 11 degrees south, longitude 142 degrees 08 minutes east to a point in latitude 10 degrees 35 minutes south, longitude 141 degrees 55 minutes east—

"thence to a point latitude 10 degrees 00 minutes south, longitude 142 degrees 00 minutes east;

"thence to a point latitude 9 degrees 10 minutes south, longitude 143 degrees 52 minutes east;

"thence to a point latitude 9 degrees 00 minutes south, longitude 144 degrees 30 minutes east;

"thence to a point latitude 13 degrees 00 minutes south, longitude 144 degrees 00 minutes east;

"thence to a point latitude 15 degrees 00 minutes south, longitude 146 degrees 00 minutes east;

"thence to a point latitude 18 degrees 00 minutes south, longitude 147 degrees 00 minutes east;

"thence to a point latitude 21 degrees 00 minutes south, longitude 153 degrees 00 minutes east;

"thence to a point on the coast of Australia in latitude 24 degrees 42 minutes south, longitude 153 degrees 15 minutes east."

(2) Section 3 (33 U.S.C. 1002) is amended to read as follows:

"SEC. 3. Subject to the provisions of sections 4 and 5, the discharge of oil or oily mixture from a ship is prohibited unless—

"(a) the ship is proceeding en route; and

"(b) the instantaneous rate of discharge of oil content does not exceed sixty liters per mile, and

"(c) (1) for a ship, other than a tanker—

"(i) the oil content of the discharge is less than one hundred parts per one million parts of the mixture, and

"(ii) the discharge is made as far as practicable from the nearest land;

(2) for a tanker, except discharges from machinery space bilges which shall be governed by the above provisions for ships other than tankers—

"(i) the total quantity of oil discharged on a ballast voyage does not exceed one fifteen-thousands of the total cargo-carrying capacity, and

"(ii) the tanker is more than fifty from the nearest land.".

(3) Section 4 (33 U.S.C. 1003) is amended—

(A) by changing the word "shall" to "does" in the introductory clause thereof;

(B) by changing the semicolon to a period at the end of subsection (b) thereof; and

(C) repealing subsection (c) thereof.

(4) Section 5 (33 U.S.C. 1004) is amended to read as follows:

"SEC. 5. Section 3 does not apply to the discharge of tanker ballast from a cargo tank which, since the cargo was last carried therin, has been so cleaned that any effluent therefrom, if it were discharged from a stationery tanker into clean calm water on a clear day, would produce no visible traces of oil on the surface of the water.".

(5) Insert a new section 6, to read as follows, following section 5:

"SEC. 6. (a) Every tanker to which this Act applies and built in the United States and for which the building contract is placed on or after the effective date of this section shall be constructed in accordance with the provisions of annex C to the convention, relating to tank arrangement and limitation of tank size.

"(b) Every tanker to which this Act applies and built in the United States and for which the building contract is placed, or in the absence of a building contract the keel of which is laid or which is at a similar state of construction, before the effective date of this section, shall, within two years after that date, comply with the provisions of annex C to the convention if—

"(1) the delivery of the tanker is after January 1, 1977; or

"(2) the delivery of the tanker is not later than January 1, 1977, and the building contract is placed after January 1, 1972, or in cases where no building

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contract has previously been placed, the keel is laid or the tanker is at a similar stage of construction, after June 30, 1972.

"(c) A tanker required under this section to be constructed in accordance with annex C to the convention and so constructed shall carry on board a certificate issued by the Secretary attesting to that compliance. A tanker which is not required to be constructed in accordance with annex C to the convention shall carry on board a certificate to that effect issued by the Secretary, or if a tanker does comply with annex C though not required to do so, she may carry on board a certificate issued by the Secretary attesting to that compliance. Tankers under the flag of the United States are prohibited from engaging in domestic or foreign trade without an appropriate certificate issued under this section.

"(d) Certificates issued to foreign tankers pursuant to the convention by other nations party thereto shall be accepted by the Secretary as of the same force as certificates issued by him. If the Secretary has clear grounds for believing that a foreign tanker required under the convention to be constructed in accordance with annex C entering ports of the United States or using offshore terminals under United States control does not in fact comply with annex C, he may request the Secretary of State to seek consultation with the government with which the tanker is registered. If after consultation or otherwise, the Secretary is satisfied that such tanker does not comply with annex C, he may for this reason deny such tanker access to ports of the United States or to offshore terminals under United States control until such time as he is satisfied that the tanker has been brought into compliance.

"(e) If the Secretary is satisfied that any other foreign tanker which, if registered in a country party to the convention, would be required to be constructed in accordance with annex C, does not in fact comply with the standards relating to tank arrangement and limitation of tank size of annex C, then he may deny such tanker access to ports of the United States or to offshore terminals under United States control."

(6) Section 6 (33 U.S.C. 1005) is renumbered section 7 and is amended to read as follows:

"SEC. 7. (a) Any person who willfully discharges oil or oily mixture from a ship in violation of this Act or the regulations thereunder shall be fined not more than $10,000 for each violation or imprisoned not more than one year, or both.

"(b) In addition to any other penalty prescribed by law any person who willfully or negligently discharges oil or oily mixture from a ship in violation of this Act or any regulation thereunder shall be liable to a civil penalty of not more than $10,000 for each violation, and any person who otherwise violates this Act or any regulation thereunder shall be liable to a civil penalty of not more than $5,000 for each violation.

"(c) A ship from which oil or oily mixture is discharged in violation of this Act or any regulation thereunder is liable for any pecuniary penalty under this section and may be proceeded against in the district court of any district in which the vessel may be found.

"(d) The Secretary may assess any civil penalty incurred under this Act or any regulation thereunder and, in his discretion, remit, mitigate, or compromise any penalty. No penalty may be assessed unless the alleged violator shall have been given notice and the opportunity to be heard on the alleged violation. Upon any failure to pay a civil penalty assessed under this Act, the Secretary may request the Attorney General to institute a civil action to collect the penalty. In hearing such action, the district court shall have authority to review the violation and the assessment of the civil penalty de novo."

(7) Section 7 is renumbered section 8.

(8) Section 8 (33 U.S.C. 1007) is renumbered section 9 and is amended—

(A) in subsection (a) by amending the first sentence to read as follows: "In the administration of sections 1–12 of this Act, the Secretary may utilize by agreement, with or without reimbursement, law enforcement officers or other personnel, facilities, or equipment of other Federal agencies or the States.";

(B) in subsection (a) by amending the first part of the second sentence which precedes the first use of the word "shall" to read: "For the better enforcement of the provisions of said sections, officers of the Coast Guard and other persons employed by or acting under the authority of the Secretary";

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(C) in subsection (a) by deleting from the last sentence thereof the words "Bureau of Customs and" and the words "in a prohibited zone or in a port of the United States"; and

(D) in subsection (b) by deleting in the first sentence thereof the words "of the Department in which the Coast Guard is operating" and by deleting the second sentence thereof in its entirely.

(9) Section 9 (33 U.S.C. 1008) is renumbered section 10 and is amended—

(A) by amending subsection (c) to read as follows:

"(c) The oil record book shall be completed on each occasion, on a tank-to-tank basis, whenever any of the following operations take place in the ship:

"(1) for tankers—

"(i) loading of oil cargo;

"(ii) transfer of oil cargo during voyage;

"(iii) discharge of oil cargo;
"(iv) ballasting of cargo tanks;
"(v) cleaning of cargo tanks;
"(vi) discharge of dirty ballast;
"(vii) discharge of water from slop tanks;
"(viii) disposal of residues;
"(ix) discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered into the appropriate log book;
"(2) for ships other than tankers—
"(i) ballasting or cleaning of bunker fuel tanks;
"(ii) discharge of dirty ballast or cleaning water from bunker fuel tanks;
"(iii) disposal of residues;
"(iv) discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate logbook. In the event of such discharge or escape of oil or oily mixture as is referred to in section 4 of this Act, a statement shall be made in the oil record book of the circumstances of, and reason for, the discharge or escape.";

(B) by changing the figure "9" in subsection (d) to read "10"; and

(C) by repealing subsection (f).

(10) Section 10 (33 U.S.C. 1009) is renumbered section 11 and is amended to make the sectional enumeration read as follows: "Sections 3, 4, 5, 6, 7, 9, and 10."

(11) Section 11 is renumbered section 12 and is amended by deleting the words "any prohibited zone" in subsection (b) thereof and by substituting therefor the words "violation of the convention but outside the territorial sea of the United States."

(12) Section 12 (33 U.S.C. 1011) is repealed.

(13) Sections 14 and 15 are renumbered sections 13 and 14, respectively.

(14) Section 16 (33 U.S.C. 1014) is renumbered section 15 and is amended by adding between the words "provisions of" and the word "the", the words "section 311 of", and by deleting the words "Oil Pollution Act, 1924 (33 U.S.C. 431–437),", substituting therefor the words "Federal Water Pollution Control Act, as amended,".

(15) Section 17 (33 U.S.C. 1015) is repealed.

SEC. 3. (a) Except as provided in subsection (c) of this section, this amending Act is effective upon the date of its enactment or upon the date amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended, adopted by the Assembly of the Inter-Governmental Maritime Consultative Organization on October 21, 1969, October 12, 1971, and October 15, 1971, are ratified or accepted with the advice and consent of the Senate of the United States, whichever is the later date.

(b) Any rights or liabilities existing on the effective date of this Act shall not be affected by the enactment of this Act. Any regulations or procedures promulgated or effected pursuant to the Oil Pollution Act, 1961, as previously amended, remain in effect until modified or superseded under the authority of the Oil Pollution Act, 1961, as amended by this Act. Any reference to the

International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, in any law or regulation shall be deemed to be a reference to the convention as revised or amended by the latest amendments in respect of which the United States has deposited an instrument of ratification or acceptance.

[p. 4]

(c) Notwithstanding the foregoing provisions of this section, subsections (d) and (e) of section 6 of the Oil Pollution Act, 1961, as amended by section 2 of this bill, shall be effective upon the date of their enactment or upon the date the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended by the amendments adopted by the Assembly of the Inter-Governmental Maritime Consultative Organization on October 15, 1971, enters into force pursuant to article XVI of that convention, as amended, whichever is later; and no authority shall be exercised pursuant to article VI bis (3) and (4) of such amendments prior to the effective date of such subsections.

PURPOSE OF THE LEGISLATION

H.R. 5451, as reported, amends the Oil Pollution Act, 1961, (75 Stat. 402), as amended, in order to implement certain amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended. In addition, the bill expands the penalty provisions of the Act. This amendatory legislation is necessary in order to reflect changes to the Convention, adopted in the Assembly of the Inter-Governmental Maritime Consultative Organization (IMCO), on October 21, 1969, October 12, 1971, and October 15, 1971.

BACKGROUND AND NEED FOR THE LEGISLATION

The Act being amended is the domestic law implementing the International Convention, which, first adopted in 1954, was the initial international agreement to bring under control the problem of polluting the oceans by oil discharge from vessels. The amendments to that Convention which are reflected in this legislation were adopted by the IMCO Assembly, pursuant to procedures for amending the Convention. The first of the amendments, adopted on October 21, 1969, were a follow-on of the extraordinary meeting of the IMCO Council in May 1967, in the aftermath of the TORREY CANYON disaster, wherein an oil tanker grounded off the southwest coast of the United Kingdom and released massive quantities of oil which polluted the oceans and shore areas in the United Kingdom and in France. The Maritime Safety Committee, the technical body in IMCO, was directed to take all reasonable measures to achieve significant progress on prevention and control of oil pollution. As one of those measures,

the Maritime Safety Committee in February 1969, recommended certain amendments to the Oil Pollution Convention to tighten existing control measures with respect to the deliberate discharge of oily wastes into seas. In addition, the Maritime Safety Committee sought to update the Convention to reflect existing maritime practices which had already progressed beyond the requirements of the Convention itself. The amendments recommended by the Maritime Safety Committee were adopted by the IMCO Assembly at its sixth regular session on October 21, 1969. These amendments were subsequently referred by the President to the Senate for its advice and consent. On September 20, 1971, the Senate gave its advice and consent to the ratification of the amendments. That ratification has not yet been deposited, pending the enactment of this amendatory legislation.

In subsequent proceedings in IMCO, the Maritime Safety Committee, continuing its work in reviewing the Convention and its provisions, in 1971 recommended two additional sets of amendments. The first of these consist of a proposal advanced by Australia to treat the

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Great Barrier Reef off its eastern and northeastern coast as if it were land for the purposes of applying certain "distance from land" criteria contained in the 1969 amendments. The second group of amendments related to new requirements for tank arrangements and the limitation of tank sizes in certain new tank vessels. The purpose of these latter amendments was to limit the potential outflow of oil from supertankers, in the event of a collision or a stranding. The two sets of 1971 amendments were adopted by the IMCO Assembly on October 12, 1971, and on October 15, 1971, respectively. In the case of the latter adoption, the Assembly, in its resolution, deemed that those amendments were of such an important nature that any Contracting Government which does not accept those amendments within 12 months of their coming into force, shall at the expiration of that period, cease to be a party to the Convention.

Both sets of 1971 amendments were submitted by the President to the Senate in May 1972, for advice and consent for ratification. No Senate action was taken during the 92nd Congress. However, Senate hearings have been scheduled for advice and consent action for next week, and all indications are that the Senate action will be favorable. As to action by other Nations, as of April 11, 1973, the Department of State advised that the Nations which have ratified the 1969 amendments are Iceland,

Madagascar, Denmark, Japan, the United Kingdom, Norway, U.S.S.R., Saudi Arabia, France, Canada, Liberia, Lebanon and Sweden, a total of 15. The first set of 1971 amendments has been ratified by Jordan, Lebanon, Liberia, Egypt, Fiji, and Sweden. The second set of 1971 amendments has been ratified by Jordan, Lebanon, Liberia, Sweden, and the Ivory Coast.

The 1969 amendments provide as follows:

(1) The so-called "prohibited zones" wherein under the provisions of the present Convention only minimal oil discharge is permitted, are abolished; and the principle of prohibition (subject to certain specified exceptions) is extended throughout the oceans. In other words, this amendment eliminates areas where, prior to the 1969 amendments, there was no control over discharges of oil content for certain vessels.

(2) The exceptions to total prohibitions under which discharges with oil content are permitted are limited, as to tankers, to a distance more than 50 miles from the nearest land, to a rate of discharge of oil content of not more than 60 liters (15.9 gallons) per nautical mile, while the tanker is proceeding enroute on its voyage, and with a maximum quantity of oil to be discharged on a ballast voyage, amounting to no more than 1/15,000 of the total cargo-carrying capacity of the tanker. As to vessels other than tankers, the limitations that apply are a distance as far as practicable from land, at a rate of discharge of oil content not to exceed either 60 liters per nautical mile or 100 parts of oil per million parts of effluent, while the ship is proceeding enroute on its voyage.

(3) Certain exemptions relating to purification and clarification of fuel or lubricating oil and for oil which has leaked into machinery spaces are eliminated, and

(4) A simplified oil record book which will more precisely record necessary information is provided for.

The first set of 1971 amendments provides special protection for the Great Barrier Reef by redefining "nearest land" to include the area of that Reef, thereby invoking the limitations for distance from land for discharges in the Reef area as if that area were land.

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The second set of 1971 amendments provides for tank arrangements and limitations of tank sizes in the construction of new large tankers by adopting a new annex to the Convention which contains construction requirements based upon vessel length, width and depth. These requirements will result in restrictions

as to tank placements and tank volumes. The purpose of these construction standards is to limit the maximum amount of hypothetical oil outflow that would result in the event of collision or stranding of the tanker based upon the maximum assumed damage resulting from such accidents and upon the worst combination of compartmental damage. The formulae and limitations adopted would, in effect, restrict wing tanks to a 30,000 cubic meter size and center tanks to a 50,000 cubic meter size. The practical impact of such limitations will begin to be felt, from an economic viewpoint, at vessel sizes of approximately 300,000 deadweight tons.

In addition to the implementation of the three sets of Convention amendments, and certain necessary technical and conforming language, the bill, as reported, also provides for changes in the penalty provision of the Act, to provide for a civil penalty in addition to a criminal penalty to which the present Act is limited and to increase the maximum fine authorized for a criminal penalty.

Finally, the bill provides for an effective date of this amendatory legislation, with one exception, as the date of enactment, or the deposit of ratification by the United States to the three sets of amendments, whichever is later. The purpose of this provision is to bring into effect at the earliest possible date, changes to the Convention which are necessary to tighten its provisions, without awaiting the ratification process.

As to the exception referred to, the provisions of the new section 6 of the Act concerning exercise of control measures over foreign vessels will become effective at the time of the completion of the ratification process, which must, of course, include United States ratification.

COMMITTEE ACTION

No hearings were scheduled by your Committee on H.R. 5451, in view of the fact that testimony on a substantially identical bill, H.R. 15627, were held by the Subcommittee on Coast Guard and Navigation during the 92nd Congress. Testimony on that bill was received from representatives of the Department of State, the Department of Transportation, and the American Institute of Merchant Shipping. All the witnesses endorsed the implementation provisions of the bill, although the AIMS representative expressed reservation as to an earlier effective date for United States vessels than the final coming into force of the amendments, particularly the second set of 1971 amendment,

through the ratification process. At the conclusion of the Subcommittee consideration, H.R. 15627 was reported to the Full Committee, and subsequently, by your Committee to the House with the deletion of those sections related to the 1971 amendments. As reported, the bill was passed by the House under Suspension of the Rules on October 11, 1972. As House Report 92–1486, October 2, 1972, will indicate, the deletion of the 1971 amendments from H.R. 15627, as reported, was based solely upon the fact that the Senate had not yet acted, (and probably would not act) to give its advice and consent to those amendments. [p. 7]

By virtue of the 1972 hearings on virtually identical provisions, your Committee did not elect to hold hearings on the present bill. It has been advised, however, that, as to the 1971 amendments, Senate action for advice and consent is imminent, and H.R. 5451, as amended, retains the implementing sections for those amendments, to become effective at such time as the United States ratifies them, with the advice and consent of the Senate.

Your Committee believes that the amendatory language of this bill will demonstrate the intention of the United States to live up to its international commitments and to remain in the forefront in the international efforts to reduce the pollution of the oceans as a part of the overall initiative to improve the world environment. The provisions for early effective date without awaiting the total ratification process is consistent with IMCO Assembly resolutions recommending to governments that early, prompt, effective, national action should be taken. Representatives of the United States were leaders in having those resolutions adopted. Resolution A.236(VII), adopted by the Assembly, stated in part that

> The Assembly * * * Invites Governments concerned, pending the entry into force of (the 1969) amendments, to: (a) * * * (b) give legal effect to the 1969 amendments in respect of ships registered under their control before the amendments have come into force internationally in accordance with Article XVI, (4) of the Convention; (c) * * *

As to the first set of 1971 amendments, Resolution A. 232 (VII), adopted by the Assembly, stated in part:

> The Assembly, * * * Invites further Governments which have implemented, on a national basis, the amendments to the Convention adopted by the Assem-

bly on 21 October 1969, to give effect also to the attached provisions for the protection of the Great Barrier Reef.

As to the second set of 1971 amendments, Resolution A.246 (VII), adopted by the Assembly, provided, in part, as follows:

> The Assembly, * * * Invites all Governments concerned to accept the amendments at the earliest possible date, * * *.

The bill, as amended, was ordered reported by your Committee by voice vote.

COST OF THE LEGISLATION

Pursuant to Clause 7 of Rule XIII of the Rules of the House of Representatives, the Committee estimates that there will be no additional cost incurred by the Government as a result of the legislation other than minor administrative cost occasioned by the necessity of changing the oil record books. This estimate is consistent with the estimate furnished to the Committee by the Department of Transportation.

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DEPARTMENTAL REPORTS

Executive Communication No. 446 and departmental report on H.R. 5451, follow:

[Exec. Comm. No. 446]

THE SECRETARY OF TRANSPORTATION,
Washington, D.C., February 15, 1973.

Hon. CARL ALBERT,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: There is transmitted herewith a draft of a proposed bill, "to amend the Oil Pollution Act, 1961, (75 Stat. 402), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, as amended; and for other purposes."

The proposed bill would incorporate into the existing domestic law which implements the original 1954 Oil Pollution Convention the latest amendments to the Convention adopted by the Inter-governmental Maritime Consultative Organization (IMCO) by Resolution A.175(VI) on October 21, 1969; Resolution A.232 (VII) on October 12, 1971, and Resolution A.246(VII) on October 15, 1971. You will recall that ratification of the 1969 amendments was advised and consented to by the Senate on September

20, 1971. Additionally in May 1972 the 1971 amendments were submitted to the Senate for their advice and consent. The submission of draft legislation at this time is in accord with the Executive Branch intention of seeking legislative implementation at the earliest possible time.

The 1969 convention changes, particularly as they impose more stringent constraints on oil and oily mixture discharges from vessels anywhere, represent another advancing step toward remedy of ocean oil pollution, a major international as well as national environmental problem. Those amendments abandon the concept which prohibited discharges within certain zones (generally within 50 miles of land) and which discouraged but did not prohibit indiscriminate discharges in the open sea beyond the zones. Under the amendments and the legislation here proposed, discharges will be prohibited anywhere unless certain conditions are met. Those conditions relate to discharge rate, oily mixture dilution, total quantity of oil discharged, and distance from land. For example, a tanker will be prohibited from any discharges within 50 miles of land, and beyond that distance may only discharge while proceeding enroute and so long as a discharge of oil content does not exceed 60 liters per mile, and provided that the total quantity of oil discharged on a ballast voyage does not exceed 1/15,000 of the total cargo-carrying capacity of the vessel.

The 1971 amendments apply the distance from land criterion for discharges of oil and oily mixtures to the area of the Great Barrier Reef as if it were land, and concern tank arrangements and limitations of tank size for new tank vessels. The objective of the amendments relating to tank arrangements and tank size is to limit the quantity of oil which can escape into the sea as the result of collision or other vessel casualty.

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In addition to the criminal penalties now provided for violations of the 1961 Act these proposed amendments would make civil penalties also available for more flexible and effective enforcement. Article VI of the Oil Pollution Convention requires that penalties which a country imposes for unlawful discharges by domestic vessels beyond its territorial sea shall not be less than those for the same infringements within the territorial sea. That requirement will be satisfied because the civil penalties proposed in the draft bill are equal to or larger in amount than those contained in section 311 of the Federal Water Pollution Control Act (P.L. 92–500).

It would be appreciated if you would lay this proposal before the House of Representatives. A similar proposal has been submitted to the President of the Senate.

The Office of Management and Budget advises that this proposed legislation is consistent with the Administration's objectives.

Sincerely,

CLAUDE S. BRINEGAR.

DEPARTMENT OF STATE,
Washington, D.C., April 9, 1973

Hon. LEONOR K. SULLIVAN,
Chairman, Committee on Merchant Marine and Fisheries,
House of Representatives.

DEAR MRS. SULLIVAN: The Secretary has asked that I reply to your letter of March 14 requesting the comments of the Department of State on H.R. 5451, a bill "To amend the Oil Pollution Act, 1961 (75 Stat. 402), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended; and for other purposes."

H.R. 5451 is motivated by three sets of amendments to the 1954 Convention: the amendments with respect to oily discharge adopted by the Assembly of the Inter-Governmental Consultative Organization (IMCO) on October 21, 1969; the amendments for the protection of the Great Barrier Reef adopted by the IMCO Assembly on October 12, 1971; the amendments concerning tank arrangements and limitation of tank size adopted by the IMCO Assembly on October 15, 1971. The Senate has consented to the first of these amendments, and has the other two before it for advice and consent. The Department of State believes that ratification of the three sets of amendments would be in the interest of the United States. It accordingly supports the adoption of H.R. 5451, by which they would be implemented.

Adoption of this legislation would not result in any significant costs to the Department of State.

The Office of Management and Budget advises that from the standpoint of the Administration's program there is no objection to the submission of this report, and that enactment of

H.R. 5451 would be consistent with the Administration's objectives.

Sincerely,

MARSHALL WRIGHT,
Acting Assistant Secretary for Congressional Relations.

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CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

OIL POLLUTION ACT, 1961, AS AMENDED

(75 Stat. 402, 80 Stat. 372 (33 U.S.C. 1001–1015))

AN ACT To implement the provisions of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act, to implement the provisions of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended, may be cited as the "Oil Pollution Act, 1961, as amended,".

SEC. 2. DEFINITIONS.—As used in this Act, unless the context otherwise requires—

(a) The term "convention" means the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended;

(b) The term "discharge" in relation to oil or to an oily mixture means any discharge or escape howsoever caused;

(c) The term "instantaneous rate of discharge of oil content" means the rate of discharge of oil in liters per hour at any instant divided by the speed of the ship in knots at the same instant;

[(c)] *(d)* The term "heavy diesel oil" means [marine] diesel oil, other than those distillates of which more than 50 per centum, by volume distills at a temperature not exceeding three hundred and forty degrees centigrade when tested by [American Society for the Testing of Materials] *American Society for Testing and Materials* standard method D.86/59;

[(d)] *(e)* The term "mile" means a nautical mile of six thou-

sand and eighty feet or one thousand eight hundred and fifty-two meters;

[(e)] (*f*) The term "oil" means crude oil, fuel oil, heavy diesel oil, and lubricating oil, and "oily" shall be construed accordingly. [An "oily mixture" means a mixture with a oil content of one hundred parts or more in one million parts of mixture;]; *an "oily mixture" means a mixture with any oil content;*

[(f)] (*g*) The term "person" means an individual, partnership, corporation, or association; and any owner, operator, agent, master, officer, or employee of a ship;

[(g) The term "prohibited zones" means the zones described in section 12 of this Act as modified by notices, if any, of extension or reduction issued by the Secretary;]

(h) [The term "Secretary" means the Secretary of the Army;] *The term "Secretary" means the Secretary of the department in which the Coast Guard is operating;*

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(i) The term "ship", subject to the exceptions provided in paragraph (1) of this subsection, means any seagoing vessel of any type whatsoever of American registry or nationality, including, floating craft, whether self-propelled or towed by another vessel making a sea voyage; and "tanker", as a type included within the term "ship", means a ship in which the greater part of the cargo space is constructed or adapted for the carriage of liquid cargoes in bulk and which is not, for the time being, carrying a cargo other than oil in that part of its cargo space.

(1) The following categories of vessels are excepted from all provisions of the Act:

(i) tankers of under one hundred and fifty tons gross tonnage and other ships of under five hundred tons gross tonnage.

(ii) ships for the time being engaged in the whaling industry when actually employed on whaling operations.

(iii) ships for the time being navigating the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of Saint Lambert lock at Montreal in the Province of Quebec, Canada.

(iv) naval ships and ships for the time being used as naval auxiliaries.

(j) The term "from the nearest land" means from the baseline from which the territorial sea of the territory in question is established in accordance with the Geneva Convention on the Territorial Sea and the Contiguous Zone, 1958; *except that, for the purpose of this Act "from the nearest land" off the north-*

eastern coast of Australia means a line drawn from a point on the coast Australia in latitude 11 degrees south, longitude 142 degrees 08 minutes east to a point in latitude 10 degrees 35 minutes south, longitude 141 degrees 55 minutes east—

thence to a point latitude 10 degrees 00 minutes south, longitude 142 degrees 00 minutes east;

thence to a point latitude 9 degrees 10 minutes south, longitude 143 degrees 52 minutes east;

thence to a point latitude 9 degrees 00 minutes south, longitude 144 degrees 30 minutes east;

thence to a point latitude 13 degrees 00 minutes south, longitude 144 degrees 00 minutes east;

thence to a point latitude 15 degrees 00 minutes south, longitude 146 degrees 00 minutes east;

thence to a point latitude 18 degrees 00 minutes south, longitude 47 degrees 00 minutes east;

thence to a point latitude 21 degrees 00 minutes south, longitude 153 degrees 00 minutes east;

thence to a point on the coast of Australia in latitude 24 degrees 42 minutes south, longitude 153 degrees 15 minutes east.

[SEC. 3. Subject to the provisions of sections 4 and 5, it shall be unlawful for any person to discharge oil or oily mixture from:

[(a) a tanker within any of the prohibited zones.

[(b) a ship, other than a tanker, within any of the prohibited zones, except when the ship is proceeding to a port not provided with facilities adequate for the reception, without causing undue delay, it may discharge such residues and oily mixture as would remain for disposal if the bulk of the water had been separated

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from the mixture: *Provided,* such discharge is made as far as practicable from land.

[(c) a ship of twenty thousand tons gross tonnage or more, including a tanker, for which the building contract is placed on or after the effective date of this Act. However, if in the opinion of the master, special circumstances make it neither reasonable not practicable to retain the oil or oily mixture on board, it may be discharged outside the prohibited zones. The reasons for such discharge shall be reported in accordance with the regulations prescribed by the Secretary.]

Sec. 3. Subject to the provisions of sections 4 and 5, the

discharge of oil or oily mixture from a ship is prohibited unless—

(a) the ship is proceeding en route; and

(b) the instantaneous rate of discharge of oil content does not exceed sixty liters per mile, and

(c) (1) for a ship, other than a tanker—

(i) the oil content of the discharge is less than one hundred parts per one million parts of the mixture, and

(ii) the discharge is made as far as practicable from the nearest land;

(2) for a tanker, except discharges from machinery space bilges which shall be governed by the above provisions for ships other than tankers—

(i) the total quantity of oil discharged on a ballast voyage does not exceed one fifteen-thousandths of the total cargo-carrying capacity, and

(ii) the tanker is more than fifty miles from the nearest land.

SEC. 4. Section 3 [shall] *does* not apply to—

(a) the discharge of oil or oily mixture from a ship for the purpose of securing the safety of a ship, preventing damage to a ship or cargo, or saving life at sea; or

(b) the escape of oil, or of oily mixture, resulting from damage to a ship or unavoidable leakage, if all reasonable precautions have been taken after the occurrence of the damage or discovery of the leakage for the purpose of preventing or minimizing the [escape;] *escape.*

[(c) the discharge of residue arising from the purification or clarification of fuel oil or lubricating oil: *Provided,* That such discharge is made as far from land as practicable.]

[SEC. 5. Section 3 shall not apply to the discharge from the bilges of a ship of an oily mixture containing no oil other than lubricating oil which has drained or leaked from machinery spaces.]

Sec. 5. Section 3 does not apply to the discharge of tanker ballast from a cargo tank which, since the cargo was last carried therein, has been so cleaned that any effluent therefrom, if it were discharged from a stationary tanker into clean calm water on a clear day, would produce no visible traces of oil on the surface of the water.

Sec. 6. (a) Every tanker to which this Act applies and built in the United States and for which the building contract is placed on or after the effective date of this section shall be constructed

in accordance with the provisions of annex C to the convention, relating to tank arrangement and limitation of tank size.

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a(b) Every tanker to which this Act applies and built in the United States and for which the building contract is placed, or in the absence of a building contract the keel of which is laid or which is at a similar state of construction, before the effective date of this section, shall, within two years after that date, comply with the provisions of annex C to the convention if—

(1) the delivery of the tanker is after January 1, 1977; or

(2) the delivery of the tanker is not later than January 1, 1977, and the building contract is placed after January 1, 1972, or in cases where no building contract has previously been placed, the keel is laid or the tanker is at a similar stage of construction, after June 30, 1972.

(c) A tanker required under this section to be contructed in accordance with annex C to the convention and so constructed shall carry on board a certificate issued by the Secretary attesting to that compliance. A tanker which is not required to be constructed in accordance with annex C to the convention shall carry on board a certificate to that effect issued by the Secretary, or if a tanker does comply with annex C though not required to do so, she may carry on board a certificate issued by the Secretary attesting to that compliance. Tankers under the flag of the United States are prohibited from engaging in domestic or foreign trade without an appropriate certificate issued under this section.

(d) Certificates issued to foreign tankers pursuant to the convention by other nations party thereto shall be accepted by the Secretary as of the same force as certificates issued by him. If the Secretary has clear grounds for believing that a foreign tanker required under the convention to be constructed in accordance with annex C entering ports of the United States or using offshore terminals under United States control does not in fact comply with annex C, he may request the Secretary of State to seek consultation with the government with which the tanker is registered. If after consultation or otherwise, the Secretary is satisfied that such tanker does not comply with annex C, he may for this reason deny such tanker access to ports of the United States or to offshore terminals under United States control until such time as he is satisfied that the tanker has been brought into compliance.

(e) If the Secretary is satisfied that any other foreign tanker

which, if registered in a country party to the convention, would be required to be constructed in accordance with annex C, does not in fact comply with the standards relating to tank arrangement and limitation of tank size of annex C, then he may deny such tanker access to ports of the United States or to offshore terminals under United States control.

[SEC. 6. Any person who violates any provision of this Act, except sections 8(b) and 9, or any regulation prescribed in pursuance thereof, is guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding $2,500 nor less than $500, or by imprisonment not exceeding one year, or by both such fine and imprisonment, for each offense. And any ship (other than a ship owned and operated by the United States) from which oil is discharged in violation of this Act, or any regulation prescribed in pursuance thereof, shall be liable for the pecuniary penalty specified in this section, and clearance of such ship from a port of the United States may be withheld until the penalty is paid, and said penalty shall constitute a lien on such ship which may be recovered in proceedings by libel in rem in the district court of the United States for any district within which the ship may be.]

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Sec. 7. (a) Any person who willfully discharges oil or oil mixture from a ship in violation of this Act or the regulations thereunder shall be fined not more than $10,000 for each violation or imprisoned not more than one year, or both.

(b) In addition to any other penalty prescribed by law any person who willfully or negligently discharges oil or oily mixture from a ship in violation of this Act or any regulation thereunder shall be liable to a civil penalty of not more than $10,000 for each violation, and any person who otherwise violates this Act or any regulation thereunder shall be liable to a civil penalty of not more than $5,000 for each violation.

(c) A ship from which oil or oily mixture is discharged in violation of this Act or any regulation thereunder is liable for any pecuniary penalty under this section and may be proceeded against in the district court of any district in which the vessel may be found.

(d) The Secretary may assess any civil penalty incurred under this Act or any regulation thereunder and, in his discretion, remit, mitigate, or compromise any penalty. No penalty may be assessed unless the alleged violator shall have been given notice and the opportunity to be heard on the alleged violation. Upon

any failure to pay a civil penalty assessed under this Act, the Secretary may request the Attorney General to institute a civil action to collect the penalty. In hearing such action, the district court shall have authority to review the violation and the assessment of the civil penalty de novo.

[SEC. 7.] *Sec. 8.* The Coast Guard may, subject to the provisions of section 4450 of the Revised Statutes, as amended (46 U.S.C. 239), suspend or revoke a license issued to the master of other licensed officer of any ship found violating the provisions of this Act or the regulations issued pursuant thereto.

[SEC. .8.] *Sec.* 9. (a) In the administration of sections 1–12 of this Act, the Secretary may make use of the organization, equipment, and agencies, including engineering, clerical, and other personnel, employed under his direction in the improvement of rivers and harbors and in the enforcement of laws for the improvement of rivers and harbors and in the enforcement of laws for the preservation and protection of navigable waters.] *In the administration of sections 1–12 of this Act, the Secretary may utilize by agreement, with or without reimbursement, law enforcement officers or other personnel, facilities, or equipment of other Federal agencies or the Sates.* [For the better enforcement of the provisions of said sections, the officers and agents of the United States in charge of river and harbor improvements and persons employed under them by authority of the Secretary, and officers and employees of the Bureau of Customs and the Coast Guard,] *For the better enforcement of the provisions of said sections, officers of the Coast Guard and other persons employed by or acting under the authority of the Secretary* shall have power and authority and it shall be their duty to swear out process and to arrest and take into custody, with or without process, any person who may violate any of said provisions: *Provided,* That no person shall be arrested without process for a violation not committed in the presence of some one of the aforesaid officials: *And provided further,* That whenever any arrest is made under the provisions of said sections the person so arrested shall be brought forthwith before a commissioner, judge, or court of the United States for examination of the offenses alleged against him;

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and such commissioner, judge, or court shall proceed in respect thereto as authorized by law in cases of crimes against the United States. Representatives of the Secretary and of the [Bureau of Customs and] Coast Guard of the United States may

go on board and inspect any ship [in a prohibited zone or in a port of the United States] as may be necessary for the enforcement of this Act.

(b) To implement article VII of the convention, ship fitting and equipment, and operating requirements thereof, shall be in accordance with regulations prescribed by the Secretary [of the Department in which the Coast Guard is operating]. [Any person found violating these regulations shall, in addition to any other penalty prescribed by law, be subject to a civil penalty not in excess of $100.]

[SEC. 9.] *Sec 10.* (a) The Secretary shall have printed separate oil record books, containing instructions and spaces for inserting information in the form prescribed by the Convention, which shall be published in regulations prescribed by the Secretary.

(b) If subject to this Act, every ship using oil fuel and every tanker shall be provided, without charge, an oil record book which shall be carried on board. The provisions of section 140 of title 5, United States Code, shall not apply. The ownership of the booklet shall remain in the United States Government. This book shall be available for inspection as provided in this Act and for surrender to the United States Government pursuant to regulations of the Secretary.

[(c) The oil record book shall be completed on each occasion, whenever any of the following operations takes place in the ship:

[(1) ballasting of and discharge of ballast from cargo tanks of tankers;

[(2) cleaning of cargo tanks of tankers;

[(3) settling in slop tanks and discharge of water from tankers;

[(4) disposal from tankers of oily residues from slop tanks or other sources;

[(5) ballasting, or cleaning during voyage, of bunker fuel tanks of ships other than tankers;

[(6) disposal from ships other than tankers of oily residues from bunker fuel tanks or other sources;

[(7) accidental or other exceptional discharges or escapes of oil from tankers or ships other than tankers.

[In the event of such discharge or escape of oil or oily mixture, as is referred to in subsection 3(c) and section 4 of this Act, a statement shall be made in the oil record book of the circumstances of, and reason for, the discharge or escape.]

(c) *The oil record book shall be completed on each occasion, on a tank-to-tank basis, whenever any of the following operations take place in the ship:*

(*1*) *for tankers—*

(*i*) *loading of oil cargo;*

(*ii*) *transfer of oil cargo during voyage;*

(*iii*) *discharge of oil cargo;*

(*iv*) *ballasting of cargo tanks;*

(*v*) *cleaning of cargo tanks;*

(*vi*) *discharge of dirty ballast;*

(*vii*) *discharge of water from slop tanks;*

(*viii*) *disposal of residues;*

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(*ix*) *discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate log book;*

(*2*) *for ships other than tankers—*

(*i*) *ballasting or cleaning of bunker fuel tanks;*

(*ii*) *discharge of dirty ballast or cleaning water from bunker fuel tanks;*

(*iii*) *disposal of residues;*

(*iv*) *discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate logbook. In the event of such discharge or escape of oil or oily mixture as is referred to in section 4 of this Act, a statement shall be made in the oil record book of the circumstances of, and reason for, the discharge or escape.*

(d) Each operation described in subsection [9] *10* (c) of the Act shall be fully recorded without delay in the oil record book so that all the entries in the book appropriate to that operation are completed. Each page of the book shall be signed by the officer or officers in charge of the operations concerned and, when the ship is manned, by the master of the ship.

(e) Oil record books shall be kept in such manner and for such length of time as set forth in the regulations prescribed by the Secretary.

[(f) If any person fails to comply with the requirements imposed by or under this section, he shall be liable on conviction to a

fine not exceeding $1,000 nor less than $500 and if any person makes an entry in any records kept in accordance with this Act or regulations prescribed thereunder by the Secretary which is to his knowledge false or misleading in any material particular, he shall be liable on conviction to a fine not exceeding $1,000 nor less than $500 or imprisonment for a term not exceeding six months, or both.]

[SEC. 10.] *Sec. 11.* The Secretary may make regulations for the administration of [sections 3, 4, 5, 8(a), 9, and 12.] *sections 3, 4, 5, 6, 7, 9, and 10.*

[SEC. 11.] *Sec. 12.* (a) The Secretary may make regulations empowering such persons as may be designated to go on board any ship to which the convention applies, while the ship is within the territorial jurisdiction of the United States, and to require production of any records required to be kept in accordance with the convention.

(b) Should evidence be obtained that a ship registered in an other country party to the convention has discharged oil in [any prohibited zone] *violation of the convention but outside the territorial sea of the United States* such evidence should be forwarded to the State Department for action in accordance with article X of the convention.

[SEC. 12. (a) All sea areas within fifty miles from the nearest land shall be prohibited zones, subject to extensions or reduction effectuated in accordance with the terms of the Convention, which shall be published in regulations prescribed by the Secretary.

[(b) With respect to the reduction or extension of the zones described under the terms of the Convention, the Secretary shall

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give notice thereof by publication of such information in Notices to Mariners issued by the United States Coast Guard and United States Navy.]

[SEC. 14.] *Sec. 13.* There is hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

[SEC. 15.] *Sec. 14.* If a provision of this Act or the application of such provision to any person or circumstances shall be held invalid, the remainder of the Act and the application of such provision to persons or circumstances other than those to which it is held invalid shall not be affected thereby.

[SEC. 16.] *Sec. 15.* Nothing in this Act or in regulations issued hereunder shall be construed to modify or amend the provisions of *section 311 of* the [Oil Pollution Act, 1924 (33 U.S.C. 431–437),]

Federal Water Pollution Control Act, as amended, or of section 89 of 14, United States Code.

[SEC. 17. (a) This Act shall become effective upon the date of its enactment or upon the date the amended Convention becomes effective as to the United States, whichever is the later date.

[(b) Any rights or liabilities existing on the effective date of this Act shall not be affected by the enactment of this Act. Any procedures or rules or regulations in effect on the effective date of this Act shall remain in effect until modified or superseded under the authority of this Act. Any reference in any other law or rule or regulation prescribed pursuant to law to the "International Convention for the Prevention of the Pollution of the Sea by Oil, 1954," shall be deemed to be a reference to that Convention as revised by the "Amendments of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954," which were adopted by a Conference of Contracting Governments convened at London on April 11, 1962. Any reference in any other law or rule or regulation prescribed pursuant to law to the "Oil Pollution Act, 1961," approved August 30, 1961 (33 U.S.C. 1001–1015), shall be deemed to be a reference to that Act as amended by this Act.]

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1.3c(2) SENATE COMMITTEE ON COMMERCE

S. REP. No. 93–405, 93rd Cong., 1st Sess. (1973).

OIL POLLUTION ACT AMENDMENTS OF 1973

SEPTEMBER 21, 1973.—Ordered to be printed

MR. MAGNUSON, from the Committee on Commerce, submitted the following

REPORT

[To accompany H.R. 5451]

The Committee on Commerce, to which was referred the bill (H.R. 5451) to amend the Oil Pollution Act, 1961 (75 Stat. 402, 33 U.S.C. 1001), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended, and for other purposes, having considered the same, reports favorably

thereon without amendment and recommends that the bill do pass.

SUMMARY AND BRIEF DESCRIPTION

On October 21, 1969, October 12, 1971, and October 15, 1971, the Assembly of a specialized agency of the United Nations (the Intergovernmental Maritime Consultative Organization-IMCO) adopted amendments to the 1954 International Convention for the Prevention of Pollution of the Sea by Oil. H.R. 5451, as approved by the House of Representatives, would amend Federal law (the Oil Pollution Act of 1961) to bring it into conformity with these Convention modifications.

1969 Amendment

The 1969 amendment is stricter than the original Convention in terms of prohibiting intentional discharges of oil and oily wastes from vessels. Further, it eliminated the "prohibited zone" concept under which intentional oil discharges were prohibited in zones approximately 50 miles from the nearest land but only discouraged in the open sea beyond these zones.

The bill, following the 1969 amendment, prohibits *all* discharges of oil or oily mixtures from vessels to which the Convention applies

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(other than tankers), except those made while the vessel is underway at sea so the extent that such discharges en route do not exceed 15.9 gallons (60 liters) per nautical mile or 100 parts oil per million parts of effluent and so long as they are made as far as practicable from any land area. With respect to tankers, *all* such discharges are prohibited *except* those made while the tanker is underway at sea to the extent that such discharges en route take place more than 50 miles from the nearest land area, do not exceed 60 liters per nautical mile, and the total amount of oil discharged on a ballast voyage does not exceed 1/15,000 of the total cargo-carrying capacity of the tanker. In addition, the bill follows the 1969 amendment with respect to requiring a simplified oil record book in which necessary information is to be recorded precisely and with respect to eliminating certain exceptions regarding fuel or oil purification and oil leakage in machinery areas of the vessel.

1971 Amendments

The first 1971 amendment, which is incorporated in the bill, redefines the Great Barrier Reef off Australia as a "land" area,

which amounts to prohibiting oil or oily mixture discharges from vessels within 50 miles of this reef.

The second and major 1971 amendment sets new construction standards for oil tankers. The bill, following this amendment, establishes that every tanker to which the Convention applies must be constructed according to Annex C of the Convention. Annex C sets construction requirements on the basis of the length, width, and draft of the vessel. In general, these new construction standards would limit the potential loss of oil from a tanker following a collision or in case it goes aground. "Wing" tanks would be limited to 30,000 cubic meters and "center" tanks to 50,000 cubic meters in size. The standards apply only to tankers as to which construction is commenced following the date of enactment of this bill or the date the United States ratifies all three amendments. Section 6 of this bill, which applies the legislation to foreign vessels entering ports of the United States, will not become effective until the ratification process for the treaty is complete.

As an added sanction, a tanker can be denied access to any port or terminal maintained by a nation which is a signatory to the Convention unless it carries a valid certificate attesting that it complies with these new construction standards or that such standards are inapplicable.

Since the Convention is not self-executing, each nation which is a signatory party is responsible for independent enforcement. To carry out this responsibility the bill provides for sanctions not included in any of the amendments to the Convention. One will increase the maximum fine for a criminal (willful) violation to $10,000 and another authorizes a new civil penalty of $10,000 for a negligent discharge.

As noted in the letter of transmittal, the Senate has given advice and consent to the 1969 amendment. Advice and consent is expected soon on the 1971 amendments.

NEED FOR THE LEGISLATION

H.R. 5451 is viewed by the Committee as a necessary, but limited, improvement of the legal regime aimed at controlling vessel-source oil pollution of the marine environment. The enforcement record of the

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Oil Pollution Act of 1961 has not been good. Only two violations of either the Convention or the Act were detected beyond 12

miles from United States shores during the period from 1969 through 1972, and only an over-all total of seven anywhere.

A major drawback to the effectiveness of the Oil Pollution Act and the proposed amendments is the reliance on an operational discharge standard based on oil in effluent, usually expressed in parts per million. Such a standard presents greater practical enforcement difficulties than a vessel construction standard for two reasons. First, compliance with an operational discharge standard must rely heavily on the judgment of the human element operating the system. Full observance of the mandate of the Act depends greatly upon the diligence and integrity of vessel masters who must operate their vessels under strong economic constraints. Second, it is far more difficult to demonstrate violation of a discharge standard than of a vessel construction standard. Proof of a discharge violation must be founded on documentation of the discharge and evidence of oil content. The Coast Guard would have to be "on-the-scene" taking samples at the time of the incident to satisfy the burden of proof.

Accordingly, the Committee is pleased to see the trend toward construction standards (the tank size limitations contained in this Act) which put the emphasis on preventing the need for intentional discharges of oil and preventing discharges as a result of accidents. This approach has obvious merit from the enforceability standpoint and results in an internalization of the costs associated with the transport of oil in vessels. To the extent that the Coast Guard must invest in surveillance equipment to enforce operational discharge standards, costs associated with oil transport must be borne by taxpayers and not consumers. Reliance upon construction standards obviates the need for an expensive enforcement system and channels the costs of reducing pollution into the internal costing procedures of the oil transport system associated with those costs. For further discussion of this viewpoint, reference can be made to Senate Report No. 92–724 relating to the Ports and Waterways Safety Act of 1972.

The Intergovernmental Maritime Consultative Organization has scheduled a Conference for October, 1973, to provide a complete update of the 1954 International Convention for the Prevention of Pollution of the Sea by Oil. The Conference will address both discharge standard and construction standard issues relating to ocean transport of oil and other hazardous substances, discharge of waste oil from all ships, and the control of sewage and garbage from all vessels. Greater emphasis is expected to be placed on the manner of construction of potentially polluting vessels. The Committee views this trend with encouragement.

The strengthening of our oil pollution prevention laws brought about by H.R. 5451 is therefore viewed as necessary until the new Convention on Marine Pollution from Ships comes into full force and effect. The vessels which will carry the increased world trade in energy and raw materials are now being readied. Fleets of new supertankers and liquid natural gas (LNG) carriers are being built at a rapid pace. It is predicted that in the period from 1970 to 1985 there will be increases of 200% to 400% in the fleet capacity, annual trade, and average tonnage of bulk carriers. It is the Committee's goal that these fleets be the safest and least polluting possible.

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ESTIMATED COST OF THE LEGISLATION

In accordance with section 252(a) of the Legislative Reorganization Act of 1970 (Public Law 91–150), the Committee estimates that no costs, other than minor administrative costs, will be incurred as a result of enactment of this legislation.

CHANGES IN EXISTING LAW

In compliance with subsection 4 of rule XXIX of the Standing Rules of the Senate, changes in existing law made by the bill are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

OIL POLLUTION ACT, 1961, AS AMENDED

(75 Stat. 402, 80 Stat. 372 (33 U.S.C. 1001–1015))

AN ACT To implement the provisions of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act, to implement the provisions of the International Convention for the Prevention of the Pollution by the Sea by Oil, 1954, as amended, may be cited as the "Oil Pollution Act, 1961, as amended,".

SEC. 2. DEFINITIONS.—As used in this Act, unless the context otherwise requires—

(a) The term "convention" means the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended;

(b) The term "discharge" in relation to oil or to any oily mixture means any discharge or escape howsoever caused;

(c) The term "instantaneous rate of discharge of oil content" means the rate of discharge of oil in liters per hour at any instant divided by the speed of the ship in knots at the same instant;

[(c)] *(d)* The term "heavy diesel oil" means [marine] diesel oil, other than those distillates of which more than 50 per centum, by volume distills at a temperature not exceeding three hundred and forty degrees centrigrade when tested by [American Society for the Testing of Materials] *American Society for Testing and Materials* standard method D. 86/59;

[(d)] *(e)* The term "mile" means a nautical mile of six thousand and eighty feet or one thousand eight hundred and fifty-two meters;

[(e)] *(f)* The term "oil" means crude oil, fuel oil, heavy diesel oil, and lubricating oil, and "oily" shall be construed accordingly [. An "oily mixture" means a mixture with an oil content of one hundred parts or more in one million parts of mixture;]; *an "oily mixture" means a mixture with any oil content;*

[(f)] *(g)* The term "person" means an individual, partnership, corporation, or association; and any owner, operator, agent, master, officer, or employee of a ship;

[(g) The term "prohibited zones" means the zones described in section 12 of this Act as modified by notices, if any, of extension or reduction issued by the Secretary;]

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(h) [The term "Secretary" means the Secretary of the Army;] *The term "Secretary" means the Secretary of the department in which the Coast Guard is operating;*

(i) The term "ship", subject to the exceptions provided in paragraph (1) of this subsection, means any seagoing vessel of any type whatsoever of American registry or nationality, including floating craft, whether self-propelled or towed by another vessel making a sea voyage; and "tanker", as a type included within the term "ship", means a ship in which the greater part of the cargo space is constructed or adapted for the carriage of liquid cargoes in bulk and which is not, for the time being, carrying a cargo other than oil in that part of its cargo space.

(1) The following categories of vessels are excepted from all provisions of the Act:

(i) tankers of under one hundred and fifty tons gross

tonnage and other ships of under five hundred tons gross tonnage.

(ii) ships for the time being engaged in the whaling industry when actually employed on whaling operations.

(iii) ships for the time being navigating the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of Saint Lambert lock at Montreal in the Province of Quebec, Canada.

(iv) naval ships and ships for the time being used as naval auxiliaries.

(j) The term "from the nearest land" means from the baseline from which the territorial sea of the territory in question is established in accordance with the Geneva Convention on the Territorial Sea and the Contiguous Zone, 1958; *except that, for the purpose of this Act "from the nearest land" off the north-eastern coast of Australia means a line drawn from a point on the coast of Australia in latitude 11 degrees south, longitude 142 degrees 08 minutes east to a point in latitude 10 degrees 35 minutes south, longitude 141 degrees 55 minutes east—*

thence to a point latitude 10 degrees 00 minutes south, longitude 142 degrees 00 minutes east;

thence to a point latitude 9 degrees 10 minutes south, longitude 143 degrees 52 minutes east;

thence to a point latitude 9 degrees 00 minutes south, longitude 144 degrees 30 minutes east;

thence to a point latitude 13 degrees 00 minutes south, longitude 144 degrees 00 minutes east;

thence to a point latitude 15 degrees 00 minutes south, longitude 146 degrees 00 minutes east;

thence to a point latitude 18 degrees 00 minutes south, longitude 147 degrees 00 minutes east;

thence to a point latitude 21 degrees 00 minutes south, longitude 153 degrees 00 minutes east;

thence to a point on the coast of Australia in latitude 24 degrees 42 minutes south, longitude 153 degrees 15 minutes east.

[SEC. 3. Subject to the provisions of sections 4 and 5, it shall be unlawful for any person to discharge oil or oily mixture from:

[(*a*) a tanker within any of the prohibited zones.

[(*b*) a ship, other than a tanker, within any of the prohibited zones, except when the ship is proceeding to a port not provided with facilities adequate for the reception, without causing undue

delay, it may discharge such residues and oily mixture as would remain for disposal if the bulk of the water had been separated from the mixture: *Provided,* such discharge is made as far as practicable from land.

[(*c*) a ship of twenty thousand tons gross tonnage or more, including a tanker, for which the building contract is placed on or after the effective date of this Act. However, if in the opinion of the master, special circumstances make it neither reasonable nor practicable to retain the oil or oily mixture on board, it may be discharged outside the prohibited zones. The reasons for such discharge shall be reported in accordance with the regulations prescribed by the Secretary.]

Sec. 3. Subject to the provisions of sections 4 and 5, the discharge of oil or oily mixture from a ship is prohibited unless—

(a) the ship is proceeding en route; and

(b) the instantaneous rate of discharge of oil content does not exceed sixty liters per mile, and

(c)(1) for a ship, other than a tanker—

(i) the oil content of the discharge is less than one hundred parts per one million parts of the mixture, and

(ii) the discharge is made as far as practicable from the nearest land;

(2) for a tanker, except discharges from machinery space bilges which shall be governed by the above provisions for ships other than tankers—

(i) the total quantity of oil discharged on a ballast voyage does not exceed one fifteen-thousandths of the total cargo-carrying capacity, and

(ii) the tanker is more than fifty miles from the nearest land.

SEC. 4. Section 3 [shall] *does* not apply to—

(a) the discharge of oil or oily mixture from a ship for the purpose of securing the safety of a ship, preventing damage to a ship or cargo, or saving life at sea; or

(b) the escape of oil, or oily mixture, resulting from damage to a ship or unavoidable leakage, if all reasonable precautions have been taken after the occurrence of the damage or discovery of the leakage for the purpose of preventing or minimizing the [escape;] *escape.*

[(c) the discharge of residue arising from the purification or clarification of fuel oil or lubricating oil: *Provided,* That such discharge is made as far from land as practicable.]

[SEC. 5. Section 3 shall not apply to the discharge from the bilges of a ship of an oily mixture containing no oil other than lubricating oil which has drained or leaked from machinery spaces.]

Sec. 5. Section 3 does not apply to the discharge of tanker ballast from a cargo tank which, since the cargo was last carried therein, has been so cleaned that any effluent therefrom, if it were discharged from a stationary tanker into clean calm water on a clear day, would produce no visible traces of oil on the surface of the water.

Sec.6. (a) Every tanker to which this Act applies and built in the United States and for which the building contract is placed on or after the effective date of this section shall be constructed in accordance with the provisions of annex C to the convention, relating to tank arrangement and limitation of tank size.

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(b) Every tanker to which this Act applies and built in the United States and for which the building contract is placed, or in the absence of a building contract the keel of which is laid or which is at a similar state of construction, before the effective date of this section, shall, within two years after that date, comply with the provisions of annex C to the convention if—

(1) the delivery of the tanker is after January 1, 1977; or

(2) the delivery of the tanker is not later than January 1, 1977, and the building contract is placed after January 1, 1972, or in cases where no building contract has previously been placed, the keel is laid or the tanker is at a similar stage of construction, after June 30, 1972.

(c) A tanker required under this section to be constructed in accordance with annex C to the convention and so constructed shall carry on board a certificate issued by the Secretary attesting to that compliance. A tanker which is not required to be constructed in accordance with annex C to the convention shall carry on board a certificate to that effect issued by the Secretary, or if a tanker does comply with annex C though not required to do so, she may carry on board a certificate issued by the Secretary attesting to that compliance. Tankers under the flag of the United States are prohibited from engaging in domestic or foreign trade without an appropriate certificate issued under this section.

(d) Certificates issued to foreign tankers pursuant to the convention by other nations party thereto shall be accepted by the

Secretary as of the same force as certificates issued by him. If the Secretary has clear grounds for believing that a foreign tanker required under the convention to be constructed in accordance with annex C entering ports of the United States or using off-shore terminals under United States control does not in fact comply with annex C, he may request the Secretary of State to seek consultation with the government with which the tanker is registered. If after consultation or otherwise, the Secretary is satisfied that such tanker does not comply with annex C, he may for this reason deny such tanker access to ports of the United States or to offshore terminals under United States control until such time as he is satified that the tanker has been brought into compliance.

(e) If the Secretary is satisfied that any other foreign tanker which, if registered in a country party to the convention, would be required to be constructed in accordance with annex C, does not in fact comply with the standards relating to tank arrangement and limitation of tank size of annex C, then he may deny such tanker access to ports of the United States or to offshore terminals under United States control.

[SEC. 6. Any person who violates any provision of this Act, except sections 8(b) and 9, or any regulation prescribed in pursuance thereof, is guilty of a misdemeanor, and upon conviction shall be punished by a fine not exceeding $2,500 nor less than $500, or by imprisonment not exceeding one year, or by both such fine and imprisonment, for each offense. And any ship (other than a ship owned and operated by the United States) from which oil is discharged in violation of this Act, or any regulation prescribed in pursuance thereof, shall be liable for the pecuniary penalty specified in this section, and clearance of such ship from a port of the United States may be withheld until the penalty is paid, and said penalty shall constitute a lien on such ship which may be recovered in proceedings by libel in rem in the district court of the United States for any district within which the ship may be.]

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Sec. 7. (a) Any person who willfully discharges oil or oil mixture from a ship in violation of this Act or the regulations thereunder shall be fined not more than $10,000 for each violation or imprisoned not more than one year, or both.

(b) In addition to any other penalty prescribed by law any person who willfully or negligently discharges oil or oily mixture from a ship in violation of this Act or any regulation thereunder

shall be liable to a civil penalty of not more than $10,000 for each violation, and any person who otherwise violates this Act or any regulation thereunder shall be liable to a civil penalty of not more than $5,000 for each violation.

(c) A ship from which oil or oily mixture is discharged in violation of this Act or any regulation thereunder is liable for any pecuniary penalty under this section and may be proceeded against in the district court of any district in which the vessel may be found.

(d) The Secretary may assess any civil penalty incurred under this Act or any regulation thereunder and, in his discretion, remit, mitigate, or compromise any penalty. No penalty may be assessed unless the alleged violator shall have been given notice and the opportunity to be heard on the alleged violation. Upon any failure to pay a civil penalty assessed under this Act, the Secretary may request the Attorney General to institute a civil action to collect the penalty. In hearing such actions, the district court shall have authority to review the violation and the assessment of the civil penalty de novo.

[SEC. 7.] *Sec. 8.* The Coast Guard may, subject to the provisions of section 4450 of the Revised Statutes, as amended (46 U.S.C. 239), suspend or revoke a license issued to the master or other licensed officer of any ship found violating the provisions of this Act or the regulations issued pursuant thereto.

[Sec. 8.] Sec. 9. *(a)* In the administration of sections 1–12 of this Act, the Secretary may make use of the organization, equipment, and agencies, including engineering, clerical, and other personnel, employed under his direction in the improvement of rivers and harbors and in the enforcement of laws for the improvement of rivers and harbors and in the enforcement of laws for the preservation and protection of navigable waters.] *In the administration of sections 1–12 of this Act, the Secretary may utilize by agreement, with or without reimbursement, law enforcement officers or other personnel, facilities, or equipment of other Federal agencies or the States.* [For the better enforcement of the provisions of said sections, the officers and agents of the United States in charge of river and harbor improvements and persons employed under them by authority of the Secretary, and officers and employees of the Bureau of Customs and the Coast Guard,] *For the better enforcement of the provisions of said sections, officers of the Coast Guard and other persons employed by or acting under the authority of the Secretary* shall have power and authority and it shall be their duty to swear out process and to arrest and take into custody, with or without

process, any person who may violate any of said provisions: *Provided,* That no person shall be arrested without process for a violation not committed in the presence of some one of the aforesaid officials: *And provided further,* That whenever any arrest is made under the provisions of said sections the person so arrested shall be brought forthwith before a commissioner, judge, or court of

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the United States for examination of the offenses alleged against him; and such commissioner, judge, or court shall proceed in respect thereto as authorized by law in cases of crimes against the United States. Representatives of the Secretary and of the [Bureau of Customs and] Coast Guard of the United States may go on board and inspect any ship [in a prohibited zone or in a port of the United States] as may be necessary for enforcement of this Act.

(b) To implement article VII of the convention, ship fittings and equipment, and operating requirements thereof, shall be in accordance with regulations prescribed by the Secretary [of the Department in which the Coast Guard is operating]. [Any person found violating these regulations shall, in addition to any other penalty prescribed by law, be subject to a civil penalty not in excess of $100.]

[SEC. 9.] *Sec. 10* (a) The Secretary shall have printed separate oil record books, containing instructions and spaces for inserting information in the form prescribed by the Convention, which shall be published in regulations prescribed by the Secretary.

(b) If subject to this Act, every ship using oil fuel and every tanker shall be provided, without charge, an oil record book which shall be carried on board. The provisions of section 140 of title 5, United States Code, shall not apply. The ownership of the booklet shall remain in the United States Government. This book shall be available for inspection as provided in this Act and for surrender to the United States Government pursuant to regulations of the Secretary.

[(c) The oil record book shall be completed on each occasion, whenever any of the following operations takes place in the ship:

[(1) ballasting of and discharge of ballast from cargo tanks of tankers;

[(2) cleaning of cargo tanks of tankers;

[(3) settling in slop tanks and discharge of water from tankers;

[(4) disposal from tankers of oily residues from slop tanks or other sources;

[(5) ballasting, or cleaning during voyage, of bunker fuel tanks of ships other than tankers;

[(6) disposal from ships other than tankers of oily residues from bunker fuel tanks or other sources;

[(7) accidental or other exceptional discharges or escapes of oil from tankers or ships other than tankers.

[In the event of such discharge or escape of oil or oily mixture, as is referred to in subsection 3(c) and section 4 of this Act, a statement shall be made in the oil record book of the circumstances of, and reason for, the discharge or escape.]

(c) The oil record book shall be completed on each occasion, on a tank-to-tank basis, whenever any of the following operations take place in the ship:

(1) for tankers—

(i) loading of oil cargo;

(ii) transfer of oil cargo during voyage;

(iii) discharge of oil cargo;

(iv) ballasting of cargo tanks;

(v) cleaning of cargo tanks;

(vi) discharge of dirty ballast;

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(vii) discharge of water from slop tanks;

(viii) disposal of residues;

(ix) discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate log book;

(2) for ships other than tankers—

(i) ballasting or cleaning of bunker fuel tanks;

(ii) discharge of dirty ballast or cleaning water from bunker fuel tanks;

(iii) disposal of residues;

(iv) discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port, and the routine discharge at sea of bilge water containing oil unless the latter has been entered in the appropriate logbook. In the event of such discharge or escape of oil or oily mixture as is referred to in section 4 of this Act, a statement shall be made in the oil

record book of the circumstances of, and reason for, the discharge or escape.

(d) Each operation described in subsection [9] 10 (c) of the Act shall be fully recorded without delay in the oil record book so that all the entries in the book appropriate to that operation are completed. Each page of the book shall be signed by the officer or officers in charge of the operations concerned and, when the ship is manned, by the master of the ship.

(e) Oil record books shall be kept in such manner and for such length of time as set forth in the regulations prescribed by the Secretary.

[(f) If any person fails to comply with the requirements imposed by or under this section, he shall be liable on conviction to a fine not exceeding $1,000 nor less than $500 and if any person makes an entry in any records kept in accordance with this Act or regulations prescribed thereunder by the Secretary which is to his knowledge false or misleading in any material particular, he shall be liable on conviction to a fine not exceeding $1,000 nor less than $500 or imprisonment for a term not exceeding six months, or both.]

[SEC. 10.] *Sec. 11.* The Secretary may make regulations for the administration of [sections 3, 4, 5, 8(a), 9, and 12.] *sections 3, 4, 5, 6, 7, 9, and 10.*

[SEC. 11.] *Sec. 12.* (a) The Secretary may make regulations empowering such persons as may be designated to go on board any ship to which the convention applies, while the ship is within the territorial jurisdiction of the United States, and to require production of any records required to be kept in accordance with the convention.

(b) Should evidence be obtained that a ship registered in another country party to the convention has discharged oil in [any prohibited zone] *violation of the convention but outside the territorial sea of the United States* such evidence should be forwarded to the State Department for action in accordance with article X of the convention.

[SEC. 12. (a) All sea areas within fifty miles from the nearest land shall be prohibited zones, subject to extensions or reduction effectuated in accordance with the terms of the Convention, which shall be published in regulations prescribed by the Secretary.

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[(b) With respect to the reduction or extension of the zones described under the terms of the Convention, the Secretary shall give notice thereof by publication of such information in Notices to Mariners issued by the United States Coast Guard and United States Navy.]

[SEC. 14.] *Sec. 13.* There is hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act.

[SEC. 15.] *Sec. 14.* If a provision of this Act or the application of such provision to any person or circumstances shall be held invalid, the remainder of the Act and the application of such provision to persons or circumstances other than those to which it is held invalid shall not be affected thereby.

[SEC. 16] *Sec. 15.* Nothing in this Act or in regulations issued hereunder shall be construed to modify or amend the provisions of *section 311 of* the [Oil Pollution Act, 1924 (33 U.S.C. 431–337,] *Federal Water Pollution Control Act, as amended,* or of section 89 of title 14, United States Code.

[SEC. 17. (a) This Act shall become effective upon the date of its enactment or upon the date the amended Convention becomes effective as to the United States, whichever is the later date.

[(b) Any rights or liabilities existing on the effective date of this Act shall not be affected by the enactment of this Act. Any procedures or rules or regulations in effect on the effective date of this Act shall remain in effect until modified or superseded under the authority of this Act. Any reference in any other law or rule or regulation prescribed pursuant to law to the "International Convention for the Prevention of the Pollution of the Sea by Oil, 1954," shall be deemed to be a reference to that Convention as revised by the "Amendments of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954," which were adopted by a Conference of Contracting Governments convened at London on April 11, 1962. Any reference in any other law or rule or regulation prescribed pursuant to law to the "Oil Pollution Act, 1961," approved August 30, 1961 (33 U.S.C. 1001–1015), shall be deemed to be a reference to that Act as amended by this Act.]

AGENCY COMMENTS

Executive Communication No. 446 and departmental report on S. 1067 (H.R. 5451) follow:

[Exec. Comm. No. 446]

THE SECRETARY OF TRANSPORTATION,
Washington, D.C., February 15, 1973.

Hon. SPIRO T. AGNEW,
President of the Senate,
Washington, D.C.

DEAR MR. PRESIDENT: There is transmitted herewith a draft of a proposed bill, "to amend the Oil Pollution Act, 1961, (75 Stat. 402), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of Pollution of the sea by Oil, 1954, as amended; and for other purposes."

[P. 11]

The proposed bill would incorporate into the existing domestic law which implements the original 1954 Oil Pollution Convention the latest amendments to the Convention adopted by the Intergovernmental Maritime Consultative Organization (IMCO) by Resolution A.175(VI) on October 21, 1969; Resolution A.232 (VII) on October 12, 1971, and Resolution A.246(VII) on October 15, 1971. You will recall that ratification of the 1969 amendments was advised and consented to by the Senate on September 20, 1971. Additionally in May 1972 the 1971 amendments were submitted to the Senate for their advice and consent. The submission of draft legislation at this time is in accord with the Executive Branch intention of seeking legislative implementation at the earliest possible time.

The 1969 convention changes, particularly as they impose more stringent constraints on oil and oily mixture discharges from vessels anywhere, represent another advancing step toward remedy of ocean oil pollution, a major international as well as national environmental problem. Those amendments abandon the concept which prohibited discharges within certain zones (generally within 50 miles of land) and which discouraged but did not prohibit indiscriminate discharges in the open sea beyond the zones. Under the amendments and the legislation here proposed, discharges will be prohibited anywhere unless certain conditions are met. Those conditions relate to discharge rate, oily mixture dilution, total quantity of oil discharged, and distance from land. For example, a tanker will be prohibited from any discharges within 50 miles of land, and beyond that distance may only discharge while proceeding enroute and so long as a discharge of oil content does not exceed 60 liters per mile, and provided that the total quantity of oil discharged on a ballast voyage does not

exceed 1/15,000 of the total cargo-carrying capacity of the vessel.

The 1971 amendments apply the distance from land criterion for discharges of oil and oily mixtures to the area of the Great Barrier Reef as if it were land, and concern tank arrangements and limitations of tank size for new tank vessels. The objective of the amendments relating to tank arrangements and tank size is to limit the quantity of oil which can escape into the sea as the result of collision or other vessel casualty.

In addition to the criminal penalties now provided for violations of the 1961 Act these proposed amendments would make civil penalties also available for more flexible and effective enforcement. Article VI of the Oil Pollution Convention requires that penalties which a country imposes for unlawful discharges by domestic vessels beyond its territorial sea shall not be less than those for the same infringements within the territorial sea. That requirement will be satisfied because the civil penalties proposed in the draft bill are equal to or larger in amount than those contained in section 311 of the Federal Water Pollution Control Act (P.L. 92–500).

It would be appreciated if you would lay this proposal before the Senate. A similar proposal has been submitted to the Speaker of the House of Representatives.

The Office of Management and Budget advises that this proposed legislation is consistent with the Administration's objectives.

Sincerely,

CLAUDE S. BRINEGAR.

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DEPARTMENT OF STATE,
Washington, D.C., May 31, 1973

Hon. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate.

DEAR MR. CHAIRMAN: The Secretary has asked that I reply to your letter of March 26 requesting the comments of the Department of State on S. 1067, a bill "To amend the Oil Pollution Act, 1961 (75 Stat. 402), as amended, to implement the 1969 and the 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended; and for other purposes."

S. 1067 is motivated by three sets of amendments to the 1954 Convention: the amendments with respect to oily discharge adopted by the Assembly of the Inter-Governmental Consultative

Organization (IMCO) on October 21, 1969; the amendments for the protection of the Great Barrier Reef adopted by the IMCO Assembly on October 12, 1971; and the amendments concerning tank arrangements and limitation of tank size adopted by the IMCO Assembly on October 15, 1971. The Senate has consented to the first of these amendments, and has the other two before it for advice and consent. The Department of State believes that ratification of the three sets of amendments would be in the interest of the United States. It accordingly supports the adoption of S. 1067, by which they would be implemented.

Adoption of this legislation would not result in any significant costs to the Department of State.

The Office of Management and Budget advises that from the standpoint of the Administration's program there is no objection to the submission of this report and that enactment of S. 1067 would be consistent with the Administration's objectives.

Sincerely,

MARSHALL WRIGHT,
Assistant Secretary for Congressional Relations.

NATIONAL SCIENCE FOUNDATION,
OFFICE OF THE DIRECTOR,
Washington, D.C., August 20, 1973.

Hon. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate,
Washington, D.C.

DEAR. MR. CHAIRMAN: This is in response to your letter of March 26. 1973, requesting the comments of the National Science Foundation on S. 1067, the Oil Pollution Act Amendments of 1973 and S. 1070, the Intervention on the High Seas Act.

S. 1067 would amend existing domestic legislation to implement and conform to the 1969 and 1971 amendments to the National Convention for the Prevention of the Pollution of the Sea by Oil.

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S. 1070 would provide legislation implementing the National Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties.

Since the Foundation has no direct responsibilities under the legislation, it defers to the views of the Department of State, the Environmental Protection Agency, and other agencies directly affected by the bills.

The Office of Management and Budget has advised us that there is no objection to the submission of this report from the viewpoint of the Administration's program.

Sincerely yours,

R. L. BISPLINGHOFF,
(for H. Guyford Stever, Director).

FEDERAL MARITIME COMMISSION,
OFFICE OF THE CHAIRMAN,
Washington, D.C., August 7, 1973.

Hon. WARREN G. MAGNUSON,
Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to your request for the views of the Federal Maritime Commission with respect to S. 1067, a bill "To amend the Oil Pollution Act, 1961 (75 Stat. 402), as amended, to implement the 1969 and the 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended; and for other purposes."

Inasmuch as the bill does not affect the responsibilities or jurisdiction of the Commission, we express no views as to its enactment.

The Office of Management and Budget has advised that there would be no objection to the submission of this letter from the standpoint of the Administration's program.

Sincerely,

HELEN DELICH BENTLEY,
Chairman.

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1.3c(3) CONGRESSIONAL RECORD, VOL. 119(1973):
1.3c(3)(a) May 8: Considered and passed House, pp. H3419–H3425

OIL POLLUTION ACT AMENDMENTS OF 1973

Mrs. SULLIVAN. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 5451) to amend the Oil Pollution Act, 1961 (75 Stat. 402), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended; and for other purposes, as amended.

The Clerk read as follows:

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* * * * *

The SPEAKER. Is a second demanded?

Mr. RUPPE. Mr. Speaker, I demand a second.

The SPEAKER. Without objection, a second will be considered as ordered.

There was no objection.

(Mrs. SULLIVAN asked and was

given permission to revise and extend her remarks.)

Mrs. SULLIVAN. Mr. Speaker, I yield myself such time as I may consume.

Mr. Speaker. H.R. 5451, as reported by the Merchant Marine and Fisheries Committee is straight forward and uncomplicated in concept, although its provisions are somewhat technical in nature.

The bill proposes to amend the Oil Pollution Act, 1961, as amended, to reflect in that act three sets of amendments to the International Convention on Prevention of Pollution of the Sea by Oil, 1954, as amended.

The 1954 convention, of which the United States is signatory, was the first international action addressing itself to the reduction of oil pollution in the oceans. Even at that early date, it was apparent that it was necessary to take measures to prevent the oceans from becoming more and more polluted from oil discharges. With increasing carriage of oil by tankers, now at a level of 1,300 million metric tons per year, more and more stringent controls must be applied.

As a result of its continuing concern, the Inter-Governmental Maritime Consultative Organization—IMCO—took action in 1962 to tighten the provisions of the convention, and the United States ratified those changes in 1966. Again in October 1969, IMCO took additional measures, and those 1969 amendments are one of the three sets of provisions which this bill before us today will incorporate into domestic law. The other two sets of amendments were adopted in IMCO in October 1971.

The three sets of amendments which we propose to implement in this legislation do the following things:

First, as to the 1969 amendments. This set of amendments abolishes the so-called "free zones" of the oceans, generally existing in areas more than 50 miles from the nearest land, and extends the "prohibited zones" to cover the entire ocean. The result is that in the discharge of oil from vessels through ballasting and tank washing operations, the vessels covered by the convention, tankers above 150 tons and other vessels above 500 tons, may discharge oily mixtures during their operations only when the vessel is proceeding en route on its voyage, the rate of discharge of the oil content in the oily water does not exceed 15 gallons per mile, the oil content is less than 100 parts per oil per 1 million parts of mixture, and the vessel is as far as practicable from land. As to tankers, discharge of effluent with any oil content is prohibited unless the tanker is proceeding on its voyage, the rate of discharge does not exceed 15 gallons per mile, the total quantity of oil discharged on a ballast voyage does not exceed one fifteen-thousandths cargo-carrying capacity, and the tanker is more than 50 miles from the nearest land.

Under present conditions, it is estimated that a total of almost 1 million metric tons of oil are discharged into the oceans each year from tank washings and oily ballast discharges. Of this amount, U.S. registered tankers are estimated to contribute approximately 53,000 or about 6 percent of the total. With the provisions of the 1969 amendments in force, the maximum quantity of oil at present cargo levels for U.S. tankers would be something less than 5,000 metric tons or a reduction of approximately 90 percent. The same computation would reduce the overall world discharge to less than 90,000 metric tons per year.

Mr. Speaker, the 1969 amendments, adopted in IMCO in October 1969, were referred to the Senate for advice and consent to ratification, and on September 20, 1971, that body by a vote of 75 to 0, adopted the resolu-

tion of ratification. In the second session of the 92d Congress, the Merchant Marine and Fisheries Committee reported favorably H.R. 15627, to implement those 1969 amendments. The bill was passed by

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unanimous consent in the House late in the second session and, unfortunately, the Senate did not take action on the bill. Therefore, as to these 1969 amendments, this House has already spoken, and I solicit your support to move this implementing legislation forward once again.

As to the two sets of amendments adopted in IMCO in 1971, each of which is also contained in this implementing legislation, the first relates to the Great Barrier Reef, off the northeast coast of Australia. Because of its fragile nature and its protection to the continent of Australia, the IMCO Assembly adopted a resolution amending the convention to treat the Great Barrier Reef as if it were land, so that no tanker discharges with any oil content could occur within 50 miles of that reef.

The second set of 1971 amendments is anticipatory in nature. Faced with the prospect of increasingly large tankers and discussions looking to the possibility of large tankers of from 500,000 to 1 million deadweight tons, IMCO with the leadership of the U.S. delegation, established certain tank size limitations and tank arrangements in these large tankers which would result in limiting the outflow of oil in the event that one of these tankers should suffer collision or stranding casualty. The net effect of the amendments would be that no tanker could be constructed after a certain date wherein the wing tanks could exceed 30,000 cubic meters. The center tanks could not exceed 50,000 cubic meters. The formula adopted would begin to have practical effect in any tanker approaching 300,000 deadweight tons or larger.

The two sets of 1971 amendments have not yet been acted upon in the Senate. However, hearings were recently held by a subcommittee of the Foreign Relations Committee, and there is every reason to believe that favorable affirmative action will be taken on those amendments within the early future.

In addition to implementing the three sets of amendments which I have described, H.R. 5451, as reported, makes certain other technical and conforming changes to the Oil Pollution Act, 1961, and increases the penalty provisions in order to provide a more realistic sanction for violators. The new penalties provide for a maximum fine of $10,000 and imprisonment for not more than 1 year for willful discharges in violation of the act, a civil penalty of not more than $10,000 for either a willful or negligent discharge in violation of the act and a civil penalty of not more than $5,000, for any other violation of the act or regulation not amounting to a discharge. Under the present provisions of the act, the maximum fine is $2,500, and no civil penalties are provided for.

Finally, the bill, as reported, will, with a single exception, place the implementing provisions into effect as soon as the bill is enacted or the amendments are ratified by the United States, whichever is later. The exception referred to relates to actions against foreign vessels trading in American ports or offshore terminals. This provision will become effective only after the second set of 1971 amendments goes into effect, upon completion of the international ratification process.

I commend this legislation to the House, and I solicit the support of all Members in the enactment of this bill. It is legislation which is effective

and practical, a combination which is not always possible.

(Mr. RUPPE asked and was given permission to revise and extend his remarks.)

Mr. RUPPE. Mr. Speaker, I rise in support of H.R. 5451, a bill to amend the Oil Pollution Act of 1961 to implement the 1969 and 1971 amendments to the International Convention for the Prevention of Pollution of the Sea by Oil.

The Oil Pollution Convention of 1954 was the first international attempt to control the growing threat of oil pollution at sea from the routine operation of tankers and other vessels. In essence, the convention established the concept of prohibited zones extending 50 miles from shore within which oil may not be discharged. While this convention was a step in the right direction in that it at least minimized the international discharge of oil close in shore, it did nothing to stop the growing use of the oceans generally as a dumping ground for oily residues from the thousands of ships daily transiting the sealanes of the world.

Following the *Torrey Canyon* disaster of 1964, the principal maritime nations of the world under the auspices of the International Maritime Consultative Organization—IMCO—began to seriously reevaluate the full spectrum of Safety at Sea and Marine Pollution Conventions. The 1969 and 1971 amendments to the Oil Pollution Convention which this legislation would implement were the result of this post-*Torrey Canyon* reappraisal.

As amended in 1969, the Oil Pollution Convention expands upon the prohibited zone concept to establish a more rational criteria for the discharge of oil. Discharges from tankers continue to be flatly prohibited within 50 miles from the nearest land. In addition, discharges beyond 50 miles at sea, heretofore unregulated, may not exceed 60 litres, or about 16 gallons, per mile, and the total quantity of oil discharged on a ballast voyage may not exceed one fifteen-thousandths of the cargo-carrying capacity of the ship. Comparable, though not identical, provisions governed discharges of oil from all other ships. Stringent recordkeeping provisions have been adopted to insure compliance with these requirements.

The existing Oil Pollution Act provides only criminal penalties for violations. The bill establishes a $10,000 civil penalty for willful or negligent discharge of oil in violation of the act and raises the criminal fine from a maximum of $2,500 to a maximum of $10,000.

The 1971 amendments to the convention recognize the Great Barrier Reef off the coast of Australia as if it were land for the purposes of the 50-mile limitation and establish regulations governing the size of individual cargo tanks in newly constructed tank vessels. The uniqueness of the Great Barrier Reef, a living coral formation that is the habitat of a tremendous variety of tropical fish and other marine life amply justifies its treatment as a land mass for the purpose of prohibiting totally any discharge of oil within 50 miles. The second set of 1971 amendments is a first step toward limiting the volume of oil which might escape into the sea in the event of a stranding, collision, or explosion involving large tankers.

The impact of these regulations will be felt upon ships in the 300,000-deadweight-ton-and-above category. While no ships of this size are registered under the American flag or even under construction in the United States, there are many in use or on order worldwide.

In essence, the main cargo tanks would be limited to a maximum volume of 50,000 cubic meters and wing tanks to a maximum of 30,000 cubic

meters. Once this amendment becomes operative following ratification by the requisite number of nations, the Secretary of Transportation will be authorized to deny entry to U.S. ports or offshore terminal facilities to any tanker which does not conform to these limitations.

This legislation is an important step forward in our effort to reduce and eventually eliminate all intentional discharges of oil at sea resulting from routine shipboard operations and to lessen the impact of a pollution incident in the event of a stranding or collision.

There has been steady growth in the size of supertankers since adoption of the 1969 and 1971 amendments. More contracts have been signed for the construction of ships in the 500,000-ton category. It seems clear that tankers well above that tonnage are inevitable. This has resulted in a call for further refinements to international regulation of tanker construction. I was privileged earlier this year to attend the Preparatory Conference for the 1973 Oil Pollution Convention at which time a draft convention was hammered out, which hopefully will be adopted later this year and submitted to the member nations of IMCO for ratification. The new convention will prescribe more stringent standards for the construction of these truly immense petroleum carriers. The other body has given its advice and consent to the 1969 amendments and will shortly consider the 1971 amendments. Our maritime industry strongly supports these internationally agreed measures to protect the marine environment. I therefore urge the passage of this legislation as a much-needed step toward achieving the goal of protecting the global marine environment from the toxic effects of oil.

Mr. MURPHY of New York. Mr. Speaker, will the gentleman yield?

Mr. RUPPE. I yield to the gentleman from New York.

Mr. MURPHY of New York. The committee has watched the development of IMCO, and the balanced requirements of ocean ships, particularly as very large crew carriers, becoming larger than very large, are developed. The committee, with the gentlewoman from Missouri (Mrs. SULLIVAN as chairman, will undertake hearings later this month on the impact of balanced requirements, as that appears to affect the American shipbuilding industry.

And, of course, the impact is that there is one thing we certainly want to assure, and that is that certainly this not an

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international standard that is imposed only on the United States which would, in effect price the United States out of the shipbuilding business, whether it is a very large crew carrier or whether it is another type of carrier. The committee will go into in-depth hearings on this matter later this month.

Mr. RUPPE. Mr. Speaker, I thank my colleague, the gentleman from New York (Mr. MURPHY). He brings out a very good point.

I do know, as a result of my attendance at the last London convention of IMCO, that the American delegation was very strong in supporting those amendments, the two amendments to existing conventions that would tighten up regulations on discharges of oil at sea or discharges of chemicals or other toxic substances.

I think, however, that we will want to support these measures, fully understanding that in no way is this going to impair the future or the viability of our American Merchant Marine or certainly those organizations and companies engaged in the construction thereof.

I think the idea of hearings which my colleague, the gentleman from

New York (Mr. MURPHY) has suggested is a very wise one, and I think they will be very helpful in connection with this problem.

Mr. DON H. CLAUSEN. Mr. Speaker, will the gentleman yield?

Mr. RUPPE. I am very happy to yield to the gentleman from California (Mr. DON H. CLAUSEN).

(Mr. DON H. CLAUSEN asked and was given permission to revise and extend his remarks.)

Mr. DON H. CLAUSEN. Mr. Speaker, I rise in strong support of this legislation.

I would like to have the attention of the gentleman from Michigan (Mr. DINGELL). I would like to direct a couple of questions to the gentleman, representing as I do a very long coastline of California; that is, northern California. Mr. Speaker, the question I would like to direct to the gentleman is whether or not this number of miles will apply seaward from the shoreline or from the territorial sea.

Mr. DINGELL. If the gentleman will yield, the answer is that it would apply from the coast, beginning at the coast, to the territorial sea.

Mr. DON H. CLAUSEN. Mr. Speaker, the next question will relate to the enforcement proceedings beyond the territorial sea.

Will this come under the Environmental Protection Act?

Mr. DINGELL. No, this will be administered under the statute. We are considering that it will be administered by the Coast Guard, and it will be handled in that fashion.

Mr. DON H. CLAUSEN. Well, what about on the Continental Shelf itself?

Mr. DINGELL. This is within the territorial sea. The Federal Water Pollution Act will apply, and they will apply the more stringent standards, so that we could well have application as to vessels, tank and dry cargo and other vessels, both under international agreement and also under this particular statute.

Mr. DON H. CLAUSEN. So for the territorial sea the Environmental Protection Act would control it pretty much?

Mr. DINGELL. The Federal Water Pollution Control Act, as amended, would apply.

Mr. DON H. CLAUSEN. And then seaward it would be up to the Coast Guard to enforce this in concert with other agencies?

Mr. DINGELL. Well, the Coast Guard will be the administrative agency and will carry out the enforcement procedures set forth in the statute with regard to reporting, keeping records, and so forth, with regard to discharge. This statute requires any discharge to be reported in a record book, and failure to report or false reports in the record books make a person subject to rather severe penalties.

Mr. DON H. CLAUSEN. Mr. Speaker, may I ask the gentleman further: This is going to require increasing responsibilities on the part of the Coast Guard to enforce this kind of pollution control, at least with regard to oil pollution?

Mr. DINGELL. It is going to increase the responsibilities of the Coast Guard.

The gentleman is correct.

Mr. DON H. CLAUSEN. It may be that the gentleman is addressing himself to this in other legislation, but will the Coast Guard be adequately funded in order to meet these responsibilities?

Mr. DINGELL. Mr. Speaker, that is a question we will have a chance to address ourselves to in the next bill, which will be the Coast Guard authorization bill.

Mr. GROVER. Mr. Speaker, will the gentleman yield?

Mr. RUPPE. I yield to the gentleman from New York (Mr. GROVER), the ranking member of this committee.

(Mr. GROVER asked and was given permission to revise and extend his remarks.)

Mr. GROVER. Mr. Speaker, I thank the gentleman for yielding to me.

Those of us, Mr. Speaker, in maritime or coastal States are growing more and more sensitive to the great threat of oil pollution, not only with regard to pollution of our beaches, but with regard to the degrading of our marine environment.

As the gentleman from Michigan (Mr. DINGELL) said, this legislation is a step beyond the Water Pollution Control Act of 1972, an act which has teeth in it for our territorial waters; the legislation at hand applies to oil spills and oil dumping in the open seas.

It is a very good piece of legislation.

Mr. Speaker, the United States has taken a position of world leadership in the effort to protect the oceans from further oil pollution. We have pursued this goal on the domestic front and at the international level.

President Nixon devoted a message to the Congress on May 20, 1970 to call attention to the growing threat to our marine environment from the routine spillage of oily wastes at sea and from the growing number of tanker collisions and grounding occurring principally in coastal waters.

Again on February 8, 1971, the President in his environment message called for an international effort to terminate all intentional discharges of oil from ships by 1975 if possible, and no later than the end of this decade.

Protection from the threat of massive pollution incidents and from the more insidious routine discharge of oily wastes, principally contaminated ballast water, is being achieved along two lines; first, prevention of accidents and their consequences and deliberate discharges, and secondly, development of cleanup techniques and legal remedies to insure that those who cause pollution will be held responsible.

The prevention of accidental pollution involves primarily the development of techniques to enhance the navigation of ships in those congested areas where the risk is greatest. In this regard, the 92d Congress witnessed the enactment of the Ports and Waterways Safety Act authorizing the Coast Guard traffic control systems and regulation of vessel movements under appropriate circumstances; the Vessel Bridge-to-Bridge Radio-telephone Act to insure that ships will be able to communicate their intentions in passing situations —heretofore a leading cause of collisions; and the Towing Vessel Licensing Act to insure that the operators of barge tows, which have been involved in numerous collisions with ships in the lower Mississippi, for example, are qualified to pilot our inland and coastal waterways.

These domestic laws will undoubtedly contribute to a far higher degree of vessel safety within territorial waters of the United States. They, of course, apply with equal force to U.S. and foreign-flag vessels which may enter our jurisdiction. We will never, of course, totally eliminate the possibility of a massive pollution incident involving a supertanker. It is, therefore, essential that we take parallel steps to insure that the impact of such a maritime casualty be minimized. Since the vast majority of petroleum carriers entering our ports and transiting sea lanes of the world fly foreign flags, unilateral action on the part of the United States could only be partially effective; hence, the effort at the international level, as outlined by the President to achieve a much higher standard worldwide for tanker construction and operation.

As has been stated here, the bill before us today implements a series of amendments to the 1954 Convention on the Prevention of Pollution of the Sea by Oil. The 1969 amendments to the convention deal with the routine discharge of oil from tankers and other ships arising principally from tank cleaning operations while sailing in ballast. These routine shipboard operations produce a very significant degree of oil pollution throughout the world. With the great growth in size of tankers, the amount of oil left as a residue inside the tanks after discharging has been completed amounts to many hundreds of tons. Various operational measures have been developed to minimize the discharge of this oil after ballast water has been taken on, including the so-called load-on-top technique, and the establishment of shore-based waste water discharge facilities. None of these measures have proven completely satisfactory, and due to the highly competitive nature of the oil transportation industry all of the principal maritime nations must act in consort to insure that shipowners cannot escape their obligation to protect the marine environment by flag shopping.

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The 1971 amendments to the convention are a first step at the international level toward developing tanker construction standards which will minimize the impact of a casualty by limiting the volume of oil that may be carried in each cargo cell of the ship. Far more stringent tanker construction standards are now being studied, including segregated ballast tanks and double bottoms, in anticipation of the 1973 IMCO conference on marine pollution. The 1971 amendments to the 1954 convention may, therefore, be considered to be of an interim nature.

Since ocean pollution respects no boundaries, it is to be hoped that the solutions can be found at the international level. We have, however, taken steps domestically to provide for unilateral action on the part of the United States should these international efforts not bear meaningful fruit. Title II of the Ports and Waterways Safety Act of 1972 directs the Secretary of Transportation to promulgate tanker construction standards for all vessels which may enter our waters according to a well-defined timetable which gives the international community a reasonable time within which to act.

These, therefore, are the highlights of our effort over the past several years to eliminate deliberate and accidental oil spills by improving the design of ships and by providing for greater navigational safety. H.R. 5451 represents an important aspect of this overall effort.

(Mr. GROVER asked and was given permission to revise and extend his remarks.)

Mr. RUPPE. Mr. Speaker, I yield to my colleague from New York.

Mr. WYDLER. I would like to address a couple of questions to somebody who has charge of this bill.

Do I understand under the terms of this bill that it makes or sets legal standards in effect for the dumping of oil at sea? Is that the understanding?

Mr. RUPPE. It sets limitations. There have been no restrictions on dumping of oil beyond a distance of 50 miles. To my understanding, this set very tight limitations on the amount of dumping that can be permitted. For instance, dumping cannot exceed 16 gallons per mile and the total dumping cannot exceed one fifteen-thousandths of the cargo capacity of a ship. In other words, there are very strict limitations with severe civil and criminal penalties

for violation hereof and generally for any discharge of oil in the open sea.

Mr. WYDLER. I understand that, but what I am driving at is I understand the need for such regulation, but what I think I understand is under the terms of this bill certain types of dumping of oil at sea are made legal. Is that right?

Mr. DINGELL. Will the gentleman yield?

Mr. RUPPE. I yield to the gentleman.

Mr. DINGELL. The answer to that question is categorically no. This bill restricts very significantly both the amount, that is the quantities, and the areas in which oil may be dumped now. This legislation implements an international agreement to which the United States is a signed participant and says for the first time that vessels which bear the American flag may no longer dump oil anywhere in the ocean outside the 50-mile limit of a coast without limitation and it imposes limitations as to the amounts.

For example, one fifteen-thousandths of the total amount of cargo capacity of a ship. Sixty liters per mile is a limitation. That is the total limitation. It is one fifteen-thousandths of the total cargo carrying capacity of a vessel on a voyage.

It also restricts it so that there can no longer be any dumping inside the 50-mile limit of any shoreline. This is a substantial restriction. IMCO intends to address itself to an absolute zero dumping of oil in the oceans by 1980. That is the next step, and this committee will be very vigorous in looking into that matter when it arises.

Mr. WYDLER. I appreciate the explanation of the gentleman, but if I understood it correctly, it comes down to this fact. If you dump a certain distance from the land and a set amount per square mile—

Mr. DINGELL. Per liter.

Mr. WYDLER. Then that dumping is a legal dumping of oil at sea. Is that correct?

Mr. RUPPE. Any dumping is legal beyond 50 miles now and you can dump at sea whatever you want to. This for the first time puts severe limitations on the discharge of oil at sea. Recognizing the fact that there are possible accidents or small discharges that might occur, we have provided that they do not exceed 16 gallons per mile or one fifteen-thousandths of the total cargo carrying capacity of a ship on a voyage. That would not be considered legal under the legislation. This takes the dumping which was heretofore legal and restricts it very severely.

I believe the chairman of the full committee has said that we dump over 1 million barrels of oil annually now, and this will restrict it to under 100,000 barrels of oil.

Mrs. SULLIVAN. That is absolutely correct.

Mr. WYDLER. Then, where does the other 900,000 barrels of oil go?

Mr. RUPPE. That will stay in the vessel.

Seriously, they will not be dumping. It will force people who might have been careless in their operations or sloppy in the management of vessels to be very careful about it. Very definitely they will have to adhere to these regulations, as stringent as they are, and it will stop 90 percent of any discharges of oil in the open sea beyond the present 50-mile limit.

Mr. WYDLER. Was any thought giving to burning? I assume they have to get rid of the oil in some fashion. I make that assumption although I do not know about it, but on that assumption of having to get rid of the oil in some fashion, was any thought given to burning it instead of dumping it?

Mr. DINGELL. Will the gentleman yield?

Mr. RUPPE. I yield to the gentleman.

Mr. DINGELL. The 90-percent reduction will come about in a number of ways. Three of them involve loading the oil on top of the ballast so that the ballast continues to be carried and the salt-water contaminated oil will be run through a processing facility for refining. And the oil will be removed in that fashion.

In some areas they will set up onshore facilities where the ballast will be pumped out, and the oil will be permitted to separate out through gravity. Those are the two principal ways in which the matter will be handled.

Mr. WYDLER. I thank the gentleman from Michigan for that explanation, but I still say that what is bothering me is the fact that I come from an area where we have an ocean coastline, and from time to time there are oil spills that wash up on our beaches, and a great to-do is made of this, about the terrible pollution that is thus created.

But if I understand this bill correctly then that dumping of oil could be legal, or would be legal. Is that correct?

Mr. DINGELL. If the gentleman will yield further, the answer is no, because under the treaty there can be no dumping of oil or no pumping out of ballast tanks whatsoever within a 50-mile zone. The bill and the treaty provide for complete record-keeping, and for severe civil and criminal penalties for failure to keep proper records, or for filing false records outside of the 50-mile zone, and the bill for the first time imposes restrictions on the amount of oil that may be dumped per mile traveled, or in terms of total tonnage. This bill treats the American-flag vessels in the same fashion that other signatory nations will treat their own flag vessels. Of course, obviously this applies only to our own vessels, but in addition the bill provides for methods of reporting and penalties for failures to tell the truth in their record-keeping, and also would provide penalties for violating new prohibitions against dumping both as to where and as to the amount.

Mr. WYDLER. The gentleman from Michigan is telling me that this cannot be done within the 50-mile zone from the coastline, but is there any magic about that number of 50 miles? And is oil dumping beyond the 50-mile limit—is there anything to keep that oil from being washed up on the coastal shorelines, and why is not that oil also covered by this bill?

Mr. DINGELL. If the gentleman will yield further, the answer is not actually, because the IMCO Conference could not agree upon this subject, but I hasten to say that IMCO will be able to address itself to a complete zero prohibition of oil dumping within the near future.

Mr. RUPPE. Mr. Speaker, I might also point out to my colleague that the present IMCO group is meeting now to develop new restrictions such as that which will require separate ballast tanks in which to pump the oil so that when they do have the separate ballast tanks they will not have this problem at all, and there will be no discharging of oil of any kind.

Mr. GROSS. Mr. Speaker, will the gentleman yield?

Mr. RUPPE. I yield to the gentleman from Iowa.

Mr. GROSS. Mr. Speaker, I would ask

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the gentleman from Michigan (Mr. DINGELL) does this bill in any way add to or subtract from the territorial rights of States with regard to offshore oil drilling?

Mr. DINGELL. If the gentleman will yield, the answer to that is a categorical no, I will say to the gentleman.

Mr. GROSS. I thank the gentleman.

Mr. TEAGUE of California. Mr. Speaker, Santa Barbara, Calif., is associated in many minds with the disastrous 1969 offshore oil blowout. This spectacular occurrence focused the attention of the world upon the valiant efforts of concerned citizens to clean up the sticky black crude oil which fouled beaches, marine life, and sea birds.

Yet as serious as this occurrence was, it and similar dramatic accidental petroleum spills are not the most significant contributors of polluting oil to be discharged into the sea. The gradual, but constant, and therefore more insidious release of oil bilge water, clearing of fuel bunkers, and other deliberate discharges of petroleum products are equally deserving of our attention and concern. The Coast Guard estimates that there will be 12,000 oil spills this year.

Thor Heyerdal, quoted in the New York Times following his Atlantic voyage in the reed boat, RA, stated that there is "a continuous stretch of at least 1,400 miles of open Atlantic polluted by floating lumps of solidified asphalt-like oil." Scientists have observed that DDT and other insecticides are more soluble in oil slicks than water. What effect this phenomena could have on the microscopic life-forms of the sea—which renew the oxygen in our atmosphere—is unclear at his time. I do not believe we can afford to learn from experience about the possible effects of continued pollution.

International cooperation is essential to curtail pollution of the sea. As one great circulating system, the oceans of the world can carry the wastes of one thoughtless nation to opposite ends of the earth, or the oil discharged from one merchant ship onto the beaches of any coastal nation.

The principle of freedom of the high seas is an ancient one. In practice, it has come to include the freedom to pollute. Attempts to put an end to marine pollution collide headon with this principle. The U.S. delegations to the various Intergovernmental Maritime Consultative Organization meetings have contributed to world understanding of the urgency of pollution control efforts. We must therefore strengthen our ability to police infractions and apply sanctions which are sufficient to be deterrent.

The Committee on Merchant Marine and Fisheries should be recognized for its prompt and forthright action to assure that the United States is a leader in accomplishing the environmental protection objective of the International Convention for the Prevention of the Pollution of the Sea by Oil. I urge my colleagues to support H.R. 5451.

Mr. ROGERS. Mr. Speaker, I rise in support of the bill, H.R. 5451, the Oil Pollution Act Amendments of 1973.

I joined in sponsorship of the original Oil Pollution Act in 1961 in recognition of the increasingly grave menace continued oil pollution posed to our national waters and shoreline. Since then much progress has been made in decreasing the incidence and effects of oil spills and dumping, and it is my belief that the present legislation will go a long way toward tightening up the regulation of oil discharge on the seas.

By incorporating these latest amendments to the Oil Pollution Convention into our domestic law, the Congress can demonstrate that the United States intends to remain on the forefront of world efforts toward environmental protection, and take another step forward in the protection of our own shoreline from the hazards of oil spills on the seas. I urge the Members of the House to join me in adoption of the bill.

Mr. DON H. CLAUSEN. Mr. Speaker, I want to take this time to comment both on the Oil Pollution

Act which we now have before us and the Coast Guard authorization bill which will be debated later this afternoon.

Last year, we went as far as we could go by including in the Water Pollution Control Act stringent controls prohibiting the discharge of oil in our territorial waters. As a matter of jurisdiction we are limited to 3 miles offshore as the extent of our ability to improve water quality on a unilateral basis.

During hearings on water pollution program, our committee received testimony from Thor Heyerdahl, leader of the *Ra* expedition. He pointed out that pollution from oil and other sources is seriously affecting the Atlantic Ocean even hundreds of miles from any coastline.

At that time, I pointed out that we would make as much progress as we could on our own but that in the face of international law, multilateral action is required. This is why I so strongly support the Oil Pollution Act we are considering today.

This bill complements our efforts to control oil pollution within the 3-mile territorial sea by implementing the International Convention for the Prevention of the Pollution of the Sea by Oil.

Through the adoption of this measure we will be prohibiting the discharge of any oil up to 50 miles at sea and more stringently regulating any discharges beyond that distance. In addition, civil penalties are provided in addition to the criminal sanctions included in the bill.

Mr. Speaker, this legislation continues the long string of efforts we have made to make certain our water pollution control programs are both continuously updated and responsive to changing needs. In conjunction with the Water Pollution Control Act it will help reduce and control pollution and I urge the House to give it overwhelming support.

Mr. VANIK. Mr. Speaker, oil pollution of the world's waterways is a serious situation that is getting worse every day. As a Great Lakes Congressman, I am particularly shocked that 27 percent of our country's oil spillage occurs on these inland lakes.

The National Oceanic and Atmospheric Administration recently surveying the Atlantic Ocean reported that several of its ships encountered conditions where the nets were befouled by oil clumps so thick they tangled through the nets "like spaghetti." The NOAA research ship, *Albatross IV*, reported being surrounded by globs of oily substances 75 percent of the time. This oil pollution was not only limited to the Atlantic Ocean. Even in the Mediterranean. Jacques Cousteau, the French undersea explorer, reports that sea life and vitality in the Mediterranean has declined 30 to 50 percent in the last 20 years. Oil globules and plastic debris in massive proportions are infecting bodies of water throughout the world.

In light of this situation, today's bill is so inadequate—it is a placebo. The bill, for instance, allows a tanker to dump one/fifteen-thousandth of its oil-carrying capacity. This does not sound like very much, but it works out to a total of 38 million gallons a year, the equivalent of almost 4,000 major oils spills as defined by the U.S. Coast Guard. The infamous Santa Barbara oil spill produced only 700,000 gallons during the entire period of spillage and leakage; this bill allows 55 equivalent spills each year.

And although nontanker vessels contribute one-fifth of the world's oil pollution, the bill gives them even more lenient guidelines than it gives to tankers. According to this bill, a ship can legally dump 48,000 gallons of oil in the course of a 3,000-mile voyage. This is the equivalent of five

major oil spills as defined by the Coast Guard. Considering that it costs $420 to clean up each barrel of oil that is spilled, it would cost $380 million to attempt to clean up the amount of oil that this bill allows to be dumped.

Although the bill does represent a step forward, it is a very meager step, and a great deal more will have to be done in the near future if the problem of oil pollution is ever to be effectively contained.

Mr. Speaker, I support the passage of this bill today—but I hope that it will be just the beginning of new and major efforts to develop international agreements to end oil pollution in the world's oceans and waterways. Let the Congress take note of the warning that we are rapidly destroying the lakes and oceans of the world. This legislation today just does not go far enough.

Mr. CLEVELAND. Mr. Speaker, I rise in support of H.R. 5451, the Oil Pollution Act Amendments of 1973, as a measure to maintain U.S. leadership in the worldwide effort to reduce oil pollution of the seas.

By passing legislation to carry out changes in the International Convention for the Prevention of Pollution of the Sea by Oil, we can help do much to reduce accidental spillage from tanker mishaps, as well as deliberate dumping of oil-bearing wastes from ships at sea.

Furthermore, I regard this as a means of forestalling to the maximum extent one potential source of environmental damage which could result from steps taken to relieve the energy shortage.

As the President indicated in his energy message, he has removed current tariffs on crude oil and products as an incentive to increase imports. At the same time, it is administration policy

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to encourage development of greater domestic refining capability.

On the basis of costly but environmentally clean operations on the west coast, there have been proposals to establish new refinery capacity in New England. This, in conjunction with possible deepwater port development and possible exploitation of oil and gas reserves off the east coast, points to a considerable increase in tanker usage.

I think it is noteworthy that our colleague from Massachusetts (Mr. CONTE) and Senator MCINTYRE, of New Hampshire, have endorsed the principle of a new refinery in New England. And Governor Thomson, of New Hampshire, has taken the lead in inviting establishment of a refinery within the State. This offers real encouragement for the solution of some of our region's most pressing problems, including gasoline and oil shortages and high prices.

In any event, the tankers are getting bigger. There will be more of them. New refineries are coming. So may offshore exploration. The bill before us can help assure that environmental damage from them will be kept to a minimum.

New construction standards for new large tankers, governing tank placement and volume, should limit oil discharge resulting from tanker collisions. These provisions, in addition to those limiting deliberate discharges, removal of exemptions outside the so-called prohibited zones, increases in criminal penalties and the addition of civil penalties combined to produce a measure well worthy of support. I urge colleagues to join me in voting for its enactment.

Mr. RUPPE. Mr. Speaker, I have no further requests for time.

Mrs. SULLIVAN. Mr. Speaker, I have no further requests for time.

The SPEAKER. The question is on the motion offered by the gentlewoman from Missouri (Mrs. SULLIVAN) that the House suspend the

rules and pass the bill H.R. 5451, as amended.

The question was taken.

Mr. RUPPE. Mr. Speaker, I object to the vote on the gound that a quorum is not present and make the point of order that a quorum is not present.

The SPEAKER. Evidently a quorum is not present.

The Sergeant at Arms will notify absent Members.

The vote was taken by electronic device, and there were—yeas 370, nays 1, not voting 62, as follows:

* * * * *

So (two-thirds having voted in favor thereof) the rules were suspended and the bill, as amended, was passed

[p. H3425]

1.3c(3)(b) Sept. 24: Considered and passed Senate, p. S17350

OIL POLLUTION ACT AMENDMENT

The bill (H.R. 5451) to amend the Oil Pollution Act, 1961 (75 Stat. 402), as amended, to implement the 1969 and 1971 amendments to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended and for other purposes, was considered, ordered to a third reading, read the third time, and passed.

[S 17350]

1.19 THE WATER RESOURCE PLANNING ACT AS AMENDED

42 U.S.C. 3 1962 et seq. (1973)

* * * * *

SUBCHAPTER IV.—MISCELLANEOUS PROVISIONS

§ 1962d. Authorization of appropriations to the Water Resources Council

There are authorized to be appropriated to the Water Resources Council:

Limitation for single river basin commission

(a) not to exceed $6,000,000 annually for the Federal share of the expenses of administration and operation of river basin commissions, including salaries and expenses of the chairmen, but not including funds authorized by subsection (c) below: *Provided*, That not more than $750,000 annually shall be available under this subsection for any single river basin commission;

Limitation on the expenses of the Water Resources Council

(b) not to exceed $1,500,000 annually for the expenses of the Water Resources Council in administering this chapter, not including funds authorized by subsection (c) below;

Limitations on the availability of funds for the preparation of assessments and plans

(c) not to exceed $3,500,000 annually for fiscal years 1974 and 1975 for preparation of assessments, and for direct-

ing and coordinating the preparation of such regional or river basin plans as the Council determines are necessary and desirable in carrying out the policy of this chapter: *Provided,* That not more than $2,500,000 shall be available under this subsection for the preparation of assessments: *Provided further,* That the Council may transfer funds authorized by this subsection to river basin commissions and to Federal and State agencies upon such terms and conditions as it determines are necessary and desirable to carry out the above functions in an economical, efficient, and timely manner, and that such commissions and agencies are hereby authorized to receive and expend such funds pursuant to this subsection.

Pub.L. 89–80, Title IV, § 401, July 22, 1965, 79 Stat. 253; Pub.L. 90–547, Oct. 2, 1968, 82 Stat. 935; Pub.L. 92–27, June 17, 1971, 85 Stat. 77; Pub.L. 92–396, Aug. 20, 1972, 86 Stat. 578; Pub.L. 93–55, July 1, 1973, 87 Stat. 140.

§ 1962d–1. Rules and regulations

The Council is authorized to make such rules and regulations as it may deem necessary or appropriate for carrying out those provisions of this chapter which are administered by it.

Pub.L.89–80, Title IV, § 402, July 22, 1965, 79 Stat. 254.

§ 1962d–2. Delegation of functions

The Council is authorized to delegate to any member or employee of the Council its administrative functions under section 1962a–4 of this title and the detailed administration of the grant program under subchapter III of this chapter.

Pub.L. 89–80, Title IV, § 403, July 22, 1965, 79 Stat. 254.

§ 1962d–3. Utilization of personnel

The Council may, with the consent of the head of any other department or agency of the United States, utilize such officers and employees of such agency on a reimbursable basis as are necessary to carry out the provisions of this chapter.

Pub.L. 89–80, Title IV, § 404, July 22, 1965, 79 Stat. 254.

§ 1962d–4. Northeastern United States water supply—Plans for Federal construction, operation, and maintenance of reservoir system within certain river basins and conveyance and purification facilities through cooperation of Secretary of the Army and government agencies; financial participation of States

(a) Congress hereby recognizes that assuring adequate sup-

plies of water for the great metropolitan centers of the United States has become a problem of such magnitude that the welfare and prosperity of this country require the Federal Government to assist in the solution of water supply problems. Therefore, the Secretary of the Army, acting through the Chief of Engineers, is authorized to cooperate with Federal, State, and local agencies in preparing plans in accordance with the Water Resources Planning Act to meet the long-range water needs of the northeastern United States. This plan may provide for the construction, operation, and maintenance by the United States of (1) a system of major reservoirs to be located within those river basins of the Northeastern United States which drain into the Chesapeake Bay, those that drain into the Atlantic Ocean north of the Chesapeake Bay, those that drain into Lake Ontario, and those that drain into the Saint Lawrence River, (2) major conveyance facilities by which water may be exchanged between these river basins to the extent found desirable in the national interest, and (3) major purification facilities. Such plans shall provide for appropriate financial participation by the States, political subdivisions thereof, and other local interests.

Construction, operation, and maintenance of reservoirs and conveyance and purification facilities

(b) The Secretary of the Army, acting through the Chief of Engineers, shall construct, operate, and maintain those reservoirs, conveyance facilities, and purification facilities, which are recommended in the plan prepared in accordance with subsection (a) of this section, and which are specifically authorized by law enacted after October 27, 1965.

Reservoirs as components of river basin and water supply plans

(c) Each reservoir included in the plan authorized by this section shall be considered as a component of a comprehensive plan for the optimum development of the river basin in which it is situated, as well as a component of the plan established in accordance with this section.

Pub.L. 89–298, Title I, § 101, Oct. 27, 1965, 79 Stat. 1073.

§ 1962d–5. Water resources development projects involving navigation, flood control, and shore protection—Construction, operation, and maintenance; limitation on estimated Federal first cost of construction; Congressional committee approval of projects; reports to Congress

(a) The Secretary of the Army, acting through the Chief of

Engineers, is authorized to construct, operate, and maintain any water resource development project, including single and multiple purpose projects involving, but not limited to, navigation, flood control, and shore protection, if the estimated Federal first cost of constructing such project is less than $10,000,000. No appropriation shall be made to construct, operate, or maintain any such project if such project has not been approved by resolutions adopted by the Committees on Public Works of the Senate and House of Representatives, respectively. For the purpose of securing consideration of such approval the Secretary shall transmit to Congress a report of such proposed project, including all relevant data and all costs.

Local cooperation requirements based on certain estimated Federal first cost of construction

(b) Any water resource development project authorized to be constructed by this section shall be subject to the same requirements of local cooperation as it would be if the estimated Federal first cost of such project were $10,000,000 or more.

Pub.L. 89–298, Title II, § 201, Oct. 27, 1965, 79 Stat. 1073.

§ 1962d–5a. Reimbursement to States—Combination of reimbursement of installation costs and reduction in contributions; single project limitation

(a) The Secretary of the Army, acting through the Chief of Engineers, may, when he determines it to be in the public interest, enter into agreements providing for reimbursement to States or political subdivisions thereof for work to be performed by such non-Federal public bodies at water resources development projects authorized for construction under the Secretary of the Army and the supervision of the Chief of Engineers. Such agreements may provide for reimbursement of installation costs incurred by such entities or an equivalent reduction in the contributions they would otherwise be required to make, or in appropriate cases, for a combination thereof. The amount of Federal reimbursement, including reductions in contributions, for a single project shall not exceed $1,000,000.

Agreement provisions; termination of agreement for failure to commence work

(b) Agreements entered into pursuant to this section shall (1) fully describe the work to be accomplished by the non-Federal public body, and be accompanied by an engineering plan if necessary therefor; (2) specify the manner in which such work

shall be carried out; (3) provide for necessary review of design and plans, and inspection of the work by the Chief of Engineers or his designee; (4) state the basis on which the amount of reimbursement shall be determined; (5) state that such reimbursement shall be dependent upon the appropriation of funds applicable thereto or funds available therefor, and shall not take precedence over other pending projects of higher priority for improvements; and (6) specify that reimbursement or credit for non-Federal installation expenditures shall apply only to work undertaken on Federal projects after project authorization and execution of the agreement, and does not apply retroactively to past non-Federal work. Each such agreement shall expire three years after the date on which it is executed if the work to be undertaken by the non-Federal public body has not commenced before the expiration of that period. The time allowed for completion of the work will be determined by the Secretary of the Army, acting through the Chief of Engineers, and stated in the agreement.

Certification of performance

(c) No reimbursement shall be made, and no expenditure shall be credited, pursuant to this section, unless and until the Chief of Engineers or his designee, has certified that the work for which reimbursement or credit is requested has been performed in accordance with the agreement.

Beach erosion control projects

(d) Reimbursement for work commenced by non-Federal public bodies no later than one year after August 13, 1968, to carry out or assist in carrying out projects for beach erosion control, may be made in accordance with the provisions of section 426 of Title 33. Reimbursement for such work may, as an alternative, be made in accordance with the provisions of this section, provided that agreement required herein shall have been executed prior to commencement of the work. Expenditures for projects for beach erosion control commenced by non-Federal public bodies subsequent to one year after August 13, 1968, may be reimbursed by the Secretary of the Army, acting through the Chief of Engineers, only in accordance with the provisions of this section.

Prohibition of construction for Federal assumption of responsibilities of non-Federal bodies or for Federal liability for unnecessary or inapplicable project work of such bodies

(e) This section shall not be construed (1) as authorizing the United States to assume any responsibilities placed upon a non-

Federal body by the condition of project authorization, or (2) as committing the United States to reimburse non-Federal interests if the Federal project is not undertaken or is modified so as to make the work performed by the non-Federal Public body no longer applicable.

Allotment limitation for any fiscal year; specific project reimbursement authorizations

(f) The Secretary of the Army is authorized to allot from any appropriations hereafter made for civil works, not to exceed $10,000,000 for any one fiscal year to carry out the provisions of this section. This limitation does not include specific project authorizations providing for reimbursement.

Pub.L. 90–483, Title II, § 215, Aug. 13, 1968, 82 Stat. 747.

§ 1962d–5b. Water resources project; written agreement requirement—Cooperation of non-Federal interest

(a) After December 31, 1970, the construction of any water resources project by the Secretary of the Army, acting through the Chief of Engineers, or by a non-Federal interest where such interest will be reimbursed for such construction under the provisions of section 1962d–5a of this title or under any other provision of law, shall not be commenced until each non-Federal interest has entered into a written agreement with the Secretary of the Army to furnish its required cooperation for the project.

Definition of non-Federal interest

(b) A non-Federal interest shall be a legally constituted public body with full authority and capability to perform the terms of its agreement and to pay damages, if necessary, in the event of failure to perform.

Enforcement; jurisdiction

(c) Every agreement entered into pursuant to this section shall be enforcible in the appropriate district court of the United States.

Nonperformance of terms of agreement by non-Federal interest; notice; reasonable opportunity for performance; performance by Chief of Engineers

(d) After commencement of construction of a project, the Chief of Engineers may undertake performance of those items of cooperation necessary to the functioning of the project for its purposes, if he has first notified the non-Federal interest of its failure to perform the terms of its agreement and has given such interest a reasonable time after such notification to so perform.

Inventory of agreements; report to Congress

(e) The Secretary of the Army, acting through the Chief of Engineers, shall maintain a continuing inventory of agreements and the status of their performance, and shall report thereon annually to the Congress.

Effective date

(f) This section shall not apply to any project the construction of which was commenced before January 1, 1972, or to the assurances for future demands required by the Water Supply Act of 1958, as amended.

Pub.L. 91–611, Title II, § 221, Dec. 31, 1970, 84 Stat. 1831; Pub.L. 92–222, § 4, Dec. 23, 1971, 85 Stat. 799.

§ 1962d–6. Feasibility studies; acceleration; advancement of costs by non-Federal sources

The Secretary may accelerate feasibility studies authorized by law when and to the extent that the costs of such studies shall have been advanced by non-Federal sources.

Pub.L. 89–561, § 5, Sept. 7, 1966, 80 Stat. 714.

§ 1962d–7. Delmarva Peninsula hydrologic study; duties of Secretary of Interior

The Secretary of the Interior (hereinafter referred to as the "Secretary") is authorized and directed to make a comprehensive study and investigation of the water resources of the Delmarva Peninsula with a view to determining the availability of fresh water supplies needed to meet the anticipated future water requirements of the Delmarva Peninsula area, and with a view to determining the most effective means from the standpoint of hydrologic feasibility of protecting and developing fresh water sources so as to insure, insofar as practicable, the availability of adequate water supplies in the future. In carrying out such study and investigation with respect to the Delmarva Peninsula, the Secretary shall—

(1) appraise the water use, requirements, and trends, and determine the availability of water in the streams and underground sources for the entire peninsula;

(2) determine the depths, thicknesses, and permeabilities, the perennial yield, and the recharge characteristics of major aquifers, and the quality characteristics to be expected from each such major aquifer;

(3) determine with respect to ground water resources the continuity and extent of important water-bearing formations;

(4) determine the yield from stream systems under natural flow conditions and under varying degrees of storage and the amounts and quality of waters available from such systems during drought, flood, and intermediate conditions;

(5) determine whether sea water has moved inland into heavily pumped coastal aquifers;

(6) give special consideration to conditions which may invite the invasion of sea water into fresh-water supplies;

(7) compile and make available to appropriate State and local officials any results of this study and investigation that would be appropriate for their use in long-range planning, development, and management of water supplies;

(8) cooperate with State and local agencies for the purpose of using any information and data available to carry out the purposes of this study; and

(9) consider such other matters as the Secretary may deem appropriate to the study and investigation herein authorized.

Pub.L. 89–618, § 1, Oct. 4, 1966, 80 Stat. 870.

§ 1962d–8. Same; reports to President and Congress

During the course of the study and investigation authorized by sections 1962d–7 to 1962d–11 of this title, the Secretary may submit to the President for transmission to the Congress such interim reports as the Secretary may consider desirable. The Secretary shall submit a final report to the President for transmission to the Congress not more than six years after October 4, 1966.

Pub.L. 89–618, § 2, Oct. 4, 1966, 80 Stat. 870.

§ 1962d–9. Same; information from Federal agencies

The Secretary is authorized to secure directly from any executive department, bureau, agency, board, commission, office, independent establishment, or instrumentality of the Federal Government, information, suggestions, estimates, and statistics for the purpose of sections 1962d–7 to 1962d–11 of this title and each department, bureau, agency, board, commission, office, independent establishment, or instrumentality is authorized and

directed to furnish such information, suggestions, estimates, and statistics, to the Secretary upon his or his designee's request.

Pub.L. 89–618, § 3, Oct. 4, 1966, 80 Stat. 870.

§ 1962d–10. Same; cooperation with other agencies

In carrying out the study and investigation authorized by sections 1962d–7 to 1962d–11 of this title, the Secretary is authorized to cooperate with other Federal, State, and local agencies now engaged in comprehensive planning for water resource use and development in the Delmarva Peninsula area by making available to those agencies his findings and to cooperate with those agencies in the Northeastern United States Water Supply Study as authorized by section 1962d–4 of this title.

Pub.L. 89–618, § 4, Oct. 4, 1966, 80 Stat. 871.

§ 1962d–11. Same; authorization of appropriations

There is hereby authorized to be appropriated the sum of $500,000 to carry out the provisions of sections 1962d–7 to 1962d–11 of this title: *Provided,* That nothing in such sections shall prevent the expenditure of other funds appropriated to the Geological Survey for studies and activities performed under its general authority.

Pub.L. 89–618, § 5, Oct. 4, 1966, 80 Stat. 871.

§ 1962d–12. Alaskan water resources; investigations of projects for conservation, development, and utilization; reports

For the purpose of encouraging and promoting the development of Alaska, the Secretary of the Interior (hereinafter referred to as the "Secretary") is authorized to make investigations of projects for the conservation, development, and utilization of the water resources of Alaska and to report thereon, with appropriate recommendations, from time to time, to the President and to the Congress.

Aug. 9, 1955, c. 682, § 1, 69 Stat. 618.

§ 1962d–13. Same; solicitation of views and recommendations; transmittal of report to Congress

Prior to the transmission of any such report to the Congress, the Secretary shall transmit copies thereof for information and comment to the Governor of Alaska, or to such representative

as may be named by him, and to the heads of interested Federal departments and agencies. The written views and recommendations of the aforementioned officials may be submitted to the Secretary within ninety days from the day of receipt of said proposed report. The Secretary shall immediately thereafter transmit to the Congress, with such comments and recommendations as he deems appropriate, his report, together with copies of the views and recommendations received from the aforementioned officials. The letter of transmittal and its attachments shall be printed as a House or Senate document.

Aug. 9, 1955, c. 682, § 2, 69 Stat. 618.

§ 1962d–14. Same; appropriations

There are hereby authorized to be appropriated not more than $250,000 in any one fiscal year.

Aug. 9, 1955, c. 682, § 3, 69 Stat. 618.

1.19d Water Resources Planning Act Continuing Appropriation Authorization, July 1, 1973, P.L. 93–55, 87 Stat. 140.

An Act

To amend the Water Resources Planning Act to provide for continuing authorization for appropriations.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 401 of the Water Resources Planning Act (Public Law 89–80; 79 Stat. 244; 42 U.S.C. 1962d) is amended to delete, immediately after the phrase "(c) not to exceed $3,500,000," the words "in fiscal year 1973 and such annual amounts as may be authorized by subsequent Acts" and to insert "annually for fiscal years 1974 and 1975".

Approved July 1, 1973.

[p. 1]

1.19d(1) SENATE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

S. REP. No. 93-174, 93rd Cong., 1st Sess. (1973)

AMENDING THE WATER RESOURCES PLANNING ACT

MAY 23, 1973.—Ordered to be printed

Mr. JACKSON, from the Committee on Interior and Insular Affairs, submitted the following

REPORT

[To accompany S. 1501]

The Committee on Interior and Insular Affairs, to which was referred the bill (S. 1501) to amend the Water Resources Planning Act to provide for continuing authorization for appropriations, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

The amendments are as follows:

On page 1, lines 6 and 7, strike the words "and such annual amounts as may be authorized by subsequent Acts" and on line 8, strike the words "word 'annually' " and insert in lieu thereof insert the words "words in fiscal year 1974".

2. Amend the title of the bill to read as follows:

"To amend the Water Resources Planning Act to authorize appropriations for Fiscal Year 1974."

PURPOSE OF THE MEASURE

The purpose of S. 1501, which was recommended by the Administration, is to remove the requirement for annual authorizations for a portion of the appropriations requested by the Water Resources Council to carry out certain functions assigned to it under the provisions of the Water Resources Planning Act of 1965 (79 Stat. 244, as amended).

BACKGROUND

The Water Resources Planning Act of 1965 has the following general provisions:

Title I established the Water Resources Council. The Council is composed of the Secretaries of the Interior, Agriculture, the Army,

HEW, Transportation, and the Chairman of the Federal Power Commission. It is supported by an executive director and staff which constitute a separate agency. The Council has important administrative duties to maintain an assessment of the Nation's water resources to review and establish standards and procedures for Federal water resources development, and to review comprehensive river basin plans.

Title II authorizes the establishment of joint Federal-State river basin commissions to perform comprehensive water resource development activities in the regions. Each such commission shall have a chairman appointed by the President as Federal representative, and a representative from each State and each Federal agency represented and from each interstate agency created by compact. (River basin commissions have been established in seven basins thus far. In the other basins ad hoc committees are performing the function.)

Title III provides for a program of grants to the States amounting to $5 million annually to finance not more than 50 percent of each State's comprehensive water resource planning program.

Title IV of the act includes miscellaneous provision including the authorization of appropriations. The existing limitations are—

$1,500,000 annually to carry out the Council's general administrative duties under titles I and II; and

$6,000,000 annually to carry out title II, further limited to not more than $750,000 for any single river basin commission.

$3,500,000 in Fiscal Year 1973 and such annual amounts as may be authorized by subsequent acts for comprehensive river basin planning and national assessments of water resources.

The last amount was added to the authorization by the Act of August 20, 1972 (85 Stat. 77.) That amendment increased the authorization of appropriations for the operation of the Water Resources Council to provide funds for two functions which the Water Resources Planning Act of 1965 directs the Council to perform but which were previously funded through the appropriations of the member agencies of the Council.

The 1972 amendment authorized additional appropriations to the Council totaling $3,500,000 in Fiscal Year 1973. Of this amount, not more than $2,500,000 is available to fund work on the assessment of national water resources supplies and demands required by section 101(c) of the Planning Act. The first of such assessments was completed in 1968. Work on this assessment was supported by the member agencies of the Council

through contributions of personnel and services funded by their appropriations.

No subsequent assessments have since been made. The 1968 report remains the principal source document for water resources planning at all levels of government. A second assessment is badly needed to profit from the experience gained in performing the first, largely experimental, effort; to reflect the extensive public attitude and policy changes, particularly in environmental demands on water resources management, which have evolved since 1968; and to incorporate new data which has become available in the intervening years.

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The remaining $1 million is provided to enable the Council or the existing River Basin Commissions to provide direction and coordination in regional comprehensive water resource planning. This role was previously taken by one of the member agencies which obtained funds through its own appropriations process. The assumption of direction and coordination in comprehensive planning by the Commissions and the Council is expected to improve the multiobjective approach to such planning and enhance the influence of the State participants.

The Congress in the 1972 amendment limited the new authority to Fiscal Year 1973 funds only. The report of the Senate Interior Committee, however, recognized that the funds would be required on a continuing basis. The report (Senate report No. 92–826, 92d Congress 2d Sess.) commented as follows:

"The committee has amended S. 3384 to limit the authority for the additional amounts to fiscal year 1973. The committee recognizes that these amounts also will be required in subsequent years. The committee has notified the chairman of the Council, however, that it intends to review the Council's recently proposed "Principles and Standards for Planning Water and Related Land Resources." This review will provide an opportunity for in depth legislative oversight consideration of the Council's full range of activities and their interrelationships."

PROPOSED LEGISLATION

As proposed by the Administration, S. 1501 would have removed the requirement for an annual authorization act to provide these funds. It also would have provided continuing authority for appropriations of not more than $3,500,000 for these purposes in Fiscal Year 1974 and future fiscal years. The President's budget for Fiscal Year 1974, which is now before the

Congress, includes a request for $3,170,000 in anticipation of this authority.

COST

The funds provided under this authorization are necessary to carry out existing duties assigned to the Water Resources Council by law. Funding of the costs of these duties through appropriations to the Council will be balanced by reductions in the expenditures of the various member agencies which have formerly supported the work.

COMMITTEE AMENDMENT

The Committee amended S. 1501 to limit the extended authority to Fiscal Year 1974, and to revise the title of the measure accordingly.

The Committee has scheduled hearings over the next few months to consider the report of the National Water Commission. This review of fundamental Federal water resources policy will include consideration of the appropriate role of the Water Resources Council. The ongoing work which will be funded under the authority of this measure must be continued while the review is in progress. However, further consideration of the appropriate oversight of the Council's funding more appropriately can be made in the next Fiscal Year.

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COMMITTEE RECOMMENDATIONS

The Committee on Interior and Insular Affairs by unanimous vote of a quorum present in executive session on May 16, 1973, recommends that S. 1501, as amended, be enacted.

EXECUTIVE COMMUNICATION

An executive communication from the Chairman of the Water Resources Council, transmitting draft legislation is set forth in full below.

U.S. WATER RESOURCES COUNCIL,
Washington, D.C., March 14, 1973.

Hon. SPIRO T. AGNEW,
President of the Senate,
Washington, D.C.

DEAR MR. PRESIDENT: Enclosed is a draft bill "to amend the Water Resources Planning Act to provide for continuing authorization for appropriations."

An amendment to Section 401 of the Water Resources Planning Act 89–90 Int. & Ins. Aff. is necessary to provide for authoriza-

tion of appropriations requested in the Council's Fiscal Year 1974 budget submission. The language of the most recent amendment (P.L. 92–396, August 20, 1972) limits authorization of appropriations for preparation of assessments and for directing and coordinating the preparation of regional or river basin plans to $3,500,000 for 1973 only, with subsequent authorizations to be established "by subsequent acts."

This proposed amendment would delete the limiting language, providing for the continuation of the Authority granted by the previous amendments. No change is proposed in the present ceilings for any of the Act's separate categories.

The Office of Management and Budget advises that the enactment of this bill would be consistent with the Administration's objectives.

Sincerely yours,

ROGERS C. B. MORTON,
Chairman.

Enclosures.

PROPOSED CHANGES IN AUTHORIZATION

The attached draft bill proposes an amendment to the Water Resources Planning Act to continue the authorization for appropriation through the Council for the preparation of assessments and the direction and coordination of the preparation of regional and river basin plans, which was granted by the Congress last year. (P.L. 93–396, August 20, 1972) The amendment is necessary because the 1972 amendment to the Act provided for the expiration of the authority for appropriation—after Fiscal Year 1973—with respect to specific funding through the Council for the preparation of assessments in the direction and coordination of the preparation of regional and river basin plans.

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CHANGES IN EXISTING LAW

In compliance with subsection (4) of rule XXIX of the Standing Rules of the Senate, changes in existing law made by the bill, S. 3384, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

Sec. 401 (c) of the Water Resources Planning Act of 1965. (79 Stat. 244; 42 U.S.C. 1962 et seq.)

(*c*) not to exceed $3,500,000 [in fiscal year 1973] *in fiscal year 1974* and such annual amounts as may be authorized by

subsequent Acts for preparation of assessments, and for directing and coordinating the preparation of such regional or river basin plans as the Council determines are necessary and desirable in carrying out the policy of this Act: Provided, That not more than $2,500,000 shall be available under this subsection for the preparation of assessments: Provided further, That the Council may transfer funds authorized by this subsection to river basin commissions and to Federal and State agencies upon such terms and conditions as it determines are necessary and desirable to carry out the above functions in an economical, efficient, and timely manner, and that such commissions and agencies are hereby authorized to receive and expend such funds pursuant to this subsection.

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1.19d(2) HOUSE COMMITTEE ON INTERIOR AND INSULAR AFFAIRS

H.R. REP. No. 93-266, 93rd Cong., 1st Sess. (1973)

AMENDING THE WATER RESOURCES PLANNING ACT TO PROVIDE FOR CONTINUING AUTHORIZATION FOR APPROPRIATIONS

JUNE 8, 1973.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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Mr. HALEY, from the Committee on Interior and Insular Affairs, submitted the following

REPORT

[To accompany H.R. 6338]

The Committee on Interior and Insular Affairs, to whom was referred the bill (H.R. 6338) to amend the Water Resources Planning Act to provide for continuing authorization for appropriations, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

The amendment is as follows:

Page 1, line 8, strike out "the word 'annually' in lieu thereof." and insert in lieu thereof: "annually for fiscal years 1974 and 1975".

H.R. 6338 was introduced by Mr. Johnson of California, Mr. Saylor, Mr. Kazen, Mr. Hosmer, Mr. Runnels, Mr. Camp, and

Mr. Jones of Oklahoma. It results from an Executive Communication from the Water Resources Council, dated March 14, 1973.

PURPOSE

The bill as introduced amends the Water Resources Planning Act (79 Stat. 244) to increase by $3,500,000, annually, the amount authorized to be appropriated for carrying out one part of the Act. As reported, the increase is limited to fiscal years 1974 and 1975.

DISCUSSION OF LEGISLATION

The Water Resources Planning Act established a cabinet level Water Resources Council responsible for:

(1) Assessing national and regional water supplies and needs,

(2) Coordinating the various Federal, Regional, State and river basin water programs,

[p. 1]

(3) Administering a Federal grant program to assist States in water resource planning, and

(4) Administering a Federal grant program to River Basin Commissions to pay the Federal share of the cost of operating the Commissions.

For these purposes, the Act, as amended, authorizes the appropriation of $5,000,000 annually for ten years (ending in 1976) for the State grant program, $6,000,000 annually for the Federal share of the cost of operating the River Basin Commission program, and $1,500,000 annually for the administrative expenses of the Council.

The pending bill does not change the $5,000,000 and $6,000,000 appropriation authorizations. It supplements the appropriation authorization for the administrative expenses of the Council. The supplement is $3,500,000 annually, of which $2,500,000 is earmarked for the program to assess water resources and needs. The Council has made one assessment and is making a second assessment during fiscal years 1974 and 1975. The Administration has included $2,395,000 in the Fiscal Year 1974 Budget for work in connection with this national assessment.

The remaining $1,000,0000 increase in the annual appropriation authorization is needed by the Council to carry out the Congressionally assigned function of directing and coordinating river basin plans. The Administration has included $775,000 in the Fiscal Year 1974 Budget for this purpose.

COST

Although the bill involves an apparent cost of $3,500,000 annually, the net cost will be much less because the appropriation to the Council will be offset by a decrease in the amounts that would otherwise be appropriated to the various Federal agencies which participate in the Council's program. The national assessment of water supplies and needs will be undertaken in cooperation with the participating Federal agencies, and approximately two-thirds of the funds for making the assessment will be transferred to the cooperating agencies. If the Council were not given the funding authority, it would be necessary to increase the budgets of the cooperating agencies by a corresponding amount. The same thing is true with respect to directing and coordinating the regional or river basin plans. If the Council were not given the funding authority, it would be necessary to designate one or more of the Federal agencies as the lead agency, or agencies, and increase its budget by a corresponding amount. By authorizing the appropriation of the funds to the Council, better controls over the programs can be exercised.

COMMITTEE AMENDMENT

H.R. 6338, as reported, was amended by the Committee to limit the increased authorization to the fiscal years of 1974 and 1975. The bill as introduced provided for continuing authorization without limit as to time. The Committee determined that the periodic water assessment is now planned to be prepared only on five-year intervals, with the actual preparation scheduled for fiscal years 1974 and 1975. Accordingly, there is no actual requirement for annually recurring appropriations for this purpose.

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COMMITTEE RECOMMENDATION

The Committee on Interior and Insular Affairs believe that this legislation is needed and, by a voice vote, recommends that the bill, as amended, be enacted.

EXECUTIVE COMMUNICATION

The Executive Communication of the Water Resources Council, recommending this legislation, follows:

(Attachment No. 1)

U.S. WATER RESOURCES COUNCIL,
Washington, D.C., March 14, 1973.

Hon. CARL B. ALBERT,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: Enclosed is a draft bill "to amend the Water Resources Planning Act to provide for continuing authorization for appropriations."

An amendment to Section 401 of the Water Resources Planning Act is necessary to provide for authorization of appropriations requested in the Council's Fiscal Year 1974 budget submission. The language of the most recent amendment (P.L. 92–396, August 20, 1972) limits authorization of appropriations for preparation of assessments and for directing and coordinating the preparation of regional or river basin plans to $3,500,000 for 1973 only, with subsequent authorizations to be established "by subsequent acts."

This proposed amendment would delete the limiting language, providing for the continuation of the authority granted by the previous amendment. No change is proposed in the present ceilings for any of the Act's seperate categories.

The Office of Management and Budget advises that the enactment of this bill would be consistent with the Administration's objectives.

Sincerely yours,

ROGERS C. B. MORTON,
Chairman.

Enclosures.

PROPOSED CHANGES IN AUTHORIZATION

The attached draft bill proposes an amendment to the Water Resources Planning Act to continue the authorization for appropriation through the Council for the preparation of assessments and the direction and coordination of the preparation of regional and river basin plans, which was granted by the Congress last year. (P.L. 93–396, August 20, 1972). The amendment is necessary because the 1972 amendment to the Act provided for the expiration of the authority for appropriation—after Fiscal Year 1973—with respect to specific funding through the Council for the preparation of assessments in the direction and coordination of the preparation of regional and river basin plans.

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A BILL To amend the Water Resources Planning Act to provide for continuing authorization for appropriations.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled. That Section 401 of the Water Resources Planning Act (P.L. 89–80, 79 Stat. 244, 42 U.S.C. 1962d) is amended to delete, immediately after the phrase "(c) not to exceed $3,500,000," the words "in fiscal year 1973 and such annual amounts as may be authorized by subsequent Acts" and to insert the word "annually" in lieu thereof.

CHANGES IN EXISTING LAW

In compliance with clause 3 of Rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italics, existing law in which no change is proposed is shown in roman):

ACT OF JULY 22, 1965 (79 STAT. 244), AS AMENDED (42 U.S.C. 1962d)

* * * * * * *

SEC. 401. There are authorized to be appropriated to the Water Resources Council:

(a) Not to exceed $6,000,000 annually for the Federal share of the expenses of administration and operation of river basin commissions, including salaries and expenses of the chairmen, but not including funds authorized by subsection (c) below: *Provided,* That not more than $750,000 annually shall be available under this subsection for any single river basin commission;

(b) Not to exceed $1,500,000 annually for the expenses of the Water Resources Council in administering this Act, not including funds authorized by subsection (c) below;

(c) Not to exceed $3,500,000 [in fiscal year 1973 and such annual amounts as may be authorized by subsequent Acts] *annually for fiscal years 1974 and 1975* for preparation of assessments, and for directing and coordinating the preparation of such regional or river basin plans as the Council determines are necessary and desirable in carrying out the policy of this Act: *Provided,* That not more than $2,500,000 shall be available under this subsection for the preparation of assessments: *Provided further,* That the Council

may transfer funds authorized by this subsection to river basin commissions and to Federal and State agencies upon such terms and conditions as it determines are necessary and desirable to carry out the above functions in an economical, efficient, and timely manner, and that such commissions and agencies are hereby authorized to receive and expend such funds pursuant to this subsection.

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1.19d(3) CONGRESSIONAL RECORD, VOL. 119 (1973):

1.19d(3)(a) May 30: Considered and passed Senate, pp. S 9858–S 9860;

[No relevant discussion of pertinent section]

1.19d(3)(b) June 19: Considered and passed House, amended in lieu of H.R. 6338, pp. H 4957–H 4959

WATER RESOURCES PLANNING AUTHORIZATION

Mr. JOHNSON of California. Mr. Speaker, I move to suspend the rules and pass the bill (H.R. 6338) to amend the Water Resources Planning Act to provide for continuing authorization for appropriations, as amended.

The Clerk read as follows:

H.R. 6338

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section

[p. H 4956]

401 of the Water Resources Planning Act (Public Law 89–80; 79 Stat. 244; 42 U.S.C. 1962d) is amended to delete, immediately after the phrase "(c) not to exceed $3,500,000," the words "in fiscal year 1973 and such annual amounts as may be authorized by subsequent Acts" and to insert "annually for fiscal years 1974 and 1975".

The SPEAKER. Is a second demanded?

Mr. HOSMER. Mr. Speaker, I demand a second.

The SPEAKER. Without objection, a second will be considered as ordered.

There was no objection.

Mr. JOHNSON of California. Mr. Speaker, I yield such time as he may consume to the chairman of the full committee, the gentleman from Florida (Mr. HALEY).

(Mr. HALEY asked and was given permission to revise and extend his remarks.)

Mr. HALEY. Mr. Speaker, I rise at this time to state my support of H.R. 6338, as amended, a bill to amend the Water Resources Planning Act to provide additional authorization for appropriations.

The legislation, simply stated, provides authorization of an added annual appropriation of $3,500,000 for use by the Water Resources Council for the next 2 fiscal years—1974 and 1975. A similar authorization was provided for fiscal year 1973 in Public Law 92–396, enacted during the second session of the 92d Congress.

The purposes of the added authorization are twofold. First, not to exceed $2,500,000 could be appropriated in each of the 2 fiscal years for the preparation by the council of the second national water assessment. The Water Resources Planning Act provides for such assessments to be made periodically, and the council has decided as a matter of policy to prepare and publish them at 5-year

intervals. Two years are required to actually compile the data and publish the report. Accordingly, this authorization will not be needed after fiscal year 1975 until some years hence when it is time to start work on the third national assessment.

The second purpose of the added authorization is to provide funding for the Water Resources Council to coordinate and supervise the preparation of river basin and regional water and related land resource plans—$1 million is authorized to be appropriated for this purpose in each of the 2 fiscal years. Absent this authorization, it would be necessary for the council to designate one of the water resource action agencies to be the lead agency; thus, in effect, delegating its coordinating function. A number of river basin plans have been prepared in this manner and experience has shown that coordination and standardization suffer—and the responsibility for keeping on schedule becomes obscured.

While it appears that this bill will increase Federal costs by some $7 million over the 2-year period, this is actually not the case. There will be savings of an approximate equal amount in the budgets of the cooperating water resource agencies and the net impact on Federal expenditures will be negligible.

Mr. Speaker, Mr. JOHNSON of California, chairman of the subcommittee handling the legislation, will present additional information on this legislation. I know of no opposition to this bill and I urge its approval.

Mr. HOSMER. Mr. Speaker, I yield such time as he may consume to the gentleman from Pennsylvania (Mr. SAYLOR), the ranking minority member of the Committee on Interior and Insular Affairs.

(Mr. SAYLOR asked and was given permission to revise and extend his remarks.)

Mr. SAYLOR. Mr. Speaker, in a year when our calendar is replete with dozens of examples of poorly conceived and ineptly administered programs seeking further congressional authorization, I take particular pleasure in rising to support an ongoing program of unquestioned benefit to our Nation's future.

I refer to the program set out in the Water Resources Planning Act of 1965, a program administered by the Water Resources Council:

First. To prepare national inventories of water supply and demand;

Second. To develop principles, standards and procedures for project formulation and evaluation;

Third. To establish continuing liaison with the various river basin commissions;

Fourth. To administer grants-in-aid to the States for water resource planning; and

Fifth. To foster and review river basin plans.

This Council is an interdepartmental, independent agency. Its members are cabinet officers and bureau chiefs with statutory and administrative responsibility for a great variety of Federal programs. The Council's Chairman is the Secretary of the Interior and its Vice Chairman is the Chairman of the Federal Power Commission.

Under their direction, real progress has been made toward a long overdue ordering of our approach to water resource planning. Seven river basin commissions have been set up: New England, the Great Lakes, the Pacific Northwest, the Souris-Red-Rainy, the Ohio, the Missouri and the Upper Missouri Basins. Additionally, a series of grants have been made to the States to augment their water planning abilities. Via this program, the number of technically qualified people in State water planning has increased, State and regional water planning has greatly improved, and State water programs are farther

ahead than they would have been without the grants.

The Water Resources Council has earned the respect and the admiration of many Members of Congress and is certainly deserving of our further support.

I commend Mr. HOSMER, a distinguished member of the Committee on Interior and Insular Affairs, who has shown fine leadership in the field of water resource planning and development.

Mr. JOHNSON of California. Mr. Speaker, I yield myself such time as I may consume to speak on behalf of the bill H.R. 6338, to amend the Water Resources Planning Act to provide additional authorization for appropriations.

The Water Resources Planning Act is administered by the Water Resources Council. Its duties, pursuant to law, are: First, assessing national water supplies and needs; second, coordinating river basin and regional water and related land resources plans; and third, administering a grant program to River Basin Commissions to defray the Federal share of operating such commissions.

As a act now stands on the statute books, appropriations are authorized in the amount of first, $5,000,000 annually for planning grants to States; second, $6,000,000 annually for the Federal share of operating river basin commissions; and third, $1,500,000 annually for administering the Water Resources Council. There are no specific funds authorized to be appropriated for the preparation of national assessments or for coordinating the preparation of basin and regional plans.

Absent specific appropriations for these purposes the Council, in prior years, has relied on contributed data and staff resources from the water resource action program agencies to coordinate plans and to prepare the national assessment. In the case of river basin plans, the practice has been to designate a lead agency which would then, in turn, secure its own appropriations from Congress for this activity. Other contributing agencies to overall regional plans would likewise request funds to cover their inputs.

This approach to coordination has proven to be awkward and ineffective. H.R. 6338 affords a mechanism for improving coordination and standardization of river basin planning by authorizing an annual appropriation of $1,000,000 to the Water Resources Council with which to finance centralized management. The President's budget for fiscal year 1974, in anticipation of enactment of this legislation, contains a request for $775,000 for this activity.

The first national assessment prepared by the Water Resources Council was prepared by personnel detailed to the Council by the other water resource agencies and relied heavily on data inputs from these agencies. Experience demonstrated that attainment of time schedules and standardization of input data, as well as analyses, was virtually impossible in the absence of a centralized control meachanism. H.R. 6338 will provide this mechanism for the second assessment scheduled for preparation during fiscal years 1974 and 1975, by authorizing appropriations in the amount of $2,500,000 for each year. The President's budget anticipates this authorization by including the sum of $2,395,000 for this purpose for fiscal year 1974.

In summary, Mr. Speaker, I would like to emphasize that the Federal cost of this legislation is more apparent than real. The administrative structure that will be afforded as a result of this legislation will enhance efficiency in the implementation of programs already

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authorized to be conducted. The legis-

lation actually authorizes no new work, no new man-days of effort, and no activity not already provided by statute. Accordingly, it is probable that the legislation will actually result in an overall reduction in the Federal cost of the programs carried out by the Water Resources Council. These are the reasons that I urge my colleagues to join with me in suspending the rules and passing this legislation.

Mr. SNYDER. Mr. Speaker, will the gentleman yield?

Mr. JOHNSON of California. I yield to the gentleman from Kentucky.

Mr. SNYDER. The gentleman from California, of course, as well as serving on the Committee on Interior and Insular Affairs, is also a valued member of the Committee on Public Works, where I am also privileged to serve with the gentleman.

I would like to know if this is funding for the same organization that caused us so much concern last year, when it was anticipated that they were going to change certain standards for tests for figures for the benefit-cost ratio on public works projects, and other proposed regulations such as deactivating and defunding of projects that did not have construction starts within 3 to 5 years?

Mr. JOHNSON of California. I would say to the gentleman from Kentucky that the Water Resources Council did make a study, and they have made preliminary recommendations. The study is still under active consideration by the Water Resources Council. In the absence of a permanent director of that council they are now waiting, I presume, for the new director to be appointed. It is my information that they will go into a further study of their recommendations, and that the report will be rendered some time in late July and August.

Now, certainly those recommendations are going to be reviewed by the administration, the Office of Management and Budget, and the other agencies that are concerned with them. However, I do not think that out of this particular study will come the actual deauthorization of projects which are already authorized in the backlog. I believe that deauthorization was mentioned by the Water Quality Commission, another commission, and that study and report will be made as of June 30.

This commission will be heard before the Committee on the Interior in the other body I do believe this week, or the next week, just prior to the other body leaving for the 4th of July recess.

Both of these reports have certain recommendations that are somewhat difficult and troublesome from the standpoint of their operations under criteria that was laid down. As far as I know, the criteria that is being used is the old criteria, and the discount rate is still used is the rate of 5.5 percent. They have recommended a much higher rate in their study. But that has not been accepted as yet on the part of the administration.

Mr. SNYDER. If they make such recommendations, and they are accepted on the part of the administration, will the funding of the council at this point allow those recommendations to be implemented, barring any action of the Congress?

Mr. JOHNSON of California. That would have nothing to do with it. I think if they do recommend them it is up to the Congress then to enact legislation that would set policy for benefit considerations, and the proper discount rate. That legislation is pending, as the gentleman knows, in our own committee, and it is also being considered in the other body at this particular time.

Mr. SNYDER. The gentleman will recall that in the Rivers and Harbors Bill last year, which I believe was vetoed, or did not get called up for

some reason or other, we wrote some language into that bill that would have prevented these new regulations taking effect—of course, as I say, that did not become law.

Now, my question is, is the funding of this council at this point going to put them in a position to make those regulations effective if the Congress does not act on the legislation now pending in the Committee on Public Works, to deactivate all those projects, so many of which would appear to be favorable?

Mr. JOHNSON of California. No, it would not have that affect.

Mr. SNYDER. I thank the gentleman.

Mr. WYLIE. Mr. Speaker, will the gentleman yield?

Mr. JOHNSON of California. I yield to the gentleman from Ohio.

Mr. WYLIE. Mr. Speaker, this council has been in existence since 1965. Could the gentleman from California tell me where the money is being spent?

Mr. JOHNSON of California. I believe that the council has been in existence since 1965. It was authorized in the 89th Congress, I do believe.

Mr. WYLIE. That is the date I used.

Mr. JOHNSON of California. I am sorry, I thought the gentleman said 1935.

Mr. WYLIE. I said 1965.

I wonder if the gentleman could tell me where the money is being spent?

Mr. JOHNSON of California. The money is being spent on the operation of the council, the river basin commissions program, and grant-in-aid prograants to the various States. There are seven river commissions at the present time in operation.

The housekeeping for the water resources council has an amount of $1,500,000 for that purpose. It authorizes $5 million for the State grant program, and the Federal share of the river basin commissions program amounted to $6 million.

Mr. WYLIE. It is my understanding that most of the money is being spent in two States, on the Colorado River in Arizona and California.

Mr. JOHNSON of California. No, it is not. These commissions are scattered throughout the United States. I do not have the actual area, but it is not being spent on the Colorado River in the States of Arizona and California.

Mr. WYLIE. I have just two more questions. Does the gentleman know how much money has been spent so far, and how much longer it is contemplated that this Council will be needed?

Mr. JOHNSON of California. It is a permanent council, and it has much work to be done. I think throughout the United States we have a very real problem dealing with our water resources law. They are responsible for working with the States within the various river basins dealing with all of the problems of water resource development throughout the United States. I think there is a need for this Water Resources Council for some time to come, because they are dealing with one of the essentials. Since we have enacted the Environmental Protection Act of 1969 and the Water Pollution Control Act of 1972, it makes it mandatory that we carry on this type of function if we are going to coordinate and solve our water resource problems and have an adequate supply of water and other benefits that come with good basin development.

Mr. WYLIE. I would agree with the gentleman, but would it be appropriate for this Council, for example, to make an estimate of the water supply needs for the city of Columbus, Ohio?

Mr. JOHNSON of California. I presume it would be an eligible agency, but there are other agencies

that would do a job much faster, I would say.

Mr. WYLIE. I am attempting to find out the thrust of the jurisdiction of the Council. The gentleman has been very helpful. I would like to know how much money has been spent so far.

Mr. JOHNSON of California. I do not have the total figures, but I would say that the administration has recognized this as being a very essential part of our water resources concern. They have supported the amounts that were included in the first three items, and they also have supported and recommended in the 1974 budget amounts that would carry on the functions of the other two programs that I have related to the Congress here in the amount of $2,395,000, where the bill calls for $2,500,000, and for an amount of $775,000, where the bill calls for an authorization of $1 million.

So I think the amounts that are asked for in the legislation are fully supported by the administration and the Office of Management and Budget, and also by the Department of the Interior.

The executive communication that came up recommended the enactment of this bill, and they are the ones who drafted the bill itself.

Mr. WYLIE. I thank the gentleman very much for yielding.

Mr. HOSMER. Mr. Speaker, I yield myself 3 minutes.

Mr. Speaker, I rise in support of H.R. 6338, amending the Water Resources Planning Act to provide for continuing authorization for appropriations.

Mr. Speaker, we have before us a proposal to augment and strengthen the role of the Water Resources Council in coordinating and guiding the future development of regional and national water resources.

Like my colleagues from Pennsylvania (Mr. SAYLOR) and California (Mr. JOHNSON), I have tremendous admiration for the past work of the Water Resources Council and corresponding confidence

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that a decision by the House to increase the Council's authorization would be a wise and farsighted move.

As the gentleman from California pointed out the Council's first national assessment of water needs and supplies was completed in 1968. This study was, of necessity, based upon highly limited data and analysis provided by a variety of State and Federal water agencies. The difficulties of assembling a conceptually unified body of knowledge under such circumstances are obvious and it has become increasingly clear that the accuracy and practicality of future assessments demand improved methods of data gathering and analysis.

Passage of H.R. 6338 will aid the council in preparing a second national assessment. This second assessment will place special emphasis on areas not previously studied in order to provide a more consistent national data base. The resulting report should give us a more complete picture of our national and regional water resource problems. This study will also lead to new factors and yardsticks for evaluating alternative courses of action in future water resource planning and management.

As has also been mention, this apparent increase in Council funding is actually illusionary. The previous study was a hodge-podge of staff input from a number of agencies. This increase will take much of this outside input and turn it into inside output by centralizing many staff functions.

Mr. Speaker, we need this Council for the coordination and order it brings to a vital field of enormous national importance. I urge support for this excellent proposal.

(Mr. HOSMER asked and was

given permission to revise and extend his remarks.)

SALINE WATER PROGRAM

(Mr. HOSMER asked and was given permission to speak out of order.)

Mr. HOSMER. Mr. Speaker, earlier in the afternoon I mentioned to the membership that the bill coming later in the day to authorize appropriations for the saline water program goes 140 percent over the administration's request for total OSW budgetary authorization and 60 percent over the administration's request for new authorizations.

At the time the amendment is offered to make the unwarranted increases, I shall oppose it vigorously, and I trust the membership will understand that here involved is a very clear issue of economy in government and of following through on the budgetary recommendations.

Mr. Speaker, I reserve the balance of my time.

Mr. PRICE of Illinois. Mr. Speaker, I support H.R. 6338, which would increase appropriation authorizations for the Water Resources Council for fiscal years 1974 and 1975. The increased authorizations amount to $3.5 million annually for administrative expenses of the Council; not more than $2.5 million for the preparing of the national water assessment as required by law, the remaining $1 million for administration and coordination of river basin and regional plans prepared pursuant to the Water Resources Planning Act.

The work of the Water Resources Council is important to my congressional district, which borders on that most important river, the Mississippi. The funds authorized in this legislation will enable centralized management of the activities of the Water Resources Council on a continuing basis.

The President's budget for fiscal 1974 contains $2,395,000 for work in connection with the national assessment and $775,000 for administration and coordination of river basin plans. Appropriations for the projects are naturally contingent upon our adoption of this authorizing legislation today.

Our water resources are important not only to my congressional district but also to the well-being of the Nation as a whole. We should adopt this legislation to assure that our water resources will receive the full amount of attention and development they require for the sake of the Nation.

The SPEAKER. The question is on the motion offered by the gentleman from California (Mr. JOHNSON) that the House suspend the rules and pass the bill H.R. 6338, as amended.

The question was taken; and (two-thirds having voted in favor thereof) the rules were suspended and the bill, as amended, was passed.

A motion to reconsider was laid on the table.

Mr. JOHNSON of California. Mr. Speaker, I ask unanimous consent that the Committee on Interior and Insular Affairs be discharged from further consideration of the Senate bill (S. 1501) to amend the Water Resources Planning Act to authorize appropriations for fiscal year 1974, and ask for immediate consideration of the bill.

The Clerk read the title of the Senate bill.

The SPEAKER. Is there objection to the request of the gentleman from California?

There was no objection.

The Clerk read the Senate bill, as follows:

S. 1501

An act to amend the Water Resources Planning Act to authorize appropriations for fiscal year 1974

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 401 of the Water Resources Planning Act (Public Law 89-80; 79 Stat. 244; 42 U.S.C. 1962d) is amended to delete, immediately

after the phrase "(c) not to exceed $3,500,000", the words "in fiscal year 1973" and to insert the words "in fiscal year 1974" in lieu thereof.

AMENDMENT OFFERED BY MR. JOHNSON OF CALIFORNIA

Mr. JOHNSON of California. Mr. Speaker, I offer an amendment.

The Clerk read as follows:

Amendment offered by Mr. JOHNSON of California: Strike out all after the enacting clause of S. 1501 and insert in lieu thereof the provisions of H.R. 6338, as passed.

The amendment was agreed to.

The Senate bill was ordered to be read a third time, was read the third time, and passed.

The title was amended so as to read: "To amend the Water Resources Planning Act to provide for continuing authorization for appropriations."

A motion to reconsider was laid on the table.

A similar House bill (H.R. 6338) was laid on the table.

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1.19d(3)(c) June 21: Senate concurred in House amendments, pp. S 11645–S 11646

1.34 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

33 U.S.C. § 1401 et seq. (1973)

MARINE PROTECTION RESEARCH AND SANCTUARIES ACT

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§ 1401. Congressional finding, policy, and declaration of purpose

(a) Unregulated dumping of material into ocean waters endangers human health, welfare, and amenities, and the marine environment, ecological systems, and economic potentialities.

(b) The Congress declares that it is the policy of the United States to regulate the dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems or economic potentialities.

To this end, it is the purpose of this chapter to regulate the transportation of material from the United States for dumping into ocean waters, and the dumping of material, transported from outside the United States, if the dumping occurs in ocean waters over which the United States has jurisdiction or over which it may exercise control, under accepted principles of international law, in order to protect its territory or territorial sea.

Pub.L. 92–532, § 2, Oct. 23, 1972, 86 Stat. 1052.

§ 1402. Definitions

For the purposes of this chapter the term—

(a) "Administrator" means the Administrator of the Environmental Protection Agency.

(b) "Ocean waters" means those waters of the open seas lying seaward of the base line from which the territorial sea is measured, as provided for in the Convention on the Territorial Sea and the Contiguous Zone (15 UST 1606; TIAS 5639).

(c) "Material" means matter of any kind or description, including, but not limited to, dredged material, solid waste, incinerator, residue, garbage, sewage, sewage sludge, munitions, radiological, chemical, and biological warfare agents, radioactive materials, chemicals, biological and laboratory waste, wreck or discarded equipment, rock, sand, excavation debris, and industrial, municipal, agricultural, and other waste; but such term does not mean oil within the meaning of section 11 of the Federal Water Pollution Control Act and does not mean sewage from vessels within the meaning of section 13 of such Act.

(d) "United States" includes the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, the territories and possessions of the United States, and the Trust Territory of the Pacific Islands.

(e) "Person" means any private person or entity, or any officer, employee, agent, department, agency, or instrumentality of the Federal Government, of any State or local unit of government, or of any foreign government.

(f) "Dumping" means a disposition of material: *Provided,* That it does not mean a disposition of any effluent from any outfall structure to the extent that such disposition is regulated under the provisions of the Federal Water Pollution Control Act, under the provisions of section 407 of this title, or under the provisions of the Atomic Energy Act of 1954, nor does it mean a routine discharge of effluent incidental to the propulsion of, or operation of motor-driven equipment on, vessels: *Provided*

further, That it does not mean the construction of any fixed structure or artificial island nor the intentional placement of any device in ocean waters or on or in the submerged land beneath such waters, for a purpose other than disposal, when such construction or such placement is otherwise regulated by Federal or State law or occurs pursuant to an authorized Federal or State program: *And provided further,* That it does not include the deposit of oyster shells, or other materials when such deposit is made for the purpose of developing, maintaining, or harvesting fisheries resources and is otherwise regulated by Federal or State law or occurs pursuant to an authorized Federal or State program.

(g) "District court of the United States" includes the District Court of Guam, the District Court of the Virgin Islands, the District Court of Puerto Rico, the District Court of the Canal Zone, and in the case of American Samoa and the Trust Territory of the Pacific Islands, the District Court of the United States for the District of Hawaii, which court shall have jurisdiction over actions arising therein.

(h) "Secretary" means the Secretary of the Army.

(i) "Dredged material" means any material excavated or dredged from the navigable waters of the United States.

(j) "High-level radioactive waste" means the aqueous waste resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated waste from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuels, or irradiated fuel from nuclear power reactors.

(k) "Transport" or "transportation" refers to the carriage and related handling of any material by a vessel, or by any other vehicle, including aircraft.

Pub.L. 92–532, § 3, Oct. 23, 1972, 86 Stat. 1052.

SUBCHAPTER I—REGULATION

§ 1411. Prohibited acts

(a) No person shall transport from the United States any radiological, chemical, or biological warfare agent or any high-level radioactive waste, or except as may be authorized in a permit issued under this subchapter, and subject to regulations issued under section 1418 of this title by the Secretary of the Department in which the Coast Guard is operating, any other material for the purpose of dumping it into ocean waters.

(b) No person shall dump any radiological, chemical, or bio-

logical warfare agent or any high-level radioactive waste, or, except as may be authorized in a permit issued under this subchapter, any other material, transported from any location outside the United States, (1) into the territorial sea of the United States, or (2) into a zone contiguous to the territorial sea of the United States, extending to a line twelve nautical miles seaward from the base line from which the breadth of the territorial sea is measured, to the extent that it may affect the territorial sea or the territory of the United States.

(c) No officer, employee, agent, department, agency, or instrumentality of the United States shall transport from any location outside the United States any radiological, chemical, or biological warfare agent or any high-level radioactive waste, or, except as may be authorized in a permit issued under this subchapter, any other material for the purpose of dumping it into ocean waters.

Pub.L. 92–532, Title I, § 101, Oct. 23, 1972, 86 Stat. 1053.

§ 1412. Dumping permit program—Environmental Protection Agency permits

(a) Except in relation to dredged material, as provided for in section 1413 of this title, and in relation to radiological, chemical, and biological warfare agents and high-level radioactive waste, as provided for in section 1411 of this title, the Administrator may issue permits, after notice and opportunity for public hearings, for the transportation from the United States or, in the case of an agency or instrumentality of the United States, for the transportation from a location outside the United States, of material for the purpose of dumping it into ocean waters, or for the dumping of material into the waters described in section 1411(b) of this title, where the Administrator determines that such dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. The Administrator shall establish and apply criteria for reviewing and evaluating such permit applications, and, in establishing or revising such criteria, shall consider, but not be limited in his consideration to, the following:

(A) The need for the proposed dumping.

(B) The effect of such dumping on human health and welfare, including economic, esthetic, and recreational values.

(C) The effect of such dumping on fisheries resources, plankton, fish, shellfish, wildlife, shore lines and beaches.

(D) The effect of such dumping on marine ecosystems, particularly with respect to—

(i) the transfer, concentration, and dispersion of such material and its byproducts through biological, physical, and chemical processes,

(ii) potential changes in marine ecosystem diversity, productivity, and stability, and

(iii) species and community population dynamics.

(E) The persistence and permanence of the effects of the dumping.

(F) The effect of dumping particular volumes and concentrations of such materials.

(G) Appropriate locations and methods of disposal or recycling, including land-based alternatives and the probable impact of requiring use of such alternate locations or methods upon considerations affecting the public interest.

(H) The effect on alternate uses of oceans, such as scientific study, fishing, and other living resource exploitation, and nonliving resource exploitation.

(I) In designating recommended sites, the Administrator shall utilize wherever feasible locations beyond the edge of the Continental Shelf.

In establishing or revising such criteria, the Administrator shall consult with Federal, State, and local officials, and interested members of the general public, as may appear appropriate to the Administrator. With respect to such criteria as may affect the civil works program of the Department of the Army, the Administrator shall also consult with the Secretary. In reviewing applications for permits, the Administrator shall make such provision for consultation with interested Federal and State agencies as he deems useful or necessary. No permit shall be issued for a dumping of material which will violate applicable water quality standards.

Permit categories

(b) The Administrator may establish and issue various categories of permits, including the general permits described in section 1414(c) of this title.

Sites and times for dumping

(c) The Administrator may, considering the criteria established pursuant to subsection (a) of this section, designate recommended sites or times for dumping and, when he finds it necessary to protect critical areas, shall, after consultation with the

Secretary, also designate sites or times within which certain materials may not be dumped.

Fish wastes

(d) No permit is required under this subchapter for the transportation for dumping or the dumping of fish wastes, except when deposited in harbors or other protected or enclosed coastal waters, or where the Administrator finds that such deposits could endanger health, the environment or ecological systems in a specific location. Where the Administrator makes such a finding, such material may be deposited only as authorized by a permit issued by the Administrator under this section.

Pub.L. 92–532, Title I, § 102, Oct. 23, 1972, 86 Stat. 1054.

§ 1413. Dumping permit program for dredged material—Issuance by Secretary of the Army

(a) Subject to the provisions of subsections (b), (c), and (d) of this section, the Secretary may issue permits, after notice and opportunity for public hearings, for the transportation of dredged material for the purpose of dumping it into ocean waters, where the Secretary determines that the dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.

Independent determination of need for dumping, other methods of disposal, and appropriate locations

(b) In making the determination required by subsection (a) of this section, the Secretary shall apply those criteria, established pursuant to section 1412(a) of this title, relating to the effects of the dumping. Based upon an evaluation of the potential effect of a permit denial on navigation, economic and industrial development, and foreign and domestic commerce of the United States, the Secretary shall make an independent determination as to the need for the dumping. The Secretary shall also make an independent determination as to other possible methods of disposal and as to appropriate locations for the dumping. In considering appropriate locations, he shall, to the extent feasible, utilize the recommended sites designated by the Administrator pursuant to section 1412(c) of this title.

Disagreement of Administrator with determination of Secretary of the Army

(c) Prior to issuing any permit under this section, the Secretary shall first notify the Administrator of his intention to do so.

In any case in which the Administrator disagrees with the determination of the Secretary as to compliance with the criteria established pursuant to section 1412(a) of this title relating to the effects of the dumping or with the restrictions established pursuant to section 1412(c) of this title relating to critical areas, the determination of the Administrator shall prevail. Unless the Administrator grants a waiver pursuant to subsection (d) of this section, the Secretary shall not issue a permit which does not comply with such criteria and with such restrictions.

Waiver of requirements

(d) If, in any case, the Secretary finds that, in the disposition of dredged material, there is no economically feasible method or site available other than a dumping site the utilization of which would result in non-compliance with the criteria established pursuant to section 1412(a) of this title relating to the effects of dumping or with the restrictions established pursuant to section 1412(c) of this title relating to critical areas, he shall so certify and request a waiver from the Administrator of the specific requirements involved. Within thirty days of the receipt of the waiver request, unless the Administrator finds that the dumping of the material will result in an unacceptably adverse impact on municipal water supplies, shell-fish beds, wildlife, fisheries (including spawning and breeding areas), or recreational areas, he shall grant the waiver.

Federal project involving dredged material

(e) In connection with Federal projects involving dredged material, the Secretary may, in lieu of the permit procedure, issue regulations which will require the application to such projects of the same criteria, other factors to be evaluated, the same procedures, and the same requirements which apply to the issuance of permits under subsections (a), (b), (c), and (d) of this section.

Pub.L. 92–532, Title I, § 103, Oct. 23, 1972, 86 Stat. 1055.

§ 1414. Permit conditions—Designated and included conditions

(a) Permits issued under this subchapter shall designate and include (1) the type of material authorized to be transported for dumping or to be dumped; (2) the amount of material authorized to be transported for dumping or to be dumped; (3) the location where such transport for dumping will be terminated or where such dumping will occur; (4) the length of time for which the permits are valid and their expiration date;

(5) any special provisions deemed necessary by the Administrator or the Secretary, as the case may be, after consultation with the Secretary of the Department in which the Coast Guard is operating, for the monitoring and surveillance of the transportation or dumping; and (6) such other matters as the Administrator or the Secretary, as the case may be, deems appropriate.

Permit processing fees; reporting requirements

(b) The Administrator or the Secretary, as the case may be, may prescribe such processing fees for permits and such reporting requirements for actions taken pursuant to permits issued by him under this subchapter as he deems appropriate.

General permits

(c) Consistent with the requirements of sections 1412 and 1413 of this title, but in lieu of a requirement for specific permits in such case, the Administrator or the Secretary, as the case may be, may issue general permits for the transportation for dumping, or dumping, or both, of specified materials or classes of materials for which he may issue permits, which he determines will have a minimal adverse environmental impact.

Review

(d) Any permit issued under this subchapter shall be reviewed periodically and, if appropriate, revised. The Administrator or the Secretary, as the case may be, may limit or deny the issuance of permits, or he may alter or revoke partially or entirely the terms of permits issued by him under this subchapter, for the transportation for dumping, or for the dumping, or both, of specified materials or classes of materials, where he finds that such materials cannot be dumped consistently with the criteria and other factors required to be applied in evaluating the permit application. No action shall be taken under this subsection unless the affected person or permittee shall have been given notice and opportunity for a hearing on such action as proposed.

Information for review and evaluation of applications

(e) The Administrator or the Secretary, as the case may be, shall require an applicant for a permit under this subchapter to provide such information as he may consider necessary to review and evaluate such application.

Public information

(f) Information received by the Administrator or the Secretary, as the case may be, as a part of any application or in connection with any permit granted under this subchapter shall

be available to the public as a matter of public record, at every stage of the proceeding. The final determination of the Administrator or the Secretary, as the case may be, shall be likewise available.

Display of issued permits

(g) A copy of any permit issued under this subchapter shall be placed in a conspicuous place in the vessel which will be used for the transportation or dumping authorized by such permit, and an additional copy shall be furnished by the issuing official to the Secretary of the department in which the Coast Guard is operating, or its designee.

Pub.L. 92–532, Title I § 104, Oct. 23, 1972, 86 Stat. 1056.

§ 1415. Penalties—Assessment of civil penalty by Administrator; remission or mitigation; court action for appropriate relief

(a) Any person who violates any provision of this subchapter, or of the regulations promulgated under this subchapter, or a permit issued under this subchapter shall be liable to a civil penalty of not more than $50,000 for each violation to be assessed by the Administrator. No penalty shall be assessed until the person charged shall have been given notice and an opportunity for a hearing of such violation. In determining the amount of the penalty, the gravity of the violation, prior violations, and the demonstrated good faith of the person charged in attempting to achieve rapid compliance after notification of a violation shall be considered by said Administrator. For good cause shown, the Administrator may remit or mitigate such penalty. Upon failure of the offending party to pay the penalty, the Administrator may request the Attorney General to commence an action in the appropriate district court of the United States for such relief as may be appropriate.

Criminal penalties

(b) In addition to any action which may be brought under subsection (a) of this section, a person who knowingly violates this subchapter, regulations promulgated under this subchapter, or a permit issued under this subchapter shall be fined not more than $50,000, or imprisoned for not more than one year, or both.

Separate offenses

(c) For the purpose of imposing civil penalties and criminal fines under this section, each day of a continuing violation shall constitute a separate offense as shall the dumping from each of several vessels, or other sources.

Injunctive relief

(d) The Attorney General or his delegate may bring actions for equitable relief to enjoin an imminent or continuing violation of this subchapter, of regulations promulgated under this subchapter, or of permits issued under this subchapter, and the district courts of the United States shall have jurisdiction to grant such relief as the equities of the case may require.

Liability of vessels in rem

(e) A vessel, except a public vessel within the meaning of section 13 of the Federal Water Pollution Control Act, used in a violation, shall be liable in rem for any civil penalty assessed or criminal fine imposed and may be proceeded against in any district court of the United States having jurisdiction thereof; but no vessel shall be liable unless it shall appear that one or more of the owners, or bareboat charterers, was at the time of the violation a consenting party or privy to such violation.

Revocation and suspension of permits

(f) If the provisions of any permit issued under section 1412 or 1413 of this title are violated, the Administrator or the Secretary, as the case may be, may revoke the permit or may suspend the permit for a specified period of time. No permit shall be revoked or suspended unless the permittee shall have been given notice and opportunity for a hearing on such violation and proposed suspension or revocation.

Civil suits by private persons

(g) (1) Except as provided in paragraph (2) of this subsection any person may commence a civil suit on his own behalf to enjoin any person, including the United States and any other governmental instrumentality or agency (to the extent permitted by the eleventh amendment to the Constitution), and who is alleged to be in violation of any prohibition, limitation, criterion, or permit established or issued by or under this subchapter. The district courts shall have jurisdiction, without regard to the amount in controversy or the citizenship of the parties, to enforce such prohibition, limitation, criterion, or permit, as the case may be.

(2) No action may be commenced—

(A) prior to sixty days after notice of the violation has been given to the Administrator or to the Secretary, and to any alleged violator of the prohibition, limitation, criterion, or permit; or

(B) if the Attorney General has commenced and is diligently prosecuting a civil action in a court of the United

States to require compliance with the prohibition, limitation, criterion, or permit; or

(C) if the Administrator has commenced action to impose a penalty pursuant to subsection (a) of this section, or if the Administrator, or the Secretary, has initiated permit revocation or suspension proceedings under subsection (f) of this section; or

(D) if the United States has commenced and is diligently prosecuting a criminal action in a court of the United States or a State to redress a violation of this subchapter.

(3) (A) Any suit under this subsection may be brought in the judicial district in which the violation occurs.

(B) In any such suit under this subsection in which the United States is not a party, the Attorney General, at the request of the Administrator or Secretary, may intervene on behalf of the United States as a matter of right.

(4) The court, in issuing any final order in any suit brought pursuant to paragraph (1) of this subsection may award costs of litigation (including reasonable attorney and expert witness fees) to any party, whenever the court determines such award is appropriate.

(5) The injunctive relief provided by this subsection shall not restrict any right which any person (or class of persons) may have under any statute or common law to seek enforcement of any standard or limitation or to seek any other relief (including relief against the Administrator, the Secretary, or a State agency).

Emergencies

(h) No person shall be subject to a civil penalty or to a criminal fine or imprisonment for dumping materials from a vessel if such materials are dumped in an emergency to safeguard life at sea. Any such emergency dumping shall be reported to the Administrator under such conditions as he may prescribe.

Pub.L. 92–532, Title I, § 105, Oct. 23, 1972, 86 Stat. 1057.

§ 1416. Voiding of pre-existing licenses; impairment of navigation; consistent State programs; existing conservation program not affected

(a) After the effective date of this subchapter, all licenses, permits, and authorizations other than those issued pursuant to this subchapter shall be void and of no legal effect, to the extent that they purport to authorize any activity regulated by this

subchapter, and whether issued before or after the effective date of this subchapter.

(b) The provisions of subsection (a) of this section shall not apply to actions taken before the effective date of this subchapter under the authority of the Rivers and Harbors Act of 1899.

(c) Prior to issuing any permit under this subchapter, if it appears to the Administrator that the disposition of material, other than dredged material, may adversely affect navigation in the territorial sea of the United States, or in the approaches to any harbor of the United States, or may create an artificial island on the Outer Continental Shelf, the Administrator shall consult with the Secretary and no permit shall be issued if the Secretary determines that navigation will be unreasonably impaired.

(d) After the effective date of this subchapter, no State shall adopt or enforce any rule or regulation relating to any activity regulated by this subchapter. Any State may, however, propose to the Administrator criteria relating to the dumping of materials into ocean waters within its jurisdiction, or into other ocean waters to the extent that such dumping may affect waters within the jurisdiction of such State, and if the Administrator determines, after notice and opportunity for hearing, that the proposed criteria are not inconsistent with the purposes of this subchapter, may adopt those criteria and may issue regulations to implement such criteria. Such determination shall be made by the Administrator within one hundred and twenty days of receipt of the proposed criteria. For the purposes of this subsection, the term "State" means any State, interstate or regional authority, Federal territory or Commonwealth or the District of Columbia.

(e) Nothing in this subchapter shall be deemed to affect in any manner or to any extent any provision of the Fish and Wildlife Coordination Act.

Pub.L. 92–532, Title I, § 106, Oct. 23, 1972, 86 Stat. 1058.

§ 1417. Enforcement—Utilization of other departments, agencies, and instrumentalities

(a) The Administrator or the Secretary, as the case may be, may, whenever appropriate, utilize by agreement, the personnel, services and facilities of other Federal departments, agencies, and instrumentalities, or State agencies or instrumentalities,

whether on a reimbursable or a nonreimbursable basis, in carrying out his responsibilities under this subchapter.

Delegation of review and evaluation authority

(b) The Administrator or the Secretary may delegate responsibility and authority for reviewing and evaluating permit applications, including the decision as to whether a permit will be issued, to an officer of his agency, or he may delegate, by agreement, such responsibility and authority to the heads of other Federal departments or agencies, whether on a reimbursable or nonreimbursable basis.

Surveillance and other enforcement activity

(c) The Secretary of the department in which the Coast Guard is operating shall conduct surveillance and other appropriate enforcement activity to prevent unlawful transportation of material for dumping, or unlawful dumping. Such enforcement activity shall include, but not be limited to, enforcement of regulations issued by him pursuant to section 1418 of this title, relating to safe transportation, handling, carriage, storage, and stowage. The Secretary of the Department in which the Coast Guard is operating shall supply to the Administrator and to the Attorney General, as appropriate, such information of enforcement activities and such evidentiary material assembled as they may require in carrying out their duties relative to penalty assessments, criminal prosecutions, or other actions involving litigation pursuant to the provisions of this subchapter.

Pub.L. 92–532, Title I, § 107, Oct. 23, 1972, 86 Stat. 1059.

§ 1418. Regulations

In carrying out the responsibilities and authority conferred by this subchapter, the Administrator, the Secretary, and the Secretary of the department in which the Coast Guard is operating are authorized to issue such regulations as they may deem appropriate.

Pub.L. 92–532, Title I, § 108, Oct. 23, 1972, 86 Stat. 1059.

§ 1419. International cooperation

The Secretary of State, in consultation with the Administrator, shall seek effective international action and cooperation to insure protection of the marine environment, and may, for this purpose, formulate, present, or support specific proposals in the United Nations and other competent international organizations

for the development of appropriate international rules and regulations in support of the policy of this chapter.

Pub.L. 92–532, Title I, § 109, Oct. 23, 1972, 86 Stat. 1060.

§ 1420. Authorization of appropriations

There are hereby authorized to be appropriated not to exceed $3,600,000 for fiscal year 1973, and not to exceed $5,500,000 for fiscal year 1974, for the purposes and administration of this subchapter, and for succeeding fiscal years only such sums as the Congress may authorize by law.

Pub.L. 92–532, Title I, § 111, Oct. 23, 1972, 86 Stat. 1060.

§ 1421. Annual report to Congress

The Administrator shall report annually, on or before June 30 of each year, with the first report to be made on or before June 30, 1973 to the Congress, on his administration of this subchapter, including recommendations for additional legislation if deemed necessary.

Pub.L. 92–532, Title I, § 112, Oct. 23, 1972, 86 Stat. 1060.

SUBCHAPTER II—RESEARCH

§ 1441. Monitoring and research program; reports to Congress

The Secretary of Commerce, in coordination with the Secretary of the Department in which the Coast Guard is operating and with the Administrator shall, within six months of October 23, 1972, initiate a comprehensive and continuing program of monitoring and research regarding the effects of the dumping of material into ocean waters or other coastal waters where the tide ebbs and flows or into the Great Lakes or their connecting waters and shall report from time to time, not less frequently than annually, his findings (including an evaluation of the short-term ecological effects and the social and economic factors involved) to the Congress.

Pub.L. 92–532, Title II, § 201, Oct. 23, 1972, 86 Stat. 1060.

§ 1442. Research program respecting possible long range effects of pollution, overfishing, and man-induced changes of ocean ecosystems—Secretary of Commerce

(a) The Secretary of Commerce, in consultation with other appropriate Federal departments, agencies, and instrumentali-

ties shall, within six months of October 23, 1972, initiate a comprehensive and continuing program of research with respect to the possible long-range effects of pollution, overfishing, and man-induced changes of ocean ecosystems. In carrying out such research, the Secretary of Commerce shall take into account such factors as existing and proposed international policies affecting oceanic problems, economic considerations involved in both the protection and the use of the oceans, possible alternatives to existing programs, and ways in which the health of the oceans may best be preserved for the benefit of succeeding generations of mankind.

Action with other nations

(b) In carrying out his responsibilities under this section, the Secretary of Commerce, under the foreign policy guidance of the President and pursuant to international agreements and treaties made by the President with the advice and consent of the Senate, may act alone or in conjunction with any other nation or group of nations, and shall make known the results of his activities by such channels of communication as may appear appropriate.

Annual report to Congress

(c) In January of each year, the Secretary of Commerce shall report to the Congress on the results of activities undertaken by him pursuant to this section during the previous fiscal year.

Cooperation of other departments, agencies, and independent instrumentalities

(d) Each department, agency, and independent instrumentality of the Federal Government is authorized and directed to cooperate with the Secretary of Commerce in carrying out the purposes of this section and, to the extent permitted by law, to furnish such information as may be requested.

Utilization of personnel, services, and facilities; inter-agency agreements

(e) The Secretary of Commerce, in carrying out his responsibilities under this section, shall, to the extent feasible utilize the personnel, services, and facilities of other Federal departments, agencies, and instrumentalities (including those of the Coast Guard for monitoring purposes), and is authorized to enter into appropriate inter-agency agreements to accomplish this action. Pub.L. 92–532, Title II, § 202, Oct. 23, 1972, 86 Stat. 1060.

§ 1443. Cooperation with public authorities, agencies, and institutions, private agencies and institutions, and individuals

The Secretary of Commerce shall conduct and encourage, cooperate with, and render financial and other assistance to appropriate public (whether Federal, State, interstate, or local) authorities, agencies, and institutions, private agencies and institutions, and individuals in the conduct of, and to promote the coordination of, research, investigations, experiments, training, demonstrations, surveys, and studies for the purpose of determining means of minimizing or ending all dumping of materials within five years of the effective date of this Act.

Pub.L. 92–532, Title II, § 203, Oct. 23, 1972, 86 Stat. 1061.

§ 1444. Authorization of appropriations

There are authorized to be appropriated for the first fiscal year after October 23, 1972, and for the next two fiscal years thereafter such sums as may be necessary to carry out this subchapter, but the sums appropriated for any such fiscal year may not exceed $6,000,000.

Pub.L. 92–532, Title II, § 204, Oct. 23, 1972, 86 Stat. 1061.

Executive Orders

2.15 E.O. 11707, CHANGE IN BOUNDARIES OF NEW ENGLAND RIVER BASINS COMMISSION,

March 14, 1973, 38 F.R. 6877

CHANGE IN BOUNDARIES OF NEW ENGLAND RIVER BASINS COMMISSION

The Governors of the member States of the New England River Basins Commission and the Water Resources Council have requested that the jurisdiction of the Commission be extended to include those portions of the States of Vermont and Massachusetts which are not presently included within the area of the Commission's jurisdiction. I have determined that it would be in the public interest to comply with that request.

NOW, THEREFORE, by virtue of the authority vested in me by Section 201 of the Water Resources Planning Act (42 U.S.C. 1962b) and as President of the United States, subsections (3) and (4) of section 2 of Executive Order No. 11371 of September 6, 1967, as amended, are hereby amended to read as follows:

"(3) The State of Vermont,

"(4) The State of Massachusetts,".

RICHARD NIXON.

THE WHITE HOUSE,
March 12, 1973.

2.16 E.O. 11735, Assignment of Functions under Section 311 of the Federal Water Pollution Control Act, as amended

August 7, 1973, 38 F.R. 21243

ASSIGNMENT OF FUNCTIONS UNDER SECTION 311 OF THE FEDERAL WATER POLLUTION CONTROL ACT, AS AMENDED

By virtue of the authority vested in me by section 311 of the Federal Water Pollution Control Act, as amended by the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92–500; 86 Stat. 816 at 862; 33 U.S.C. 1321), hereinafter referred to as the act, by section 301 of title 3 of the United States Code, and as President of the United States, it is hereby ordered as follows:

Section 1. **Administrator of the Environmental Protection Agency.** The Administrator of the Environmental Protection Agency is hereby designated and empowered to exercise, without the approval, ratification, or other action of the President, the following:

(1) the authority of the President under subsections (b)(3) and (b)(4) of section 311 of the act relating to the determination of those quantities of oil and hazardous substances the discharge of which, at such times, locations, circumstances, and conditions, will be harmful to the public health or welfare of the United States and those which will not be harmful;

(2) the authority of the President under subsection (c)(2)(G) of section 311 of the act, relating to identification of dispersants and other chemicals to be used;

(3) the authority of the President under subsection (e) of section 311 of the act, relating to determinations of imminent and substantial threat because of actual or threatened discharges of oil or hazardous substances from non-transportation-related onshore and offshore facilities, and relating to securing relief necessary to abate such actual or threatened discharges through court action; and

(4) the authority of the President under subsection (j)(1)(C) of section 311 of the act, relating to the establishment of procedures, methods, and equipment and other requirements for equipment to prevent discharges of oil and hazardous substances from non-transportation-related onshore and offshore facilities, and to contain such discharges.

Sec. 2. **Secretary of Department in which the Coast Guard is Operating.** The Secretary of the Department in which the Coast Guard is operating is hereby designated and empowered to exercise, without the approval, ratification, or other action of the President, the following:

(1) the authority of the President under subsection (e) of section 311 of the act, relating to determinations of imminent and substantial threat because of actual or threatened discharges of oil or hazardous substances from transportation-related onshore and offshore facilities, and relating to securing relief necessary to abate such actual or threatened discharges through court action;

(2) the authority of the President under subsection (j)(1)(C) of section 311 of the act, relating to the establishment of procedures, methods, and equipment and other requirements for equipment to prevent discharges of oil and hazardous substances from vessels and transportation-related onshore and offshore facilities, and to contain such discharges;

(3) the authority of the President under subsection (j)(1)(D) of section 311 of the act, relating to the inspection of vessels

carrying cargoes of oil and hazardous substances and the inspection of such cargoes;

(4) the authority to administer the revolving fund established pursuant to subsection (k) of section 311 of the act; and

(5) the authority under subsection (m) of section 311 of the act, relating to the boarding and inspection of vessels, the arrest of persons violating section 311, and the execution of warrants or other process pursuant to that section.

Sec. 3. **Federal Maritime Commission.** The Federal Maritime Commission is designated and empowered to exercise, without the approval, ratification, or other action of the President, the following:

(1) the authority of the President under subsection (p)(1) of section 311 of the act, relating to the issuance of regulations governing evidence of financial responsibility for vessels to meet liability to the United States; and

(2) the authority under subsection (p)(2) of section 311 of the act, relating to the administration of subsection (p).

Sec. 4. **Council on Environmental Quality.** The Council on Environmental Quality is thereby designated and empowered to exercise, without the approval, ratification, or other action of the President, the authority under subsection (c) (2) of section 311 of the act, providing for the preparation, publication, revision or amendment of a National Contingency Plan for the removal of oil and hazardous substance discharges (hereinafter referred to as the National Contingency Plan).

Sec. 5. **Other Assignments.**

(a) The head of each Federal department and agency having responsibilities under the National Contingency Plan (36 FR 16215), as now or hereafter amended, is designated and empowered to exercise, without the approval, ratification, or other action of the President, in accordance with that plan, the authority under subsection (c)(1) of section 311 of the act, relating to the removal of oil and hazardous substances discharged into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone.

(b) The Administrator of the Environmental Protection Agency and the Secretary of the Department in which the Coast Guard is operating, respectively, in and for the waters and areas for which each has responsibility for providing or furnishing on-scene-coordinators under the National Contingency Plan, are

designated and empowered to exercise, without approval, ratification, or other action of the President, the following:

(1) the authority under subsection (c)(2)(C) of section 311 of the act, relating to the determination of major ports for establishment of emergency task forces;

(2) the authority under subsection (d) of section 311 of the act, relating to the coordination and direction of the removal or elimination of threats of pollution hazards from discharges, or imminent discharges, of oil or hazardous substances, and the removal and destruction of vessels;

(3) the authority of the President under subsection (j)(1)(A) of section 311 of the act, relating to the establishment of methods and procedures for the removal of discharged oil and hazardous substances; and

(4) the authority of the President under subsection (j)(1)(B) of section 311 of the act, relating to the establishment of criteria for the development and implementation of local and regional oil and hazardous substance removal contingency plans.

(c) The Administrator of the Environmental Protection Agency and the Secretary of the Department in which the Coast Guard is operating are designated and empowered to exercise, without the approval, ratification, or other action of the President, the authority of the President under section 311(j)(2) with respect to assessing and compromising civil penalties in connection with enforcement of the respective regulations issued by each pursuant to this order.

Sec. 6. **Consultation.** Authorities and functions delegated or assigned by this order shall be exercised subject to consultation with the Secretaries of departments and the heads of agencies with operating or regulatory responsibilities which may be significantly affected.

Sec. 7. **Agency to Receive Notices of Discharges of Oil or Hazardous Substances.** The Coast Guard is hereby designated the "appropriate agency" for the purpose of receiving the notice of discharge of oil or hazardous substances required by subsection (b)(5) of section 311 of the act. The Commandant of the Coast Guard shall issue regulations implementing this designation.

Sec. 8. Without derogating from any action heretofore taken

thereunder, Executive Order No. 11548 of July 20, 1970, is hereby superseded.

RICHARD NIXON

THE WHITE HOUSE,
August 3, 1973.

2.17 E.O. 11737 Enlargement of the Upper Mississippi River Basin Commission,

September 11, 1973, 38 F.R. 24883

ENLARGEMENT OF THE UPPER MISSISSIPPI RIVER BASIN COMMISSION

The Governors of the member States of the Upper Mississippi River Basin Commission and of the Souris-Red-Rainy River Basins Commission, together with the Water Resources Council, have requested, or concurred in, the enlargement of the Upper Mississippi River Basin Commission to include those portions of the States of Minnesota and North Dakota that are drained by the Souris-Red-Rainy Rivers system. The Souris-Red-Rainy River Basins Commission terminated on June 30, 1973, by operation of Section 7 of Executive Order No. 11359 of June 20, 1967, as amended. I have determined that it would be in the public interest to comply with the above request.

NOW, THEREFORE, by virtue of the authority vested in me by Section 201 of the Water Resources Planning Act (42 U.S.C. 1962b), and as President of the United States, it is ordered as follows:

Section 1. Executive Order No. 11659 of March 22, 1972, is hereby amended as follows:

(1) Section 2 is amended to read as follows:

"Sec. 2. **Jurisdiction of the Commission.** It is hereby determined that the jurisdiction of the Upper Mississippi River Basin Commission referred to in Section 1 of this order shall extend to those portions of the States of Illinois, Iowa, Minnesota, Missouri, Wisconsin, and North Dakota that are located within the Upper Mississippi, Souris, Red, or Rainy River drainage basins. The Upper Mississippi River drainage basin is defined as the drainage basin of the Mississippi River above the mouth of the Ohio River, excluding the drainage basin of the Missouri River above a point immediately below the mouth of the Gasconade River."

(2) Section 3(3) is amended to read as follows:

"(3) one member from each of the following States: Illinois, Iowa, Minnesota, Missouri, Wisconsin, and North Dakota,".

(3) Section 5 is amended to read as follows:

"Sec. 5. **Consultation with Adjoining States.** The Commission is expected to provide for procedures for consultation with the States of Indiana, Michigan, South Dakota, and Montana on any matter which might affect the water and related land resources of the headwater drainages of the Mississippi River Basin or the drainages of the Souris, Red, or Rainy River Basins in those States and to give notice to those States of meetings of the Commission."

(4) Section 6 is hereby redesignated as Section 7 and a new Section 6 is hereby inserted immediately after Section 5 as follows:

Sec. 6. **International Coordination.** The Chairman of the Commission is hereby authorized and directed to refer to the Council any matters under consideration by the Commission which relate to areas of interest or jurisdiction of the International Joint Commission, United States and Canada. The Council shall consult on these matters as appropriate with the Department of State and the International Joint Commission through its United States Section for the purpose of enhancing international coordination."

Sec. 2. All funds, property, records, employees, assets, and obligations of the Souris-Red-Rainy River Basins Commission are, with the concurrence of Governors of the affected States, transferred to the Upper Mississippi River Basin Commission, effective as of July 1, 1973.

Sec. 3. Executive Order No. 11359 of June 20, 1967, and Executive Order No. 11635 of December 9, 1971, are hereby superseded.

RICHARD NIXON

THE WHITE HOUSE
September 7, 1973.

2.18 E.O. 11738, Providing for Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans, September 12, 1973, 38 F.R. 25161.

PROVIDING FOR ADMINISTRATION OF THE CLEAN AIR ACT AND THE FEDERAL WATER POLLUTION CONTROL ACT WITH RESPECT TO FEDERAL CONTRACTS, GRANTS, OR LOANS

By virtue of the authority vested in me by the provisions of the Clean Air Act, as amended (42 U.S.C. 1857 et seq.), particularly section 306 of that Act as added by the Clean Air Amendments of 1970 (Public Law 91–604), and the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), particularly section 508 of that Act as added by the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92–500), it is hereby ordered as follows:

Section 1. **Policy.** It is the policy of the Federal Government to improve and enhance environmental quality. In furtherance of that policy, the program prescribed in this Order is instituted to assure that each Federal agency empowered to enter into contracts for the procurement of goods, materials, or services and each Federal agency empowered to extend Federal assistance by way of grant, loan, or contract shall undertake such procurement and assistance activities in a manner that will result in effective enforcement of the Clean Air Act (hereinafter referred to as "the Air Act") and the Federal Water Pollution Control Act (hereinafter referred to as "the Water Act").

Sec. 2. **Designation of Facilities.** (a) The Administrator of the Environmental Protection Agency (hereinafter referred to as "the Administrator") shall be responsible for the attainment of the purposes and objectives of this Order.

(b) In carrying out his responsibilities under this Order, the Administrator shall, in conformity with all applicable requirements of law, designate facilities which have given rise to a conviction for an offense under section 113(c)(1) of the Air Act or Section 309(c) of the Water Act. The Administrator shall, from time to time, publish and circulate to all Federal agencies lists of those facilities, together with the names and addresses of the persons who have been convicted of such offenses. Whenever

the Administrator determines that the condition which gave rise to a conviction has been corrected, he shall promptly remove the facility and the name and address of the person concerned from the list.

Sec. 3. **Contracts, Grants, or Loans.** (a) Except as provided in section 8 of this Order, no Federal agency shall enter into any contract for the procurement of goods, materials, or services which is to be performed in whole or in part in a facility then designated by the Administrator pursuant to section 2.

(b) Except as provided in section 8 of this Order, no Federal agency authorized to extend Federal assistance by way of grant, loan, or contract shall extend such assistance in any case in which it is to be used to support any activity or program involving the use of a facility then designated by the Administrator pursuant to section 2.

Sec. 4. **Procurement, Grant, and Loan Regulations.** The Federal Procurement Regulations, the Armed Services Procurement Regulations, and, to the extent necessary, any supplemental or comparable regulations issued by any agency of the Executive Branch shall, following consultation with the Administrator, be amended to require, as a condition of entering into, renewing, or extending any contract for the procurement of goods, materials, or services or extending any assistance by way of grant, loan, or contract, inclusion of a provision requiring compliance with the Air Act, the Water Act, and standards issued pursuant thereto in the facilities in which the contract is to be performed, or which are involved in the activity or program to receive assistance.

Sec. 5. **Rules and Regulations.** The Administrator shall issue such rules, regulations, standards, and guidelines as he may deem necessary or appropriate to carry out the purposes of this Order.

Sec. 6. **Cooperation and Assistance.** The head of each Federal agency shall take such steps as may be necessary to insure that all officers and employees of his agency whose duties entail compliance or comparable functions with respect to contracts, grants, and loans are familiar with the provisions of this Order. In addition to any other appropriate action, such officers and employees shall report promptly any condition in a facility which may involve noncompliance with the Air Act or the Water Act or any rules, regulations, standards, or guidelines issued pursuant to this Order to the head of the agency, who shall transmit such reports to the Administrator.

Sec. 7. **Enforcement.** The Administrator may recommend

to the Department of Justice or other appropriate agency that legal proceedings be brought or other appropriate action be taken whenever he becomes aware of a breach of any provision required, under the amendments issued pursuant to section 4 of this Order, to be included in a contract or other agreement.

Sec. 8. **Exemptions—Reports to Congress.** (a) Upon a determination that the paramount interest of the United States so requires—

(1) The head of a Federal agency may exempt any contract, grant, or loan, and, following consultation with the Administrator, any class of contracts, grants or loans from the provisions of this Order. In any such case, the head of the Federal agency granting such exemption shall (A) promptly notify the Administrator of such exemption and the justification therefor; (B) review the necessity for each such exemption annually; and (C) report to the Administrator annually all such exemptions in effect. Exemptions granted pursuant to this section shall be for a period not to exceed one year. Additional exemptions may be granted for periods not to exceed one year upon the making of a new determination by the head of the Federal agency concerned.

(2) The Administrator may, by rule or regulation, exempt any or all Federal agencies from any or all of the provisions of this Order with respect to any class or classes of contracts, grants, or loans, which (A) involve less than specified dollar amounts, or (B) have a minimal potential impact upon the environment, or (C) involve persons who are not prime contractors or direct recipients of Federal assistance by way of contracts, grants, or loans.

(b) Federal agencies shall reconsider any exemption granted under subsection (a) whenever requested to do so by the Administrator.

(c) The Administrator shall annually notify the President and the Congress of all exemptions granted, or in effect, under this Order during the preceding year.

Sec. 9. **Related Actions.** The imposition of any sanction or penalty under or pursuant to this Order shall not relieve any person of any legal duty to comply with any provisions of the Air Act or the Water Act.

Sec. 10. **Applicability.** This Order shall not apply to contracts, grants, or loans involving the use of facilities located outside the United States.

Sec. 11. **Uniformity.** Rules, regulations, standards, and

guidelines issued pursuant to this order and section 508 of the Water Act shall, to the maximum extent feasible, be uniform with regulations issued pursuant to this order, Executive Order No. 11602 of June 29, 1971, and section 306 of the Air Act.

Sec. 12. **Order Superseded.** Executive Order No. 11602 of June 29, 1971, is hereby superseded.

RICHARD NIXON

THE WHITE HOUSE
September 10, 1973.

2.19 E.O. 11742, Delegating to the Secretary of State Certain Functions with Respect to the Negotiation of International Agreements Relating to the Enhancement of the Environment, October 25, 1973, 38 F.R. 29457.

DELEGATING TO THE SECRETARY OF STATE CERTAIN FUNCTIONS WITH RESPECT TO THE NEGOTIATION OF INTERNATIONAL AGREEMENTS RELATING TO THE ENHANCEMENT OF THE ENVIRONMENT

Under and by virtue of the authority vested in me by section 301 of title 3 of the United States Code and as President of the United States, I hereby authorize and empower the Secretary of State, in coordination with the Council on Environmental Quality, the Environmental Protection Agency, and other appropriate Federal agencies, to perform, without the approval, ratification, or other action of the President, the functions vested in the President by section 7 of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92–500; 86 Stat. 898) with respect to international agreements relating to the enhancement of the environment.

RICHARD NIXON

THE WHITE HOUSE
October 23, 1973.

2.20 E.O. 11747, Delegating Certain Authority of the President under the Water Resources Planning Act, as amended, November 9, 1973, 38 F.R. 30993.

DELEGATING CERTAIN AUTHORITY OF THE PRESIDENT UNDER THE WATER RESOURCES PLANNING ACT, AS AMENDED

By virtue of the authority vested in me by section 301 of title 3 of the United States Code, and as President of the United States, it is hereby ordered as follows:

Section 1. The Director of the Office of Management and

Budget is designated and empowered to exercise, without the approval, ratification, or other action of the President, the functions vested in the President by (1) sections 104(b) and 204(3) of the Water Resources Planning Act, as amended (42 U.S.C. 1962a–3(b) and 1962b–3(3), respectively), with respect to reviewing plans, or revisions thereof, of river basin commissions established pursuant to that act and transmitting those plans or revisions thereto to the Congress with appropriate recommendations; and (2) section 301(b) of the same act (42 U.S.C. 1962c(b)) with respect to approving rules, procedures, arrangements, and provisions relating to coordination of Federal planning assistance programs and utilization of Federal agencies administering related programs.

Sec. 2. The Chairman of the Water Resources Council is designated and empowered to exercise, without the approval, ratification, or other action of the President, the approval function for standards and procedures vested in the President by section 103 of the Water Resources Planning Act, as amended (42 U.S.C. 1962a–2).

RICHARD NIXON

THE WHITE HOUSE,
November 7, 1973.

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Guidelines and Reports

4.1c THE ECONOMICS OF CLEAN WATER-1973, ENVIRONMENTAL PROTECTION AGENCY, DECEMBER 1973

Dear Mr. President:
Dear Mr. Speaker:

I am pleased to transmit to the Congress, as required by Section 516(b) of the Federal Water Pollution Control Act, the sixth of a series of reports on the Economics of Clean Water.

The scope of the report is broader than previous reports. For the first time, economic impacts—essential to a broad assessment of control programs and policies—are examined. Particular attention is afforded those factors that may constrain implementation of control programs. Also examined for the first time are two major sources of nonpoint pollution—agricultural soil loss and nitrogen fertilizer. The following material briefly describes the highlights of the report.

The quality of the Nation's waters can be discussed in only approximate and qualitative terms, since no set of truly representative water quality monitoring stations exists. An EPA study, however, provides preliminary information on the status of and trends in water quality for 22 major river basins. The study indicates that bacteria and oxygen demand, the pollutants receiving the most widespread attention, showed general improvements in the last five years. Phosphorus and nitrates, the primary pollutants contributing to eutrophication, increased over the last five years in many of the basins.

A survey made by EPA in mid-1973 estimates that the costs of municipal treatment and collection facilities eligible for Federal funding will be $60 billion (1973 dollars). This is comparable to the total dollar investment made in the sewerage systems of the Nation since 1855. Of the estimated $60 billion, $36 billion is needed for waste treatment plants and interceptor sewers, and $24 billion for correction of infiltration/inflow problems, new collectors, and combined sewer overflows.

Industry will be required to invest about $12 billion in treatment facilities within the next few years to meet 1977 standards (except thermal) set by the Federal Water Pollution Control Act Amendments of 1972. The cost estimates suggest that industry will have to invest an average of about $3.5 billion annually in order to meet the 1977 nonthermal standards. In 1972 industry was investing at an annual rate of $1 billion. Thermal costs, which are estimated for only utility steam-electric generating plants, are expected to range from $2.3 to $9.5 billion,

depending primarily on the number of plants exempted from thermal standards.

The productive capacity of the agricultural sector is not expected to be impaired while taking measures to reduce pollution from erosion and use of nitrogen fertilizers. It is expected that environmental protection measures might be designed to control agricultural pollution with no reduction in total farm income. It is further expected that such measures could be designed to control agricultural pollutants for a cost on the order of magnitude of that incurred during the peak of the Nation's cropland restriction program.

Estimating benefits of the water pollution control program is a difficult task. Admittedly, if a change in water use is specified, there are several promising procedures for assigning monetary values to the uses. But there are great difficulties in tracing the effects of an abatement program to changes in water quality parameters, and in relating such parameter modification to man's use of the water or the adjacent shoreline.

The economic impacts and other constraining factors examined, other things being equal, in EPA's view should not significantly retard the accelerated program launched by the 1972 Amendments to control pollution from municipal and industrial sources. In particular:

- Local governments, with few exceptions, will have adequate capability to finance their share of building sewerage systems. The combination of the State grant/loan programs, the U.S. Environmental Financing Authority and the Farmers Home Administration loan program should be able to assist an individual municipality having a financial problem.
- An overview of 23 industries discharging directly into the Nation's waters indicates that in most cases they will be able to recover the costs of wastewater treatment through increases in prices. However, individual plants in certain industries will experience difficulties in meeting the requirements. The profitability of smaller and/or older plants may be so reduced that many of them may decide to close prior to 1977.
- The results of econometric models indicate that the construction industry should be able to build the required facilities with real price increases of less than 1 percent attributable solely to EPA-stimulated demand, assuming resource transferability within the construction industry.

The skilled labor needed should be available, but there will be some impact on wages. In some localities, the construction industry may lack adequate short-term capacity, especially in light of changes in the Nation's economy that may result from the recent devaluations and the energy crisis.

- The potential profitability of pollution abatement equipment industry is attractive enough to encourage the growth and development of long-term supply. Production capacity as estimated in 1972 is not viewed as a constraint. However, raw material and skilled labor inputs may be constraints in some cases.

Other things being equal, the economic factors examined are not expected to seriously constrain efforts to meet effluent standards. (However, the other things assumed equal may not be equal. Unforeseen events such as the energy crisis or the recent devaluation of the dollar may lead to basic changes in the economic system, resulting in outcomes different than those predicted.) Other factors, such as budget constraints both in the public and private sectors and legal and administrative steps that must be taken in controlling wastewater discharge, could result in delays.

As long as there are significant nonpoint sources of pollutants, control of industrial and municipal sources does not mean that all areas of the Nation will have clean water at the same time. A fundamental question remains: At what point do the additional costs of controlling all sources of pollution exceed the additional benefits of improved water quality? Clearly the current societal concern for environmental quality indicates that the public believes there are significant benefits yet to be attained.

Sincerely,
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I. INTRODUCTION

Scope

This report is the sixth in the series of Clean Water Reports to Congress and the first prepared in accordance with Section 516(b) of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92–500). The scope of the 1973 report is broader than previous reports because the U.S. Environmental Protection Agency (EPA) recognizes that consideration of the costs of controlling pollution from municipal and industrial sources is not sufficient information upon which to evaluate a national program. Information about the nature of the water quality problem, the costs of controlling all significant sources of pollution, potential benefits, and economic and administrative factors that influence implementation must also be considered in order to place the costs of controlling point sources in perspective. While this year's report addresses all these issues, it primarily focuses on some of the economic factors that will influence implementation of the 1972 Amendments.

The first chapter, in addition to introducing the report, summarizes its content and conclusions.

The second chapter of the report examines the nature of and trends in water quality. While the main body of the report focuses on the costs of controlling only certain pollutants and pollution sources, it is important to recognize that achievement of water quality will require more than control of those pollutants and pollution sources.

The third chapter describes the status of public sewerage services and the costs of municipal facilities to meet the 1977 standards as reported in a nationwide survey of municipal sewer and treatment plant needs.

The fourth chapter describes the costs of controlling industrial nonthermal pollution for meeting the 1977 effluent standards. In addition, it reports on the costs of controlling industrial thermal pollution to meet both the 1977 and 1983 standards.

The fifth chapter reports on the capacity of U.S. agriculture to meet food and fiber demand to the year 2000 under environmental restrictions on soil loss and use of nitrogen fertilizers. The discussion of agricultural pollution control is the first in this series of reports.

The sixth chapter is an introduction to benefit analysis. The 1972 Amendments state that formal cost/benefit analysis should be conducted and used in the decision process, although the law does not allow such analysis to override legislatively mandated effluent limitations.

The seventh chapter reviews potential problems in implementing the 1972 Amendments. A national determination that water pollution control is in the public interest does not eliminate economic and administrative problems. The economic problems of concern in this report are the financial burdens placed on municipalities and industries as they meet the 1977 standards and the capacity of the construction and equipment supply industries to put in place the required capital without adversely affecting the levels, volume, and prices of construction and equipment, as well as wages and employment in those industries.

Summary

Nature of and Trends in Water Pollution. Any practical description of the nature of water quality can only be concerned with a very limited part of all conceivable physical, chemical, and biological aspects of actual waterbodies. Typical water quality measurements are, in fact, oriented toward a small group of commonly observed pollution problems—harmful substances, physical modification, eutrophication, salinity, acidity and alkalinity, oxygen depletion, and health hazards and aesthetic degradation.

A stream of seemingly clean and pure water may be polluted due to the presence of hazardous substances in very low concentrations. A few of these are well known—heavy metals, pesticides, herbicides, and polychlorinated biphenyls (PCB's), for example.

Aquatic habitats are sensitive to fluctuations of many physical characteristics of water including temperature and transparency. Temperature fluctuations occurring naturally can be amplified by human activities through large discharges of industrial cooling water, such as from power plants or steel mills, from release of warm surface water held in reservoirs, or from destruction of shade trees along stream banks.

Relatively stagnant waters (such as lakes and slow-moving estuaries) rich in nutrients can grow such heavy crops of algal

and other aquatic plants that the decay of dead cell matter may seriously deplete the water of oxygen. This prevents the survival of oxygen-sensitive food species and fish, and, in extreme cases, floating algal scum, thick bottom slimes, and odors result.

Major changes in the salt content of water can seriously disrupt aquatic communities and decrease the value of water for irrigation and water supply purposes. Acidity changes can be equally damaging by eliminating many desirable fish species. Alkalinity creates disruptions ranging from reduced agricultural production to the fouling of water pipes.

The dissolved oxygen level is widely considered to be the single most important indicator of pollution; actually, there is no reason to consider it more or less important than indicators such as toxicity, salinity, and algal population. Oxygen-consuming or oxygen-demanding substances come from many sources—forested and agricultural areas, industrial and municipal direct dischargers, storm sewers and sanitary sewer overflows.

An assessment of health hazards from polluted water involves considerable uncertainty because there are unresolved questions about the die-off rates of pathogens in natural waters as well as their infectiousness for swimmers or other recreational water users. The evidence for waterborne toxicity via fish and shellfish is stronger, at least in the case of relatively high concentrations of mercury and cadmium.

Waterbodies can be degraded aesthetically by increases in murkiness, color, algae, scums, floating solids and oils, and odors. Floating solids and oils generally originate in combined sewer overflows, storm sewer discharges, and unsewered runoff. Unpleasant odors can stem from many sources, including decaying organic matter and numerous industrial chemicals.

Status of 22 Major Rivers. During 1973, EPA studied 22 major rivers to define the kinds of pollution requiring control and to measure any improvement in water quality. The rivers, selected on the basis of length, flow, and proximity to large cities, were ranked in three groups from "cleanest" to "dirtiest." Rivers in the cleanest group are the Upper Missouri, Columbia, Snake, Willamette, Upper Mississippi, Yukon, Tennessee, Susquehanna, and Lower Colorado. Rivers in the dirtiest group are the Lower Red, Hudson, Lower Ohio, Lower Mississippi, Mississippi near Minneapolis, Upper Arkansas, and Middle Missouri.

Detailed analysis of 1963–73 data for the 22 rivers as a whole indicates that:

- The worst results relate to nutrients: Up to 54 percent of the reaches exceeded EPA phosphorus guidelines set to

protect against eutrophication in flowing streams. Furthermore, in up to 84 percent of the reaches, phosphorus levels increased in 1968–73 over the previous 5 years. Nitrogen nutrients, while generally not exceeding reference levels, increased in up to 74 percent of the reaches measured.

- Other pollutants found in high concentrations are phenols (industrial compounds that can taint fish flesh) and suspended solids. These results are not as disturbing as the nutrient data, because in up to 80 percent of the reaches for which adequate data are available, concentrations of phenols and suspended solid levels fell in the last 5 years.
- The pollutants most widely controlled, bacteria and oxygen-demanding matter, generally declined in the last 5 years. Dissolved oxygen and oxygen-demand levels improved in up to 72 percent of reaches, bacteria in up to 75 percent.

In addition, the analysis examined nonpoint source pollution, which comes from runoff from areas such as farmlands, city streets, and mining areas, and from subsurface seepage from polluted areas. If nonpoint sources are present, runoff pollutants will generally be more prevalent in winter than in summer. The seasonal analysis indicated that most rivers have higher levels of nutrients (ammonia, nitrates, and phosphorus) and organic loads in winter, when runoff is heavy from rain and melting spring snow, than in summer. High flows in winter can also resuspend pollutants scoured from bottom sediments.

Municipal Costs. The sewerage systems of the U.S. have been growing for more than a century. The first sanitary sewer was begun in Chicago in 1855, but it was not until the 1870's that collecting sewers were complemented by treatment plants. Today, about 170 million Americans are served by sewers; more than 95 percent of them are also served by sewage treatment plants.

While the population served by sewers has more than doubled since 1937, the population discharging untreated wastes into our waterways is little more than one-seventh of what it was then. The number of persons whose wastes receive primary treatment [35 percent biological oxygen demand $(BOD)_5$ removal] has almost tripled over the period. The number whose wastes receive secondary treatment (70 to 90 percent BOD_5 removal) has increased almost sevenfold; such treatment is now provided for the wastes of more than 63 percent of population served by

sewerage systems. As a result, the amount of BOD_5 removed in 1971 exceeded the total collected by sanitary sewers in 1957.

However, the growth in sewerage facilities has brought disappointingly marginal results. While one portion of the public sewerage system—treatment facilities—increased by 130 percent the amount of BOD_5 diverted from our waterways, another portion—sanitary sewers—offset this improvement by collecting more BOD_5. Thus there has been a surprisingly small net reduction since 1957 in the oxygen demand introduced into our waterways by the public sanitary sewerage system.

Between 1855 and 1971, the Nation invested an estimated $58 billion (1972 dollars) in its public sewerage facilities. The bulk of this investment has occurred recently: almost 80 percent since 1929, 60 percent since World War II, and more than 30 percent since 1961. The net investment or replacement value in 1971 was estimated to be $32 billion. Replacing or modernizing this capital stock has absorbed 50 percent of all capital expenditures of sewerage agencies since 1961. Current replacement costs are close to $1 billion annually.

Needs Survey. The estimated total cost of constructing municipal treatment and collection facilities that are eligible for Federal funding under the 1972 Amendments is $60.1 billion (1973 dollars) according to the national survey conducted by the States and EPA in the summer of 1973. About $35.9 billion is for treatment plants and new interceptor sewers ($16.6 billion for secondary treatment required by the 1972 Amendments, $5.7 billion for treatment "more stringent" than secondary to attain water quality standards, and $13.6 billion for new interceptor sewers), $0.7 billion for rehabilitation of sewers to correct infiltration and inflow, $13.6 billion for new interceptor sewers, $10.8 billion for new collector sewers, and $12.7 billion for correction of overflows from combined sewers.

The $35.9 billion estimate for treatment plants and new interceptor sewers is considerably higher than the 1971 Needs Survey estimate of $18.1 billion for a variety of reasons, including:

- All municipal plants must now provide secondary treatment.
- Changing water quality standards require higher levels of secondary treatment (higher removal of organic waste) and special processes for removing phosphorus and nitrates.
- Construction costs rose by almost 20 percent between 1971 and 1973.

- The 1973 Survey's coverage of municipalities and their needs was far more comprehensive than those on which previous estimates of needs were based.
- More municipalities have completed engineering studies upon which to base their estimate of needs.
- States provided better data to the survey than previously because they realized that it would be the basis for allocating construction grant funds.

Industrial Costs.

Nonthermal Costs. The 1972 Amendments require industries to use "best practicable" water pollution control technology by mid-1977 and "best available" technology by mid-1983. The emphasis in this report is on the costs industry will incur in meeting the 1977 standards.

The highest estimate of treatment costs indicates industry (except power plants) will have to invest an additional $11.9 billion (1972 dollars) by 1977 to achieve pollution abatement standards set for that year. Total investment, including capital now in place, will amount to $18.7 billion. At this level of investment, total annual costs, including operation and maintenance, will be $4.5 billion.

The total investment may not be as great as $11.9 billion; however, because this estimate assumes that there will only be moderate reduction of wastewater flows and that all abatement will be achieved by end-of-the-line treatment. Requiring treatment of wastewater may lead industry to switch to processes that use much less water, resulting in lower control costs. Equally important, industry can change its raw materials, manufacturing processes, or products, and, as a result, achieve the same degree of abatement at less cost than end-of-the-line treatment.

The $11.9 billion estimate is greater than the $8.1 billion in the *1972 Economics of Clean Water* because:

- Costs are based on the 1977 standards rather than the earlier industrial wastewater guidelines.
- The industry sample is larger—148,000 plants using in excess of 1 million gallons per year rather than 14,500 plants using in excess of 10 million gallons per year.
- The costs of controlling pollution from animal feedlots is included.
- Growth rates are projected for each industry, rather than using the average growth rate for all industry.
- The costs are in 1972 rather than 1971 dollars.

In 1972, industry (excluding animal feedlots, lumber, and leather) invested about $1.0 billion in water pollution control facilities, which is much less than appears to be needed to meet the $11.9 billion estimate of needed investment. If industry adopts less costly control options, of course, the current level of investment may be closer to what is adequate.

Thermal Costs. Utility steam-electric power plants account for almost 80 percent of the water used for cooling and condensing purposes in the United States. The capital expenditures required to meet the 1977 standard for this source of pollution are estimated at $2.3 to $9.5 billion; the 1983 standard will require $4.4 to $15.3 billion, depending upon water quality exemptions provided by Section 316 of the 1972 Amendments.

The estimated increase in the price of electricity will be 0.8 to 3.2 percent for meeting the 1977 water quality standards and an additional 0.9 to 2.9 percent for meeting the 1983 water quality standard depending upon the number of exemptions.

Costs of thermal pollution control were not developed for other industrial segments primarily because of the difficulties of estimating the costs of controlling thermal discharges from in-house electric power generation and a myriad of industrial processes.

Nonpoint Source Pollution. The agricultural sector is estimated to have the productive capacity to meet food and fiber demands to the year 2000 while taking measures to reduce pollution by soil loss from erosion and by nitrogen fertilizers. To maintain agricultural production under a program limiting soil loss, conservation practices such as contouring, strip cropping, and terracing would have to be adopted. Crop production would also have to be shifted to more productive soils and regions. The impacts would be minor on the use of the Nation's land and water resources and on farm prices, but soil erosion would be reduced considerably. Similarly, a nitrogen fertilizer limitation program could be implemented by substituting land and water for fertilizer. There would, however, be some increase in farm prices.

The environmental protection measures required might be the basis of a new supply restriction program. The lower productivity resulting from environmental restrictions may have the same effect on total supply as the recently reduced Federal cropland restriction program, and may cost approximately the same as payments under the recently reduced program.

Setting limits on soil loss and nitrogen application would not reduce total national farmer receipts if two conditions were met.

First, the level of production must not be lower than under the land retirement programs. Second, the farm community must receive payments equal to what it formerly received for removing land from production. However, the environmental limits would have greatly varying effects on farmer receipts in different farm regions.

Types of Benefits From Water Quality Enhancement. Several sections of the 1972 Amendments require the use of formal cost/benefit analysis. Among them is the requirement for cost/benefit analysis in cases where effluent limits are more stringent than those provided for by best available technology.

The objective of benefit analysis is to indicate the economic value of the cleaner environment resulting from projects that abate water pollution. Unlike the value of most goods and services, the value of activities resulting from improvements in water quality are, for the most part, not indicated by market prices. Instead, the value must be imputed indirectly by analyzing the effect of improved water quality on the costs of producing or consuming goods, on the enjoyment of water-related activities, or on human health.

Water quality is important in industrial uses, municipal (domestic) water supplies, agriculture, and commercial fisheries. When the quality of water is improved, water treatment costs of industrial and municipal users is lower. In agriculture and commercial fisheries improved water quality means increased net income resulting from the increased production.

Water quality is important in enhancing the enjoyment of recreation. The value of water is the increased willingness to pay for the water-related recreation experience.

Water quality is important as a factor in human health. At this time there has been little research on the economic valuation of reduced health hazards or the willingness to pay to avoid the risks associated with water pollution.

While the report concentrated on the problem of assigning a value to changes in water quality, valuation is only the last step in estimating a particular benefit. The procedure requires four sequential steps:

- The abatement plan must be specified in terms of amounts and types of pollutants to be reduced.
- The impact of the controlled pollutants on water quality parameters must be estimated.
- The impact of changes in the parameters on water uses must be estimated.

• The economic value of induced changes in the level of uses, the increased value of existing uses, and the cost savings resulting from improved water quality must be identified.

The greatest difficulties lie in the second step, of tracing the effects of pollutants on water quality parameters, and in the third step, relating parameter changes to man's use of the water or adjacent shoreline. To a large extent, improved benefit analysis depends on better knowledge of how to measure these two relationships.

Constraints

Fiscal Impact on Local Government. The construction of municipal sewerage systems required by the 1972 Amendments will result in capital expenditures by all levels of government. A projection has been prepared of possible outlays during 1974–1980. It relies heavily on two assumptions: State and local governments will not invest independently of Federal funding, and the $18 billion authorized in the 1972 Amendments will be alloted for use in FYs 1973–76. (The actual rate of allotment may be different depending on fiscal policy.)

The total Federal, State and local cash outlay resulting from these assumptions, and from previous outstanding obligations, would total $33.8 billion between 1973 and 1980. Of this total $12.9 billion would be provided by State and local governments. The projected annual cash outlay of approximately $2 billion is almost twice the amount State and local sources supplied in 1970 to build sewerage facilities.

Local governments will probably finance their portion of the projected capital expenditures through a variety of sources, including current general revenues and the issuance of municipal bonds. Several recent reports have indicated that State and local governments may run surpluses in their current general accounts over the next several years. Such surpluses would give States and localities greater flexibility in financing construction projects.

Should localities continue to sell bonds to finance approximately two-thirds of their investment in sewerage construction, sewer bonds will continue to represent just over 5 percent of the overall municipal bond sales. Municipalities should encounter no difficulties in selling such bonds. The market for bonds has improved since the late 1969 credit gap in spite of a generally tight credit market. If another major credit gap occurs, municipalities should be able to temporarily substitute short-term for long-term bonds as they did in 1969–70. Nor do credit limitations

seem to offer a serious constraint. Municipalities have demonstrated that, in most cases, they can avoid these restrictions by such measures as issuing revenue bonds, shifting financial responsibility to independent authorities, and using lease purchase arrangements. Despite this generally optimistic picture, individual localities may find financing a major problem, perhaps because of unacceptable credit ratings. Some should be able to obtain financial assistance from State construction grant programs; others should be able to sell their bonds to the newly created Federal Environmental Financing Authority or obtain loans, if they have a population under 10,000, from the Farmers Home Administration.

As a direct result of the projected increase in capital expenditures, the annual cost for localities to provide sewerage services may increase by 66 percent in the next 4 years. This should be viewed against an expenditure on sewerage operations amounting to 1 percent of all current local expenditures in 1970. The increase due to capital expenditures on sewerage would increase the cost of sewerage operation to 1.7 percent of the 1970 level of expenditures.

Economic Impact of Industry. An overview of 23 industries discharging directly into the Nation's waters indicates that in most cases they will be able to recover the costs of best practicable wastewater treatment by increases in prices. However, individual plants in certain industries will experience difficulties in meeting the requirements. Generally, the profitability of smaller and/or older plants may be so reduced by pollution control that many of them may decide to close prior to 1977. Secondly, plants located in heavily urbanized areas, especially small older ones, will experience difficulties because they lack the necessary land to use the most cost-effective treatments. In the absence of adequate municipal treatment facilities the 1977 requirements may force many of these plants to close, relocate elsewhere, or be absorbed by more viable firms.

Most of the industries studied are expected to raise prices (regardless of potential closures) with the size of the increase varying among segments of an industry (Table VII-10). The industries expected to experience price increases of less than 1.5 percent are *asbestos,* dairies, feedlots, *flat glass,* leather, meatpacking, *nonferrous metals,* softwood plywood, and wood preserving. Price increases of 1.5 to 5 percent are expected to occur in *cement, fertilizer,* fiberglass, fruits and vegetables, and hardwood plywood. Price increases higher than 5 percent are expected

in electroplating, *hardboard, inorganic chemicals, organic chemicals, paper,* plastics, and *synthetics.* (The industries italicized also face significant air pollution control costs.)

Pollution control costs that cannot be passed on in the form of price increases will result in decreasing profit margins and, in some cases, plant closings. Plant closings are expected in all of the industries with the exception of cement, flat glass, ferroalloys, fiberglass, grain milling, and rubber.

In most of the industries studied, closings will be due primarily to factors unrelated to water pollution control costs, but they will be accelerated by these costs. Dairies, feedlots, fruits and vegetables, and leather are examples of industries in which plant closings will occur unrelated to pollution control expenditures. The maximum direct unemployment would be about 50,000 or 1.5 percent of the estimated total employment in the industries studied of 3.3 million.

Construction Industry Capacity. The increased construction called for by the 1972 Amendments—$8.9 billion in 1976 compared to $3.0 billion in 1971—will place additional demands on the capacity of the construction industry. EPA initiated several studies to assess the impact of these incremental expenditures on the price and quantity of all construction and on each of five sectors of the construction industry. In addition, several of the studies examined the possible existence of specific bottlenecks, such as the supply of skilled labor or entrepreneurs, that would limit the construction industry's capacity to meet these demands.

Assuming a generally homogeneous construction industry, these studies suggest that the industry can meet the demands. However, specific localities may have insufficient capacity to carry out large scale projects. The $4.9 billion incremental increase (1976 peak year) over the baseline estimate in wastewater treatment construction would raise overall construction prices by only 0.6 percent.

According to the models of EPA and others, factors such as the level of economic activity, government expenditures, and the rate of interest are more important than prices in influencing demand. In the case of interest rates EPA found no evidence to suggest that an increase, induced by pollution-related construction activity, will be as much as 1 percent of the current level.

The studies indicate that the level of activity in other sectors of the construction industry will be reduced by an increase in pollution-related construction. A $4.9 billion increase in EPA-

stimulated demand over the baseline estimate for sewer construction is projected to decrease other construction by less than $0.3 billion. The private residential sector will likely absorb approximately one-third of the reduction. The public non-building sector is likely to absorb a significant portion as well. However, these results may be affected by past policies of using public works projects to smooth the overall level of construction activity.

The analysis did not examine the determinants of price increases that are unrelated to changes in construction demand. EPA recognizes, for example, that the recent devaluation has increased the demand for exports (e.g. a larger European demand for U.S. steel reinforcing rods) and that this change will increase the domestic price of construction and result in some shortages. Similarly, EPA recognizes that uncertainty about future prices and deliveries of inputs in the construction process can result in significant increases in the price of construction as supported by recent evidence.

Equipment Supply Capacity. Industries supplying water pollution control specialty equipment and instrumentation appear to have the long-term production capacity to meet the projected demand. A 1972 analysis of capacity, based on statements of equipment suppliers and secondary statistics, found that:

- The profit margins enjoyed by pollution control companies on their pollution business have generally exceeded the margins on their other business in the same industrial categories.
- Companies in which pollution control is a significant activity (greater than 5 percent of sales) have a slightly higher return on assets than companies in which pollution control is a minor activity.
- Comparing the returns on assets, companies "in" the pollution control business have out-performed those in closely-related industries.

In recent years, the municipal sector's demand for pollution abatement equipment has grown only 0.6 percent per year. This plateau of demand developed primarily because municipalities waited for promised Federal assistance. The demand is expected to accelerate because of expenditures in 1974–1976, and to taper off through 1980. The specialty equipment segment of the industry is expected to grow at a higher rate—14.1 percent per year in 1973–1975 and 9.5 percent per year in 1975–1980. Similarly, the growth of the instrumentation segment is expected to be high—17.9 percent for the first period and 15.9 percent for the second.

Demand from the industrial sector is expected to increase modestly through 1977 and then drop substantially through 1980. Again, specialty equipment expenditures will grow at a faster rate than total expenditures, because of a trend toward advanced treatment.

The above analysis assumed that the raw material and skilled labor inputs would be available to complement the productive capacity. Recent evidence suggests that they might be in short supply in some localities.

Conclusions

The economic factors examined, other things being equal, will not in EPA's view significantly constrain the accelerated program launched by the 1972 Amendments to control pollution from municipal and industrial sources. In particular:

- Local governments will have adequate general revenue or municipal bonding capability to finance their share of building sewerage systems. The combination of the State grant/loan programs, the U.S. Environmental Financing Authority and the Farmers Home Administration loan program should be able to deal with an individual municipality with a financial problem.
- An overview of 23 industries discharging directly into the Nation's waters indicates that in most cases they will be able to recover the costs of best practicable wastewater treatment by increases in prices. However, individual plants in certain industries will experience difficulties in meeting the requirements. Generally, the profitability of smaller and/or older plants may be so reduced by pollution control that many of them may decide to close prior to 1977.
- The results of econometric models indicate that the construction industry should be able to build the required facilities with real price increases of less than 1 percent attributable solely to EPA-stimulated demand, assuming resource transferability within the construction industry. The skilled labor needed should be available to meet peak-year requirements with some impact on wages. In some localities, the construction industry may lack adequate short-term capacity, especially in light of the changing nature of the economy.
- The pollution abatement equipment industry is attractive

enough to encourage the growth and development of long-term supply. Production capacity as estimated in 1972 is not viewed as a constraint. However, raw material and skilled labor inputs may be a constraint in some cases.

Other things being equal, the economic factors examined will not be serious constraints in meeting effluent standards. (However, the other things assumed equal may not be equal. Unforeseen events such as the energy crisis or devaluation of the dollar may lead to basic changes in the system, and, therefore outcomes may differ from those predicted.) Other factors, such as budget constraints both in the public and private sectors and legal and administrative steps that must be taken in controlling wastewater discharge could account for delays.

As long as there are significant nonpoint sources of pollutants, control of industrial and municipal sources does not mean that all areas of the Nation will have clean water at the same time. A fundamental question remains: At what point do the additional costs of controlling all sources of pollutants exceed the additional benefits of improved water quality? Clearly, the current societal concern for environmental quality indicates that the public believes there are significant benefits yet to be attained.

II. NATURE OF AND TRENDS IN WATER POLLUTANTS

Introduction to Pollution Problems*

No one has described completely the quality of a body of water. To do so would entail chemical analyses of a near-infinite number of solid, liquid, and gaseous compounds, as well as a complete identification of all biota present in the water from viruses to vertebrates. Thus, any practical description of water quality can only be concerned with a very limited subset of all conceivable physical, chemical, and biological aspects of actual waterbodies. Typical water quality measurements are, in fact, oriented toward a small group of commonly observed pollution problems.

Harmful Substances. A stream of seemingly clean and pure water may be highly polluted due to the presence of toxic substances in very low concentrations. For example, certain chemicals in concentrations of only several parts per billion may be deadly to the mayfly, an important link in the aquatic food chain. Certain harmful substances may be natural such as acids from bogs. Most, however, are man-made such as industrial and

*Most of the information presented in this introductory section was prepared by Enviro Control, Inc.

agricultural chemicals. A few of these are well known—heavy metals, pesticides, herbicides, and polychlorinated biphenyls (PCB's), for example.

Toxicity effects can be dramatic, as in the case of large fish-kills, or they can be subtle, as in the case of minute concentrations causing decreasing fertility or changing reproductive or predation habits over a long period of time. Detecting any chemical and tracing it back to its sources can be difficult, particularly in the case of widely used and highly persistent substances such as mercury, dieldrin, or PCB's. Sources can be diverse, ranging from industrial or municipal sewage discharges to urban stormwater, agricultural runoff, or atmospheric particle "fallout". It is therefore not safe to assume that the only major sources of harmful substances are industrial discharges.

Analysis of these harmful substances is complicated because they do not usually remain dissolved or suspended in water but are taken up by sediments, plants, and animals. In the case of DDT, concentrations in fish will be at least one order of magnitude greater than in sediments, which in turn have concentrations at least one order of magnitude greater than the overlying waters. Since most other important pesticides are insoluble (and many toxic metals form insoluble salts), water concentrations by themselves do not form reliable indicators. For the same reasons, water concentrations will tend to be very low—on the order of parts per billion—making results extremely sensitive to the specific chemical analysis methods used. For instance, older gas chromatographic methods for DDT were unable to distinguish DDT clearly from PCB's. Since PCB's are often found in substantially higher concentrations than DDT, these older results are quite unreliable.

Physical Modification. Aquatic habitats are sensitive to fluctuations of many physical characteristics of water including temperature and transparency. Temperature fluctuations occurring naturally can be amplified by human activities through large discharges of industrial cooling water, such as from power plants or steel mills, from release of warm surface water held in reservoirs, or from destruction of shade trees along stream banks. Warm discharges do not automatically cause ecological damage—some increase desirable biological activity. Large thermal discharges into small or relatively stagnant bodies of water, however, can cause large temperature increases. If such increases occur in critical "zones of passage" or spawning grounds, they can disrupt important biological communities.

Natural waters lose transparency due to sediment loads. Aside from natural sources of sediment there are human sources including construction activities, strip mining, and farming practices. Transparency can also be lost by excess microorganism growth stimulated by nutrient-rich agricultural runoff, urban stormwater or sewer overflows, and sewage treatment plant discharges. Reduced transparency has a serious effect other than aesthetic degradation: It reduces the amount of light available to underwater plants and thus decreases a primary food source for certain fish and birds.

Another significant alteration of key aquatic habitats results from physical modification of shores, banks, and channels. Artificial draining of marshland to create waterfront property destroys the highly productive environment necessary for spawning of certain fish species and feeding of migratory birds. Construction of breakwaters can reduce "flushing" of bays to the point where the effect of pollutant discharges to these bays is greatly magnified by stagnant water conditions. Channel and watershed "improvement" destroys biological communities on stream banks and, in some cases, can accelerate erosion and sediment.

Finally, dams and their impoundments can produce profound changes in the physical and biological characteristics of a stream. These changes include beneficial as well as negative effects.

Not all aspects of physical modifications of streams and estuaries are quantifiable. In fact, only a few simple measures of the extent of harmful physical modifications (including suspended solids, turbidity, color, and temperature) are known. Some other physical measures that would be useful are often not routinely made; among these are sediment cores to analyze the nature of bottom deposit buildup, and settleable solids to measure the materials deposited on the bottom.

Eutrophication. An adequate crop of algae is the beginning of the food chain for most aquatic communities. However, relatively stagnant waters (such as lakes and slow-moving estuaries) rich in nutrients can grow such heavy crops of algal and other aquatic plants that the decay of dead cell matter may seriously deplete the bottom waters of oxygen. This prevents the survival of oxygen-sensitive food species and fish. In extreme cases floating algal mats, thick bottom slimes, and odors result.

There are many waters in the nation that are or were naturally eutrophic. On the other hand, artificial addition of any one of the 100 or so nutrients necessary to plant growth may stim-

ulate algal blooms (heavy growths) in stagnant waters where that nutrient is normally under-supplied. In addition to the well-known nutrients, phosphorus and nitrogen, there are others equally essential to plants, including carbon dioxide, potassium, magnesium, and vitamin B-12. Man adds nutrients to water by many means. Perhaps one of the most important sources is run-off of agricultural fertilizers, which yield large loads of phosphorus, nitrogen, and potassium; other sources include treated municipal sewage, industrial discharges, and sewer overflows.

The only direct measure of eutrophication is a complete biological study of the waters in question. Indirect measures of eutrophication are biomass, standing algal crops, chlorophyll, nutrient uptake and benthic (that is, stream or lake bottom) oxygen demand. Unfortunately, most of these are almost never monitored routinely. Nutrient levels can be useful, although not necessarily conclusive measures of the potential for eutrophication. Of the 100 or so nutrients essential for plant growth, only compounds of nitrogen and phosphorus are routinely measured, making it difficult to use normal monitoring evidence to specify either nitrogen or phosphorus as the direct cause of a bloom.

Salinity, Acidity, and Alkalinity. Major changes in the salt content of water can seriously disrupt aquatic communities and decrease the value of water for irrigation and water supply purposes. Where the fresh water inflow of estuaries is reduced through upstream consumption or diversion of freshwater, the saline front advances upstream. This advance decreases the low salinity area of the estuary necessary for spawning or growth of important species such as striped bass. Many inland streams are naturally saline, due to the salt content of solids and minerals in their drainage basins. In certain areas, this natural salinity has been substantially increased by man's activities. Irrigation in saline soil areas increases stream salinity, because of increased evaporation (both on land and in reservoirs) and leaching of salt from the soil into the irrigation return flow. In certain basins, mine and quarry drainage can also add substantial salt loads to rivers.

Acidity changes can be equally damaging to aquatic life. The most important acid sources are drainage from mines and acid rain downwind from major sulfur-polluted air regions. The importance of sulfur air pollution has only recently been recognized; several small lakes have suffered such serious increases in acidity within only one decade as to almost eliminate many desirable fish species. Highly acidic industrial and municipal discharges

that are large relative to the receiving stream can also cause damage.

Alkalinity presents problems in many areas, particularly west of the Mississippi River. The problems range from reduced agricultural production to the fouling of water pipes. Most alkaline pollutants are from natural sources such as sodium carbonate deposits. However, certain industries such as the gypsum board industry may also contribute to an alkaline condition.

Quantitative analysis of salinity normally uses total dissolved solids as an indicator of total salts; common individual salts such as sulfates and chlorides are also sometimes measured. To some extent, specific ecological damage due to salinity depends on the composition of the salts present. Acidity/alkalinity measures are considerably more complex. pH, the measure of free hydrogen ions present, measures the stream's capacity to neutralize or "inactivate" bases. Alkalinity measures the stream's capacity to buffer acids. Thus, if a given stream shows little pH trend over the last 10 years, but alkalinity has decreased markedly, one can predict that the stream will be considerably more vulnerable to relatively small acid discharges.

Oxygen Depletion. Oxygen dissolved in water is one of many substances essential to sustaining aquatic animal life. The dissolved oxygen (DO) level is widely considered to be the single most important indicator of pollution; actually, there is no reason to consider it more or less important than indicators such as toxicity, salinity, and algal population.

Dissolved oxygen is consumed whenever any substance is oxidized in water. This oxidation can be a direct chemical process or it can be a biological process. All aquatic animals, from bacteria to fish, consume dissolved oxygen in metabolizing food substances. Such food substances range from sugars and starches, which are consumed by microorganisms in days, to paper pulp or oils, which are consumed by microorganisms only after months. Rapidly consumable substances create oxygen deficits within a few days of stream travel from their sources, while slowly consumable substances create deficits weeks or months of stream travel away from their source.

Thus, slowly consumable substances may not cause significant oxygen loss in the stream at all; instead, they may be consumed in a downstream lake, reservoir, estuary, or ocean where they may or may not pose a problem. Naturally, the rate of consumption for a specific food substance or waste is highly sensitive to temperature; higher water temperatures greatly accelerate the

growth and metabolism of the microorganisms that feed on the waste. On the other hand, many toxic substances slow this growth and can give a misleading picture of oxygen sufficiency.

Oxygen-consuming or oxygen-demanding substances can be attributed to many sources. There are large natural sources, including leaves, soil organic matter, and wildlife droppings washed into rivers by storm runoff. Agricultural areas contribute additional runoff-carried oxygen demand from lifestock manure and topsoil erosion. There are also the classical "point" sources: municipal sewage treatment plant discharges and a wide variety of industrial waste discharges. However, some urbanized areas contribute oxygen-demanding loads by other routes including storm sewers, sewer overflows, intentional treatment plant bypasses, sewer leaks, and unsewered runoff.

The direct quantitative measures of oxygen content of water are the absolute concentration of DO present, and the percent of saturation for DO corrected for temperature and pressure (since warm or low pressure water can dissolve less oxygen than cold or high pressure water). The latter measure is based on theoretical tables of saturation values for dissolved oxygen in distilled water, but many substances found in impure water can either raise or lower saturation levels of DO. Supersaturated values of up to 140 percent are seen, particularly in waters where algae contribute substantial oxygen.

In describing the oxygen-depleting characteristics of wastes, 5-day biochemical oxygen demand (BOD_5) and chemical oxygen demand (COD) are the most common measures. In BOD_5, the waste or stream sample is incubated in a bottle (sometimes inoculated with stream microorganisms) at 20°C for 5 days, and the weight of oxygen metabolically consumed by the microoganisms is measured. Among the many deficiencies of the BOD_5 measurement are: It has very poor repeatability; bottle conditions are far from stream conditions; trace toxicants can seriously inhibit microorganism growth and reduce apparent oxygen demand; and the 5-day reading gives no indication of depletion rate over shorter or longer periods. In measurement of COD, a sample of water is chemically oxidized to give an approximate upper bound on the amount of biologically oxidizable material present; COD cannot be measured in salty water, however, and it also fails to capture volatile oxidizable substances such as organic acids, alcohols, and ammonia.

Health Hazards and Aesthetic Degradation. An assessment of health hazards from polluted water involves considerable un-

certainty. There is little doubt that human feces carry infectious pathogens for a number of intestinal diseases, typhoid fever, hepatitis, brucellosis, encephalitis, poliomyelitis, psittacosis, and tuberculosis. However, there are grave uncertainties about the die-off rates of pathogens in natural waters as well as their infectiousness for swimmers or other recreational water users. Note that the issue of drinking water is not at stake, since its safety depends on disinfection treatment by the water supply system. The evidence that water polluted with fecal matter can transmit diseases to swimmers is sparse and uncertain, particularly since it has been discovered that swimmers in unpolluted water also have higher incidences of common ear, eye, and nose infections. There is some evidence that hepatitis can be transmitted via shellfish from polluted waters; unfortunately, the usual antibacterial measure—chlorination of sewage effluents—may not abate this problem for viral forms of hepatitis.

The evidence for waterborne toxicity hazards via fish, shellfish, and perhaps drinking water is somewhat stronger, at least in the case of relatively high concentrations of mercury and cadmium. On the other hand, considerably less effort has been expended on the chronic health hazards of low-level, long-term toxicants in drinking water (and fish) than on the infectious disease problem. Consequently, little can be said in this area, since even monitoring data are sparse.

Despite the paucity of evidence regarding waterborne transmission of diseases to recreational users, public health agencies since the turn of the century have assumed that the problem exists. Because of the expense of direct identification of specific pathogens in water, these agencies traditionally have used several indirect and nonspecific measures of bacterial populations in water: total coliforms, fecal coliforms, and fecal streptococci. These bacteria are not pathogenic, nor do they simulate the die-off rates of pathogens. Fecal bacterial counts are good indicators of the presence of undisinfected municipal sewage, when runoff sources are either low or insignificant. Unfortunately, fecal coliforms are also found in runoff from agricultural and wilderness lands and from urban areas. In fact, it is possible that fecal coliforms can multiply significantly in streams under certain conditions.

Water bodies can be degraded aesthetically by increases in murkiness, color, algal scums, floating solids and oils, and odors. Murkiness is approximately measured by turbidity, which has been discussed, together with color, under Physical Modifications. Algal growth has been discussed under Eutrophication. Float-

ing solids and oils, in areas with properly functioning treatment plants and oil separators, generally come from combined sewer overflows, storm sewer discharges, and unsewered runoff, as evidenced by the major increases in these measures directly after rainstorms. Unaesthetic odors can stem from many sources, including decaying organic matter in water or on the bottom and a myriad of industrial chemicals. Among chemicals, phenols are traditionally singled out for special attention by pollution control agencies.

In the board area of health hazards and aesthetic degradation only a few measures are routinely monitored. The ones available for analysis are total coliform, fecal coliform, fecal streptococci, phenols, and odors.

Status of Water Quality

EPA's analysis of 22 major rivers, contained in the *1973 National Water Quality Inventory Report,* sheds some light on the kinds of pollution requiring control and on recent trends. The 22 rivers, ranked from "cleanest" to "dirtest" in Table II-1, were selected for study because of their length, flow, and proximity to large cities. This ranking of reaches on the 22 rivers is not necessarily complete or fully accurate for all purposes. For example, ranking is based only on physical modification, nutrients, eutrophication, acidity, salinity, oxygen, and health parameters. Effects of metals and pesticides are not included, because data were not complete at the time this report was prepared. The analysis does not incorporate biological or other measures because data are less readily available and reference levels are not clearly defined.

Detailed analyses of the 22 rivers as a whole show that the worst readings and trends were for nutrients (Table II-2). The pollutants receiving the most widespread controls (bacteria and

TABLE II-1
POLLUTION RANKINGS OF 22 MAJOR U.S. RIVERS*
[Preliminary]

Best Third	Middle Third	Worst Third
Upper Missouri	Rio Grande	Lower Red
Columbia	Alabama	Hudson
Snake	Upper Ohio	Lower Ohio
Willamette	Upper Red	Lower Mississippi
Upper Mississippi	Brazos	Lower Arkansas
Yukon	Potomac	Middle Ohio
Tennessee	Upper Colorado	Mississippi near Minneapolis
Susquenanna	Middle Mississippi	Lower Missouri
Lower Colorado	Sacramento	Upper Arkansas
		Middle Missouri

*From 1968-72 STORET data; rankings based on the number of pollutants registering median values higher than uniform national reference levels.
Source: 1973 Water Quality Inventory Report to Congress. EPA.

TABLE II-2
WATER QUALITY TRENDS FOR 22 MAJOR RIVERS
(1963–72)
[Preliminary]

Parameter	Readers analyzed	Trends of reaches from 1963–67 to 1968–72			% of reaches exceeding reference levels		
		Improved	Worse	% Improved	1963–67	1968–72	Change
Suspended solids	24	20	4	83	30%	16%	−14%
Turbidity	27	21	6	78	30	32	+2
Temperature	29	20	9	69	0	0	0
Color	27	7	20	26	No reference level used		
Ammonia	21	16	5	76	14	4	−10
Nitrite	5	2	3	40	No reference level used		
Nitrate (as N)	13	0	13	0	0	0	0
Nitrate (as NO_3)	19	5	14	26	No reference level used		
Nitrite plus nitrate	24	8	16	33	0	0	0
Organic nitrogen	8	4	4	50	No reference level used		
Total phosphorus	25	4	21	16	35	54	+19
Dissolved phosphate	16	8	8	50	8	25	+17
Total phosphate	13	6	7	46	30	37	+7
Dissolved solids (105°C)	24	16	8	67	29	21	−8
Dissolved solids (180°C)	23	14	9	61	28	12	−16
Sulfates	30	16	14	53	13	13	0
Chlorides	30	18	12	60	13	10	−3
Alkalinity	29	12	17	41	No reference level used		
pH	30	16*	14*	53	0	0	0
Dissolved oxygen	27	17	10	63	0	0	0
BOD_5	27	19	8	70	0	0	0
COD	18	13	5	72	No reference level used		
Total coliforms (MFD)†	21	14	7	67	26	14	−12
Total coliforms (MFI)†	9	4	5	44	56	30	−26
Total coliforms (MPN)†	9	6	3	67	25	21	−4
Fecal coliforms (MF)†	5	3	2	60	60	21	−39
Fecal coliforms (MPN)†	4	3	1	75	17	43	+26
Phenols	7	5	2	71	82	69	−13
Odor	4	2	2	50	No reference level used		

*For pH, read "less acidic" for "improved"; read "more acidic" for "worse."
†Membrane filter delayed, membrane filter immediate, most probable number, membrane filter.

oxygen demand), however, were improving. The analyses indicated that:

- For nutrients, up to 54 percent of the reaches exceeded EPA's phosphorus guidelines set to protect against potential eutrophication in flowing streams. Up to 84 percent of the reaches showed increased phosphorus levels in 1968–1972 over the previous 5 years. Nitrogen nutrients, while generally not exceeding reference levels, increased in up to 74 percent of the reaches measured.
- Other pollutants with high levels were phenols (industrial compounds which can taint fish flesh and cause taste and odor problems in drinking water) and suspended solids (which interfere with some aquatic life processes). These results are not as disturbing as the nutrient data, because in up to 80 percent of the reaches with data, phenols and suspended solids improved in the last 5 years.
- The pollutants receiving the most widespread controls, bacteria and oxygen demand, showed general improvements in the last 5 years. Dissolved oxygen and oxygen-

demand levels improved in up to 72 percent of reaches; bacteria up to 75 percent.

Five of the rivers were studied in greater detail: the Mississippi, Missouri, Ohio, Tennessee, and Columbia Rivers.

Mississippi River. Based on routine monitoring data available to EPA for the years 1963–72, the most significant types of pollution for the Mississippi River are the presence of undesirable bacteria throughout the river (noticeably around urban centers). Special studies confirmed the presence of phenols downstream from cities and industrial complexes. Phenols cause taste and odor problems in drinking water and prevent commercial fishing in several large river segments.

- *Harmful Substances.* Phenol levels below St. Louis and Baton Rouge are probably major reasons that commercial fishing has been eliminated in these two areas.
- *Physical Modification.* The upper river below Minneapolis-St. Paul shows increased levels of BOD_5, ammonia, and nitrates; turbidity and solids are increased downstream from the Missouri River.
- *Eutrophication Potential.* Limited data are available to assess eutrophication directly. However, phosphorus levels have increased in the lower river (below Ohio River) in the recent 5 years while the upper river remains unchanged. Below Minneapolis-St. Paul, there are significant increases of ammonia and nitrates. Enough phosphorus and nitrogen are present to support nuisance algae growths in this area, and levels are generally getting worse.
- *Salinity, Acidity, and Alkalinity.* The only noticeable changes occurred below the inflows of the major tributaries. For example, increases in dissolved salts, particularly sulfates, were detected below the Missouri River. Alkalinity dropped below Cairo because of the acidic inflow from the Ohio River.
- *Oxygen Depletion.* Dissolved oxygen levels are satisfactory throughout the river except below Minneapolis-St. Paul. BOD_5 and other parameters associated with sewage and industrial wastes indicate that urban areas are the primary sources of polluants. Most of the river has improved in the last 5 years, with a significant improvement below Minneapolis-St. Paul due to secondary treatment of municipal wastes.
- *Health Hazards and Aesthetic Degradation.* Fecal coliform counts are exceeding recommended standards

throughout the Mississippi River, with peaks below urban centers, especially below Minneapolis-St. Paul. These levels are considered excessive for primary contact recreation use.

Missouri River. According to the 1963–72 data, the most significant types of pollution in the Missouri appear to be physical degradation (primarily related to erosion), and potential health hazards. Special studies confirm the presence of undesirable bacteria and viruses and tainting of fish flesh downstream from several large cities. These problems appear to come from sewage treatment facilities, but they are overshadowed up to 16 percent of the time by pollutants that are associated with runoff during heavy rains.

- *Physical Modification.* The middle and lower portions of the Missouri experience some of the heaviest sediment erosion in the United States, producing high suspended solids and turbidity. While much of the erosion is natural, pollutants washed from farms and cities are carried with the soil, and add to the organic matter (BOD_5, COD, and ammonia), nutrients (phosphates and nitrates), and salts (sulfates) in the river, particularly after rainfalls.
- *Eutrophication Potential.* Limited data are available to measure the potential of eutrophication directly. However, enough phosphates and nitrogen are present in the middle and lower Missouri to support nuisance algae growths, and levels were generally worsening over the 1963–72 period.
- *Salinity, Acidity, and Alkalinity.* Dissolved salts, particularly sulfates, reach and often exceed national guidelines for water supply intakes in the middle and lower Missouri.
- *Oxygen Depletion.* Organic loadings in the Missouri are high, in part due to heavy animal feedlot runoff from Kansas, Nebraska, and Iowa. At times these loadings have been sufficient to deplete dissolved oxygen below recommended levels for fish. BOD_5 and COD improved near large cities in the last 5 years compared to the preceding 5 years.
- *Health Hazards and Aesthetic Degradation.* Fecal coliform levels peak well in excess of water quality standards for swimming and drinking downstream from urban areas in both wet and dry periods, as do other measures of

fecal contamination and viruses. Point sources are probably responsible for most of the pollution, but conditions also generally worsen after rainfalls, reflecting nonpoint sources of pollution.

Ohio River. Based on 1963–72 data, the most serious problems in the Ohio River are: elevated bacteria levels near cities; acidity from mines and industries; the potential for eutrophication; and suspended solids. Field studies indicate that if industries and municipalities adhere to effluent limitations, the Ohio can meet standards for fish and, in some areas, for swimming by 1977. However, potential eutrophication and sediment runoff may continue to be problems.

- *Harmful Substances.* Monitoring data show high levels of iron, in all four sections of the river, with trends toward higher levels in the last 5 years. Special studies show industrial oil, scum, foam, phenols, and other chemicals affecting areas near Pittsburgh, Huntington, Marietta, and Parkersburg. Biological studies confirm the presence of toxic materials near Pittsburgh. Downstream, the river shows recovery, and some improvements have been noted since 1970.
- *Physical Modification.* High levels of suspended solids occur in the lower Ohio, primarily during high flows. In some portions of the river, the levels are markedly improved compared to 5 to 10 years ago.
- *Eutrophication Potential.* Indirect evidence suggests that biological activity is being heightened in the presence of enough nitrates and phosphates to support nuisance algae growths, although such growth has not been observed. Nutrients have not changed significantly in the last 10 years.
- *Salinity, Acidity, and Alkalinity.* At 11 of 40 stations, the river is occasionally more acidic than permitted by standards. Most of this may be attributed to acid mine drainage from upstream tributaries.
- *Oxygen Depletion.* Two stations report dissolved oxygen problems. Pittsburgh's and Cincinnati's municipal discharges are known to be producing low dissolved oxygen at times.
- *Health Hazards and Aesthetic Degradation.* In summer, total and fecal coliforms exceed permissible levels at Cincinnati and Louisville. Special studies show bacterial levels improving in the past 5 years near other cities.

Tennessee River. Data from 1963–72 indicate that the most serious potential problem on the Tennessee River is the increase in nutrient levels in the nine mainstream reservoirs. Other problems are the presence of high bacteria levels in the reservoirs near cities and low dissolved oxygen levels in dam releases. Nitrogen and phosphorus concentrations in the reservoirs are high enough to encourage some undesirable algae growth; nitrates, in particular, are high in all reservoirs and increased significantly during the last decade. In general, however, the Tennessee River and its reservoirs do not show widespread pollution and are among the cleaner waters studied in the 22 rivers.

- *Eutrophication Potential.* Nitrogen and phosphorus concentrations in the mainstream reservoirs are no longer limiting aquatic growth. The seasonal pattern of nutrients suggests that biological activity is increasing, although nuisance algae has not been noted. Nitrate levels are quite high in all nine reservoirs, with significant increases over the 10-year period. Maximum concentrations occur primarily during periods of high flows. Organic nitrogen and ammonia are also increasing.
- *Oxygen Depletion.* The water released from some reservoirs during the summer months is low in dissolved oxygen due to thermal stratification.
- *Health Hazards and Aesthetic Degradation.* During several months each year, fecal coliforms exceed permissible levels for contact recreation and drinking water.

Columbia River. During 1967–72, the most serious problem on the Columbia River was supersaturation of atmospheric gases (toxic to most fish) induced by turbulence at spillways. Radioactivity levels originate at AEC Hanford Works. Temperature levels reach or exceed desired levels in the summer months. Nutrient levels (phosphorus and nitrate) exceed desirable thresholds primarily during the first spring flood.

- *Harmful Substances.* Supersaturation of dissolved gases induced by turbulence by spillways present toxic conditions below 13 dams along the river. The toxicity resulting in gas bubbles in the bloodstream is similar to the "bends" experienced by divers. The problem is not limited to any particular species or age groups of fish. Specific radionuclides that concentrate in the food chain (zinc-65 and phosphorus-32) continue to be detected at the mouth of

the Columbia River and in oysters taken on the Washington Coast.

- *Physical Modification.* The general physical quality of the Columbia is good, but temperatures reach or exceed the established upper limit in August and occasionally in July and September. Temperature levels are influenced by the many dams and reservoirs, and also by heat sources such as the Hanford Works. Temperature levels have shown no observable overall change during the past 6 years. Other water quality measurements such as solids pose no problem.
- *Eutrophication Potential.* With the exception of slime growth, sphaerotilus natens, in the lower river, the biological populations of the river are diverse and balanced—the opposite of eutrophic conditions. Although nitrate and phosphorus exceed desirable levels, particularly during high runoff periods, there are no trends suggesting increased eutrophication.
- *Oxygen Depletion.* The flow and surface characteristics of the river seem to be sufficient to provide dissolved oxygen concentrations that are very close to theoretical saturation limits.
- *Health Hazards and Aesthetic Degradation.* From limited data, total and fecal coliforms levels are very low and indicate no threat to water contact and drinking water uses.

Nonpoint Sources

In addition to studying overall levels and trends, the EPA report analyzed pollution that comes, not from specific points such as sewage treatment outfalls or industrial plants, but from runoff from areas such as farmlands, city streets, and mining areas, and from subsurface seepage from polluted areas. While reliable national estimates exist for point-source pollution, no similar estimates exist for nonpoint-source pollution. In 1971, EPA estimated that agriculture, mining, and water resource development accounted for 31 percent of the total pollution measured. This estimate is not particularly useful, however, because it did not delineate the kinds of pollutants involved, the quantity of nonpoint source pollutants compared to point source pollutants, and the percent of time that nonpoint sources are active (usually only during rainy periods).

III. MUNICIPAL COSTS

The Status of Public Sewerage

The Nation's system of public sewerage facilities has been growing for more than a century. The first U.S. sanitary sewer was begun in Chicago in 1855, only 12 years after the world's first sanitary sewer system was installed in Hamburg, Germany. By the end of that decade an estimated 1 million persons were being served by U.S. sewers (Table III-1). The growth of sewerage services occurred at a rate well in excess of the rate of population growth, and by 1932 approximately half of the Nation's population was served by sanitary sewers. Today the sewered population is somewhat in excess of our total urban population.

While the technology of sewerage treatment was developed in England during the 1840's and 1850's, it was not until the 1870's that collecting sewers in the United States began to be complemented by an occasional sewerage treatment plant. The number of persons being served by treatment plants apparently reached 1 million in 1904, at a time when the sewered population was approximately 28 million. A great number of sewage treatment plants must have been installed between 1910 and 1932, for in 1932 the number of persons served by sewage treatment was about five times the number served in 1910. By 1940, under the stimulus of "New Deal" construction programs, the population served by treatment facilities was almost double that of 1932, and by about 1957 it doubled again to 74 million.

TABLE III-1
EXPANSION OF PUBLIC SEWERAGE SERVICES

Year	U.S. population	Unsewered population	Sewered population	Sewage untreated	Sewage treated	Relationships	
						Sewered population / Total population	Treated population / Sewered population
	(millions of persons)					(expressed as percent)	
1860	31	30	1	1	0	3%	0%
1870	39	34	5	5	0	13	0
1880	50	40	10	n.a.	n.a.	20	n.a.
1890	63	47	16	n.a.	n.a.	25	n.a.
1900	76	51	25	n.a.	n.a.	33	n.a.
1904	82	54	28	27	1	34	4
1910	92	57	35	31	4	38	11
1915	99	57	42	n.a.	n.a.	42	n.a.
1920	106	58	48	n.a.	n.a.	45	n.a.
1930	123	62	61	n.a.	n.a.	50	n.a.
1932	125	63	62	41	21	50	34
1940	133	66	67	30	37	50	55
1945	140	70	70	28	42	50	60
1948	145	72	73	28	45	50	62
1957	171	73	98	24	74	57	76
1962	186	68	118	17	101	73	86
1968	198	58	140	11	129	71	92
1973	210	47	163	4	159	76	97

Source: Based on data published by EPA (and predecessor agencies) in the Municipal Waste Inventories.

By 1973 approximately 159 million persons were being served, or more than 97 percent of the total sewered population.

Improvements in Waste Treatment. The treatment of liquid wastes may involve complex chemical and biological processes. Enormous volumes of water must be handled—30 to 600 gallons per capita per day, depending on the industrial and commercial development in a community. These volumes must be handled under circumstances of radical daily flow variation. Furthermore, the materials to be removed are present in minute quantities: The "normal" concentration of BOD_5 and of suspended solids in sewage is about 200 milligram per liter, or 0.0002 pounds per pound of water.

Given such difficulties, waste treatment technology developed early in directions that featured the acceleration of natural processes in very long-lived reactors that could function under a range of operating conditions. These basic principles have remained largely unchanged, although designs have been improved and there has been a progressive increase in the application of mechanical energy and chemical processes to supplement and accelerate natural processes.

Our historical knowledge of improvements and efficiencies of waste treatment methods is incomplete in that no data on the national distribution of waste treatment processes were gathered prior to *Engineering News Record's* 1937 survey of municipalities. Since that time, the Federal Government has issued intermittent *Municipal Waste Inventories*, which provide data on the distribution of waste treatment methods and their removal efficiency.

A review of these sources indicates that the population discharging untreated wastes into our waterways is only one-tenth of what it was in 1937 (Table III-2). During the 1937–73

TABLE III-2
DEGREE OF SEWAGE TREATMENT

Year	No. treatment	Primary treatment	Intermediate treatment	Secondary treatment	Tertiary treatment
	(millions of persons served by sanitary sewerage facilities)				
1937	35.8	16.7	2.8	16.3	—
1940	29.9	15.1	3.3	18.9	—
1945	27.9	17.2	3.8	21.7	—
1948	28.0	18.4	3.6	22.7	—
1957	23.8	25.7	5.6	43.3	—
1962	17.0	32.7	7.4	61.2	—
1968	10.9	36.9	5.9	85.6	0.3
1973	3.9	46.3	5.9	103.9	2.8
Annual rate of change, 1937–1973	−8%	+4%	+3%	+7%	—

Sources: 1937, "Engineering News Record's" survey of municipalities 1940–73, EPA and predecessor agencies in "Municipal Waste Inventories."

period, the number of persons whose wastes receive primary treatment (physical processes that remove roughly 90 percent of solids and about 35 percent of BOD_5) has almost tripled. The population employing secondary treatment (biological processes that produce only a slight incremental reduction in solids concentrations but raise removal of BOD_5 to the 70 to 95 percent level) increased more than sixfold and now includes about 63 percent of the sewered population.

Not only have more persons been connected to more advanced types of sewerage treatment facilities, but technological modifications have improved the removal efficiencies of each type. One result is that the amount of BOD_5 removed by treatment facilities in 1973 exceeded the total BOD_5 produced by sanitary sewers in 1957 (Table III–3).

The end result of the growth in sewerage facilities appears to be disappointingly marginal, however. While one portion of the system, the treatment facilities, increased by 140 percent the amount of BOD_5 diverted from our waterways, another portion, sanitary sewers, offset that improvement by delivering more BOD_5 for treatment. These figures may be overly pessimistic as they pertain to sanitary sewerage only; they do not reflect the net result of initiating public treatment for a large (but unknown) number of industrial facilities that previously discharged directly into our waterways. On the other hand, they do not take into account the increased concentration of wastes in sanitary sewerage resulting from such innovations as kitchen garbage disposals.

Investment in Treatment Facilities. Between 1855 and 1971, the Nation invested an estimated $58 billion (1972 dollars) in its public sewerage facilities (Table III-4). This represents about 5 percent of total State and local government capital expenditures for *all* purposes since 1915 and resulted in approximately $32 billion worth of facilities in place as of 1971.

TABLE III-3
EFFECT OF SANITARY SEWAGE TREATMENT

Year	Collected by sanitary sewers*	Reduced by treatment**	Discharged by treatment plants
	(millions of pounds of BOD_5 per day)		
1957	16.4	7.7	8.7
1962	19.8	10.8	9.0
1968	23.3	15.0	8.3
1973	27.1	18.5	8.6

*Based on 0.167 pounds of BOD_5 per sewered person per day.
**Based on the distribution of treatment facilities shown in Table III-2 and on estimates of removal efficiency from a variety of sources.

TABLE III-4
INVESTMENT IN PUBLIC SEWERAGE FACILITIES

Period	Gross Investment*	Replacement†	Net Investment	End-of-period capitalization
		(billions of 1972 dollars)		
1856–69	$ 0.5	$ 0.1	$ 0.4	$ 0.4
1870–79	0.6	0.1	0.5	0.9
1880–89	0.8	0.2	0.6	1.5
1890–99	1.2	0.4	0.8	2.3
1900–09	1.5	0.6	0.9	3.2
1910–19	2.7	0.9	1.8	5.0
1920–29	5.7	1.6	4.1	9.1
1930–34	2.5	1.3	1.2	10.3
1935–39	4.8	1.6	3.2	13.5
1940–45	2.1	2.3	(.2)	13.3
1946–56	10.8	5.1	5.7	19.0
1957–61	7.5	3.2	4.3	23.3
1962–67	9.1	4.8	4.3	27.6
1968–71	8.6	3.9	4.7	32.3
Totals	$58.4	$26.1	$32.3	

*Based on data published by the Department of Commerce and by EPA; all values converted to 1972 dollars through use of EPA's sewerage construction cost indices and the discontinued Associated General Contractor's Index of Construction Costs.
†Estimated funds required to "replace" existing facilities, rather than add new capacity. Computed at a rate of 2 percent for sewers and 4 percent for plants, based on estimates of the relative weight of each in each period.

Two aspects of this series of investments stand out. First, the bulk of sewerage capital has been installed very recently—almost 80 percent since 1929, 60 percent since World War II, and more than 30 percent since 1961. Second, the stock of capital in place is so large compared to annual investments that replacement of existing facilities has absorbed approximately 50 percent of all capital expenditures since 1961. The current level of replacement costs is close to $1 billion a year and rising in proportion to the growth of the capital stock.

The Needs Survey

The estimated cost of constructing needed public sewerage facilities is $60.1 billion, according to a survey EPA conducted in mid-1973.[1] The "Needs" Survey, which was required by Section 516(b)(2) of the 1972 Amendments, covered only those treatment and collection facilities that are eligible for Federal assistance and meet the criteria of the survey. Nevertheless, these costs are approximately equal to the Nation's total investment in public sewerage facilities since the first sanitary sewer was built in 1855.

Conduct of the Survey. In mid-1973, the States were asked to distribute survey questionnaires to all municipal treatment authorities that could be identified within Standard Metropolitan Statistical Areas (SMSA's), and also to all authorities out-

[1] *Costs of Construction of Publicly-Owned Wastewater Treatment Works—1973 Needs Survey.* EPA report to Congress, November 1973.

side SMSA's serving communities of 10,000 or more. Thirty-five States chose to sample communities of less than 10,000 outside SMSA's, in which case the costs reported in the sample were increased in proportion to the sample coverage. The remaining 15 States surveyed all communities. Municipal treatment authorities sent their completed questionnaires to the States for review and approval. After further review and editing by EPA Regional Offices, the survey data were compiled by State and for the Nation as a whole.

Costs were reported for facilities in five categories, as follows:

- *Category I—Secondary Treatment Required by 1972 Act.* This category includes costs for facilities that would provide a legally required level of "secondary" treatment. As a minimum under the 1972 Amendments, all municipal treatment facilities are required to reduce BOD_5, suspended solids, and fecal coliforms by July 1, 1977 to at least the level established by EPA in its definition of "secondary" treatment. This level of treatment meets or exceeds the requirements of water quality standards for many waterways. Facilities along some waterways are required, however, to reduce these types of pollutants still further to meet water quality standards. The costs for this additional "secondary" treatment are also included in Category I.

- *Category II—Treatment "More Stringent" than Secondary Required by Water Quality Standards.* This category includes costs for facilities that would remove pollutants such as phosphorus, ammonia, nitrate, and organic substances to the extent required by legally binding Federal, State, or local actions. Such actions include an EPA-approved water quality plan, an administrative or court order, a license, and water quality standards that are binding on the treatment facility. These costs are in addition to those for secondary treatment reported in Category I.

- *Category III—Rehabilitation of Sewers to Correct Infiltration and Inflow.* Costs could be reported in this category for a preliminary analysis to determine if excessive infiltration and inflow exist. If such an analysis had been completed by the time of the survey and showed that infiltration/inflow did exist, the expense of a detailed eval-

uation of the cost of rehabilitation of the sewer system could be reported. If such an evaluation was already completed at the time of the survey, the costs of facilities could be reported.

- *Category IV—New Sewers.* This category consists of the costs of new collector and interceptor sewers designed to correct violations caused by raw discharges, seepage to waters from septic tanks, and the like, or to comply with legally binding Federal, State, or local actions. As provided in the 1972 Amendments, costs could be reported only if the community had sufficient existing or planned capacity to treat adequately the collected sewage, and only for communities existing prior to enactment of the 1972 Amendments. (Collectors for new communities, new subdivisions, and newly developed urban areas are excluded.)
- *Category V—Correction of Overflows from Combined Sewers.* Costs could be reported, when required by legally binding Federal, State, or local action, for correcting periodic bypassing of untreated wastes from combined sanitary and storm sewers. The alternative methods for correction must have been evaluated, however, and the reported costs based on the most economical or efficient alternative.

The costs for facilities reported in each category were subject to three overall constraints:

- Costs are in June 1973 dollars.
- Costs are estimated for facilities designed to serve no more than the 1990 population projected for each State by the Bureau of the Census in its "series E" projection published in December 1972.
- Only those costs and facilities that could be clearly defined and documented are reported. As a result, some types of facilities eligible for Federal assistance under the 1972 Amendments are excluded—primarily treatment facilities that would achieve "best practicable treatment technology" and the 1985 goal of "zero discharge," and facilities for prevention, control, and treatment of pollution from storm waters that do not flow through combined sewers.

Survey Results. The costs reported in the survey and meeting EPA review criteria totaled $60.1 billion (Table III-5), broken down as follows:

	Billions of 1973 dollars
Category I	$16.6
Category II	5.6
Category III	.7
Category IV	24.4
Category V	12.7
Total	$60.1

TABLE III-5
ESTIMATED CONSTRUCTION COSTS FOR NEW PUBLIC TREATMENT FACILITIES
(FROM NEEDS SURVEY)*

	Total costs	I—Improvement of treatment plants to achieve secondary level	II—Improvement of treatment plants to achieve more stringent treatment levels	III—Correction of infiltration /inflow conditions	IVa—Eligible new interceptors, force mains, pumping stations	IVb—Eligible new collectors	V—Reduction of combined sewer overflows
	(millions of 1973 dollars)						
Region I							
Connecticut	$ 1,409	$ 179	$ 46	$ 18	$ 205	$ 225	$ 736
Maine	364	124	1	1	135	87	16
Massachusetts	1,485	459	51	11	251	77	636
New Hampshire	508	174	13	2	152	102	65
Rhode Island	367	61	7	1	94	169	35
Vermont	168	65	16	1	34	32	20
Region II							
New Jersey	3,382	1,458	321	18	851	532	202
New York	8,032	1,556	731	11	1,878	876	2,980
Puerto Rico	590	169	—	2	225	194	—
Virgin Islands	44	13	—	—	19	12	—
Region III							
Delaware	329	84	7	4	110	62	62
Maryland	681	217	139	2	227	95	1
Virginia	1,345	516	137	12	345	208	127
West Virginia	614	96	3	14	224	268	9
Pennsylvania	4,210	884	133	40	538	1,026	1,589
District of Columbia	1,081	2	48	1	2	1	1,027
Region IV							
Alabama	444	130	19	4	161	130	—
Florida	2,371	747	144	32	699	746	3
Georgia	1,031	338	136	7	303	200	47
Kentucky	1,032	165	84	9	324	293	157
Mississippi	268	88	60	5	75	40	—
North Carolina	900	353	152	3	244	148	—
South Carolina	757	326	6	5	237	183	—
Tennessee	695	234	10	5	223	211	12
Region V							
Illinois	4,089	1,009	805	41	353	422	1,459
Indiana	1,040	243	107	3	192	91	404
Michigan	3,325	525	115	14	820	992	859
Minnesota	1,065	310	41	9	187	163	355
Ohio	2,833	691	482	342	668	409	241
Wisconsin	787	212	45	13	229	121	167
Region VI							
Arkansas	355	97	1	—	126	130	1
Louisiana	451	94	—	3	157	197	—
New Mexico	115	54	—	—	12	49	—
Texas	889	297	4	7	355	225	—
Oklahoma	624	208	21	2	256	137	—
Region VII							
Iowa	502	236	44	7	141	50	24
Kansas	671	141	24	2	167	316	21
Missouri	972	442	9	3	329	189	—
Nebraska	404	121	—	3	20	25	235

TABLE III-5 (Continued)

	Total costs	I—Improvement of treatment plants to achieve secondary level	II—Improvement of treatment plants to achieve more stringent treatment levels	III—Correction of infiltration/inflow conditions	IVa—Eligible new interceptors force mains, pumping stations	IVb—Eligible new collectors	V—Reduction of combined sewer overflows
			(millions of 1973 dollars)				
Region VIII							
Colorado	426	175	20	20	115	74	22
Montana	74	34	—	1	25	13	1
North Dakota	46	17	—	—	13	8	8
South Dakota	43	31	3	1	6	2	—
Utah	225	148	—	1	22	53	1
Wyoming	40	20	—	—	10	10	—
Region IX							
Arizona	237	76	3	—	73	86	—
California	6,050	2,190	1,531	6	1,022	527	774
Hawaii	523	222	4	—	213	84	—
Nevada	227	39	119	—	47	22	—
American Samoa	8	4	—	—	3	1	—
Guam	22	17	—	—	3	2	—
Trust Territories	8	4	—	—	2	2	—
Wake Island	—	—	—	—	—	—	—
Region X							
Alaska	205	80	—	—	73	44	8
Idaho	112	40	3	2	33	35	—
Oregon	568	140	—	2	146	130	150
Washington	1,080	284	5	2	247	299	243
Total	$60,123	$16,639	$5,650	$691	$13,621	$10,825	$12,697

*Costs ineligible under the survey guidelines are excluded. Costs are affected by limitations of survey design, inconsistency in reporting, variations in planning status among States, and other variables explained in the report. Therefore, the costs should not be considered indicative of equitable shares for individual States or of total funds required to meet "needs" without careful review of the report's limitations.

As shown in Table III-6, the costs reported amount to $286 per capita on a nationwide basis.

For a number of reasons, the reported costs are considered to underestimate the actual expenditures necessary to provide even the kinds of facilities that meet the survey guidelines. The major factors involved are:

- Costs reported in Category I and II do not reflect the additional treatment that will have to be provided in response to the revisions in water quality standards now underway in many States.
- Costs reported in Category V reflect only a fraction of the total expenditures that could have been justified under the survey guidelines if more localities had completed the required studies. By crudely extrapolating the results of the few studies available, EPA estimates that facilities required to reduce the major pollution concentrations in combined sewer overflows by 50 to 85 percent would cost from $40 to $80 billion, rather than the $12.7 billion indicated by the survey.

TABLE III-6
PER CAPITA COSTS FOR CONSTRUCTION OF NEW PUBLIC TREATMENT FACILITIES
(FROM NEEDS SURVEY)*

	Total costs (millions of 1973 dollars)	1972 Population (000's)	1972 Costs per capita	1990 Projected population (000's)	1990 Costs per capita
Region I					
Connecticut	$ 1,409	3,082	$457	3,946	$357
Maine	364	1,029	354	1,142	319
Massachusetts	1,485	5,787	257	7,052	211
New Hampshire	508	771	659	907	560
Rhode Island	367	968	379	1,134	324
Vermont	168	462	364	536	313
Region II					
New Jersey	3,382	7,367	459	8,822	383
New York	8,032	18,366	437	21,799	368
Puerto Rico	590	—	—	—	—
Virgin Islands	44	—	—	—	—
Region III					
Delaware	329	565	582	732	449
Maryland	681	4,056	168	5,001	136
Virginia	1,345	4,764	282	5,958	226
West Virginia	614	1,781	345	1,811	339
Pennsylvania	4,210	11,926	353	13,332	316
District of Columbia	1,081	748	1,445	764	1,415
Region IV					
Alabama	444	3,510	126	3,850	115
Florida	2,371	7,259	327	9,159	259
Georgia	1,031	4,720	218	5,667	182
Kentucky	1,032	3,299	313	3,741	276
Mississippi	268	2,263	118	2,359	114
North Carolina	900	5,214	173	5,880	153
South Carolina	757	2,665	284	3,023	250
Tennessee	695	4,031	172	4,800	145
Region V					
Illinois	4,089	11,251	363	13,177	310
Indiana	1,040	5,291	197	6,433	162
Michigan	3,325	9,082	366	10,961	303
Minnesota	1,065	3,896	273	4,577	233
Ohio	2,833	10,783	263	13,202	215
Wisconsin	787	4,520	174	5,218	151
Region VI					
Arkansas	355	1,978	179	2,068	172
Louisiana	451	3,720	121	4,159	108
New Mexico	115	1,063	108	1,232	93
Texas	889	11,649	76	13,666	65
Oklahoma	624	2,634	236	2,942	212
Region VII					
Iowa	502	2,883	174	3,053	164
Kansas	671	2,258	297	2,509	267
Missouri	972	4,753	205	5,488	177
Nebraska	404	1,525	265	1,562	257
Region VIII					
Colorado	426	2,357	181	2,848	150
Montana	74	719	103	714	104
North Dakota	46	632	73	606	76
South Dakota	43	679	63	643	67
Utah	225	1,126	200	1,293	174
Wyoming	40	345	116	348	115
Region IX					
Arizona	237	1,945	122	2,500	95
California	6,050	20,468	296	26,601	227
Hawaii	523	809	646	962	544
Nevada	227	527	431	829	274
American Samoa	8	—	—	—	—
Guam	22	—	—	—	—
Trust Territories	8	—	—	—	—
Wake Island	0	—	—	—	—
Region X					
Alaska	205	325	631	408	502
Idaho	112	756	148	758	148

TABLE III–6 (Continued)

	Total costs (millions of 1973 dollars)	1972 Population (000's)	1972 Costs per capita	1990 Projected population (000's)	1990 Costs per capita
Oregon	568	2,182	260	2,493	228
Washington	1,080	3,443	314	4,194	258
Total	$60,123	208,232	$286	246,859	$241†

*Costs ineligible under the survey guidelines are excluded. Costs are affected by limitations of survey design, inconsistency in reporting, variations in planning status among States, and other variables explained in the report. Therefore, the costs should not be considered indicative of equitable shares for individual States or of total funds required to meet "needs" without careful review of report's limitations.
†Excluding Puerto Rico and Territories.

It is possible that, had all the required studies been completed, the total costs in all five categories would have been roughly double the amount actually reported.

Comparisons to Previous Surveys. Local estimates of the cost of needed municipal treatment facilities have been consolidated into overall national totals almost every year since 1959. The Conference of State Sanitary Engineers made estimates from 1959 to 1966 in its annual report. The Federal Water Pollution Control Adminisrtation and EPA have made annual estimates since 1969. The Federal estimates are based on information about existing facilities and pending needs, much of it assembled by State water pollution control agencies. EPA supplemented this information in 1970 and in 1971 with surveys of cities with the largest anticipated needs. These various estimates show an incessant growth in estimated "needs" (Table III–7). Unfortunately, it is difficult to compare these individual estimates, for several reasons:

- Most surveys have focused on only those projects eligible for Federal financial assistance. The 1972 Amendments expanded the categories of eligbile projects to include collection sewers, infiltration/inflow, and separation of combined sewers. In addition, previous surveys focused on the "backlog of unmet needs," while the costs included in the 1973 survey presumably provide for future growth in service and replacement of existing facilities as well.

TABLE III–7
ESTIMATES OF CONSTRUCTION REQUIREMENTS FOR NEW PUBLIC TREATMENT FACILITIES, 1962–1971

Source	Year	Estimate (billions of dollars)
Conference of State Sanitary Engineers	1962	$ 2.0
Conference of State Sanitary Engineers	1966	2.6
Federal Water Pollution Control Administration	1969	10.0
Environmental Protection Agency	1970	12.6
Environmental Protection Agency	1971	18.1

- The characteristics of water quality to be measured and the level of treatment intensity to be attained have continued to increase.
- Inflation—as measured by the EPA indices of sewerage construction costs—has continued, amounting to 22 percent between 1970 and 1972, and averaging approximately 8 percent a year between 1967 and 1972.
- As more Federal funds have become available, local officials have been encouraged to refine and update their estimates. The 1973 survey, in particular, was intended to serve as the sole basis for allocating Federal funds among the States.
- The 1973 survey covered far more localities than did the previous estimates. Also, more engineering studies, which have generally proven higher than rule-of-thumb estimates, were available as a basis for detailed cost estimates.
- EPA's 1970 survey covered a 43-month future investment period, the 1971 survey a 60-month period. The 1973 survey did not specify a period, but localities are faced with the requirement of meeting effluent limitations based on secondary treatment by mid-1977, thereby accelerating desired construction schedules.

Validity of the Survey Approach. The primary advantage of surveys such as the ones discussed is that they can provide a means for acquiring cost data from the local level, where specific costs can best be identified and calculated. However, there are a number of limitations to this approach, in addition to the lack of comparability. A recent study pointed out that individual estimates of needs may be based upon varying rules-of-thumb or upon engineering studies, and that costs may be expressed in current or constant dollars.[2] Surveys may reflect the summation of individual estimates of *desired* construction activity, rather than the activities that are actually anticipated to occur. For reasons such as these, EPA has generally constructed alternative cost estimates based upon overall statistical functions for unit costs, growth, and capital replacement. Such alternative cost estimates are currently under development.

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[2] Frumkin, Norman. *Capital Investment for Water Pollution Control at the State and Local Level.* EPA contract no. 68-01-0164. August 1972.

IV. INDUSTRIAL COSTS

The emphasis of this chapter is on the costs industry will incur in meeting 1977 effluent standards set by the 1972 Amendments. The Amendments require industries to use "best practicable" water pollution control technology by mid-1977 and the "best available" by mid-1983.

The examination of industrial costs is divided into two parts. The first is a very broad analysis and discussion of the costs associated with meeting the 1977 standards, excluding those related to utility steam-electric generating plants. The costs are developed for 15 industrial groupings that encompass virtually all industrial water-polluting activity. The second section examines the costs and impacts associated with utility steam-electric generating plants. This control problem is discussed separately, primarly because of its distinct nature.

Nonthermal Costs

While municipal sources are generally the largest contributors of water pollutants, industrial wastes frequently present the most difficult control problems. Municipal wastewater does not, as a rule, vary greatly in pollutant content and concentration. In contrast, content and concentration vary widely in the industrial sector, depending on the type of industry and the specific manufacturing process used. The wide variations present problems of data collection and analysis, making a definitive assessment of costs virtually impossible at this time. The results, therefore, should be viewed only as improvements over earlier assessments of industrial pollution costs.

Scope

The cost estimates presented are based upon best practicable technology, which industry must be using by 1977. Estimates based on best available technology and zero discharge were not made for this report. In certain cases, however, best practicable technology will require zero discharge.

Estimates are developed for a total of 15 major industrial groups defined by Standard Industrial Classifications (SIC) (Table IV–1). Animal feedlot operations, while not involving manufacturing, are included because their discharges may be controlled on a point-source basis.

While a number of alternatives are available to industries to control wastewater, the report assumes that industries will treat the wastes it produces on-site. Other alternatives, such as in-

TABLE IV–1
INDUSTRIES FOR WHICH WATER POLLUTION CONTROL COSTS ARE ESTIMATED

SIC Code no.	Definition
02	Animal feedlots
20	Food and kindred products
22	Textile mill products
24	Lumber and wood products
26	Paper and allied products
28	Chemicals and allied products
29	Petroleum refining and related industries
30	Rubber and miscellaneous plastics products
31	Leather and leather products
32	Stone, clay, glass, and concrete products
33	Primary metals
34	Fabricated metals products
35	Nonelectrical machinery
36	Electrical and electronic machinery
37	Transportation equipment

creased recycling and modification of the manufacturing process to use less water, would probably not be as costly as on-site treatment. Joint industrial-municipal treatment is another alternative. However, data are not available to cost out these options.

The type of cost information developed on the 15 industries includes: the dollar value of capital investment in water pollution control facilities currently in place, the additional capital investment required, and the distribution of these investments by industries, States, and regions.

Study Design

In developing the industrial cost model, the following ground rules were established for data collection and use:

- The most recent data on water use, industrial plants, and costs of control alternatives were to be used.
- Existing data would be used, rather than developing independent data.
- Compatibility would be maintained where possible with the data developed for prior reports on the economics of clean water.

The actual industrial cost model was developed in the 1972 *Economics of Clean Water*.[1] It is best summarized by an informational flow chart (Figure IV–1):

- Aggregate data from *Water Use in Manufacturing* were converted to indicate total water use for each manufacturing employee by SIC code and 17 water use regions.[2] For this analysis, the following regions are combined:

[1] *Economics of Clean Water, 1972*. EPA. Vol. 2.

[2] *1967 Census of Manufacturers: Water Use in Manufacturing*. Bureau of the Census. Report No. MC67(1)-7. 1971. Data are for 1968.

Cumberland and Tennessee, Alaska and Pacific Northwest, and Hawaii and California. Six water use scenarios were developed based upon different assumptions about water use efficiencies (Table IV–2). The 1968 data indicate a large difference in industrial water use per employee based on geographical location. Additionally, the geographic areas with low water use per employee were areas with little available water or with low quality water. This use pattern indicates either that different specific processes are used in different areas or that water is used more economically in certain areas. Since economizing on water is an alternative to treatment and may be less costly, this report identifies and simulates a series of possible water-use scenarios that might more realistically represent water use today than the 1968 water-use data.

- Model computations were made to determine the total annual water use for each manufacturing sector listed in an extract of the Dun's Market Identifiers (DMI) file of nearly 250,000 plants.[3] Totals were computed taking into consideration employment, SIC, and water-use region. A plant was eliminated from further consideration if its annual water use was less than 1 million gallons. For plants using more, capital and operation and maintenance (O&M) costs were computed for each of the required

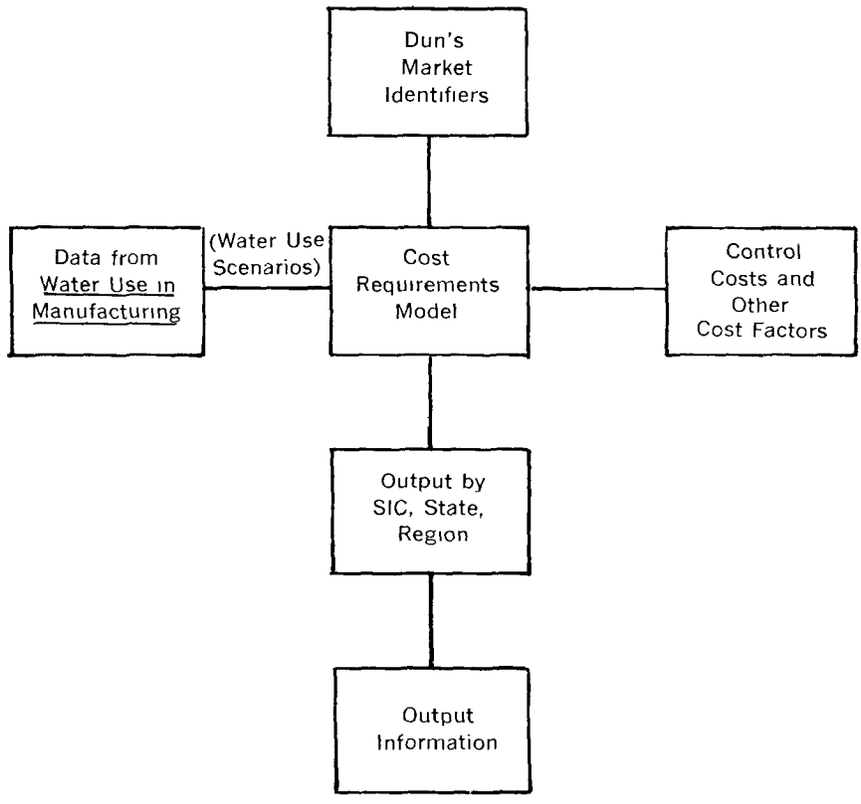
[3] Dun's Market Identifiers (DMI), Computer file maintained by Dun & Bradstreet, Inc., and available to EPA under contract (extract of June 1973 file used).

TABLE IV–2
WATER USE SCENARIOS

Scenario number	Description	1972 Report	1973 Report
1	Water-use efficiencies not changed from 1968 efficiencies *	Used	Used
2	Efficiency of the least efficient water-use region increased to that of the next to the least efficient	Used	Used
3†	Efficiencies of the eight least efficient regions (nearly half of the regions) increased to half way between their 1968 efficiency and the median regional efficiency in 1968	Not used	Used
4	Efficiencies of the eight least efficient regions increased to the efficiency of the 1968 median region	Used	Used
5	Efficiencies of the 10 least efficient regions increased to the efficiency of the least efficient of the remaining regions	Used	Used
6	Efficiencies of all 17 regions increased to that of the most efficient region in 1968	Used	Used

*Efficiencies pertain to water use per employee within an industrial classification.
†Considered in this report to be the most likely to occur.

FIGURE IV–1
COMPUTATION OF INDUSTRIAL COSTS OF WATER POLLUTION CONTROL



treatment types. The costs, along with descriptive data, were saved for use in the various summaries.

- Cost data were converted to equations that relate the daily water use or flow requiring treatment to each of the 12 treatment types listed in Table IV–3. For each SIC, one or more of the treatment processes was assumed to be required for a certain percentage of plant flow.
- An output program was developed that aggregated the individual plant data by SIC (2-, 3-, or 4-digit), EPA Region, State, and water-use region. Summaries of this information constituted the outputs of the modelling process.

Comparison With The 1972 Report

The methods used to compute the industrial costs of water pollution control were modified somewhat from those used in the 1972 report. The most significant modifications were made in the computational procedures and the input data files:

- *Efficiency of water use scenarios.* Water Use Scenario 3, (the eight least efficient regions move closer to the median regional efficiency in 1968) was added. It appears the most likely scenario for 1972–77 because it represents a realistic adjustment in water use by older plants.
- *Dun's Market Identifier.* The most recent (1973) DMI file was used, and the method of plant selection was changed from the 1972 analysis. In the 1972 report, the largest 14,499 plants were selected from the file on the basis of employment. This subset, generally corresponding to water use greater than 10 million gallons per year, was then used for all scenarios. In this year's assessment, water use was calculated for all plants, and those plants that used water in excess of 1 million gallons per year were retained. This produced a total of 148,074 plants for Scenario 1. Somewhat fewer plants were modeled for the other five scenarios, since fewer plants passed the 1 million gallons per year criterion. (A use of 1 million gallons per year corresponds to the average annual use of only 30 people. Plants using less than this amount are most likely using municipal treatment facilities, or applying their discharges to land.) Table IV–4 compares the number of plants included in the two reports and the corresponding water used.
- *Cost curves.* The cost curves were prepared especially for

TABLE IV-3
TYPES OF WATER TREATMENT MODELED

Treatment code	Treatment process
1	Oil separation
2	Equalization
3	Coagulation
4	Neutralization
5	Air flotation
6	Sedimentation
7	Aeration
8	Natural stabilization
9	Chlorination
10	Evaporation
11	Incineration
12	Activated sludge

TABLE IV-4
NUMBER OF PLANTS AND WATER USE IN 1972 AND 1973 REPORTS ON ECONOMICS OF CLEAN WATER*

SIC code no.	Industry	Number of plants		Water use (mgy)†	
		1972 report	1973 report	1972 report	1973 report
20	Food and kindred products	4,494	23,034	743,829	973,741
22	Textile mill products	1,021	7,439	193,383	323,727
24	Lumber and wood products	405	18,439	89,627	408,493
26	Paper and allied products	862	5,451	2,111,424	3,059,948
28	Chemicals and allied products	1,421	12,426	1,235,840	2,125,533
29	Petroleum refining and related industries	334	1,825	313,161	337,377
30	Rubber and miscellaneous plastics products	459	6,234	48,037	90,481
31	Leather and leather products	215	3,345	51,027	127,090
32	Stone, clay, glass, and concrete products	945	14,865	190,163	619,374
33	Primary metals	1,137	6,251	1,358,716	1,251,163
34	Fabricated metal products	1,037	17,487	79,555	213,376
35	Nonelectrical machinery	790	14,479	70,995	146,502
36	Electrical and electronic machinery	817	8,304	109,859	161,153
37	Transportation equipment	562	4,976	82,337	169,379
	Total	14,499	144,555	6,677,953	10,007,337

*Excluding feedlots.
†Million gallons per year.

this study by Associated Water and Air Resource Engineers, Inc.[4] The costs were adjusted to 1972 dollars. The cost curves in the 1972 reports were distilled from industrial wastewater guidelines prepared for EPA and its predecessor agencies.

- *Industry coverage.* Animal feedlots, SIC 02, were included in this series of reports for the first time.
- *Costs incurred by new plants.* The costs incurred by new plants were based on national projected growth rates for each industry. The rates were obtained from the National Planning Association's National Economic Projections

[4] *Analysis of National Industrial Water Pollution Control Costs.* Associated Water and Air Resources Engineers, Inc., Nashville, Tenn. EPA Contract No. 67-01-1536. May 1973.

Series.[5] The 1972 report assumed that all industries expanded at 7.8 percent over the period 1972–1977.

Summary of Industries

The final cost figures are presented in terms of broad industry groups. In many cases, however, the treatment procedure within a group had to be modified to accommodate internal industry variations. Not only were the water use ratios varied, but the actual treatment process had to be changed for different types of plants within the same basic industry.

Animal Feedlots, SIC 02. The primary reason for including animal feedlots is the specific language of the 1972 Amendments, which require feedlots—along with the more conventional categories of industry—to conform to effluent standards and to be subject to waste discharge permits.

A feedlot can generally be defined as a high concentration of animals held in a small area for extended periods of time for agricultural production purposes and fed specially transported foods. The following are the major subcategories requiring effluent controls:

SIC Code	Subcategories
0211	Beef cattle
0213	Hogs
0214	Sheep
0241	Dairy farms
0251, 0252	Chickens and eggs
0253	Turkeys
0259	Ducks
0272	Horses

Of these eight categories, beef cattle, hogs, and dairy farms were selected for detailed analysis. Chickens, turkeys, sheep, and horses were not studied in detail because their current production does not present as great a pollution potential. Data were not available to support analysis of duck feedlots.

The results of the analysis are shown in Table IV–5. The values were derived from data covering lots of various capacities. The incidence of rain was used in the analysis rather than water use, since the pollution controlled is runoff as opposed to process water. Thus, the methodology for cost calculation is dif-

[5] Scott, Graham C. *U.S. Economic and Demographic Projections: 1972–1981. National Economic Projections* (Report No. 72–N–2). National Planning Association, Washington, D.C. January 1973.

TABLE IV–5
COSTS FOR PROJECTED FEEDLOTS TO MEET 1977 EFFLUENT STANDARDS

	Beef cattle	Hogs*	Dairy cattle	Total
Number of lots	100,000	330,000	240,000	670,000
		(millions of 1972 dollars)		
Capital costs, 1972 plants	286	423	416	1,125
O&M costs, 1972 plants	38	36	27	101
Total annual cost, 1972 plants	71	92	52	215
Capital in place, 1972	146	183	130	459
Additional capital required, 1972 plants	140	240	286	666
Capital costs, 1977 plants	300	545	429	1,274
O&M costs, 1977 plants	39	46	28	113
Additional capital required, 1977 plants	154	362	299	815
Total annual cost, 1977 plants	74	118	55	247

*1969 Department of Agriculture data include feedlots with a gross income greater than $2,500.
Source: **Economic Analysis of Proposed Effluent Guidelines, Feedlots Industry.** Development Planning and Research Associates, Inc. Manhattan, Kansas. EPA–230/1–73–008. August 1973.
NOTE: Costs are based on all feedlots meeting 1977 effluent standards.

ferent from that previously described and applied to the other industries.

Food and Kindred Products, SIC 20. While wastes from food industries generally require biological treatment, differences in raw waste BOD_5 concentrations and other treatment requirements specific to each segment of the industry required that several of the segments be separately analyzed.

Textile Mill Products, SIC 22. Segments of the textile industry engaged in dyeing and finishing of textile products were analyzed together. Separate designs were made for cotton and synthetics plants, and for wood processing. Plants engaged in scouring and topping of wool were not included primarily because of data deficiencies.

Lumber and Wood Products, SIC 24. The major categories in the industry are involved in the manufacture of assorted wood products such as plywood and flooring. One treatment configuration was used based on representative requirements.

Paper and Allied Products, SIC 26. Several different designs were necessary for adequate treatment of the paper industry. Because water use information was available for only the entire category of pulp mills, a single waste treatment sequence was developed based on average raw waste characteristics. In addition, because pulp mills are frequently integrated into complexes manufacturing both pulp and paper, one design was done for these two segments of the industry. Additional designs were included for paperboard mills and for building board mills.

Chemicals and Allied Products, SIC 28. Because of the industry's great diversity, no standard treatment procedure could be assigned to all 4-digit SIC codes involved in the chemical

industry. The industry was divided into 15 subclasses that encompass the major sections of the industry.

Petroleum Refining and Related Industries, SIC 29. The greatest waste volumes in the petroleum industry stem from the refining of petroleum, SIC 2911. A separate treatment procedure was used for the remainder of the industry.

Rubber and Miscellaneous Plastics Products, SIC 30. One treatment configuration was used to handle wastewater from the rubber and plastics classification.

Leather and Leather Products, SIC 31. All significant wastewater volumes from this industry result from the tanning and finishing of leather, SIC 3111. Treatment provided this category was based on plants that process skins of cattle, pigs, and sheep.

Stone, Clay, Glass, and Concrete Products, SIC 32. The most significant quantities of wastes in stone, clay, glass, and concrete products stem from the production of cement, SIC 3241. A total containment treatment scheme was developed for this segment of the industry. Wastes produced in other parts of the industry are generally amenable to the same type of treatment, so that only one treatment design was used.

Primary Metals, SIC 33. The major source of wastewater for the primary metals industry is the production of steel, SIC 3311. Treatment of wastewaters arising from seven different steel production processes were included. Treatment schemes were prepared for the primary aluminum industry, SIC 3334, as well as the smelting and refining of several other metals.

Fabricated Metal Products, SIC 34; Nonelectrical Machinery, SIC 35; and Electrical and Electronic Machinery, SIC 36. Wastes originating from fabricated metals and the machinery industry can generally be handled by one of two treatment schemes. Four-digit SIC categories producing significant waste volumes were identified and assigned to one of the two schemes.

Transportation Equipment, SIC 37. Treatment of wastes in the transportation equipment industry poses a difficult problem because of the integration of many manufacturing facilities. Treatment of wastes from the motor vehicle industry was developed based on average waste flows identified in recent EPA reports.

Capital In-Place

The amount of water pollution abatement equipment in use was determined in order to compute the amount of additional investment required to meet the 1977 effluent standards. The deter-

TABLE IV–6
CAPITAL IN PLACE FOR INDUSTRIAL WATER POLLUTION CONTROL EQUIPMENT

SIC code no.	Industry	Total initial 1968	1969*	1970*	1971*	1972*	Total
		(millions of 1972 dollars)					
02	Animal feedlots †					459	459
20	Food and kindred products	155	28	40	50	52	325
22	Textile mill products	42	6	7	13	6	74
24	Lumber and wood products †	11					11
26	Paper and allied products	219	79	73	113	114	598
28	Chemical and allied products	733	37	84	151	189	1,194
29	Petroleum refining and related industries	291	133	155	190	123	892
30	Rubber and miscellaneous plastics products	5	4	22	25	29	85
31	Leather and leather products †	11					11
32	Stone, clay, glass, and concrete products	21	31	28	26	39	145
33	Primary metals	260	138	148	124	93	763
34	Fabricated metal products	290	24	27	17	35	393
35	Nonelectrical machinery	20	25	44	33	49	171
36	Electrical and electronic machinery	44	19	30	34	32	159
37	Transportation equipment	29	45	60	34	43	211
	Total	2,131	569	718	810	1,263	5,491

*Based on **Annual McGraw-Hill Survey of Pollution Control Expenditures**, 4th, 5th and 6th editions.
†Not covered by the McGraw-Hill Survey.

mination of capital in-place was made by modifying the method used in the 1972 *Economics of Clean Water*. Data on water use per employee and the number of plants in each industry group using a specific treatment process were obtained from *Water Use in Manufacturing*. This information was combined with new capital cost curves for each treatment process to yield cost estimates of the capital in place. These costs, based on 1968 values, were then updated with figures from McGraw Hill's annual surveys of pollution control expenditures.[6] The resulting estimates of pollution control capital in-place are presented in Table IV–6. The total for all industrial groups is $5.5 billion.

Capital Costs of Industrial Waste Treatment

The total capital investment required of the existing industrial structure to provide waste treatment consistent with 1977 effluent guidelines is estimated to be $13.5 billion (Table IV–7). Thus the net capital requirement is the difference between the $13.5 billion and the capital in-place, $5.5 billion, or $8.0 billion.

The estimate is based upon Scenario 3 in which plant efficiencies are moderately increased over 1968 levels. The estimate includes the value of waste treatment facilities already in-place. It does not include allowances for in-plant modifications that may provide equivalent control for less cost, nor does it impose

[6] McGraw Hill Publications. 4th, 5th, and 6th *Annual McGraw-Hill Survey of Pollution Control Expenditures*. New York.

TABLE IV–7
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS
(Scenario No. 3)

SIC code no.	Industry	Total capital costs	Total O&M costs	Total annual costs
		(millions of 1972 dollars)		
02	Animal feedlots	1,125	101	215
20	Food and kindred products	1,210	354	508
22	Textile mill products	581	122	196
24	Lumber and wood products	780	277	376
26	Paper and allied products	1,399	165	343
28	Chemicals and allied products	1,943	165	412
29	Petroleum refining and related industries	1,422	149	207
30	Rubber and miscellaneous plastics products	311	118	157
31	Leather and leather products	192	39	63
32	Stone, clay, glass, and concrete products	945	19	139
33	Primary metals	1,590	67	269
34	Fabricated metal products	705	40	129
35	Nonelectrical machinery	524	34	101
36	Electrical and electronic machinery	427	19	73
37	Transportation equipment	346	12	56
	Total	13,500	1,681	3,244

the conditions that require any theoretical or arbitrary modification of existing practice. Instead, it represents a reasonable extension of practices currently employed in substantial segments of each industry.

Capital requirements are distributed through the various manufacturing sectors in a manner that strongly reflects the sector's water use characteristics (Table IV–4). The requirements have a loose correlation with output values.

Annual Costs of Industrial Waste Treatment

The total annual cost associated with Scenario 3 is $3.2 billion (Table IV–7). The annual costs consist of O&M, debt service, and replacement. The usual preoccupation with initial capitalization of waste treatment works tends to overshadow the importance of continuing annual costs. Once installed, facilities incur annual costs that over a 20-year period may amount to five times the cost of the initial facilities. At current rates, interest accounts for a large, if not the largest, share of the annual charges. Nearly 40 percent of the annual costs of the waste treatment system modelled can be attributed to interest payments on the outstanding debt. O&M costs account for 35 percent of the annual cost. Major and minor replacements account for the remaining 25 percent.

Unfortunately, there is little evidence available upon which to gauge the rate at which industrial waste treatment works are actually replaced. A 5 percent figure was assumed, the same rate as used in the analysis for the 1972 *Economics of Clean Water*. It is considered reasonable in that it takes into account the rated operating life of components and the demonstrated

industrial preference for short-term application of capital. An interest rate of 7.7 percent was assumed, the same rate used in the 1972 analysis.

Alternative Scenarios

Although the cost analysis and most of the discussion presented here pertain to Scenario 3, which is believed to be most likely to occur, it is important to review results of the other five water use scenarios (Tables IV–8 through IV–12).

The tables reveal that industrial costs in the six scenarios vary considerably. For example, the cost difference between Scenarios 1 and 6 for transportation equipment is 290 percent; for nonelectrical machinery, it is 270 percent. Conversely, textiles show little difference—only 12 percent. The variations may be attributed primarily to the regional distribution of subindustrial categories and to differences in industrial processes within these categories.

Costs of Meeting 1977 Effluent Standards—Existing and Future Plants

The discussion to this point has been confined to existing plants. Of major concern, however, are the total costs of meeting the 1977 standards, including the costs for plants to be constructed between now and 1977.

An initial step in the development of the costs was to expand the capital requirements of existing plants by industry growth and equipment replacement rates. In making the expansion, that water use and industrial growth are assumed to be proportional. In the long run, this linear relationship might not be true, but it

TABLE IV–8
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS
(Scenario No. 1)

SIC code no.	Industry	Total capital costs	Total O&M costs	Total annual costs
			(millions of 1972 dollars)	
02	Animal feedlots	1,125	101	215
20	Food and kindred products	1,273	359	521
22	Textile mill products	597	125	201
24	Lumber and wood products	916	287	403
26	Paper and allied products	1,530	175	369
28	Chemicals and allied products	2,291	175	466
29	Petroleum refining and related industries	1,683	164	234
30	Rubber and miscellaneous plastics products	353	123	168
31	Leather and leather products	192	39	63
32	Stone, clay, glass, and concrete products	1,031	19	150
33	Primary metals	1,773	70	295
34	Fabricated metal products	779	42	140
35	Nonelectrical machinery	583	37	111
36	Electrical and electronic machinery	452	19	77
37	Transportation equipment	417	13	66
	Total	14,995	1,748	3,479

TABLE IV–9
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS
(Scenario No. 2)

SIC code no.	Industry	Total capital costs	Total O&M costs	Total annual costs
		(millions of 1972 dollars)		
02	Animal feedlots	1,125	101	215
20	Food and kindred products	1,271	359	520
22	Textile mill products	595	125	201
24	Lumber and wood products	840	284	390
26	Paper and allied products	1,495	172	362
28	Chemicals and allied products	1,916	164	407
29	Petroleum refining and related industries			
30	Rubber and miscellaneous plastics products	341	122	165
31	Leather and leather products	192	39	63
32	Stone, clay, glass, and concrete products	1,013	20	148
33	Primary metals	1,753	70	293
34	Fabricated metal products	776	41	140
35	Nonelectrical machinery	581	37	110
36	Electrical and electronic machinery	444	19	76
37	Transportation equipment	405	13	64
	Total	14,359	1,726	3,380

TABLE IV–10
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS
(Scenario No. 4)

SIC code no.	Industry	Total capital costs	Total O&M costs	Total annual costs
		(millions of 1972 dollars)		
02	Animal feedlots	1,125	101	215
20	Food and kindred products	1,142	347	492
22	Textile mill products	560	120	191
24	Lumber and wood products	619	259	337
26	Paper and allied products	1,255	154	314
28	Chemicals and allied products	1,549	154	351
29	Petroleum refining and related industries	1,157	133	180
30	Rubber and miscellaneous plastics products	262	108	141
31	Leather and leather products	191	39	63
32	Stone, clay, glass, and concrete products	855	19	128
33	Primary metals	1,403	64	242
34	Fabricated metal products	627	37	117
35	Nonelectrical machinery	460	31	89
36	Electrical and electronic machinery	400	18	69
37	Transportation equipment	271	11	45
	Total	11,876	1,595	2,974

TABLE IV–11
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS
(Scenario No. 5)

SIC code no.	Industry	Total capital costs	Total O&M costs	Total annual costs
		(millions of 1972 dollars)		
02	Animal feedlots	1,125	101	215
20	Food and kindred products	922	320	437
22	Textile mill products	520	114	180
24	Lumber and wood products	509	240	305
26	Paper and allied products	1,046	140	273
28	Chemicals and allied products	1,146	140	285
29	Petroleum refining and related industries	966	120	160
30	Rubber and miscellaneous plastics products	197	92	117
31	Leather and leather products	165	37	58
32	Stone, clay, glass, and concrete products	637	19	100
33	Primary metals	958	55	177
34	Fabricated metal products	515	34	99
35	Nonelectrical machinery	273	20	55
36	Electrical and electronic machinery	321	16	57
37	Transportation equipment	168	8	30
	Total	9,468	1,456	2,548

TABLE IV–12
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS
(Scenario No. 6)

SIC code no.	Industry	Total capital costs	Total O&M costs	Total annual costs
		(millions of 1972 dollars)		
02	Animal feedlots	1,125	101	215
20	Food and kindred products	782	298	397
22	Textile mill products	487	109	171
24	Lumber and wood products	447	227	284
26	Paper and allied products	721	116	207
28	Chemicals and allied products	902	127	242
29	Petroleum refining and related industries	515	93	117
30	Rubber and miscellaneous plastics products	117	65	79
31	Leather and leather products	115	34	48
32	Stone, clay, glass, and concrete products	370	17	64
33	Primary metals	481	42	103
34	Fabricated metal products	471	31	91
35	Nonelectrical machinery	217	16	44
36	Electrical and electronic machinery	238	14	44
37	Transportation equipment	143	8	26
	Total	7,131	1,298	2,132

should hold for the fairly short 1973–77 period. The national projected growth rates for each industry were obtained from the National Planning Association's National Economic Projections Series (Table IV–13). Replacement expenditures are based on an assumed 20-year life with straight equipment renewal.

The capital investment that must be made by 1977 to meet the effluent standards totals $18.7 billion (Table IV–14). The capital to be added (the difference between the total and the capital in-place) is $11.8 billion, of which about 40 percent is expected to be in new plants. The total annual costs, including interest and replacement, is estimated to be $4.5 billion.

The capital requirements were assumed to be invested evenly over the 1973–77 period. While some industries invested in 1972 a greater percentage of the capital needed, none is spending the average amount needed to achieve 1977 standards (Table IV–14).

TABLE IV–13
PROJECTED GROWTH RATES FOR SELECTED INDUSTRIES (1973–1977)*

SIC code no.	Industry	% increase, 1973–1977
02	Animal feedlots	10.0
20	Food and kindred products	18.3
22	Textile mill products	23.3
24	Lumber and wood products	20.3
26	Paper and allied products	19.5
28	Chemicals and allied products	18.4
29	Petroleum refining and related industries	16.7
30	Rubber and miscellaneous plastics products	18.1
31	Leather and leather products	11.2
32	Stone, clay, glass, and concrete products	11.9
33	Primary metals	11.8
34	Fabricated metals	17.5
35	Nonelectrical machinery	23.1
36	Electrical and electronic machinery	23.1
37	Transportation equipment	18.3

*Scott, Graham C. **U.S. Economic and Demographic Projections: 1972–1981. National Economic Projections** (Report No. 72-N-2). National Planning Association, Washington, D.C. January 1973.

TABLE IV–14
COSTS FOR EXISTING AND PROJECTED PLANTS TO MEET 1977 EFFLUENT STANDARDS
(Scenario No. 3)*

SIC code no.	Industry	Total capital needed by 1977	Total O&M costs	Total annual costs	Capital in place 1972	Total capital to be added by 1977	Average capital expenditures needed per year	Capital expenditures 1972†	1972 expenditures as % or average annual needs
		(millions of 1972 dollars)							
02	Animal feedlots	1,274	113	247	459	815	204	n.a.	n.a.
20	Food and kindred products	1,718	503	721	325	1,393	348	68	24
22	Textile mill products	860	181	290	74	786	196	10	5
24	Lumber and wood products	1,123	399	541	n.a.	n.a.	n.a.	n.a.	n.a.
26	Paper and allied products	2,006	237	492	597	1,409	352	149	42
28	Chemicals and allied products	2,761	234	585	1,194	1,567	392	214	55
29	Petroleum refining and related industries	1,991	209	290	892	1,099	275	189	69
30	Rubber and miscellaneous plastic products	441	167	223	86	355	89	31	35
31	Leather and leather products	259	53	85	n.a.	n.a.	n.a.	n.a.	n.a.
32	Stone, clay, glass, and concrete products	1,269	26	187	146	1,123	281	43	15
33	Primary metals	2,133	90	361	763	1,370	342	119	35
34	Fabricated metal products	994	56	182	392	602	105	42	40
35	Nonelectrical machinery	774	50	149	171	603	151	53	35
36	Electrical and electronic machinery	631	23	108	159	472	118	36	31
37	Transportation equipment	491	17	79	211	280	70	62	89
	Total	18,725	2,363	4,540	5,469	11,874	2,923	1,016	33

* Including capital needed for treatment facilities at new plants as well as existing plants.
† Based on **Annual McGraw-Hill Survey of Pollution Control Expenditures,** 5th and 6th editions.

State and Regional Distribution of Treatment Cost. Costs to industry of meeting the 1977 effluent standards for existing plants are summarized by EPA Regions and States in Tables IV–15 and IV–16. Feedlots are not included in the tables because geographical breakdown is not available. The Regional summary shows considerable variation. For instance, the costs for Region V (see Figure IV–2) are more than 11 times those of Region VIII. These variations are understandable, given the uneven distribution of industrial activity throughout the Nation. Similarly, there is great variation in costs among the States—New York has projected annual costs 75 times those of Nevada or South Dakota.

TABLE IV–15
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS, BY REGIONS
(Scenario No. 3)*

EPA Region	Total capital costs	Total O&M costs	Total annual costs
		(millions of 1972 dollars)	
I	665	99	188
II	1,271	192	356
III	1,391	150	319
IV	1,722	211	438
V	3,095	352	768
VI	1,730	169	343
VII	442	69	124
VIII	261	41	68
IX	1,041	174	196
X	754	122	218
Total	12,372	1,579	3,018

* Excluding feedlots.

FIGURE IV-2
REGIONAL OFFICES OF U.S. ENVIRONMENTAL PROTECTION AGENCY

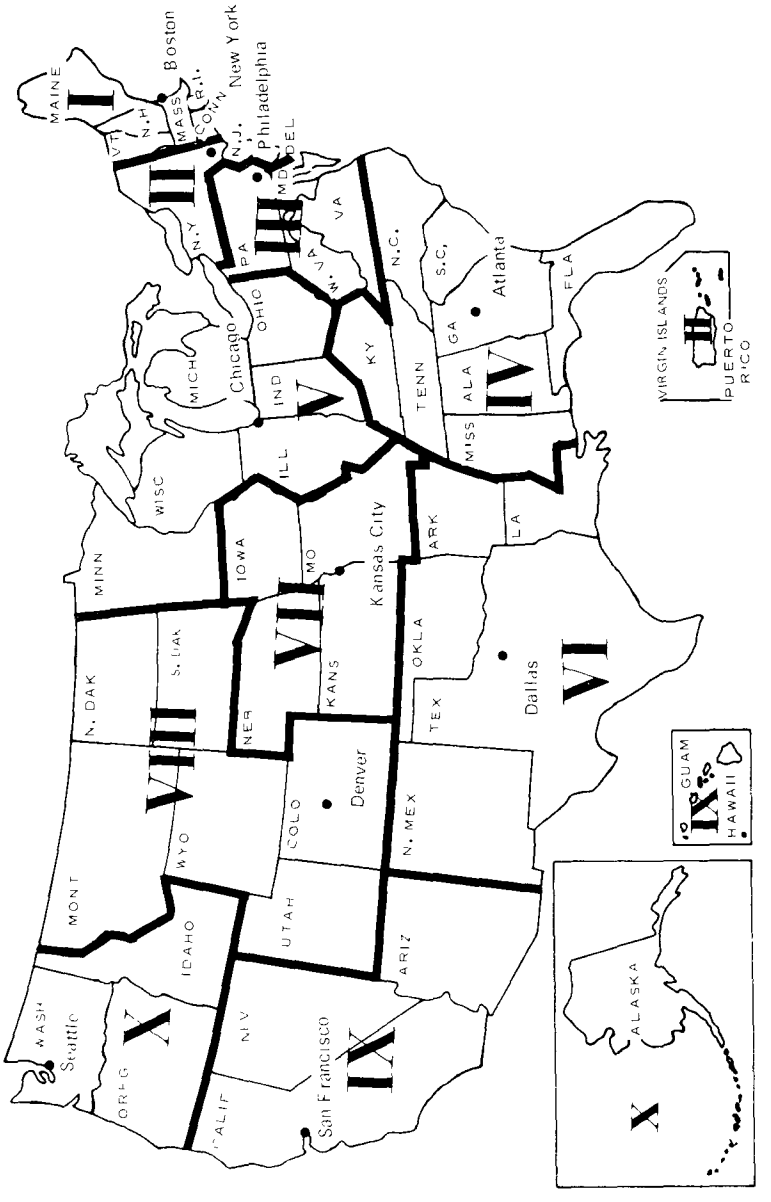


TABLE IV–16
COSTS FOR EXISTING PLANTS TO MEET 1977 EFFLUENT STANDARDS, BY STATES
*(Scenario No. 3)**

State	Total capital costs	Total O&M costs	Total annual costs
		(millions of 1972 dollars)	
Alabama	217	24	53
Alaska	29	8	12
Arizona	50	7	7
Arkansas	102	13	28
California	936	160	172
Colorado	87	13	24
Connecticut	136	19	36
Delaware	47	5	10
District of Columbia	4	1	1
Florida	270	32	68
Georgia	290	36	74
Hawaii	40	4	9
Idaho	66	10	18
Illinois	800	91	187
Indiana	351	38	80
Iowa	116	16	32
Kansas	77	12	22
Kentucky	138	18	34
Louisiana	402	39	86
Maine	118	14	29
Maryland	123	18	33
Massachusetts	269	44	79
Michigan	604	71	148
Minnesota	162	27	48
Mississippi	127	15	31
Missouri	204	32	59
Montana	60	11	18
Nebraska	45	9	16
Nevada	15	2	3
New Hampshire	60	8	16
New Jersey	519	67	130
New Mexico	33	4	9
New York	755	126	223
North Carolina	305	41	80
North Dakota	13	3	6
Ohio	856	80	189
Oklahoma	81	13	24
Oregon	300	48	88
Pennsylvania	968	96	216
Rhode Island	59	10	18
South Carolina	168	18	40
South Dakota	9	2	3
Tennessee	207	25	52
Texas	1,113	98	207
Utah	62	8	16
Vermont	24	3	7
Virginia	172	22	44
Washington	359	58	103
West Virginia	86	10	23
Wisconsin	324	47	90
Wyoming	30	4	8
Total†	12,388	1,580	3,009

*Excluding feedlots.
†Totals differ slightly from those in Table IV–15 due to rounding.

The percentage breakdowns of the national totals for industrial wastewater treatment capital costs, total industrial capital costs, industrial wastewater treatment annual costs and value added by manufacturer are shown in Table IV–17 by EPA Regions and in Table IV–18 by States.

While no direct relationship necessarily exists, those areas with a larger share of capital requirements for pollution control than of capital expenses in general might encounter a greater burden in diverting capital to the construction of pollution control facili-

TABLE IV-17
% DISTRIBUTION (BY EPA REGIONS) OF COSTS AND VALUE ADDED
(Scenario No. 3)

EPA Region	Indusrial waste-water treatment capital costs*	Total industrial capital costs†	Industrial waste-water treatment annual costs*	Value added by manufacturer†
I	5.5%	5.4%	6.1%	6.9%
II	10.3	11.4	11.7	14.0
III	11.3	11.2	11.0	11.6
IV	14.0	15.1	14.1	12.5
V	24.9	30.5	24.6	30.1
VI	13.9	10.3	11.7	6.6
VII	3.5	3.4	4.3	4.7
VIII	2.1	1.1	2.5	1.3
IX	8.4	8.4	6.3	9.5
X	6.0	2.8	7.3	2.7

*Derived from Table IV-15.
†**Statistical Abstract of the United States**, Department of Commerce. 1972.

ties. Examples of areas with this characteristic are Regions VIII and X, as well as the following States:

Alaska	New Mexico
Hawaii	Oregon
Idaho	South Dakota
Maine	Vermont
Montana	Washington

Other areas might encounter less of a burden of diverting capital to construction of pollution control facilities, given the capital cost and overall level of investment. Regions II, IV, and V fall into this category, as well as the following States:

Arizona	Michigan
Connecticut	New York
Indiana	North Carolina
Iowa	Ohio
Kentucky	Tennessee
Maryland	Virginia

A similar comparison can be made between annual costs of pollution control and value added by industry. In those areas with relatively higher annual pollution control costs than value added, there may be greater changes in wages, prices, and dividends than in other areas. Areas with relatively high annual pollution control in comparison with value added are Regions VI, VIII, and X, as well as the following States:

Alaska	Montana
Hawaii	New Mexico
Idaho	Oregon
Louisiana	Washington
Maine	Wyoming

Those with relatively high value added in comparison with annual costs are Regions II, V, and IX, as well as the following States:

Arizona	Maryland
California	Massachusetts
Connecticut	Michigan
Delaware	New York
Indiana	Ohio
Kentucky	Tennessee

TABLE IV-18
% DISTRIBUTION (BY STATES) OF COSTS AND VALUE ADDED
(Scenario No. 3)

State	Industrial wastewater treatment capital costs*	Total industrial capital costs†	Industrial wastewater treatment annual costs*	Value added by manufacturer†
Alabama	1.8%	1.7%	1.8%	1.4%
Alaska	.2	.1	.4	.0
Arizona	.4	.5	.2	.4
Arkansas	.8	.8	.9	.7
California	7.6	7.7	5.7	8.9
Colorado	.7	.7	.8	.6
Connecticut	1.1	1.7	1.2	2.4
Delaware	.4	.3	.3	.4
District of Columbia	.0	.0	.1	.1
Florida	2.2	1.4	2.2	1.4
Georgia	2.3	2.3	2.4	1.8
Hawaii	.3	.1	.3	.1
Idaho	.5	.2	.6	.2
Illinois	6.4	6.7	6.2	7.4
Indiana	2.8	5.2	2.6	3.9
Iowa	.9	1.2	1.1	1.2
Kansas	.6	.5	.7	.8
Kentucky	1.1	1.5	1.1	1.4
Louisiana	3.2	2.5	2.8	1.1
Maine	1.0	.5	1.0	.4
Maryland	1.0	1.4	1.1	1.4
Massachusetts	2.2	2.2	2.6	3.1
Michigan	4.9	6.2	4.9	6.6
Minnesota	1.3	1.4	1.6	1.6
Mississippi	1.0	.8	1.0	.6
Missouri	1.6	1.3	2.0	2.2
Montana	.5	.1	.6	.1
Nebraska	.4	.4	.5	.5
Nevada	.1	.1	.1	.1
New Hampshire	.5	.4	.5	.3
New Jersey	4.2	4.2	4.3	4.7
New Mexico	.3	.1	.3	.1
New York	6.1	7.2	7.4	9.3
North Carolina	2.5	3.4	2.6	2.7
North Dakota	.1	.1	.2	.1
Ohio	6.9	8.9	6.3	7.9
Oklahoma	.6	.6	.8	.5
Pennsylvania	7.8	6.9	7.2	7.3
Rhode Island	.5	.4	.6	.5
South Carolina	1.4	1.6	1.3	1.2
South Dakota	.1	.0	.1	.1
Tennessee	1.7	2.4	1.7	2.0
Texas	9.0	6.3	6.9	4.2
Utah	.5	.2	.5	.3
Vermont	.2	.2	.2	.2
Virginia	1.4	1.7	1.5	1.6
Washington	2.9	1.4	3.4	1.7
West Virginia	.7	.9	.8	.8
Wisconsin	2.6	2.1	3.0	2.7
Wyoming	.2	.0	.3	.1

*Derived from Table IV-16.
†**Statistical Abstract of the United States,** Department of Commerce, 1972.

While no detailed set of effects by Region or State can be developed from the data presented in Tables IV–17 and 18, it is clear that significant differences exist. These differences strengthen the hypothesis that there will be a differential burden among States and regions.

Qualifications

While this assessment is primarily concerned with capital investments, it recognizes that each industry may choose treatment types with higher O&M costs in order to reduce its capital costs. Highly mechanized systems tend to have low annual operational costs, but high initial capital costs. Conversely, less sophisticated systems might be built at lower initial costs, but at the expense of higher operational costs. No effort was made to estimate the optimum balance between these two factors—cost curves depicting average expenditures were used.

Many industries tend to favor waste treatment solutions that minimize capital requirements. Since there are a number of treatment configurations and treatment process combinations that provide equivalent waste control in any given situation, management enjoys considerable latitude in the selection of treatment alternatives. In approaching a possible trade-off between the capital intensive and operationally intensive alternatives, there is reason to favor the latter alternative in those cases that promise capital savings up to—and perhaps even beyond—the point of equal total cost. In such cases, the capital saved may not have to be raised or, if on hand, may be applied to other purposes. Money saved through operating economies, on the other hand, must be accumulated over time to provide the same utility. Available savings, then, are inherently more valuable than potential ones, with the measure of value generally tied to prevailing interest rates. Over the last 3 to 4 years, interest rates have reached high levels not generally seen in the United States since the middle of the nineteenth century. Given the consequent penalty on capitalization and the uncertainty of continued high interest charges, management has a strong incentive to seek out treatment solutions with low capital requirements—even at the expense of otherwise avoidable operational penalties.

In a number of industries, the composition of outputs and the nature of processes may shift rapidly. The operationally intensive alternative may also permit management flexibility. Least-cost solutions that are tied too closely to a particular product or process may carry a high degree of risk. In such circumstances,

management may prefer to accept operating cost disadvantages to ensure flexibility. This is probably most evident in segments of the chemical industry where batch processing persists in order to reduce the impact of process change, even though capital intensive, continuous flow production processes may be more efficient.

Tax structures may provide further reason for selection of the operationally intensive alternative. Taxes are frequently designed to make it more advantageous to accept incremental operating costs, all other things being equal. Materials and labor utilized in operations may be offset in the year of the expenditure, while capital must be amortized over time.

Another qualification is that the capital estimates are based on two simplifying assumptions that may not be valid. One assumption is that new capital equipment can be simply annexed to existing equipment as standards become more stringent. This is not always valid, and it is certain that a portion of the presently available equipment is incompatible with what is required to achieve the 1977 standards. A second assumption is that only 12 of the most efficient and commonly used treatment types (Table IV–3) are used to meet standards. There are other widely used treatment processes, but they were not used in the analysis.

The last qualification is the noticeable difference between actual and planned estimates for water pollution control expenditures (Table IV–19). After adjustment for inflation and capital replacement, the actual expenditures for all industries in 1972 was $1.0 billion. In 1973, industry expects to spend an additional $1.7 billion. This increase in investment—70 percent—will probably not be realized, primarily because some industries are inclined to overstate planned expenditures. For example, the paper and pulp industry spent $135 million in 1971. It predicted that it would spend $252 million in 1972. The actual expenditures for 1972, however, amounted to only $149 million, a small increase over the previous year.

Impacts of Industrial Water Pollution Control

The installation of wastewater control measures by industry will have a number of broad effects on the economy over and above the improvement of water quality. These effects are difficult to define in detail and next to impossible to quantify accurately. They involve complex factors that frequently interact with each other in ways not yet well understood. However, it is important to attempt to identify significant impact areas as accurately as possible. The major areas discussed here are:

TABLE IV–19
ACTUAL VS. PLANNED WATER POLLUTION CONTROL EXPENDITURES FOR SELECTED INDUSTRIES (1971–1976)*

SIC code no.	Industry	Actual 1971	Actual 1972	Planned 1972	Planned 1973	Planned 1976
		(millions of 1972 dollars)				
20	Food and kindred products	58	68	84	123	145
22	Textile mill products	15	10	12	37	38
24	Lumber and wood products	n.a.	n.a.	n.a.	n.a.	n.a.
26	Paper and allied products	135	149	252	444	172
28	Chemicals and allied products	158	214	219	322	345
29	Petroleum refining and related industries	246	189	297	222	486
30	Rubber and miscellaneous plastics products	24	31	30	46	59
31	Leather and leather products	n.a.	n.a.	n.a.	n.a.	n.a.
32	Stone, clay, glass, and concrete products	27	43	55	44	34
33	Primary metals	134	119	114	193	278
34	Fabricated metal products	21	42	55	75	96
35	Nonelectrical machinery	33	53	97	81	119
36	Electrical and electronic machinery	34	36	35	48	49
37	Transportation equipment	47	62	88	83	69
	Total	932	1,016	1,338	1,708	1,890

* Excluding feedlots. Based on **Annual McGraw-Hill Survey of Pollution Control Expenditures,** 4th 5th and 6th editions.

- Municipal treatment of industrial wastewater.
- Impact on energy use.
- Broad environmental effects.

Another area, the economic impact on industry, will be discussed in a later chapter.

Municipal Treatment of Industrial Wastewater. One of the alternatives available to industry for control of water pollution discharges is the use of public (municipal) treatment facilities. According to *Water Use in Manufacturing,* manufacturing operations using more than 20 million gallons per year discharged slightly more than 7 percent of their water to municipal treatment facilities in 1968. This small portion, however, represented more than 20 percent of the total amount of industrial wastewater treated.

Industry's use of municipal facilities varies greatly depending upon the type of industry and its geographic location. Further, there appears considerable variability in the extent of the treatment provided (primary or secondary, for example) by the public authority. Because of these imponderables, it is difficult to determine whether the level of treatment given industry wastes is adequate for 1977 standards.

The use of municipal facilities by industry requires larger public investment in treatment plants and interceptors, as well as higher O&M costs. Conversely, such use permits industries to avoid making capital investments in wastewater treatment facilities and to take advantage of possible economies of scale associated with larger public treatment facilities.

The 1972 Amendments identify some specific requirements for public treatment of industrial wastes:

- Industrial plants discharging pollutants not susceptible to treatment by the municipal plants will be required to pretreat their discharges.
- The costs of providing additional plant capacity for treating industrial wastes are not eligible for Federal grant funding.
- Industries must pay fairly for treatment services rendered, including the costs of interceptor and collector services.

Because of the many factors involved, it is difficult to forecast to what extent industries will use municipal facilities in meeting the 1977 standards. Presuming the decisions will be influenced greatly by economics, the following factors will probably be most significant:

- *Economy of scale.* Larger plants, both municipal and industrial, are generally more efficient in terms of capital and O&M costs.
- *Integrated treatment.* It may be economical to provide full treatment within an integrated industrial plant in those cases where municipalities require industry to pretreat its wastes.
- *Interest rates.* Interest rates on public indebtedness are lower than for the private sector.
- *Interest charges.* There is no interest charged on that portion of the 75 percent Federal grant covering facilities used by industry.
- *Reliability.* A combined industrial-municipal plant should have less variable inflow and may therefore be more reliable.
- *Cost recovery period.* The cost recovery periods used by industry are generally shorter than those of municipalities.
- *Linkage costs.* The costs of connecting an industrial system to a municipal plant—through private facilities or public sewers—may be substantial.

Taking the above factors into consideration, it is reasonable to assume that smaller industrial plants will tend to utilize municipal treatment while larger ones—particularly those discharging toxic wastes—will use private facilities. The figures on industrial capital requirements in this report are based on the assumption that industries using less than 1 million gallons of water per year

will use public treatment plants and those using more than this amount will use private treatment facilities. While there will be exceptions to both assumptions, there should be compensating trade-offs.

Impact On Energy Use. Control techniques currently being applied to treatment systems tend to consume large amounts of energy. When pollution control is installed as an afterthought—as with most existing plants—rather than being designed into an operation as a component activity, the energy efficiency may be relatively low. The greatest impact of industrial wastewater control on energy consumption, therefore, will stem from control of existing plants. The impact will increase with the number of plants controlled and the higher levels of control required.

Generally, the relationship between energy consumption and level of treatment is exponential rather than linear. No attempt is made here to specifically quantify this relationship, primarily because data are not available to support an accurate quantitative analysis. Such an analysis would require detailed information on energy requirements by process for each major industry. EPA is currently attempting to collect such information and it should be available to support future analysis.

To determine the total energy cost of water pollution, one must include the energy inputs required to make the pipes, pumps, and tanks used in the treatment facility. Similarly, one must consider the energy requirements of producing the chemical additives such as chlorine and coagulants.

Despite the problems involved, a recent report estimated that the electrical energy used in providing primary and secondary treatment for *all* wastewater in the United States would be 25 billion kilowatt hours per year, or 1.8 percent of total 1970 electricity use.[7] (About one-third of this energy is for treating residential sewage. The remainder is for treating commercial and industrial wastewater.)

Broad Environmental Effects. Environmental effects of wastewater control include those resulting from the production of energy used in the treatment process and those resulting from ultimate disposal of the residuals removed from the effluent stream.

Industry receives most of its electrical power from plants us-

[7] Hirst, Eric. *Energy Implications of Several Environmental Quality Strategies.* Oak Ridge National Laboratory. ORNL-NSF-EP-53. Oak Ridge, Tenn. July 1973.

ing fossil fuels or nuclear energy. The major environmental residuals produced by plants using fossil fuels are: (1) particulate matter and sulfur oxides in the exhaust gas stream and (2) waste heat that must be removed by transfer to either water bodies or to the atmosphere. Because of inherently lower efficiency, existing nuclear-fueled plants produce more heat than fossil fuel plants of equivalent size. Nuclear plants also pose radiation hazards.

The major environmental problems of wastewater treatment, however, are concerned with disposal of the materials removed from the effluent stream. These materials are broadly classified as sludge and range from thick liquids to semisolid and solid masses. Sludge is primarily disposed of as solid waste, but in certain cases it can be used for other purposes. For example, the residual materials from brewing are used in animal feeds. Sludge can be used as fertilizer, but the hazardous materials such as heavy metals often present in industrial sludges may prevent their use as fertilizer.

Incineration of sludge reduces the quantity of material requiring disposal and also sterlizes the material by killing pathogens. However, improperly controlled incineration can be a significant source of air pollution, primarily particulate matter. Incineration may be inappropriate if the sludge contains heavy metals or other hazardous materials.

Residuals from wastewater treatment that cannot be incinerated are frequently disposed of on land. Unless proper procedures are followed, such disposal can damage the environment. As the quantities of sludge increase and as land disposal becomes more costly, it will become more economic for industry to attempt to recycle the material in some way.

It appears that imposition of stringent effluent standards on waterborne residuals without consideration of airborne and solid waste residuals would merely change the character of environmental problems rather than solve them. Consequently, control of industrial pollution must focus on an integrated scheme that considers the total cost imposed on the industry and the environmental gains.

Thermal Costs

Waste heat in the form of thermal water discharges is now recognized by Federal law as a pollutant.[8] As such, it is subject

[8] Section 502(6), Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500).

to control along with BOD, suspended solids, and other types of pollutants. The more important provisions of the 1972 Amendments concerning thermal discharges are:

- Studies of effects and methods of control of thermal pollution are required, Section 104(t).
- Best practicable treatment effluent limitations are required by mid-1977, Section 301(b)(1)(A).
- Best available treatment effluent limitations are required by mid-1983, Section 301(b)(2)(A).
- Effluent limitations to attain and maintain water quality are required, Section 302(a).
- Thermal water quality criteria must be established or revised for all navigable waters, Section 303(a).
- Water quality limited segments must be identified for thermal discharges, and thermal load allocations must be established where effluent limitations are not stringent enough, Section 303(d).
- Thermal water quality guidelines are required, Section 304(a).
- Thermal effluent limitation guidelines are required, Section 304(b).
- Applications for waiver of too stringent thermal effluent limitations must be reviewed and acted upon, Section 316(a).
- Thermal discharge standards of performance for new sources must be promulgated, Section 306(b)(1)(B).
- State certification for a thermal discharge is required, Section 401.
- Thermal discharge permit is required, Section 402(a).
- Thermal discharge pretreatment standards must be promulgated, Section 307(b).

These provisions, while applying to all types of thermal pollution, place major emphasis upon pollution resulting from industrial activity. This section of the report analyzes industrial thermal impacts, especially the costs of controlling thermal pollution from utility steam-electric generating plants. Thermal pollution from other plants is not included primarily because thermal guidelines for their operations have not been drafted, and adequate costs data are not available. The omission does not negate the value of the analysis, however, since electric utilities account for 80 percent of all cooling water used in the Nation.

Sources of Industrial Thermal Pollution

Approximately 50 trillion gallons of water were used for cooling

and condensing purposes in the United States in 1968. That was roughly 12 percent of the total flow in the Nation's streams and rivers and accounted for nearly 80 percent of the total water used by American industries. The 50 trillion gallons are broken down as follows: [2,9]

Steam-electric power plants (utilities)	80%
Electric power generation—in-house (industrial)	6%
Industrial processes	14%
	100%

Six large industrial users of cooling water—other than utilities with steam-electric generating plants—are listed in Table IV–20. The six used 52 percent of the industrial water used for air conditioning, 79 percent of the water used for steam-electric power generation, and 84 percent of the water used for other cooling purposes. Although the amount of water used is a valuable indicator of thermal pollution, a complete evaluation must examine other factors such as total heat outputs and discharge temperatures. Also, the characteristics of the receiving bodies of water must be taken into consideration.

None of the Federal/State water quality criteria on temperature allows receiving waters to be raised above 100° F. Since high temperature discharges could result in temperature increases exceeding this limit (or a lower required limit), the Refuse Act Permit Program applications for EPA Region IV were searched for high temperature discharges. Those exceeding 110° F are displayed in Table IV–21. The list suggests that a number of industries, other than those using large volumes of cooling water, may present thermal pollution problems.

Assessment of the cost of abating industrial thermal pollution (other than that associated with public utility power plants) is not presently possible, since effluent limitations have not been established. In addition, identification of the magnitude of the problem is complicated by a number of factors, including the wide variation in industrial processes, the possibility of process changes that could reduce thermal outputs, and the degree of thermal pollution abatement resulting during treatment of other pollutants.

A partial cost could be estimated by computing the costs of abating industry's in-house generation of electric power. Such computations would be difficult to make, however, because of the

[9] Parker, F. L. and P. A. Krenkel. *Thermal Pollution: Status of the Art.* Nashville, Tenn. 1969. p. 1–2.

TABLE IV–20
COOLING WATER USED BY SELECTED INDUSTRIES (1968)*

SIC code	Industry	Air conditioning	Steam-electric power generation	Other cooling	Total use	Use for cooling as percent of total
			(billions of gallons)			
2621	Paper mills, except building paper	8	248	97	1,194	30%
2631	Paperboard mills	8	141	107	722	15
281	Industrial chemicals	30	613	2,075	3,368	65
282	Plastics materials and synthetics	56	61	372	635	59
2911	Petroleum refining	3	167	1,056	1,427	74
331	Blast furnace, basic steel products	25	1,147	2,046	4,392	47
	Six industry total	130	2,377	5,753	11,738	49
	Total all industries	249	3,009	6,877	15,466	
	Six industries as a percentage of all industries	52%	79%	84%	76%	

*Water use measured by intake. Reuse or recirculation not included.
Source: **1967 Census of Manufactures: Water Use in Manufacturing. Bureau of the Census. 1971.** Table 2A, pp. 7:23 to 7:28.

TABLE IV–21
INDUSTRIES DISCHARGING WATER IN EXCESS OF 110° F (EPA REGION IV)*

SIC code	Manufacturing	Number of establishments
20	Food and kindred products	25
22	Textile mill products	41
24	Lumber and wood products	18
25	Furniture and fixtures	13
26	Paper and allied products	30
28	Chemicals and allied products	28
29	Petroleum refining and related industries	7
30	Rubber and miscellaneous plastic products	4
32	Stone, clay, glass and concrete products	7
33	Primary metals	9
34	Fabricated metal products	6
35	Nonelectrical machinery	7
36	Electrical and electronic machinery	2
37	Transportation equipment	3
	Miscellaneous	
144x	Sand	2
491x	Electrical services	21
7211	Hospitals	2
7542	Car washes	2
9711	Military bases	9

*The number and mix of industries exceeding a 110° F discharge temperature may vary considerably among Regions.
Source: EPA's Refuse Act Permit Application computer file 4–12–73.

wide variability of plant size and type of generation (condensing or noncondensing). Also, since 70 percent of the industrial water used for cooling is used for nonpower purposes, only a small part of the total costs would be obtained.

Because of the difficulties in estimating industrial thermal abatement costs and because such costs are relatively small, the remainder of this discussion is confined to utility steam-electric generating plants.

Electric Utility Systems (SIC 491)

Only about one-third of the energy input to steam-electric power plants is converted to electrical energy. The remaining two-

thirds is transferred to the environment, usually by discharging cooling water to receiving waters such as rivers and lakes or to the atmosphere with the aid of a heat rejection device such as a cooling tower.

In a wet cooling tower, water vapor is released to the atmosphere, while in a dry tower it is not. There are very few dry cooling towers associated with power plants in the United States at present because of their relatively high costs. Other heat rejection devices include cooling ponds and canals. Diffusers are sometimes used when heat is discharged directly to the receiving water body. These devices are used to disperse the heat in the receiving water and are not considered a means of heat rejection.

Level of Control

About 74 percent of the generating capacity in 1970 used once-through cooling systems, while 13 percent had cooling towers and 13 percent had either cooling ponds or combination systems (Table IV–22).[10]

However, a much larger percentage of the post-1974 capacity is expected to use either cooling towers or combination systems; cooling towers are already planned for 42 percent of those fossil plants and 33 percent of the nuclear plants.[11]

Economic Analysis. The following economic analysis is adapted from a recent EPA report [12] and is based on a preliminary draft of the water effluent limitation guidelines, which are summarized in Table IV–23. The first section of the analysis estimates the maximum impact of the guidelines, based on the cost of installing mechanical draft cooling towers on all plants included in the 1977 and 1983 standards. The second section predicts the reduction in impact based on the expected number of power plants that will not be required to install cooling towers, due to lack of adverse environmental impact on the receiving waters, lack of land for

TABLE IV–22
COOLING SYSTEMS OF UTILITY STEAM-ELECTRIC GENERATING PLANTS [10]

Type of cooling system	% of 1970 capacity
Once-through (fresh water)	51
Once-through (saline)	23
Cooling pond	7
Wet cooling tower	13
Combination	6

[10] Federal Power Commission. Form 67.

[11] 5/72 FPC Printout of Utility Responses to FPC Order 383–2.

[12] Speyer, James M. *Economic Impact of Proposed Effluent Guidelines—Steam Electric Power Plants.* EPA. November 1973.

construction of a tower, potential adverse impact of salt water drift, or ability to comply with guidelines using less expensive abatement measures.

The maximum impact analysis is based on these major assumptions:

- Demand for electricity will increase by 7.2 percent per year between 1970 and 1980, by 6.7 percent per year between 1981 and 1985, and by 6.6 percent between 1986 and 1990.
- Thermal discharges will be abated by installation of closed cycle cooling systems according to the schedule shown in Table IV–23.
- The cost of closed cycle cooling systems will be equal to the cost of mechanical draft cooling towers.
- Existing plants with cooling towers will incur no additional expense to meet the thermal guidelines.
- Previously planned (before October 1973) expenditures for new plant cooling towers will be considered part of the cost of meeting the thermal guidelines.

TABLE IV–23
PROPOSED EFFLUENT GUIDELINES FOR THERMAL DISCHARGES FROM UTILITY STEAM-ELECTRIC GENERATING PLANTS*

Type of unit	Existing units		Units to be built
	1977	1983	
Large base-load†	No discharge	—	No discharge
Small base-load‡	No limitation	No discharge	No discharge
Cyclic**	No limitation	No discharge	No discharge
Peaking††	No limitation	No limitation	No discharge

*EPA is currently considering several alternative sets of effluent guidelines that would change the date by which various categories of existing power plants would have to comply with the no discharge limitation.
†Units with average boiler capacity factors greater than 0.6 that won't be retired before July 1983; all nuclear units; all units placed under construction after October 1973.
‡Units in plants less than 25 megawatts or in systems with a capacity of less than 150 megawatts.
**Units with capacity factors between 0.2 and 0.6 that won't be retired before July 1989.
††Units with capacity factors less than 0.2.

TABLE IV–24
UNIT COSTS FOR UTILITY STEAM-ELECTRIC GENERATING PLANTS [13]

Item	Costs ($/kilowatt of plant capacity)	
	Fossil fuel	Nuclear
	(1970 prices)	
Capital costs of cooling towers*		
Existing units	15	18
New units	7	10
Capital costs for replacement capacity		
1977 peaking units	90	90
1983 baseload units	170	260
Annual operating costs for replacement capacity		
1977 peaking units	42	42
1983 baseload units	30	12

* Costs of constructing and connecting cooling towers.

Impact on Utilities. The unit cost estimates used in the impact analysis are summarized in Table IV–24.[13] The table shows that the cost of installing cooling towers in the existing plants is about double that for new plants. Table IV–25 shows that the total capitalized expenditures required to implement the guidelines are $9.5 billion for the 1977 standards and an additional $5.8 billion ($15.3 billion total) for the 1983 standards. The guidelines will increase the total capital expenditures of the electric utility industry by 10.0 percent between 1973 and 1977; by 1983 an additional 4.2 percent increase in total capital expenditures will be required.

The utilities will finance the expenditures for pollution control equipment through internal sources (for example, depreciation, retained earnings, tax deferrals), as well as external sources (for example, long-term debt, preferred stock, common stock). The utilities could finance an estimated 36 percent of the (1973–83) capital expenditures through internal financing, while the remainder would have to come from external sources.[14] If the investor-owned utilities were to maintain their current capital structure (typically, 55 percent long term debt, 10 percent preferred stock, and 35 percent common equity), the external financing would be obtained in the following way:

	Financial requirements 1973–83 (billion dollars)
Long term debt	5.4
Preferred stock	1.0
Common equity	2.6
Total	9.0

The key assumption of this analysis is that the utilities will be able to obtain the required external financing. While it is difficult to conclusively prove that the capital will be available, there is no evidence to disprove this assumption. The utilities were able to increase the level of capital investment by 11 percent per year in the 1960's even though the industry's coverage ratio (income before Federal income taxes and interest charges

[13] *Development Document for Proposed Effluent Limitation Guidelines and New Source Performance Standards for the Steam Electric Power Generating Point Source Category,* Burns and Roe, Inc. EPA contract No. 68–01–1512. September 1973.

[14] *Economic and Financial Implications of the Federal Water Pollution Control Act of 1972 for the Electric Utility Industry.* Temple, Barker & Sloane, Inc. Boston, Mass. EPA contract No. 68–01–1582. September 1973.

TABLE IV-25

IMPACTS OF PROPOSED THERMAL EFFLUENT LIMITATIONS ON UTILITY STEAM-ELECTRIC GENERATING PLANTS

Impact	1977 Standards	1983 Standards
Financial effects		
Added capital investment (billions of 1973 dollars)	9.5	15.3
Percent increase (%)	10.0	4.2
Price effects		
Increased revenues per year (billions of 1973 dollars)	2.0	3.0
Price increase (mills/kilowatt-hour)	0.8	0.9
Price increase (% production costs)	6.4	5.8
Price increase (% cost to final user)	3.2	2.9
Capacity penalty		
Total capacity penalty (megawatts electrical)†	8,200	14,900
% of national capacity	1.5	1.9
Fuel penalty		
Total fuel penalty (million tons coal equivalent)‡	18	33
% of national demand for energy	0.5	0.7

*Cumulative effect of 1977 and 1983 standards.
†Total replacement capacity needed to run the cooling towers and to compensate for capacity lost due to increased turbine back pressure.
‡Total increase in demand for nuclear and fossil fuel expressed in million Btu, based on coal having a heat value of 24 million Btu/ton.

divided by total interest charges) fell from 5.11 in 1961 to 3.03 in 1971. The investment required to meet the effluent guidelines will have an insignificant effect on the industry's coverage ratios in 1977 and 1983:

	Coverage ratios	
	1977	*1983*
Without pollution control expenditures	3.06	2.93
With pollution control expenditures	3.00	2.92

In the past, the electric utility industry has been regulated to ensure an adequate rate of return on its common equity. This analysis assumes that the regulatory agencies will allow the utilities to raise prices to recover the increased operating and fixed charges associated with the standards. Therefore, the profitability of the electric utility industry in terms of rate of return on common equity should not be reduced by implementation of the standards. Actually, by realizing a rate of return on the increased investment in pollution control equipment, the total after-tax profits in pollution control will increase:

	Net income after taxes (billion dollars)	
	1977	*1983*
Without pollution control expenditures	6.7	14.2
With pollution control expenditures	7.1	14.9

National Impact. To finance the operating costs and fixed charges associated with the capital investment, the utilities will have to raise the price of electricity. Based on the previously stated assumptions, the total cost to the consumers of electricity

will be $2.0 billion per year by 1977 and $3.0 billion by 1983. The price increase needed to generate the additional revenues will be 0.9 mills/kilowatt-hour by 1983. The importance of this price increase should be evaluated both in terms of its effect on cost of power at the generating plants and on the cost of power to the ultimate consumer. Thus, while the utility industry's production costs will increase 6.4 percent by 1977 and an additional 5.8 percent by 1983, the cost of power to the final user will increase by only 3.2 percent by 1977 and 2.9 percent by 1983.

The increase in the price of electricity will have an effect on the price of other goods and services. The average price increase is expected to be small, however, since purchases of electric power account for only about 0.8 percent of the total value of industrial shipments.[15] While the impact will be larger on the price of products that are power intensive, there are only six industrial classifications in which electric power costs amounted to 5 percent or more of the total value of shipments (Table IV–26). Even if the increased power costs are completely passed on to the final consumer, the final price of the most power-intensive products will increase by less than 0.5 percent.

The water effluent guidelines will impact the community directly through increased prices for electricity and indirectly through price increases for final goods and services. The guidelines would increase the average residents' monthly electricity bill $0.78 by 1977 and $1.25 by 1983.

Installation of cooling towers will require the construction of new capacity to generate power to run the cooling towers and to compensate for the loss of efficiency due to the increase in turbine back-pressure. This analysis assumes that in 1977 the utilities will provide this increased capacity through the construction of gas-turbine units or the postponement of scheduled retirements. However, by 1983 the utilities will be able to construct large fossil and nuclear plants to replace the lost capacity.

The total capacity penalty will be 8,200 megawatts electrical by 1977 and 14,900 by 1983. This projected capacity loss will increase the national demand for generating capacity by 1.5 percent by 1977 and 1.9 percent by 1983.

A fuel penalty is associated with the increased capacity. This penalty results primarily from additional fuel required to op-

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[15] *Possible Impact of Costs of Selected Pollution Control Equipment on the Electric Utility Industry and Certain Power Intensive Consumer Industries.* National Economic Research Associates, Inc. New York. 1972.

erate the closed cycle cooling systems and to compensate for loss of efficiency. The fuel penalty will be approximately the equivalent of 18 million tons of coal by 1977 and 33 million tons by 1983 (total increase in demand for nuclear and fossil fuel expressed in million Btu, divided by a heat value of 24 million Btu/ton). This penalty amounts to an increase in the national demand for energy of only 0.5 percent by 1977 and 0.7 percent by 1983. Thus, the thermal effluent guidelines should not significantly increase the imbalance between national energy demand and domestic supply.

Impact of Legal Exemptions. The above estimates are based on the cost of installing mechanical draft cooling towers on all plants included in the 1977 and 1983 standards (Table IV–23). However, the number of plants that will actually be required to install mechanical draft cooling towers will be considerably less due to the following factors:

- Exemptions under 316(a) where alternative cooling systems are capable of assuring the propagation of a balanced biotic community.
- Exemptions due to lack of land or adverse environmental impact from salt water drift.
- Ability of some power plants to comply with the guidelines by installing less expensive closed cycle cooling systems such as cooling ponds and spray canals.

In order to estimate the number of plants that would fall into each of these categories, it would be necessary to have at least the following information for each plant:

- Feasibility of assuring a balanced biotic community with alternative cooling system.
- Maximum acreage the utility owns that could be made available for closed cycle cooling system.
- Projected concentration of salt water drift.

While at the present time information has not been compiled for the last two factors, an analysis was made of the impact of exemptions under section 316(a) of the 1972 Amendments. The analysis was based on the following assumptions:

- 32 percent of the existing capacity covered under the maximum impact case would have to install cooling towers on 60 percent of the plants' total capacity. The plants could meet water quality standards by operating the cooling towers only 30 percent of the time.

TABLE IV–26
ELECTRICAL POWER COSTS FOR SELECTED INDUSTRIES

SIC code	Industry	Electric power costs as a percent of value of shipments*	Total electric power purchased plus net generation (million kw/hrs)
2819	Atomic Energy Commission plants†	16.26%	29,827.7
3334	Primary aluminum	11.40	53,604.9
3313	Electrometallurgical products	11.01	11,205.7
2812	Alkalies and chlorine	9.35	12,319.0
2813	Industrial gases	9.10	7,050.4
3241	Cement, hydraulic	5.94	8,418.2
	Six-industry total	10.34	122,425.9
	Other industries	0.69	383,395.0
	Total, all industries	0.79	505,820.9

*Self-generated power is evaluated for each industry at the same cost per kilowatt-hour as it pays to buy electric power.

†Only a part of SIC 2819 (industrial inorganic chemicals). Value of shipments by these plants cannot be isolated.

Source: **1967 Census of Manufactures.** Bureau of the Census. **Volume II, Industry Statistics,** Part 1, pp. 28–42; **Volume II, Industry Statistics,** Part 2, p. 28A–9; **Fuels and Energy Consumed, Special Series** MC (67) S–4, p. 18–SR4.

Electric Energy Purchased, Generated and Used, and Maximum Demands, at Major Atomic Energy Commission Installations by Months for 1967 (unpublished table). Federal Power Commission. July 1968.

TABLE IV–27
IMPACTS OF EXEMPTIONS TO PROPOSED THERMAL EFFLUENT LIMITATIONS

Impact	1977 Standards		1983 Standards*	
	Without exemptions	With exemptions	Without exemptions	With exemptions
Financial effects				
Added capital investment (billions of 1973 dollars)	9.5	2.3	15.3	4.4
Percent increase	10.0	2.5	4.2	1.2
Price effects				
Increased revenues per year (billions of 1973 dollars)	2.0	0.5	3.0	0.8
Price increase (mills/kilowatt-hour)	0.8	0.2	0.9	0.3
Price increase (% production costs)	6.4	1.6	5.8	1.8
Price increase (% cost to final user)	3.2	0.8	2.9	0.9

*Cumulative effect of the 1977 and 1983 standards.

- A new plant that is not planning some type of off-stream cooling will have to install cooling towers on 60 percent of its capacity. The plant could meet water quality standards by operating the cooling tower only 30 percent of the time.
- All plants that are currently planning to install cooling towers will be required to operate the cooling tower 60 percent of the time on 100 percent of the plants' capacity.

As shown in Table IV–27, these exemptions would reduce the required capital expenditure from $9.5 billion to $2.3 billion in 1977 and from $15.3 billion to $4.4 billion in 1983. The projected price increase would fall from 3.2 percent to 0.8 percent by 1977 and from 2.9 percent to 0.9 percent by 1983. The exemptions would reduce the cost to the consumer $1.5 billion per year by 1977 and $2.2 billion per year by 1983.

V. NONPOINT POLLUTION

Nonpoint sources of water pollution vary considerably in type and stem from a broad range of human activities and natural causes.* The activities may be divided into five broad categories of agricultural-rural, forestry, construction, mining, and urban. In many areas, pollutants stemming from these activities—including sediments, organic wastes, salts, minerals, acids, and chemicals such as pesticides, herbicides, and fungicides—constitute a problem equal to or exceeding that of point source pollution.

Singly and in combination, these pollutants present a broad range of problems. In many Western streams, dissolved solids present the most pernicious problem. The increasing salinity of the Colorado River, for instance, threatens use of this important water source for agricultural as well as municipal and industrial purposes; most of the salinity stems from nonpoint sources—47 percent from salt springs and other natural sources, and 38 percent from irrigation. In Appalachia and other coal-producing areas, acid mine drainage often constitutes the most intractable problem. An estimated 20,000 acres of lakes and more than 12,000 miles of streams suffer damage from mine discharge or drainage. Sediments and other nonpoint source pollutants similarly present a variety of problems.

As Federal and State pollution control policies have developed, most attention has been directed toward point sources of pollution. Nevertheless, certain States such as Iowa have shown leadership in the control of nonpoint sources. At the Federal level, the 1972 Amendments took initial steps to develop a nonpoint source control program.[1] The Amendments require EPA to develop information on the nature and extent of nonpoint sources of pollution and the means to control such pollution from a range of activities. Similarly, the Amendments require States to submit reports on nonpoint sources of pollution, and regional planning and operating agencies to recommend and develop control programs.

EPA has published the required series of reports on the nature and extent of nonpoint sources of pollution. Four are based on the types of activities that produce such pollution: agricul-

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*Nonpoint sources of water pollution are not defined by the 1972 Amendments. EPA considers all sources to be nonpoint that are not subject to National Pollution Discharge Elimination System permits.

[1] Sections 303(e), 304(e), 305(b), and 208, Federal Water Pollution Control Act Amendments of 1972 (P.L. 92–500).

tural, silvicultural, mining, and urban and rural construction.[2] Three cover unique problem areas that may cut across these types of activities: disposal of pollutants in wells or subsurface excavations, salt water intrusion, and hydrographic modification.[3] A final report covers analytic methods for identifying and evaluating the various sources of nonpoint pollution.[4]

In none of these reports, however, is there significant coverage of control costs and economic impacts. The omission may be attributed primarily to a paucity of reliable information. In an effort to correct, in part, the information deficiency, EPA contracted with Iowa State University to study the costs and impacts associated with two major agricultural pollutants—sediment runoff and nitrogen fertilizer.[5] The remainder of this chapter discusses the results of that study.

The Problem

As the real prices of capital inputs such as fertilizers and equipment have declined, the American farmer has used them widely and intensively, substituting them for both land and labor. As a reflection of these declines, the ratio of the index of fertilizer price to the index of farm crop prices declined from 0.98 in 1940 to 0.64 in 1971. Similarly, the ratio of the farm machinery price to farm labor price declined from 1.19 in 1940 to 0.50 in 1971.

With modern technology and substitution of capital for land, the Nation's relative land supply is greater than at any time in the last 100 years. Cropland has remained relatively constant over the past two decades, but total crop output has increased nearly 40 percent. The same crop output could have been produced under a less intensive production pattern, perhaps reducing the amount of runoff and contamination accordingly. Until

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[2] *Methods and Practices for Controlling Water Pollution from Agricultural Nonpoint Sources,* EPA–430/9–73–015; *Processes, Procedures, and Methods To Control Pollution Resulting from Silvicultural Activities,* EPA–430/9–73–010; *Processes, Procedures, and Methods To Control Pollution From Mining Activities,* EPA–430/9–73–011; *Processes, Procedures, and Methods To Control Pollution Resulting From All Construction Activity,* EPA–430/9–73–007.

[3] *Ground Water Pollution From Subsurface Excavations,* EPA–430/9–73–012; *Identification and Control of Pollution From Salt Water Intrusion,* EPA–430/9–73–013; *Control of Pollution Caused by Hydrographic Modifications,* EPA–430/9–73–017.

[4] *Methods for Identifying and Evaluating the Nature and Extent of Non-Point Sources of Pollutants,* EPA–430/9–73–014.

[5] *Environmental Impacts and Costs in Agriculture in Relation to Soil Loss Restrictions and Nitrogen Fertilizer Limitations.* The Center for Agricultural and Rural Development, Iowa State University. Ames 1973.

1973, however, Federal programs encouraged the trend toward more intensive farming, with an attendant increase in use of chemicals and similar inputs, by guaranteeing prices (coupled with restricting acreage), subsidizing irrigation development, and providing tax advantages.

While chemicals and similar inputs increase productivity, they can also have adverse environmental impacts. One impact is direct—unused fertilizers and organic chemicals flow into streams and underground water supplies. Another major impact is indirect. Fertilizers and pesticides lessen the need for rotational systems, forages, and mechanical practices. Hence, row crops can be grown more intensively and even continuously on the same fields, and the land loses more water and sediment. The sediment not only contaminates streams, but—along with water runoff—it also provides the transport mechanism by which a greater proportion of residual fertilizers and pesticides are carried into streams.

Technological and economic development of agriculture has also had beneficial effects on the environment, because it has resulted in fewer acres farmed and better use of less erosive lands. Substituting machines for animals means that less land is needed for feeding working animals and that tractors are polluting an average of only 500 hours per year compared with animals that generate wastes year-round.

Study Design

The Iowa Study examines supply capacity, productivity, farm income, food prices, and other economic impacts that might prevail under a selected set of environmental policies for agriculture. The study focuses on the year 2000, a period long enough to allow additional domestic and export demands for food to impinge on agriculture and to allow sufficient time for agriculture to adjust to new environmental restraints.

The following basic assumptions were made:

- A free market will exist for commodities included in the analysis.
- Existing technology will be applied increasingly in crop and livestock production.
- Per capita imports of agricultural commodities will be maintained at recent levels.
- The national population will be 280 million in the year 2000 (Bureau of the Census, level D estimate).

The free market assumption permits efficient production of agricultural commodities through crop and livestock allocation and through optimal use of water and land resources. Constraints are imposed on agricultural production, however, in the form of environmental policies, food and fiber demands, and a given land and water resource base.

The study incorporates a number of other general assumptions. First, no unexpected or significant jumps are projected in world demand. Second, land previously or currently idled in land retirement programs can be brought back into production. Finally, no further public development of irrigated lands is assumed beyond 1980.

The main objective of the Iowa study is to estimate agriculture's food-producing capacity under a selected set of environmental restraints. The primary sources of pollution from agriculture include soil erosion, soil salts, livestock wastes, and applied chemicals. Pollutants from these sources include plant nutrients, dissolved salts, toxic chemicals and infectious agents such as coliform bacteria. Except for dissolved salts from irrigation return flows, the pollutants are most often characterized by "slug loads," or large amounts of wastes at irregular time intervals. Slug loads from agriculture include enormous quantities of sediments and plant residues that represent the greatest volume of wastes entering surface waters. These wastes originate primarily from cropland and overgrazed pastures. It has been estimated that agricultural land use results in four to nine times more loss of soil than would occur at natural rates.

The evaluation of the impacts of soil loss and nitrogen fertilizer application is restricted in scope. Only sheet and rill erosion from cultivated lands is analyzed. Sediment yields or the total sediment outflow from a watershed or drainage basin are not considered. Nor did the study include direct analysis of livestock wastes and chemicals such as phosphates, insecticides, and herbicides related to nitrogen fertilizer application.

The basic tool of analysis is a detailed model that measures interrelationships among all commodities, resources, and farming regions.[6] The national model incorporates the resources, commodities, and related outputs of agriculture in 223 farm areas, 51 water supply regions, and 30 over-all commodity markets or consumer demand sets.

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[6] *National Environmental Models of Agricultural Policy Land Use and Water Quality* (GI–32990). Iowa State University under contract to National Science Foundation.

Seven policy models (alternative futures) are specified in the analysis (Table V–1). Four cover soil loss. The Nation's agriculture is first analyzed in the absence of environmental restraints (Model A). The outcomes are then examined with maximum soil loss (gross erosion) over the entire Nation limited first to 10 tons per acre and then to 5 tons (Models B and C). To place these levels in perspective, losses may range from virtually zero for Class I low erosive lands to more than 150 tons for Class VIII excessively erosive lands (Table V–2). Because exports are important in food production patterns as well as in farmer and consumer food prices, an alternative future (Model D) is examined in which food exports are twice the 1969–71 averages used in Models A, B, and C.

The final policy models are evaluated under the restricted nitrogen fertilizer assumption. A base model specifies no restrictions on nitrogen fertilizer application (Model B). Then the outcomes are examined as nitrogen fertilizer is first restricted to an annual maximum of 110 pounds per acre and then to 50 pounds per acre (Models F and G). The 110-pound figure is approxi-

TABLE V–1
ALTERNATIVE FUTURES FOR U.S. AGRICULTURE*

Policy model	Farm policy	Soil loss maximum (per acre)	Exports
Model A	Free market	No limit	Average
Model B	Free market	10 tons	Average
Model C	Free market	5 tons	Average
Model D	Free market	5 tons	High
Model E	Free market with no nitrogen limit	n.a.	Average
Model F	Free market with nitrogen limited to 110 pounds/acre	n.a.	Average
Model G	Free market with nitrogen limited to 50 pounds/acre	n.a	Average

*Assuming a population of about 280 million, the Bureau of the Census, level D estimate for the year 2000.

TABLE V–2
SOIL LOSS FOR AN AGRICULTURAL REGION

Land class/acres	Soil loss					
	Conventional tillage			Reduced tillage		
	Straight row	Contour	Strip	Straight row	Contour	Strip
	(tons/acre/year)					
Class I/1.0 million (no erosion hazard)	5.0	2.5	—	2.9	1.4	—
Class IIE/1.5 million (slightly erosive land)	12.0	6.0	3.0	6.7	3.3	1.7
Class IIIE/1.1 million (moderately erosive land)	38.9	22.5	11.2	21.8	12.5	6.2
Class IVE/0.3 million (marginal cropping land)	53.8	32.2	16.1	30.1	17.7	8.9
Class VI to VIII/0.1 million (excessively erosive land)	167.1	129.1	—	122.6	104.8	—

*Based on a crop pattern of continuous corn rotation in Region 104, located in Iowa.

mately the level of nitrogen applied to corn in 1969. Fruits and vegetables frequently receive higher applications of fertilizer, while most grains receive less.

Soil Loss-Expert Policy Models

Soil loss and farming practices under four alternative policy models are summarized in Table V–3. As might be expected, the average soil loss would be highest, 9.9 tons per acre, under Model A, which does not limit soil loss. The study indicates that with no restrictions on soil loss, soil erosion would average 60 tons per acre per year in certain parts of the South Atlantic Region. The lowest loss, 2.8 tons per acre, would take place with a 5-ton maximum soil loss limitation (Model C). Under this level of control, total soil erosion would be reduced to about 0.7 billion tons per year, a reduction of nearly 2 billion tons, or about 73 percent, from the level of Model A. High exports (Model D) would increase total soil erosion about 16 percent over Model C.

The Nation's food and fiber demands (both domestic and export) and soil loss limitation could be met by adoption of conservation practices such as contouring, strip cropping, and terracing. Compared with the base model (Model A), acreages farmed under conventional straight row tillage would decrease, and acreages farmed under conservation would increase, as the soil loss maximum is first imposed at 10 tons per acre and then lowered to 5 tons per acre.

With exports of grains and oilmeals doubled (Model D), cultivated crop land would increase about 10 percent. The 5-ton soil loss restriction, however, could still be met by further applications of conservation practices. Even with the increase in cultivated

TABLE V–3
EROSION AND ACREAGES UNDER CONSERVATION PRACTICES FOR SOIL-LOSS EXPORT POLICY MODELS

Item (unit)	Model A, no limit	Model B, 10-ton limit	Model C, 5-ton limit	Model D, 5-ton limit and high exports
Erosion per acre (tons)	9.9	4.3	2.8	2.9
Total soil erosion (millions of tons)	2,677	1,132	727	843
Conventional tillage (millions of acres)				
Straight row	234	165	129	134
Contour	11	33	37	43
Strip crop & terrace	3	19	35	45
Reduced tillage (millions of acres)				
Straight row	21	27	25	28
Contour	0	14	19	26
Strip crop & terrace	0	3	14	19
Total under cultivation (millions of acres)	269	261	259	295
Conventional tillage, straight row (%)	87	63	50	45
Conventional tillage, contour, strip crop & terrace (%)	5	20	28	30
Reduced tillage (%)	8	17	22	25

TABLE V–4
LAND AND WATER USE FOR SOIL LOSS-EXPORT POLICY MODELS

Item	Model A, no limit	Model B, 10-ton limit	Model C, 5-ton limit	Model D, 5-ton limit and high exports
		(millions of acres)		
*Total dryland**	283	276	274	310
Total irrigated	31	32	29	30
Unused cultivated lands†	97	105	108	72
		(million acre-feet/year)		
Water consumption	83	83	77	78

*Not including pasture.
†Including unused summer fallow lands.

land, total soil erosion would remain substantially below levels indicated by the no restriction model (Model A).

Land and water use for the four alternative models are summarized in Table V–4. Three points are evident from the results:

- Under all policy models studied, both dryland and irrigated acreages of crops would be less than at present.
- Unused cultivated land (including 25 to 30 million acres of unused summer fallow lands) would be substantially greater than at present.
- Projected increases in water use are only slightly higher than in 1965, the most recent year for which data are available.

Even with a high level of exports (model D), the Nation's land and water resources would not be strained. In fact, acreages used for crops would decline under a soil loss limitation because of:

- Changes in land use—that is, shifts to higher yielding lands.
- Higher yields of crops resulting from reduced tillage and treatment practices such as contouring and strip cropping.

Should supply control programs be relaxed in accordance with the assumptions of the study, crop production would shift to the more productive soils and regions of the Nation. Hence, total land use for agriculture (including irrigated acreage) would be reduced, and unused land (including 25 to 30 million acres of unused summer fallow lands) would approach levels substantially higher than at present. In addition, a large amount of relatively unproductive land currently used for pasture (such as permanent pasture, public grazing lands, and woodland pasture) would remain unused under these policy models. The large amounts of unused cultivated lands, however, pose important

TABLE V–5
FARM PRICES FOR SELECTED CROP AND LIVESTOCK PRODUCTS FOR SOIL LOSS-EXPORT POLICY MODELS

Item	Model A, no limit	Model B, 10-ton limit	Model C, 5-ton limit	Model D, 5-ton limit and high exports
Crop prices				
Corn	100	100	107	113
Wheat	100	99	103	114
Soybeans	100	101	115	162
Cotton	100	100	112	112
Hay	100	99	101	110
Livestock product prices				
Cattle and calves	100	100	104	110
Hogs	100	100	105	112
Milk	100	100	100	103
Income (returns)				
Land, labor, and water	100	98	99	131
Other	100	101	104	113
Overall	100	100	103	117

problems for national policies on agricultural controls and farm prices.

Farm prices under the alternative soil loss-export policy models are summarized in Table V–5. Up to this point, the general conclusion has been that a nationwide soil loss limitation would not have much impact on agricultural output and prices. The results summarized in the table would further support this conclusion. Agricultural production and unit prices under the soil loss models are shown in Table V–6 and resource use or values in Table V–7. Although the model doesn't deal explicitly with the way farm income is distributed among producers and with prices of various categories of agricultural land, one can expect soil loss limitation policies to have a very significant impact on localized areas.

With a 10-ton maximum soil loss (Model B), farm prices (crops and livestock) and, hence, food costs would not change significantly. Net farm income, measured as the return on land, labor (including hired labor) and water would decrease slightly. The response to this decrease would generally be to substitute inputs such as fertilizer and equipment for land, labor, and water.

With a 5-ton maximum soil loss (Model C), farm prices would increase, but by a low percentage. Soybeans would experience the highest increase—15 percent. Net farm income under the 5-ton limit would be nearly the same as without a restriction. Much greater increases in farm prices, implied food costs, and net farm income would result with a combination of high exports and 5-ton maximum soil loss limitation (Model D). The price of soybeans, for instance, would increase by 62 percent.

TABLE V–6
FARM PRICES FOR SELECTED CROP AND LIVESTOCK PRODUCTS FOR SOIL LOSS-EXPORT POLICY MODELS

Item (unit)	Average 1969–71 [1]			Projected 2000 [2]					
						Unit price			
	Production	Value of production	Unit price	Production	Value of production	Model A, no limit	Model B, 10-ton limit	Model C, 5-ton limit	Model D, 5-ton limit and high exports
	(million)	(millions of $)	($)	(millions)	(millions of $)		($)		
Corn (bushels)	4,741	5,540	1.17	6,520	5,650	0.86	0.86	0.92	0.97
Wheat (bushels)	1,490	1,937	1.29	1,916	2,267	1.18	1.17	1.22	1.34
Soybeans (bushels) [3]	1,203	3,318	2.71	2,117	2,768	1.30	1.31	1.50	2.10
Cotton (bales) [4]	10	1,205	0.23	10	818	0.16	0.16	0.18	0.18
Hay (tons)	129	3,158	26.36	249	5,903	23.69	23.41	24.02	26.12
Other crops [5]	—	1,800	—	—	3,996	—	—	—	—
Beef cows (head)	36	—	—	82	—	—	—	—	—
Beef feeding (head) [6]	25	10,924	27.42	61	18,752	24.85	24.86	25.72	27.26
Dairy cows (head) [7]	12	6,751	5.68	8	3,679	3.21	3.21	3.21	3.32
Hogs (hundredweight) [8]	20	4,502	20.79	31	4,643	14.94	14.93	15.66	16.66

[1] Sources: U.S. Department of Agriculture, **Agricultural Statistics, 1972**; U.S. Department of Agriculture, **Cattle on Feed**, January 1973.
[2] Values are expressed in 1970 dollars and do not take into account inflation from 1970 to 2000.
[3] Includes cottonseed in soybean equivalent.
[4] Unit price is per pound of cotton.
[5] Includes sorghum grain, barley, oats, corn, and sorghum silage and pasture. A common unit cannot be used. Pasture not included in average 1969–71 values.
[6] Value and price are for all cattle and calves, including dairy. Price is in liveweight equivalent.
[7] Values and prices represent hundredweight milk production.
[8] Unit price is liveweight equivalent.

Fertilizer Limitation Policy Models

Use of land and water under the three alternative nitrogen fertilizer limitation policy models is summarized in Table V–8. Restricting nitrogen fertilizer use would result in a substitution of land and water for fertilizer, with a resulting increase in use of both land and water. Unused land, not including unused summer fallow lands, would drop from around 51 million acres with no restriction (Model E) to about 13 million acres with a 50-pound limit (Model G). The 110-pound nitrogen limitation would not strain the Nation's agricultural capabilities under the food and fiber demand implied under these three policy models. The total land use for agriculture would actually remain below 1971 levels. Even under a 50-pound limit, some unused land (not including unused summer fallow lands) would remain for further substitution or other uses. Compared with no limit, the 50-pound limit would result in 14 percent more land being used, a reduction in unused land by nearly 75 percent, and an increase in water consumption of about 5 percent.

With a 110-pound limitation, crop prices would increase by less than 12 percent, and livestock by less than 4 percent (Table V–9). Net farm income would be higher, but so would consumer food costs. Farm prices would be substantially higher under a

TABLE V–7
RESOURCE USE FOR SELECTED CROP AND LIVESTOCK PRODUCTS FOR SOIL LOSS-EXPORT POLICY MODELS

Item	Land	Water	Labor	Feed	Other*	Total†
			(millions of 1970 dollars)			
Model A—no limit						
Row crops	2,770	51	910	0	7,161	10,892
Close grown crops	894	23	293	0	2,412	3,622
All hay	1,188	81	467	0	3,523	5,259
Pasture	780	7	0	0	866	1,653
Beef cows	0	5	1,350	7,175	3,251	11,781
Beef feeding	0	3	167	4,053	1,663	5,886
Dairy	0	0	916	1,648	2,106	4,670
Hogs	0	0	523	2,067	2,054	4,644
Total	5,632	170	4,626	14,943	23,036	48,407
Model B—10-ton limit						
Row crops	2,599	47	873	0	7,223	10,742
Close grown crops	849	23	291	0	2,409	3,572
All hay	1,121	87	487	0	3,665	5,360
Pasture	820	7	0	0	866	1,693
Beef cows	0	5	1,351	7,161	3,274	11,791
Beef feeding	0	3	167	4,054	1,662	5,886
Dairy	0	0	916	1,652	2,107	4,675
Hogs	0	0	522	2,066	2,055	4,643
Total	5,389	172	4,607	14,933	23,261	48,362
Model C—5-ton limit						
Row crops	2,876	44	872	0	7,433	11,225
Close grown crops	782	16	284	0	2,273	3,355
All hay	1,225	69	512	0	3,929	5,735
Pasture	744	2	0	0	953	1,699
Beef cows	0	3	1,347	7,294	3,323	11,967
Beef feeding	0	3	161	4,325	1,733	6,222
Dairy	0	0	906	1,745	2,049	4,700
Hogs	0	0	527	2,272	2,071	4,870
Total	5,627	137	4,609	15,636	23,764	49,773
Model D—5-ton limit and high exports						
Row crops	4,723	32	972	0	8,878	14,605
Close grown crops	1,370	17	336	0	2,723	4,446
All hay	1,744	91	535	0	4,049	6,419
Pasture	882	2	0	0	867	1,751
Beef cows	0	3	1,345	7,804	3,518	12,670
Beef feeding	0	2	166	4,696	1,724	6,588
Dairy	0	0	907	1,897	2,096	4,900
Hogs	0	0	530	2,552	2,100	5,182
Total	8,719	147	4,791	16,949	25,955	56,561

* Includes all other costs not itemized.
† Water used by exogenous crops (fruits and vegetables, for example) and water and feed used by exogenous livestock (broilers, sheep, and lambs, for example) are not reported.

TABLE V–8
LAND AND WATER USE FOR NITROGEN FERTILIZER POLICY MODELS

Item	Model E, no limit	Model F, 110-lb limit	Model G, 50-lb limit
		(millions of acres)	
Total dryland *	255	265	292
Total irrigated	26	26	27
Unused cultivated lands †	51	41	13
		(million acre-feet/year)	
Water consumption	92.0	92.4	96.6

* Not including pasture, orchards, vegetables, and other miscellaneous crops.
† Not including unused summer fallow lands.

50-pound limit than under either no limit or a 110-pound limit, crop prices increasing up to 50 percent and livestock prices up to 28 percent. Resulting net farm income and food outlays also would rise substantially.

Implications For Farm Programs

Restrictions on soil loss and fertilizer use hold important economic implications for farm incomes, commodity supplies, and environmental control programs. To examine these implications, one first has to look at the demand and supply considerations associated with farm products.

Demand for agricultural commodities is basically inelastic. Thus, if farm production is increased by a given percentage, the price received will decrease by a greater percentage; or conversely, should production fall off by a certain percentage, the price received would increase by a greater percentage. Expressed in different terms, farm incomes will increase with reduced production and fall with increased production.

Without price guarantees, farm incomes in the aggregate are not increased by applying fertilizers and other inputs that increase productivity, because the increased production is offset by lower prices. Since no producer is so large that he can significantly influence market prices by his own actions, there is always an incentive to increase production efficiency.

Government farm programs used in recent years to reduce acreage and limit outputs were designed to maintain farm incomes by keeping supplies at a fixed level in relation to demand. Generally, the programs have kept farm income higher than would have been the case in their absence. The same logic has underlain the government programs to increase exports. Exporting a given percentage of commodities (hence removing them from domestic markets) would result in a larger percentage price increase, at least for those commodities sufficiently protected from world market prices.

Of course, as more individual farmers use advanced technologies and increase output in a free market situation, market prices will fall by a greater proportion, and total farm income will be reduced accordingly. In the absence of farm supply control programs that materially affect total crop output (and thus maintain higher prices), the individual farmer will be worse off unless he continually uses new technologies and produces more to sell at the reduced prices.

Farm production could also be controlled, at least in part,

TABLE V–9
FARM PRICES FOR SELECTED CROP AND LIVESTOCK PRODUCTS FOR NITROGEN FERTILIZER POLICY MODELS

Item	Model E, no limit	Model F, 110-lb limit	Model G, 5-ton limit
Crop prices			
Corn	100	109	150
Wheat	100	106	147
Soybeans	100	104	136
Cotton	100	112	151
Hay	100	102	124
Livestock product prices			
Cattle	100	102	120
Hogs	100	104	128
Milk	100	102	113

through environmental programs that restrain production. Essentially, farm programs have restricted output by taking part of the Nation's cropland out of production. Some combination of lower productivity and utilization of idle land could restrict available supplies in a manner similar to the land restriction program. Environmental protection measures might be phased in as control programs are eliminated.

The Iowa study reveals that a surplus of land will continue to exist to the year 2000 under the 1969–71 average level of exports. This reserve capacity could be used in combination with environmental protection measures (such as restrictions on fertilizer use) in place of existing government supply control programs.

Such a program is not only possible, but, if designed properly, would result in an efficient use of resources. One reason for the overuse of chemical fertilizers and row cropping is that market prices do not reflect the social cost of their use. Prices reflect neither the cost of eutrophication that may result from the buildup of nitrates nor the adverse effects of sedimentation on recreation and on certain species of fish and wildlife. At this time it is impossible to determine the most efficient combination of inputs, because the full social costs cannot be measured in dollars. It is possible, however, to indicate the potential benefits of an environmental control program and its economic impact.

Reduced Erosion. Results of the study indicate that agriculture has the opportunity to contribute to an improved environment. In general, they indicate that a nationwide soil-loss limitation would have only minor impacts on land and water resource use, farm prices, food costs, and net farm incomes. Soil erosion, however, would be reduced considerably with an attendant improvement in water quality. This reduction would be possible at relatively small cost to farmers, as a group, if adequate time for

adjustment were allowed. The reduction would be affected through changes in crop rotations and the adoption of conservation tillage practices such as contouring and strip cropping. Individual farmers, however, may be reluctant to switch from conventional practices for a number of reasons. Reduced tillage practices, as compared to conventional practices, would in most cases, require new or different equipment. Also, weed control can become a problem, and colder soil temperature (which results from reduced tillage) sometimes delays seed germination. Over time, though, it is expected that farmers could make the necessary adjustments.

A doubling of exports over the 1969–71 average would have a much greater impact on resource use, farm prices, food costs, and net incomes than the adoption of a nationwide soil loss limitation. With higher exports, total soil erosion also would increase. But even if the higher level of exports were combined with a soil loss limitation, total soil erosion could still be held to reasonable levels.

Nitrogen Fertilizer Limitations. The results of the study indicate that a mild restriction on the use of nitrogen fertilizer (such as 110 pounds per acre per year) would not strain land and water resources. The substitution of water and land (mostly land) for fertilizer under a 110 pound nitrogen limit would still leave a considerable amount of surplus land and water to meet possible increases in demand. Also, the restriction would result in farm prices above those experienced without a restriction.

With nitrogen fertilizer limited to 50 pounds per acre, the reserve supply capacity of U.S. agriculture would be reduced considerably—nearly 75 percent. Farm prices and consumer food outlays, however, would be expected to increase, some by as much as 50 percent.

Income Distribution and Equity Effects. Environmental control measures that lessen output can increase gross farm income because demand for the basic agricultural commodities is inelastic. This does not mean, however, that all groups of farmers would benefit or have their income protected. The results of the study indicate that certain types and levels of environmental protection measures would have greatly different effects in different regions. Some regions have topography that would not be affected greatly by soil-loss limits. Also, some regions have climatic conditions and crop adaptation that permit meeting crop nitrogen requirements through natural processes of

nitrification—the summer fallow wheat areas of the Great Plains, for example. In contrast, certain areas of the Southeast have crop farming on hilly and erodable land. Production from these areas is greatly dependent upon the amount of chemical fertilizer applied. Limits on nitrogen fertilizer application in these areas could reduce crop yields by a greater percentage than offsetting percentage price gains resulting from environmental protection measures or government supply control programs. Agricultural regions based entirely on semiarid grazing lands and beef production generally are not faced with reduction in crop yields and output as environmental measures are taken. Some, however, would face greater competition from those regions that would be forced to incorporate more forages into their rotations (or sod-based rotations) as a means of attaining environmental standards.

Imposition of soil loss and nitrogen application limits would not reduce total national farmer receipts if two conditions were met:

- The farmer's level of production is not lower than under the land retirement programs.
- The farm community must receive payments equal to what it formerly received for removing land from production.

However, income effects would vary widely among the 223 farm regions delineated in the study. Not all of them possess the characteristics needed to have their income improved or maintained under conditions of prevailing farm programs or a free market situation.

Adoption of environmental measures that would just offset and replace government supply control programs would still have a differential effect among regions. As might be expected, areas using little nitrogen fertilizer and having soils and climate causing little soil loss would realize more income, as well as windfall gains in the form of higher land values. Conversely, those areas with yields affected materially by shifts in land use and reduced nitrogen would have less income, even though total revenue would remain constant at the national level.

VI. BENEFITS FROM WATER QUALITY ENHANCEMENT

Introduction*

Meeting the water quality goals set by the 1972 Amendments will require expenditures by Federal, State and local governments and by private industry. Given the cost involved, it is important to know what will be received in return, what will be the economic value of enhancing the quality of water resources, and in which locations and for what purposes will abatement efforts be most valuable.

The purpose of estimating benefits is to infer the economic value of pollution control. The market value of most goods and services and factors of production is known by their market prices—that is, the amount that someone is willing to pay for their use. However, normal market transactions are not usually available for valuing water quality. Therefore, the value must be imputed indirectly as it affects the costs of producing goods or the demand for water-related activities. The estimation of benefits is an effort to identify how much water users would be willing to pay for an amount of water quality enhancement if a market existed. For example, consumers would be willing to pay for increased pleasure in recreation uses, and industry and municipalities would be willing to pay to avoid the costs of treating water before they use it.

Estimating benefits at a particular site requires four sequential steps:

- The abatement plan must be specified in terms of the amounts and types of pollutants to be reduced.
- The impact of the abatement plan on the parameters of watercourse quality must be predicted.
- The impact of changes in the parameters on water uses must be estimated.
- The economic value of induced changes in the level of uses and in the increased value of existing uses, plus cost savings because of improved water quality, must be identified.

The first step is required because a benefit study is useful only if estimated benefits can be compared to the costs that produced

* For a more theoretical and comprehensive discussion of the issues in benefit analysis by EPA, see *Techniques for Cost and Benefit Analysis of Water Pollution Control Programs and Policies*, report to Congress in compliance with Public Law 92–500. January 1974.

them. A benefit study is undertaken at a site to compare the value of abatement with the costs of abatement. The effluent guidelines, established under the 1972 Amendments, become the abatement plans. And the projected total effluent releases must be compared to the present level of effluent releases in order to obtain a measure of abatement. The first step is probably the least difficult once the guidelines are established, although the content of some presently released effluents, particularly industrial wastes, is not completely known. Abatement can reduce release of a combination of pollutants such as oxygen-demanding organic wastes, suspended and floating solids, hazardous materials, waste heat, and other chemical substances. Data on abatement plans already undertaken should depend mainly on monitoring effluent streams before and after abatement. For benefit studies of proposed plans, the abatement efficiencies of selected technologies must be inferred from experience elsewhere.

For the second step, a transfer function must be constructed relating pollutant emission quality to changes in ambient conditions. Abatement can affect parameters such as dissolved oxygen, temperature, and chemical concentrations in a wide variety of ways. Some of the effects are well known, but others are not. The effects depend in part on existing water temperature, air temperature, wind, water current and mixing, and other physical and biological characteristics of the receiving waters. In-stream monitoring should include several water quality parameters, a number of monitoring sites, since effects can vary widely between nearby points. However, monitoring is so expensive that inferences must be made from samples made at few points and for only a few parameters. This tends to weaken this step in the benefit estimation process.

Probably the most difficult step in benefit estimation is to link changes in water quality parameters and man's potential use of water resources. For this third step, it is useful to classify water uses as withdrawal or in-stream uses. Withdrawal uses include municipal, industrial, and agricultural (irrigation) activities. In-stream uses include commercial fishing, water-related recreation, and navigation. There are also ecological benefits and aesthetic values not directly related to recreation.

The fourth step in benefit estimation is to assign values to use changes. Municipal and industrial water users value improved water quality because it can lower water treatment costs, and farmers and commercial fishermen value it because it increases crop and fishery yields and thus increases their income. Many

individuals value improved water quality because it increases the potential for water related activities, aesthetic enjoyment of water courses, and maintenance of the ecological system. Individuals also value improved water quality because it reduces the potential for health hazards.

Each of the four steps must be completed in order to estimate the benefits of a given abatement scheme. The ability to measure benefits is a composite of the four steps. The greatest difficulties lie in the second step, tracing the effects of an abatement plan on water quality parameters, and in the third step, relating parameter changes to man's use of the water. To a large extent, improved benefit analysis depends on better knowledge of how to measure these relationships, but the emphasis here will be on the fourth step of placing a value on the changes in use.

Water Quality as an Input into Production

Water quality is important as an input into industrial water uses, municipal (domestic) water uses, commercial fisheries, and agriculture. With cleaner raw water, an industry or municipality may incur lower treatment costs or a fishery or farm may be more productive. The approach to measuring the benefits is to estimate the value of lower costs of production and increased productivity resulting from improved water quality.

Industrial Uses. Deviating from prescribed water quality for particular industrial uses can result in damage to equipment, reduced efficiency, reduced product quality, or other economic costs such as reduced yields. Water quality requirements vary widely from industry to industry. For example, water with color would be suitable as boiler feed but unsuitable in the manufacture of clear, uncolored plastics. Because of the wide variations in water quality requirements, benefit estimates for one or two industrial sectors cannot be generalized to all industry in a region or in the Nation.

The benefits from water quality enhancement are probably measured most accurately in industrial water uses. Engineering studies can calculate the cost savings from decreased requirements for water treatment; the cost calculation is facilitated by the use of normal market prices for the inputs that will no longer have to be used. Measuring benefits for more than one firm or for regional or national studies might be done using statistical cost functions, and future cost savings might be estimated through use of population and water use projections—that is, demand projections. If statistical cost functions are not

available, then survey and interview techniques could be applied; their accuracy would probably be lower, however.

Municipal Uses. Estimating the benefits of cleaner water to municipal water systems is as straightforward as for industrial water uses, but the engineering studies of damage to equipment and to other factors are not as well developed. Statistical cost functions for particular treatment plants, if applied to plants in other locations, would probably be more reliable than the same procedure in industrial studies because the product, clean water, is much more similar between regions. There is still the problem, however, of variations in natural pollutants. Treatment costs and techniques vary between locations, which makes generalization of a few studies to broader areas unreliable.

Although treatment cost savings can be calculated, it is difficult to relate these benefits to the cost outlays made upstream for waste treatment. Frankel (1965) attempted to make this link using a simulation model of a part of a river.* His results indicate the complexity of the linkage because of hydrologic variations in rivers, both between sites and at the same site over time. Benefit estimates are not useful as a policy guide if they cannot be related to the cost outlays needed to produce them.

There is one national estimate of water supply benefits to domestic users. Tihansky [1973(b)] derived individual functions that relate physical damages from minerals and other pollutants to both household appliances and to water distribution facilities. The effects were converted to economic losses from operating problems and equipment depreciation in a typical household. Average household damages were found to depend on the sources of water supply—whether it was publicly treated surface water, publicly treated groundwater, or private well water. The most economically damaging pollutants were hardness and total dissolved solids. Because these pollutants are partly natural in origin, the portion due to man-made pollutants is difficult to segregate.

Multiple Uses. Some benefit studies do not emphasize one water use but instead study one pollutant in several contexts. Considering both domestic and industrial uses, Brandt (1972) assessed the economic effects of sediment along the Potomac River north of the District of Columbia. Not all of the effects were detrimental, since turbidity in municipal water supply ab-

* References cited are included in a bibliography located at the end of this section.

sorbs certain foul-tasting and odor-producing constituents. Hypothetical linear damage functions were used to relate sediment loads to the chemical treatment costs of water supply.

In a more comprehensive geographic analysis, Stoll (1966) estimated annual sediment damages for the United States. Damage categories included reservoir capacity losses, inland navigation route blockages, obstruction of irrigation canals, excess turbidity in public water supplies, and commercial fishery losses. The validity of such estimates is questionable because accurate data on sediment discharge, transport, and subsequent effects do not exist in most regions of the country. Benefits were estimated by using the cost of repairing the damage or removing the obstruction. For example, the cost of dredging was used as a surrogate for damages although firms using a dredged canal or whatever may be willing to pay much more (or less) than these costs. Thus, costs of repair are not an accurate surrogate for benefits.

Commercial Fishing Uses. Commercial fishery losses from pollution have been estimated for small coastal areas, estuaries, and river stretches throughout the United States, but there are only a few national estimates. Bale (1971) estimated total national losses of revenue (dockside) from DDT, mercury, and pathogenic organisms. Fish kills were evaluated by assigning an arbitrary price per fish and assuming that roughly two-thirds of reported kills were commercial species. This assigned value may be modest; further, because fish kills are not carefully monitored, the damage estimates are highly conjectural. Bale calculated the economic losses to the shellfish industry by assuming that only clams and oysters, which are immobile, were reduced in catch. Other species were assumed to avoid pollution. The reduction in potential supply was assumed to be proportional to shellfishing areas closed by pollution. Potential revenue gains used as benefit estimates were calculated from the original price of shellfish. This may be inaccurate since an increase in the national supply should lower prices.

The Council on Environmental Quality (1971) also estimated national revenue losses of commercial (marine) shellfishing; this value is four times as large as Bale's estimate because it included all species caught. The Council's estimate is probably too high because some species, such as lobsters and crabs, can tolerate more pollution than clams and oysters. The fourfold difference in loss estimates indicates that benefit estimation is not far advanced.

Weddig (1972) calculated the impact of mercury restrictions

on inland and estuarine fish supply in the United States. He assumed that roughly 1.5 percent of potential domestic supply is lost. An interesting part of this estimate pertains to a potential coho salmon fishery in Lake Michigan. Since it "closed before it began," the real dollar losses to private fishermen are assumed to be nil. By overlooking the social cost of unfilled opportunity and lost option demand, this viewpoint avoided a very difficult measurement problem.

Agricultural Uses. The salt content of water can have serious economic and social impacts on agriculture by contaminating irrigation water. Callinan and Webster (1971) estimated farm production losses and the social costs of uprooting rural community life by forcing farmers to move. The economic cost of re-establishment was assumed to be a fixed amount per capita and the corresponding "social cost" to be one-fourth of the economic value. These costs were not defined explicitly and apparently included some concept of value in addition to the normal efficiency concept of benefits. Damage to crops may be caused by other factors such as poor farm management, the effects of which were not considered in the study. Finally, farm crop losses are an immediate effect and may not reflect long-term damages. Crops more tolerant of salinity may be substituted in irrigated fields, reducing initial income losses.

Vincent and Russell (1971) presented a more comprehensive analysis of saline water uses. Economic losses estimated were decreased agricultural crop yields, municipal and industrial water treatment costs, corrosion of water supply intake pipes, and reduced palatability of drinking water. The palatability loss referred to consumers' willingness to pay for their taste preferences and hence was more subjective than the other impacts. Because general information on salinity effects was minimal, the authors derived estimates of expected values and probabilities of damage levels by soliciting the opinions of experts.

In a theoretical decision model, EPA (1971) attempted to identify the least cost solution of salinity control. Farmers had five possible responses to saline irrigation water from the Colorado River Basin. Their options varied from no remedial action (with reduced crop yields) to maintenance of past crop yields (with increased water requirements). Nonlinear economic damage curves were formulated for each action, but they were based on minimal data and incomplete surveys of farmers' preferences for action. As a hedge, all damage estimates were made on the conservative side.

Another study of this region, by the Bureau of Reclamation (1969), derived what appear to be high damage values. On the basis of no remedial actions, crop losses were evaluated on the assumptions that the highest valued crops were destroyed and that soil leaching conditions were extreme. Estimates of regional crop damages were based on fixed prices and thus overlooked the possibility that large-scale changes in supply could significantly affect the market prices.

Implications. The ability to estimate benefits varies when water quality is an input in production. Benefit estimation can be quite accurate for a single industrial plant or a municipal water treatment plant. It is less accurate in agriculture because of problems of changing levels of output, of subsidized prices, and in separating natural from man-caused pollutants. Finally, it is probably inaccurate in commercial fisheries because the effects of pollutants are not well known and the price-quantity relationships vary greatly in short time periods as fish supplies change. In addition, benefit studies must be specific to a plant or site to have any validity. Generalization of the results of one study to other sites or plants is usually not valid. National benefit studies must be a summation of the results of many studies and not a generalization from one or a few studies.

Water Quality When Consumed With Another Good

Clean water is consumed with some final goods. In this case, the benefits of water quality enhancement are measured by the increased willingness to pay for the good consumed with the cleaner water. For example, the additional amount that persons would be willing to pay for a recreational experience on a cleaner lake or river is the relevant concept of benefits.

The primary good for which water quality is important is water related recreation. But a complicating factor is that outdoor recreation is usually a nonmarketed good so that the demand has to be determined from some other activity. There are three main approaches to determining benefits and variations within each method.

One approach is to use market data of private recreation facilities. If a private development is a close substitute for a public facility, then willingness to pay for private recreation is likely to be a valid estimate of the value of the public recreation. Unfortunately, private recreation developments are usually not similar to public ones.

A second approach is to ask potential beneficiaries how much

they would be willing to pay to use a particular recreation facility. The critical problem with this approach is that responses to survey questionnaires tend to be biased whenever the respondent believes his answer to be self-serving. For example, a respondent may overestimate his willingness to pay for a recreation area if he believes his answer will encourage a decision to provide more such areas. He may understate it if he thinks he may have to pay. In addition, there is the problem of people making hypothetical choices. The respondent is not as likely to evaluate the consequences of a hypothetical choice as carefully as he would the possible outcomes of an actual choice. In fact, the choice may be made with very little thought since he will not experience the consequences.

The third approach is the travel-cost method. This method derives a market-demand function for a particular recreation site. It bases willingness to pay on travel costs to get to a particular site. However, this approach underestimates willingness to pay to the extent that persons are willing to use their scarce time for travel to the site.

The travel-cost approach has been applied successfully several times and is probably the most useful of the three models. Its most serious difficulty is that it primarily is useful only for calculating benefits on a completed project. Since the method depends on participation rates, the use before and after a change in water quality must be known before willingness to pay for the site can be estimated. This difficulty is serious, since the primary use of benefit estimates is for evaluating proposed projects.

One of the earliest and most comprehensive benefit studies dealt with water quality in the Delaware Estuary. The study, made by the Federal Water Pollution Control Administration (1966), attempted to quantify water quality benefits to recreation, commercial fishing, and domestic water supply. Rough estimates of recreation benefits based on national participation rates and applied to the regional population accounted for the great majority of water quality benefits. Benefits to commercial fishing were significant, although only a small fraction of total benefits. Benefits to domestic water supply were negligible.

In an extension of the Delaware study, Tomazinis and Gabbour (1967) estimated the economic impacts of pollution control on the specific activities of boating, fishing, swimming, and beach picnicking. Like another related study completed earlier by Davidson (1966), they assumed that demand increases linearly with the supply of clean surface water. The major short-

coming of both studies was that total benefits were determined by multiplying the anticipated increased use by a range of essentially arbitrary values. This approach does not represent benefits in terms of willingness to pay, nor is there any reason to suspect it is a good approximation. Nevertheless, useful attendance information was developed.

A rigorous benefit study by Stevens (1966) looked at the relationship between water quality and the value of the Yaquina Bay sports fishery in Oregon. Demand for fishing was estimated by the travel-cost method but modified to include the quality of fishing, which in turn depended on the quality of water. The benefits of cleaner water were estimated by the willingness to pay for sports fishing. The benefit estimation was later successfully questioned by Burt (1969) as underestimating the total willingness to pay.

Despite their limitations, studies such as these have provided useful information and have advanced benefit evaluation. More empirical work based on sound analytical procedures is needed, but rigorous studies tend to be both time consuming and expensive. Data requirements can be staggering and the necessary methodologies highly technical. The value of future studies would be enhanced greatly if results could be legitimately generalized to the regional level. High priority should be given those studies most likely to produce results that can be extended to other situations.

Water Quality As a Factor in Human Health

There has been considerable research on the impact of inadequate water quality control on human health. Epidemiologic and other health data are now compiled in detail for acute clinical illnesses, however, and they do not exist for subclinical and low-level illnesses such as common diarrhea as related to water quality. Problems arise in that the victim may not report the illness, or the effects may only occur after a period of time has elapsed, making its cause impossible to trace.

Water pollutants are transmitted to man in several ways. Pollutants enter through the public water supply system in the form of such things as chemical impurities, bacteria, and viruses. Second, they enter through the food supply such as a buildup of chemicals in fish. Third, pollutants enter through direct body contact with the water such as in swimming. Finally, pollutants may lead to ecological changes that affect man's physical or psychological health.

The research on health impacts and water quality is concerned with several basic areas:

- Bacteriological parameters of surface water bodies, including discussions of source, survival, and removability.
- General reviews of the incidence, outbreaks, and significance of waterborne diseases.
- Engineering evaluations of health hazards and water quality parameters.
- Studies of specific pollutants such as mineralization, mercury, or coliform bacteria, and their relation to human health.
- Bacteriological parameters and contact recreation.

The emphasis at this time has not yet shifted to the economic quantification of reduced health hazards or risks associated with water pollution abatement.

The value of avoiding sickness or of dying prematurely from polluted water does not fit well into the two previously discussed concepts of benefits. When water is used directly for drinking, cooking, bathing, and swimming, or indirectly in the production of some good, there is a risk of contracting some disease. A person would not use water if he knew that it would make him sick. But he would use water if he knew there was only a small chance of contracting a sickness—that is, he thought perhaps that someone may get sick, but he did not know who. Thus the correct concept of benefits is the amount a person is willing to pay to reduce the risk of getting sick.

Health benefits have been conceptualized in several ways. One is to measure loss in gross earnings. This assumes that there is no benefit in preventing illness for housewives, children, or persons who are retired, on vacation, on welfare, or living on investment income. It is not clear that even persons who are working would be willing to pay *all* of their income losses to avoid being sick. A second measure takes gross income minus consumption expenditure. It is again not clear that persons who are working would be willing to pay only their savings to avoid being sick or dying prematurely. A third measure adds up outlays by sick persons for doctors, hospitals, and medicine. The amount that persons would pay to repair a sickness may be very different from the amount they would pay to reduce the risk of getting sick in the first place.

There is recent but increasing acceptance of the concept of health benefits as being willingness to pay to reduce the risk of

contracting a sickness or of dying prematurely, but very little successful work has been done to identify a proxy for this amount for water quality (or for other health situations) (Liu 1972).

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VII. CONSTRAINTS

This chapter examines some of the potential problems in implementing the 1972 Amendments. A national determination that water pollution control is in the public interest does not eliminate economic and administrative problems. The economic problems of

concern in this report are the financial burdens placed on municipalities and industries as they meet the 1977 standards, and the capacity of the construction and equipment supply industries to put in place the required capital without adversely affecting the levels, volume, and prices of construction and equipment, as well as wages and employment in those industries.

Fiscal Impact on Local Government

Localities will not, in general, find it difficult to finance their share of the capital outlays required to construct sewerage facilities. Local agencies will bear, however, the considerably increased annual cost of operating, maintaining, and administering public sewerage facilities and services.

Required Capital Outlays. The 1973 "Needs" Survey indicates that an enormous investment is required to bring the Nation's public sewerage facilities up to an acceptable level. The indicated costs (Table III–5) may be summarized as follows:

Category		Billions of 1973 dollars
I	To meet the "secondary treatment" standards contained in the 1972 Act.	$16.6
II	To provide more stringent treatment when required by water quality standards.	5.7
III	To correct sewer infiltration and inflow.	.7
IVA	To construct new interceptors, forcing mains, etc.	13.6
IVB	To construct new collection sewers in existing communities.	10.8
V	To correct overflows from combined sewers.	12.7
	TOTAL	$60.1

Projecting Sewerage Capital Expenditures. The results of this latest Needs Survey were meant to serve as a basis for allocating available Federal construction grant funds among the various States. The survey results have not been used directly in projecting capital outlays for sewerage facilities during the next several years. The primary reason is that the individual States and localities developed their estimates of expenditures and completion dates without consideration of the overall amount of funds that might be available. Instead, public expenditures for sewerage construction were projected (Table VII–1) primarily on the following assumptions:

- The remaining unallocated funds ($13 billion) authorized in the 1972 Amendments will be released in the FY 1975 and FY 1976 allocations. The actual rate of allotment will be determined by Federal fiscal policy.

TABLE VII–1
PROJECTION OF CAPITAL OUTLAYS ON PUBLIC SEWERAGE CONSTRUCTION, 1974–80

	1974	1975	1976	1977	1978	1979	1980	Total
	(millions of 1973 dollars)							
EPA grant outlays								
Pre-1973 funds*	$1,500	$1,600	$ 700	$ 300	$ 200	$ 100	—	$ 4,400
1972 Act funds †								
1973/74 allocation	500	1,350	1,650	800	400	200	$ 100	5,000
1975/76 allocation	—	550	2,050	3,300	3,200	2,100	1,100	12,300
Total EPA outlays	$2,000	$3,500	$ 4,400	$ 4,400	$ 3,800	$ 2,400	$ 1,200	$21,700
State and local outlays								
Match for pre-1973 funds †	$1,200	$1,100	$ 700	$ 300	$ 200	$ 100	—	$ 3,600
Match for 1972 Act funds**	200	600	1,200	1,400	1,200	800	400	5,800
Projects with no EPA funds	500	500	500	500	500	500	500	3,500
Total State and local	$1,900	$2,200	$ 2,400	$ 2,200	$ 1,900	$ 1,400	$ 900	$12,900
Direct capital outlays ††	$3,600	$5,200	$ 6,800	$ 6,600	$ 5,700	$ 3,800	$ 2,100	$33,800
Cumulative direct outlays	$3,600	$8,800	$15,600	$22,200	$27,900	$31,700	$33,800	—

* Including $1,900 million in reimbursables.
† Based on the following projection of obligations and upon historical time lags between obligations and outlays: (Outlays of $700 million from the 1975/76 allocation will be made after 1980).

Obligations	Allocation		
	1973/74	1975/76	Total
1973 (4th Quarter)	1.6	—	1.6
1974	3.2	1.4	4.6
1975	.2	4.8	5.0
1976	—	5.0	5.0
1977	—	1.8	1.8
	5.0	13.0	18.0

This projection of obligations was made on 11/1/73 and is subject to substantial changes due to such factors as limitations on the total Federal budget, and the rate at which states and localities can produce applications that meet all applicable criteria for grant awards.
† Assumes a 1:1 match, but excluding the effect of the approximately $800 million in Federal reimbursables paid in FY 74 but related to construction in place as of 7/1/73.
** Assumes a 1.3 match.
†† Excludes the effect of the approximately $800 million in Federal reimbursables paid in FY 74 but related to construction in place as of 7/1/73.

- These allotments will be obligated over the 30-month periods provided for in the 1972 Amendments.
- Federal outlays will continue to lag obligations in the pattern observed in this grant program in the recent past.
- State and local outlays will occur in the same period as related Federal outlays.
- Future Federal outlays from pre-1973 EPA funds will be matched equally by State and local funds.
- Much of the construction begun during the next several years, including all sewerage treatment plants and ancillary facilities (for example, interceptors and pumping stations), will be 75 percent Federally funded.
- Approximately $500 million of sewerage construction, pri-

marily collection sewers, will be built annually without EPA financial assistance.

Although the projection is based in part upon a level of allocations in FY 1975–76 higher than that used when discussing the impact on the construction industry, it provides a reasonable basis for discussing the potential fiscal impact on local government during the next several years.

Local Fiscal Impact. The projection indicates a considerable increase in total capital outlays on public sewerage facilities over outlays made in the recent past (Table VII–2). The 1975 direct outlay of $5.2 billion is almost four times that of 1970. Furthermore, State and local projected outlays on sewerage construction during the next several years will constitute a larger portion (11.6 percent) of their total capital expenditures. Finally, even though EPA grants will make up a much larger portion of total outlays, State and local governments will be called upon to contribute approximately $2 billion annually. This is approximately twice what they supplied annually from 1961 through 1970.

Local governments can be expected to finance the non-EPA portion of the projected capital expenditures in a variety of ways. The most common sources of funds are likely to be current general revenues and the issuance of municipal bonds. Several recent studies indicate that State and local governments may run surpluses in their current general accounts over the next

TABLE VII–2
STATE AND LOCAL CAPITAL OUTLAYS, 1961–70

Year	Direct capital outlays*			Sewerage outlays only		
	All purposes	Sewerage	% sewerage	EPA grant† outlays	State and‡ local sources	% EPA grant outlays
	(millions of current dollars)					
1961	$ 16,091	$ 747	4.6%	$ 44	$ 703	5.9%
1962	16,791	798	4.8	42	756	5.3
1963	17,638	928	5.3	52	876	5.6
1964	19,087	1,095	5.7	66	1,029	6.0
1965	20,535	1,107	5.4	70	1,037	6.3
1966	22,330	1,202	5.4	81	1,121	6.7
1967	24,233	1,093	4.5	84	1,009	7.7
1968	25,731	1,107	4.3	116	991	10.5
1969	28,240	1,208	4.3	135	1,073	11.2
1970	29,650	1,385	4.7	176	1,209	12.7
Totals	$220,326	$10,670	4.8%	$ 866	$9,804	8.1%
1975 (projected)	$ 43,099**	$ 5,200††	11.6%	$3,000††	$2,200††	57.7%

* U.S. Bureau of the Census, **Governmental Finances in 1969–70,** Series GF70–No. 5, U.S. Government Printing Office, Washington, D.C. 1971 and preceding issues.
† Cash outlays reported to Department of the Treasury.
‡ Includes funds from Department of Housing and Urban Development, Farmers Home Administration, and the Appalachian Public Work Program.
** **The Financial Outlook for States and Local Government to 1980.** Tax Foundation, Inc., New York, 1973.
†† From Table VII–1.

several years.[1-3] Hence, most localities may have more flexibility to deal with an increase in sewerage service costs than they have had in the recent past.

A survey conducted in 1969 indicates that localities nationwide had been initiating or boosting "user fees" to finance sewerage services.[4] Of the 1,040 localities that both collect and treat wastewater, 86 percent indicated they levy such a charge. In the aggregate, revenue from user fees exceeded the annual costs for operating and maintaining sewerage facilities, but had to be supplemented by other charges in order to cover debt service payments. The survey indicated a trend for more cities to levy user charges, and for such charges to pay a larger portion of total annual costs. This trend should be reinforced by requirements in the 1972 Amendments that agencies adopt user charges, and, in particular, that such charges be sufficient to ensure that industrial users repay an appropriate portion of the costs of constructing such a facility.

Between 1961 and 1970, approximately 67 percent of funds required by State and local governments for sewerage construction were provided through long term borrowing (Table VII–3). Assuming this percentage continues over the next several years, new issues of sewer bonds would total $5 billion for FY 1974–77 (Table VII–4). A recent study estimated that total municipal bond sales in 1975 would amount to $25.9 billion.[3] The $1.5 billion projected sales of sewer bonds in 1975 would represent 5.8 percent of the total, a percentage only slightly above the 5.2 percent experienced in the recent past.

There are, of course, many factors that will determine the success of localities in the municipal bond market, including:

- *Basic demand for municipal bonds.* The last comprehensive study of the demand for municipal bonds was made in 1966.[5] However, one indicator of a continuing demand is the fact that in the face of generally tight credit markets and record interest rates, interest rates on municipal

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[1] *Setting National Priorities—The 1974 Budget.* Brookings Institution, Washington, D.C., 1973.

[2] *Public Claims on U.S. Output.* American Enterprise Institute for Public Policy Research, Washington, D.C., 1973.

[3] *The Financial Outlook for State and Local Government to 1980.* Tax Foundation, Washington, D.C., 1973.

[4] *Sewer Services and Charges.* Urban Data Service (International City Managers Association) Washington, D.C., Vol. 2 No. 2. February, 1970.

[5] *State and Local Public Facility Needs and Financing.* U.S. Congress, Joint Economic Committee, 1966.

TABLE VII–3
STATE AND LOCAL SEWER BOND SALES, 1961–70

Year	Construction contracts*	EPA grants*	State and local funds	Sewer† bond sales	% bonds	Total municipal bond sales‡	% sewer bonds
	(millions of current dollars)						
1961	$ 763	$ 45	$ 718	$ 624	86.9	$ 99,463	6.6
1962	803	66	737	659	89.4	8,568	7.7
1963	1,004	93	911	607	66.6	9,151	6.6
1964	862	85	777	290	37.3	10,201	2.8
1965	832	84	748	629	84.1	10,471	6.0
1966	919	120	799	591	74.0	11,303	5.2
1967	1,045	134	911	572	62.8	14,643	3.9
1968	1,449	194	1,255	631	50.3	16,489	3.8
1969	1,510	203	1,307	490	37.5	11,838	4.1
1970	1,843	577	1,266	1,180	93.2	18,110	6.5
Totals	$11,030	$1,601	$9,429	$6,273	66.5	$120,237	5.2

*EPA files.
†Securities Industries Association.
‡Federal Reserve Board of Governors.

TABLE VII–4
OBLIGATIONS FOR SEWERAGE FACILITY CONSTRUCTION
STATE AND LOCAL FUNDING*

Fiscal year	EPA grants†	Match for EPA grants‡	Other projects	Total	New issues of sewer bonds
	(billions of 1973 dollars)				
1974	$ 4.6	$1.5	$ .5	$2.0	$1.3
1975	5.0	1.7	.5	2.2	1.5
1976	5.0	1.7	.5	2.2	1.5
1977	1.8	.6	.5	1.1	.7
Total	$16.4	$5.5	$2.0	$7.5	$5.0

*Assuming that State and local funding is arranged in same period as the related EPA grant.
†From Table VII–1, second footnote.
‡Assumes 1:3 match.

bonds have fallen from 1970 highs to a current level of approximately 5 percent. In addition, a projection of State and local general finances over the coming decade indicates that debt as a portion of own source revenue will drop from 124 percent in 1970 to 112 percent in 1975.[5] This trend may be generally viewed as a reduction of the risk involved in buying municipal bonds, thereby strengthening demand.

- *Tighter credit market conditions.* Municipal bond sales during the last half of calendar year 1969 were sharply reduced, primarily due to a severe "credit crunch." A Federal Reserve Board study indicated a net short fall of $5.2 billion in long-term State and local borrowing in FY 1970 below a planned level of $18.5 billion.[6] However, in the following year relatively favorable market conditions stimulated a record volume of municipal bonds. The effect on capital spending was apparently minimized by

[6] Peterson, John E. *Response of State and Local Governments to Varying Credit Conditions.* Federal Reserve Bulletin. March 1971.

the ability of States and localities to fill the gap with short-term borrowing. A similar response to future credit market conditions of similar severity would be expected.

- *Legal constraints.* State and local governments are generally restricted in the amount of general indebtedness that they can issue by State constitutions or statutes. A recent study indicates that debt limits generally inhibit local spending, rather than encourage the use of other sources of funds.[7] A second study, however, asserts that legal debt limitations in general are ineffective in controlling total debt.[8] Debt limits have been avoided through such measures as:

  —Issuance of nonguaranteed debt such as revenue bonds.

  —Shifting of financial responsibility to independent authorities, or special districts.

  —Use of lease purchase arrangements.

  Legal debt limits should continue to be avoidable in most cases.

Most localities will probably not find it difficult to finance their share of the anticipated surge in capital expenditures on sewerage facilities. There will, of course, be individual localities where financing will pose a major problem, perhaps because of unacceptable credit ratings. The source of support in these cases may be the State construction grant programs. In response to earlier Federal legislation, approximately 40 States have established such programs, which can provide up to 25 percent of total construction financing. A second source of financial assistance for these localities will be the Environmental Financing Authority, which was created by the 1972 Amendments ". . . to assure that inability to borrow necessary funds on reasonable terms does not prevent any State or local public body from carrying out any project for construction of waste treatment works determined eligible for assistance . . ." The Authority will begin operation in calendar year 1974. Finally, the Farmers Home Administration is currently making loans for community facilities,

[7] Pogue, T. F. *The Effect of Debt Limits: Some New Evidence.* National Tax Journal, 23(1) March 1970, p. 36–44.

[8] Hoggan, D. H. *Can State and Local Governments Assume More of the Costs of Water Development?* Water Resources Bulletin, 8(3) June 1972, p. 626.

TABLE VII–5
ESTIMATED VALUE OF SEWERAGE CAPITAL IN PLACE
(billions of 1973 dollars)

Value, July 1973*		$35
Net investment—FY 74–77		
Capital Expenditure†	$22	
Less: depreciation‡	5	17
Value, July 1977		$52

*Estimated from net investment in Table III–4.
†From Table VII–1.
‡Based on 4 percent annual depreciation for treatment plant and 2 percent for sewers.

TABLE VII–6
TOTAL ANNUAL COSTS OF SEWERAGE FACILITIES

Category	July 1973 (billions of 1973 dollars)	July 1977
Interest*	$1.7	$2.6
Depreciation†	.9	1.6
Cost capital	$2.6	$4.2
Operations‡	1.2	2.1
Total costs	$3.8	$6.3

*5 percent of estimated value of sewerage capital.
†4 percent for plants, 2 percent for sewers.
‡Based upon an extrapolation of recent trends in the ratio of operating costs to the value of sewerage capital.

including wastewater treatment projects, to communities of under 10,000 population.

Annual Costs. While Federal financial assistance will largely mitigate the fiscal impact on localities of constructing waste treatment facilities during the next several years, localities will largely be on their own when it comes to financing the operation and maintenance of a vastly increased amount of sewerage capital.

The annual expenses of providing sewerage service may be classified as operation costs (plant operation and maintenance, sewer maintenance, and overall administration), and capital costs (interest and depreciation). Both categories of costs may be expressed as a function of the value of sewerage capital in place, which is projected to increase from $35 billion in 1973 to $52 billion in 1977 (Table VII–5). Based upon this estimate, the annual cost of providing sewerage services may increase by 66 percent in the next 4 years (Table VII–6).

In the aggregate, this rapid increase in annual costs should not result in severe pressures on the general revenue of localities because:

- Expenditures on sewerage operations represented just over 1 percent of all current expenditures by local governments in 1970. Even a 66 percent increase would have meant that the cost of sewerage operations was no more than 1.7 percent of all current expenditures in that year.

- As discussed earlier, several recent reports indicate that State and local governments may well run surpluses in their general accounts over the next several years, due in part to the advent of general revenue sharing. Hence, most localities may be better able to absorb an increase in sewerage service costs.
- Localities are increasingly utilizing sewerage user fees as a source of income. Hence, although the public will pay increased costs, the impact on local budgets will be further mitigated by a corresponding increase in revenue.

It should be noted, however, that the per capita annual costs of sewerage services can be considerably higher in smaller communities than in larger communities (Table VII–7). These variations, which result primarily from the considerable economies of scale experienced in facility construction, may be even greater for very small communities.

Analysis of Bureau of the Census data yields conflicting indications regarding the ability of the residents in these smaller communities to pay these higher costs (Table VII–8). On the one hand, as per capita income does not vary significantly by community size there would seem to be a real difference in impact on the residents of small communities. On the other hand, as smaller communities generally exert a smaller "own revenue effort" (that is, local governmental income as a percent of personal income), these higher sewerage charges appear to be more than offset by lower burdens from other sources of revenue.

Economic Impacts on Directly Discharging Industries

The economic impact of the 1977 standards on industrial sectors is highly dependent upon their ability to recover abatement costs through price increases. If they can recover costs, it is anticipated that they will be able to meet the standards. If they cannot recover costs, they will experience declines in profits and in certain instances may have to curtail production or close plants.

Methodology of Analysis. Recognizing the potential economic

TABLE VII–7
PER CAPITA COST OF SEWERAGE FACILITIES, BY SIZE OF COMMUNITY

Community size	Average per capita Costs
25,000	$30.
25–250,000	$19.
250,000	$13.

TABLE VII–8
FISCAL CHARACTERISTICS OF COMMUNITIES, BY SIZE OF COMMUNTY*

Community size	Average per capita income	Average own revenue effort
2,500 to 9,999	$2987	.0209
10,000–25,000	3310	.0238
25,000–50,000	3432	.0267
50,000–100,000	3425	.0296
100,000–200,000	3277	.0326
200,000–300,000	3188	.0377
300,000–500,000	3211	.0405
500,000–1,000,000	3221	.0368
greater than 1,000,000	3736	.0466

*Based on the 1970 Census of Population and the 1967 Census of Governments.

problems facing industry in meeting control requirements, EPA contracted for microeconomic studies to be conducted in conjunction with development of effluent standards (VII–9). For each of the 23 industries under consideration an economic impact analysis was performed which focused on the following parameters: [9]

- Price effects—including effects upon an industry's suppliers and consumers.
- Profitability, growth and capital availability.
- Number, size and location of plants that can be expected to close or curtail production.
- Changes in employment.
- Community impacts.
- Balance of payments consequences.

The analysis started with an examination of the costs of pollution abatement in light of existing institutional and market factors. Primarily this was to determine whether various industry subcategories could meet the necessary capital requirements and recover abatement costs through price increases. Assumptions were made regarding each industrial category's participation in publicly owned treatment works and present levels of abatement. In cases where full recovery of pollution control costs appeared impossible through price increases, some costs were assumed to be absorbed internally, with profits declining accordingly.

Following this step, an attempt was made (using, where feasible, a discounted cash flow analysis) to determine if future cash

[9] The 1972 Amendments require promulgation of effluent guidelines for 27 major industry categories. The effluent guidelines for four major industrial categories have not been completed at the time of publication.

TABLE VII-9
CONTRACTORS FOR MICROECONOMIC STUDIES OF SELECTED INDUSTRIES

Industry	Contractor*
Asbestos	ADL
Beet sugar	DPRA
Cane sugar	DPRA
Cement	Southern Research Institute
Dairies	DPRA
Electroplating	ATK
Feedlots	DPRA
Ferroalloy	ATK
Fertilizer	DPRA
Fiberglass	No contract
Fruits and Vegetables	DPRA
Flat glass	ADL
Grain milling	DPRA (with feedlots)
Inorganic chemicals	ADL
Leather	DPRA
Meat	DPRA
Nonferrous	ADL
Organic chemicals	ADL
Petroleum	Steve Sobotaka
Phosphates	ADL
Plastics	ADL
Paper	ADL & in-house
Rubber	ADL
Steel	ATK/Booz-Allen
Timber	ADL

*ADL—Arthur D. Little
DPRA—Development Planning Research Associates
ATK—A. T. Kearney

flows would justify continued operation of various types of plants in light of additional investments required for pollution control. This analysis was done for both the 1977 and 1983 proposed effluent standards.

In performing the analysis, it was necessary to synthesize model plants by size group and to make certain assumptions regarding the relationship between production costs, salvage value, abatement costs, and discount rates. Due to uncertainties inherent in the data (and in some cases, the lack of data), the discounted cash flow analysis was used only as an indicator of the plant or types of plants that could be severely impacted by pollution control requirements and related costs. Final determination of the numbers of plants impacted to the point where closure could be considered a real possibility was made only after consideration of other factors such as geography, land costs, access to municipal waste treatment systems, and other potential alternatives.

Summary Results. The results of the analysis are based primarily on the reports of the contractors and are subject to revision as EPA develops the final versions of effluent guidelines.

However, the revisions are not expected to alter the general conclusions of the contractor reports.

An overview of 23 industries discharging directly into the Nation's waters indicates that in most cases they will be able to recover the costs of best practicable wastewater treatment by increases in prices. However, individual plants in certain industries will experience difficulties in meeting the requirements. Generally, the profitability of smaller and/or older plants may be so reduced by pollution control that many of them may decide to close prior to 1977. Secondly, plants located in heavily urbanized areas, especially small older ones, will experience difficulties because they lack the necessary land to use the most cost-effective treatments. This is the case in fruits and vegetables and electroplating where some 546 plants are expected to close. In the absence of adequate municipal treatment facilities the 1977 requirements may force many of these plants to close, relocate elsewhere, or be absorbed by more viable firms.

Not all of the costs will be passed on because of the availability of substitute products and imports. Also, smaller plants in an industry cannot pass on all costs because they may be constrained by larger firms with lower unit costs. Thus some firms will earn lower profits, some will curtail production, and some firms will be forced to shut down.

Prices. Most of the industries studied are expected to raise prices (regardless of potential closures) with the size of the increase varying among segments of an industry (Table VII–10). The industries expected to experience price increases of less than 1.5 percent are *asbestos,* dairies, feedlots, *flat glass,* leather, meatpacking, *nonferrous metals,* softwood plywood, and wood preserving. Price increases of 1.5 to 5 percent are expected to occur in *cement, fertilizer,* fiberglass, fruits and vegetables, and hardwood plywood. Price increases higher than 5 percent are expected in electroplating, *hardboard, inorganic chemicals, organic chemicals, paper,* and plastics and *synthetics.* (The industries italicized also face significant air pollution control costs.)

The average price increases do not always reflect the cost of the most difficult waste treatment problems. For example, in both the organic and inorganic chemical industry, the average price increase is no more than 3 or 4 percent. However, in several chemical subcategories, such as titanium dioxide, sodium sulfite, sodium chloride, potassium sulfate, lime, ethylene glycol, and acetic acid, price increases may be 5 percent or greater.

Plant closings. Pollution control costs that cannot be passed on in the form of price increases will result in decreasing profit

margins and, in some cases, plant closings. Plant closings are expected in all of the industries with the exception of cement, ferroalloys, flat glass, fiberglass, grain milling, and rubber.

In many of the industries studied, closings will be due primarily to factors unrelated to water pollution control costs, but they will be accelerated by the costs. Feedlots, leather, dairies, and fruits and vegetables are examples. In these industries, many plants are old, family-owned, largely financed with internal capital, and have a low level of long-term debt. Expenditures for new technology have been modest because of difficulty in getting outside capital. Another factor in the closings is that the threatened plants are usually small. Their high vulnerability may be partially explained by a number of factors: lack of access to municipal treatment systems, diseconomies of scale in pollution control facilities, lower efficiencies of operations, and extensive investment required to modernize.

These plant closings may result in a maximum direct unemployment of approximately 50,000 or 1.2 percent of the estimated 3.3 million total employment in the industries studied.

Industry Summaries. The following is a brief discussion of the economic impacts associated with the proposed guidelines for major segments of 23 industries. Although studies have been undertaken of the paper, seafood, steel, and textiles industries, results are not available as the effluent guidelines for these industries have not been completed nor are the relevant economic data available at this time.

Asbestos. Eighty-one firms operating 138 plants are involved in manufacturing asbestos products. Corporations dominate, controlling about 84 percent of the physical facilities and 99.5 percent of the work force. Plants tend to be specialized and are concentrated near metropolitan areas to serve their major markets, the automotive and construction industries. Most larger plants are well over 25 years old.

The economic viability of the asbestos industry will not be seriously affected by the 1977 standards. To meet the goals, the industry will have to invest roughly $3 million, with an annual cost of about $1.4 million. The additional costs, assuming that they are passed on to the consumer, would not exert a significant impact on prices or market competitiveness. Manufacturers will probably absorb the costs because they are negligible and because of competition from substitute products. If costs are absorbed, impact on overall corporate profitability is expected to be minimal since almost all manufacturers are highly diversified.

Most industry plants will be able to comply with the new requirements. No more than four plants, accounting for less than 0.5 percent of total industry capacity, are threatened. The millboard segment of the industry will be most affected, since two of its plants now lack any control facilities and will face high control costs.

Approximately 2 percent of the industry's 13,500 employees work in plants threatened by 1977 standards.

Beet Sugar. Currently, there are 52 plants processing beet sugar in the United States, 38 of them built before 1933. The number has been slowly declining, and in 1971, three plants closed due to higher production costs and relatively low sugar prices. (However, three new plants are due to begin operation in 1974–75.) Most plants are located near supplies in relatively small, rural communities where they constitute a major enterprise. The industry has not been highly profitable, with after-tax return on sales ranging from −0.2 to 4.0 percent in the past 2 years.

The estimated capital costs for achieving the proposed 1977 level of control range from $4.3 to $7.7 million, with an annual operating cost ranging from $0.4 to 0.8 million. The price increase required to offset the costs ranges between 0.2 and 2.2 percent, depending on the size of the plant, the length of its season, and the current degree of control. Prices are not likely to increase, however, because of Department of Agriculture policies and competition from other sweeteners. Consequently, the profits of some firms may decline.

While most plants in the industry should be able to comply with new standards, some may not be able to absorb the required capital and operating costs and may have to close. Typically, these plants are small, old, and already in jeopardy because of factors such as urban encroachment and declining beet supplies. Even without pollution control requirements, from two to six plants may have to close over the next 10 years. The proposed 1977 standards, which require zero discharge where land is available, threaten an additional four to 10 plants, representing 4 to 13 percent of industry capacity. Assuming each plant has 50 full time and 200 seasonal employees and serves 300 growers, 2,200 to 5,500 people would be affected. Growers might be able to process their beets in nearby plants with excess capacity or in new plants, or they may choose to grow other crops.

Cane Sugar. The cane sugar refining industry will react much as the beet sugar industry. The capital costs associated with meet-

TABLE VII–10
POTENTIAL IMPACT OF EFFLUENT STANDARDS ON INDUSTRY OPERATIONS [1]

Industry	Price increases to consumer (%)		Plant closings		Unemployment	
	1977	1983	1977	1983	1977	1983
Asbestos	0.1–1.0%	1%	3	1	275	50
Beet sugar	0	[2] n.a.	4–10	n.a.	[3] 2,200–5,500	n.a.
Cane sugar	0	0	3–6	0	300–2,000	0
Cement	1–3	[4] n.s.i.	[5] 0	0	0	0
Dairies	0–.8	0	514–659	0	3,250	0
Electroplating	15	8	517	25	2,397	248
Feedlots [6]	<0.3	n.a.	minor	minor	n.a.	n.a.
Ferroalloys	1.2	n.a.	0	n.a.	0	n.a.
Fertilizer [7]	0–3.5	4–5	23–61	n.a.	590–1,620	n.a.
Fiberglass (wool)	.6–3.8	0	0	0	0	0
Flat glass	0.1–0.3	0–0.4	0	0	0	0
Fruits and vegetables [8]	1–2		29	n.a.	232	n.a.
citrus	1–2	2	n.a.	n.a.	n.a.	n.a.
apple	1–2	2	n.a.	n.a.	n.a.	n.a.
potato	n.a.	n.a.				
Grain milling	0–1.9	n.s.i.	0	0	0	0
Industrial phosphates	.6–1.6	n.a.	0	0	0	0
Inorganic chemicals	[9] 0–2%	0–3	few	n.s.i.	n.a.	n.a.
titanium dioxide	7.7–16.7	[10] 13.4–19.6	n.a.	n.a.	n.a.	n.a.
lime	0–6.4	0–6.4	n.a.	n.a.	n.a.	n.a.
potassium sulfate	6.1	6.1	n.a.	n.a.	n.a.	n.a.
sodium chloride	11.8–19.9	11.8–19.9	n.a.	n.a.	n.a.	n.a.
sodium sulfite	5.9	7.2	n.a.	n.a.	n.a.	n.a.
sodium chromate & bichromate	3.4	4.8	n.a.	n.a.	n.a.	n.a.
Leather	[11] .6–1.3	n.a.	21	[12] n.a.	[13] 950	n.a.
Meatpacking	.1	.3	10	89	400	3,400
Nonferrous (aluminum only)						
primary	minimal	n.s.i.	n.s.i.	n.s.i.	n.s.i.	n.s.i.
secondary	0	n.s.i.	n.s.i.	[14] 6	n.s.i.	160
bauxite refining	0	n.s.i.	2	n.a.	[15] 3,700	n.a.
Organic chemicals	[16] 1.0–4.0	n.a.	[17] some	n.a.	n.a.	n.a.
Petroleum	<1	n.a.	2–11	n.a.	500	n.a.
Plastics and synthetics	0.1–2.4	0.5–6	6–53	1–33	1,100–3,170	0–780
Rubber	0–3.5	0–3.5	0	0	0	0
Timber	1–8	n.a.	75–85	n.a.	1,600	n.a.
softwood plywood	1	n.a.	15–20	n.a.	375–1,000	n.a.
hardwood plywood	2	n.a.	30	n.a.	750	n.a.
hard board	4–8	n.a.	1	n.a.	n.a.	n.a.
wood preserving	1	n.a.	30–35	n.a.	1,050	n.a.

[1] Potential impact of the 'proposed' effluent limitations on directly discharging industries.
[2] Not available.
[3] Only 200 to 500 are fulltime employees.
[4] No significant impact.
[5] Twenty plants expected to close primarily due to factors unrelated to water standards.
[6] Projected closures are difficult to assess due to importance of many other economic factors and applicability of effluent guidelines. Impact will be heaviest in swine operations.
[7] Industry as a whole is not significantly affected; impacts occur primarily in subcategories where trend is to excess capacity.
[8] Impacts relate only to subcategories of citrus, apple, and potato.
[9] Average price increases for the industry range from 0–3%; however, the six chemicals listed will experience greater price increases.
[10] Figures represent two different processes.
[11] Estimated price increase for large plants is roughly 1.3%; for small plants it ranges up to 20%.
[12] Excludes marginal operations that would have closed without controls. This industry needs additional study.
[13] Plus 5,625 in secondary leather manufacturing.
[14] Wet dross operations.
[15] Potential unemployment estimate for two plants out of nine that have not installed control technology.
[16] Potential price increases may be high as 6 to 12% where waste treatment problems are most difficult, specifically ethylene glycol, ethylene dichloride, caprolactam, ethyl acrylate, acetic acid, para-cresol, and aniline.
[17] Small firms with less than 20 employees will be affected most by the standards.

ing the 1977 standards are $5.6 million, with an annual cost of $1.9 million. The price increases required to offset the costs would range between 0 and 2 percent. As in the beet sugar industry, however, prices are not expected to increase. From three to six plants could close, representing 6 to 12 percent of industry capacity. Three of the plants are small rural refineries in Puerto Rico. Since excess capacity exists in the other Puerto Rican facilities, any closings would probably result in a consolidation of the industry, rather than a permanent loss of production. From 300 to 2,000 employees could be affected by the plant closings. Under normal conditions, they should be able to find work in similar occupations.

Cement. There are currently 166 cement plants in operation in the United States: 154 involve nonleaching operations in which water pollution is inherently not a problem. The number of cement plants has been declining in recent years. Plant obsolescence is usually the reason for such closures. Some 10–20 plants could close in the next 4 years, continuing the recent trend. The closing of these plants, generally the older, less efficient ones, may be accelerated if they cannot raise the additional capital necessary to finance water pollution control equipment. The greatest cost pressures have usually stemmed from air pollution.

The total cost of achieving the 1977 standards is $15–17 million for capital investment; total annual costs are estimated at $5.5 million. Impact of the controls might result in a price increase of 1 to 3 percent. Each of the eight leaching plants with the most serious problems may have to invest a half million dollars. The eight are considered to be the most productive and profitable in the industry and so are unlikely to close.

Dairies. Of the 4,870 plants in the dairy processing industry today, as many as a third could close by 1977 through "natural" attrition. An additional 514 to 659 plants representing about 12 percent of industry plants could close as a result of the 1977 water pollution standards. The plants threatened by pollution costs are usually the small, old plants in rural areas. They have less in-plant control, they suffer from diseconomies of scale in control, and they lack access to a municipal treatment system. Furthermore, these operations are already in jeopardy because of other factors such as shrinking milk supplies, difficulties in maintaining sanitary standards, lower efficiencies of operation, and lack of capital to modernize operations. These estimated closings are based on use of activated sludge and sand filtration, now the recommended technology for meeting the

standards. The estimates might be slightly lower if less expensive systems such as ridge and furrow or spray irrigation were used. If land were available and climatic problems overcome, these methods might be a viable alternative for the small plants. The estimates are also very sensitive to the percent of plants using municipal systems and the level of control currently in place.

To meet the proposed 1977 standards, the dairy processing industry would have to invest $357 million, or almost 16 percent of the industry's current fixed investment. The required operating costs of $31.7 million, however, would represent only a few percent of sales. The cost of water pollution control would not be passed backwards to the farmer, since most of them are in strong, effective cooperatives and because the Department of Agriculture regulates raw milk prices. Efficient operations would pass the costs—generally no more than 1 percent—on to consumers. The less efficient operations would have to absorb the costs, a significant consideration since their after-tax profits are generally below 1 percent of sales.

The potential closings in 1977 could affect approximately 3,250 plant employees. Milk producers could probably find alternative markets. While the number of employees affected would be relatively low, they would have little opportunity to be reemployed in remaining dairy processing plants. Any new plants that would be built would probably not be located in the same towns where old plants closed. Furthermore, employment in the industry has been dropping because of increased automation.

Electroplating. A wide variety of platings and coatings are used on manufactured items when the base metal does not have the characteristics desired. This study scope was limited to copper, nickel, chromium, and zinc electroplating. The industry consists of approximately 5,600 shops and 78,000 employees.

The industry is characterized by relatively low capital investment in equipment, land, and buildings. Once purchased and installed the market value of equipment decreases rapidly. Annual sales range from $60 thousand to $8 million; however, most of the shops surveyed reported sales of less than $1 million. Total industry sales are approximately $876 million annually.

The total investment required for the electroplating industry to meet the proposed 1977 standards is approximately $481 million, with an annual cost of $35 million.

The proposed requirements by 1977 are not expected to have any significant effect on the production capacity or future growth of the electroplating industry. However, it is likely that signifi-

cant price increases will result from meeting the proposed standards. These increases are projected to be a maximum of 15 percent for 1977, with additional increases of about 8 percent for 1983. Since these estimates assume that none of the required costs for 1978 have been incurred, the actual increases will be highly dependent on the level of control already attained.

Production effects are expected primarily among low volume independent job shops. Such shops are expected to incur disproportionate cost increases in relation to larger operations. In addition, many of them are expected to have difficulty raising the necessary capital. In the absence of less expensive treatment methods, many of these operations probably would be forced to close. As many as 517 such shops representing approximately 5.4 percent of total job shop capacity and about 2,397 employees might have to close as a result of the proposed 1977 standards.

Ferroalloys. Roughly 85 percent of the ferroalloy industry's output consists of four major alloys (iron-manganese, iron-silicon, iron-chromium, and silicon-manganese) and products from electric furnances. This study was limited to the nine companies making those products. The firms range in size from annual sales of $20 million to over $3 billion. Some produce only ferroalloys, while ferroalloys represent about half of annual sales of other firms.

The iron and steel industry is the major consumer of ferroalloys. With the high level of steel production, the ferroalloy industry has been operating at full capacity. In 1972, however, its shipments and profitability were severely affected by imports. In addition, air pollution control requirements are becoming a major concern. These two factors are expected to have a greater impact on the industry than the anticipated costs of water pollution control.

Of the 22 plants in the study, 14 (representing over 70 percent of industry capacity) are already using the technology needed to meet the 1977 standards. For the other eight to meet the standards requires an additional investment of $9.5 million. Annual operating costs would increase by $4.0 million. To offset the costs, industry would have to increase prices by 1.2 percent, to maintain its current return on total assets.

Fiberglass (Wool). There are 19 plants producing glass wool in the United States; 15 plants operated by two firms are responsible for about 95 percent of the production. There are no small producers, since the process is basically a high-volume operation. The plants range in size from 5 million to 440 million

pounds per year. The majority are multiproduct operations. Plants range in age from 2 to 25 years, with about 30 percent being 10 to 15 years old. Age is not necessarily a good guide to plant efficiency or profitability, however, since most plants have been expanded or modernized over the years.

The primary markets for glass fiber are as building insulation, acoustical ceiling tiles, and insulation for pipes, ducts, process equipment, and appliances.

The industry will have to spend about $10 million to meet the proposed 1977 standards; annual operating costs will be about $3.7 million. Price increases of 0.6 to 4 percent would be necessary to offset the added costs. In the past, however, the industry has been able to offset cost increases by increasing productivity.

No plant closings are forecast from pollution control costs. The industry is operating at full capacity, and demand is expected to increase. One major producer plans to increase capacities in spite of additional pollution control costs.

Flat Glass. The production of sheet, plate, and float glass in the United States is highly concentrated and involves only seven companies. The total capital costs of the 1977 and 1983 standards are less than $1 million, with annual costs below 0.4 percent of the 1972 unit price. The major segments of the industry—sheet glass, plate glass, and float glass—are not impacted by the effluent guideline limitations. Relatively greater problems exist in the industrial segments of automotive glass tempering and lamination. To meet the standards, prices of tempered and laminated glass would have to increase by 0.1 to 0.3 percent. Increases would be passed on by glass fabricators so that the industry's current rates of profitability would not be affected. The capital required should be readily available.

Fruits and Vegetables. There are almost 1,400 plants in the United States that can, freeze, or dehydrate fruits and vegetables. They vary greatly in size, organizational structure, product mix, degree of diversification, and integration. Although about 70 percent process two or more products, plants are specialized in that they are located near concentrations of specific crops and they require specialized equipment. Many of the plants are relatively old, but new equipment has been added so that most are a combination of old and new equipment.

The industry's plants are frequently major employers in their areas. Further, they use a high proportion of unskilled seasonal workers. Curtailed production would therefore have an important impact on lower income levels.

In development of the standards, three segments of the industry were selected for controls: apples, citrus and potatoes.

These three would have to invest $26.1 million to meet 1977 standards; annual costs would be $3.6 million.

Of the 105 plants involved in processing citrus fruit, 41 are strictly citrus processors. The remaining process other fruits or vegetables. About one third of the plants are tied to municipal treatment systems and one third have technology in place that can meet 1977 standards.

Orange juice, which constitutes 90 percent of the industry's business, was used to represent citrus products in general. Small plants making frozen concentrates would have to increase prices 1.9 to 2.5 percent to recover the costs of pollution control. For plants producing single-strength juice, increases would have to be 4.4 to 5.5 percent. Since the two forms are competitive, the ability to pass costs on may be limited by the fact that two thirds of the plants will not be affected by the standards. Therefore, price increases would most likely be on the order of 1 percent.

Two single-strength plants should have difficulty meeting the standards. They represent 6 percent of single-strength output. If past trends in the canning and freezing industry continue, eight citrus plants would be expected to close by 1977 and 10 more by 1983. However, the standards may hasten the closings so that all 18 would close by 1977. Of the 10,600 employees in the citrus processing industry, only 1.5 percent would lose jobs because of water pollution abatement.

Since over 40 percent of canned orange juice is exported, any major reduction in production could result in losses of exports. Larger plants, however, would probably take up any slack.

Of the 144 plants that process canned or frozen apple products, about 29 pack only apple products. As with citrus processors, two-thirds of apple processors are tied to municipal systems or have technology in place to meet the 1977 standards. The ability to raise prices to recover the 1977 pollution costs may be limited to less than 1 percent. Four plants may have to close, affecting 0.5 percent of the apple processing industry's 14,650 employees. In addition, 12 plants would normally be expected to close by 1977 for other reasons and 13 might have to close early because of the standards.

Prices of potato products may increase by 1.5 to 1.8 percent from the 1977 standards; however, this is only a preliminary estimate since little information is available for analysis.

Grain Milling. Assessment of the grain mill products industry was limited to flour and other grain mill products (including dry corn milling), rice milling, and wet corn milling. These segments account for 20 percent of the industry's establishments and 35 percent of its capacity. The number of plants and companies has been decreasing in all three segments in recent years.

In flour mill products, only corn wet milling will be affected by the 1977 standards. Most of the mills with process wastewaters discharge into municipal systems. For plants that discharge directly to surface waters, the impacts are slight. All rice milling operations discharging wastewaters are tied to municipal systems.

Only in corn wet milling will the cost impact be appreciable. However, no closures or production curtailments are expected. Of 17 plants, five (representing 30 percent of industry capacity) now discharge directly to surface waters; three have some biological treatment facilities, one is constructing a treatment system, and the fifth will soon discharge to a municipal system under construction.

Wet corn milling plants discharging directly to surface waters face the greatest cost burden. To completely cover costs, prices would have to increase 1.2 to 1.9 percent. However, because of the competitiveness of the industry, it is possible that price increases may amount to no more than 1 percent. Thus profitability of some firms would decrease.

The most serious problem may be some mild curtailment of industry growth. Wastewater flows are substantial, and effluent overloads and periodic spills are a recurring problem. Before output can be significantly expanded, improvements must be made in controlling these problems.

Industrial Phosphates. Phosphorus and its nonfertilizer derivatives are the principal products of the industrial phosphates industry. In general, the same companies that make elemental phosphorus also make the derivatives. With two exceptions, the producers are large chemical or petroleum companies for whom phosphorus and derivatives represent only a small percentage of total sales. The companies usually use the products to make other products, creating problems in estimating the profitability of individual products.

Phosphorus is produced by six companies in 28 plants; in addition, TVA is a major producer. Production is concentrated near deposits of phosphate rock in Florida, Tennessee, and the Idaho-Montana area. Because phosphorus plants are generally located near raw materials and because phosphorus is the most

economic form in which to transport phosphate values, phosphorus derivatives are usually produced at other locations.

The pollution control costs required for the industry to meet 1977 standards range from $1.40 per ton for food grade dicalcium phosphate to $4.60 per ton for phosphorus. These costs represent an increase of no more than 1.6 percent of current selling prices. A cost increase of this magnitude should have no measurable impact on productive capacity or the economic viability of the industry.

Inorganic Chemicals. The study of a part of the inorganic chemical industry analyzed 23 chemicals: aluminum chloride, aluminum sulfate, chlorine and caustic soda, hydrochloric acid, hydrofluoric acid, hydrogen peroxide, lime, nitric acid, sulfuric acid, calcium carbide, sodium sulfate, titanium dioxide, sodium chromate and bichromate, potassium bichromate, sodium bicarbonate, sodium chloride, sodium silicate, sodium, sodium sulfite, calcium chloride, soda ash, and potassium sulfate.

There is no definite indication that any significant economic impact will result from the 1977 standards. Some small, older plants that are already marginal may be forced to close, but they generally comprise a very minor segment of the industry. With present market conditions, most costs can probably be passed on, at least to the extent that profitability will not decrease markedly. The long-term growth of the industries may be slightly impaired, but these impacts will be far overshadowed by such factors as market trends, technological advances, and productivity.

Price increases ranging from 0 to 20 percent are possible for lime, titanium dioxide, sodium chloride, sodium sulfite, and potassium sulfate. Sodium chromate and bichromate prices might increase by about 3 percent, but for all the other inorganic chemicals studied, increases will be less than 2 percent, and in some cases, even zero.

Several products appear to be more sensitive to costs because of a wide variability in control costs, low profits, or special market situations. Chlorine-caustic plants using mercury cells will incur greater costs than those using diaphragm cells. For the four or five plants that have not yet invested in controlling mercury, costs may be prohibitive, and one or two of them may close prior to 1977.

In the lime industry, 25 percent of the plants are achieving zero discharge. The remaining plants will try to pass their abatement costs on to the customer. In cases with unique supply-demand situations, the producer may be able to pass on his

full cost, but in general a large segment of the lime industry will be at a competitive disadvantage, which may force some small plants to close.

In titanium dioxide production, the major problem arises over the fact that abatement costs are higher for sulfate than for chloride process plants. Current market conditions will probably allow some cost differential to be passed on. Sodium bichromate will probably not be able to pass on abatement costs because of increased competition from imports and substitute products. After-tax profits of bichromate producers could decrease by 30 percent if all costs of 1977 standards had to be absorbed.

Plant closings in the inorganic chemicals industry will depend on both market trends and abatement costs, making it difficult to determine the effects of possible unemployment. The facilities expected to close, however, are generally small and so are a small portion of the industry's labor force.

Since there are now few substitutes for these inorganic chemicals, industry growth would probably not be significantly affected by the standards. To some extent, however, price increases, coupled with minor decreases in profitability and rates of return, might slightly retard the industry's future growth potential.

Leather. The leather tanning and finishing industry consists of a wide diversity of firms, ranging from small family-owned companies and closely held corporations to divisions of large conglomerates. Almost 50 percent of the firms are located in Massachusetts and New York. Over 70 percent of the plants are in buildings 50 years or older, but a substantial number have been rebuilt and modernized. Most plants are highly specialized because tanning equipment and processes are specialized; also, shoe manufacturing has been and continues to be the principal consuming industry, accounting for about three-quarters of all leather used in 1972. It is primarily the 176 wet process tanners that will be affected by the effluent guidelines.

Meeting the 1977 standards would involve capital expenditures of some $37 million, a substantial proportion of the industry's total fixed investment of $130 to $140 million. Raising capital may pose a severe problem.

In this competitive industry only the large firms, which produce at least two-thirds of the total industry volume, can be expected to be able to pass on the entire cost in price increases. Assuming that 60 percent of tanneries are linked to municipal systems, with several large plants incurring only pretreatment costs, acutal price increases will probably range from 0.6–1.3%.

The 1977 standards may force closing of about 21 small

plants (most of which are not linked to municipal treatment systems). About 2.8 percent of industry capacity and 4 percent of its employees would be affected by the guidelines. An additional 2,850 employees in the leather manufacturing industry might also be affected. An additional 28 plants, affecting about 16 percent of current production, are predicted to close for reasons unrelated to pollution abatement.

Meat Packing. In mid-1973, there were almost 6,000 livestock slaughtering plants in the United States, down from 6,400 in 1971. Many have closed as Federal inspection requirements have been more vigorously enforced. Employment has also dropped as highly automated plants increased the productivity of plant labor.

The industry is characterized by a preponderance of single-plant firms generating a high dollar value of sales. After-tax profits have traditionally been around 1 percent, with smaller local and sectional packers usually doing better than larger regional and national packers. Plants are found in every State, with Iowa, Nebraska, and Texas leading in pounds of liveweight killed. Two factors govern plant location—concentration of fed livestock for slaughter and concentration of demand. The trend in recent years has been to locate plants near livestock.

The study focused on the 1,400 plants that slaughter more than 2 million pounds liveweight annually. If these plants are to meet the 1977 standards, they will have to invest roughly an additional $44 million; operating costs as a percent of sales range from 0.04 to 0.16. The price increase required at the wholesale level to recover all the costs would range from a low of 0.04 percent for large packing houses with baseline controls already in place to a high of 0.5 percent for small slaughter houses with only primary controls currently in place. Because of competition, the actual long-term price increases within the industry should be about 0.1 percent. The increases will be relatively small from the point of view of the consumer but may be very significant to an industry with low profitability.

Potential closings necessitated by the standards are estimated at about 10 plants representing less than 0.2 percent of industry capacity and 400 employees. The small slaughter houses with disproportionate pollution control cost and lower operating efficiencies are most likely to be affected. As many as three-quarters of meat packing houses and slaughter houses are located in communities of less than 10,000 population, so a plant closing could have a noticeable effect on the local economy. Many small communities have only one plant, so that opportunities for reemploy-

ment in new or remaining plants in the industry will probably be low.

Nonferrous (Aluminum Only). The proposed standards are expected to have only minimal effects on the secondary aluminum sector and practically no impact on the primary sector. While similar conclusions have been reached concerning the bauxite refining sector, two plants in this industry (representing about 24 percent of total industry supply) are likely to incur very significant cost in meeting the proposed standards. There are good reasons to believe that these plants will remain open, but such decisions ultimately lie with company management.

Within the primary aluminum sector, the current trend toward dry scrubbers to control air pollution should minimize if not eliminate the problems of water pollution control. Accordingly, there should be only minimal cost in meeting the proposed effluent limitations for 1977 and 1938. No price increases, no plant closings, or unemployment are anticipated. Further, there should be no impacts on the balance of trade or industry growth.

Noticeable price increases are not expected within the secondary aluminum industry as a result of the proposed standards. With the exception of the wet dross processing sector, cost increases are expected to be less than 1.1 percent of the sale value of aluminum. Excepting isolated cases of regional monopolies, competition should prevent these costs from being passed on as price increases. Plant closings are expected only in those plants using wet processes for dross and slag milling. In such plants the combined 1977 and 1983 proposed guidelines could lead to cost increases equal to 6 percent or more of the sale value of aluminum. There are six known wet dross operations, representing approximately 160 employees and less than 1 percent of total aluminum production.

The majority of the costs for meeting the proposed guidelines have already been incurred by seven of the nine plants in the bauxite refining sector. Cost increases for these seven plants are expected to range from zero to 2 percent of the sale value of alumina, depending on the levels of control already in place. Cost increases for the remaining two plants may equal as much as 25 percent of the sale value of alumina. Due to the low cost increases for the other seven plants, it is not likely that the cost to these two plants can be recovered through price increases. Their estimated cost for meeting the proposed guidelines are quite high; investment costs are equal to about 18 percent of replacement cost of refining facility, and annual costs are equiva-

lent to 30 percent or more of the total profits normally realized on the manufacture of finished aluminum. In light of some distinct advantages to overseas bauxite refining, these high costs may cause the owners to give serious consideration to closing these plants. Such actions could result in significant short-term disruptions within the aluminum industry. In addition an estimated 1,200 jobs would be lost, with potential secondary unemployment for an additional 2,500 people.

Organic Chemicals. The organic chemical industry produces 80 to 90 million tons of chemicals each year. Thousands of compounds are made, ranging in production volume from a high of about 10 million tons of ethylene to very small quantities of reagent chemicals. However, 70 chemicals or classes of chemicals account for about three-fourths of the industry's sales.

Nearly 500 companies are engaged in producing organic chemicals; the four largest account for a minimum of 36 percent and the first hundred for more than 92 percent of total shipments. At the other end of the spectrum are 220 plants with less than 10 employees each. The large plants produce a wide variety of different chemicals, and their effluent will generally be treated in a centralized water treatment plant. Many smaller plants dump their effluent into public sewer systems.

The basic organic chemicals are generally produced in large-volume continuous process plants located near their raw material sources—natural gas fields, petroleum refineries, or coke oven operations. Because the basic chemicals are the raw material for upgraded intermediates, these intermediates are frequently made in the same plant to save freight cost, or by purchasers at adjacent plant sites that receive the basic organics by pipeline.

About 35 percent of the industry, based on number of employees, is located in the Northeast. New Jersey accounts for about one-quarter of the industry's total employment. The South is responsible for nearly 45 percent of employment (and much larger percentage of tonnage). The Midwest accounts for less than 20 percent and the West has less than 5 percent of the organic chemical industry's employees. The Gulf Coast, principally Texas and Louisiana, is predominately the source of basic organics, while the Northeast accounts for a major share of the upgraded products such as dyestuffs, flavor and fragrances, and other high-value, low-volume products.

The investment required for the organic chemical industry to meet the 1977 standards is roughly $1.03 billion; annual costs are $210 million. There is no definite indication that any sig-

nificant economic impact would result from imposition of the standards. Overall, potential price increases range from 1 to 4 percent for the majority of products, but can go as high as 6 to 12 percent for several of the products with the most difficult waste treatment problems (ethylene glycol, ethylene dichloride, caprolactam, ethyl acrylate, acetic acid, para-cresol, and aniline). Since the majority of these products are commodity chemicals with few substitutes, potential price increases will probably be passed on rather than absorbed by the manufacturer.

A seemingly critical area is the small-volume producers of intermediates and end products. Unfortunately, little information is available to facilitate an analysis of their water pollution control costs. For dyes and organic pigments, costs appear to be 2 to 5 percent of selling price but 20 to 50 percent of the selling price of plasticizers. Although many of the producers in this category discharge their wastes into municipal treatment facilities, those plants without access to such a discharge route will probably be forced to close. Firms with less than 20 employees will be most severely affected. Generally, they are located in major urban areas in the Northeast, where the community impacts of any resulting unemployment would be minimal.

Plastics and Synthetics. The plastics and synthetic polymer manufacturing industry covered in the study consists of approximately 280 companies, many of which have multiple plants. Production in 1972 totaled 12,661,000 kkg. The plants are located throughout the United States and its territories, with most major production units located in the Gulf Coast, Midwest, and South.

The plastics and synthetic polymer industry will have to invest $300 million to meet the 1977 standards. Pollution control investment costs are roughly 30 percent of current industry investment based on 1967 figures. For the majority of the industry, price increases of 0.1 to 2.4 percent would be needed to recover the costs. Given the current market, including competition from lower-priced imports, such increases are unlikely. Rather, the near-term result will be a decrease in profitability. In either event, the impact does not appear to be severe, although some already marginal plants may be forced to close from the added burden of pollution costs.

For the plastics industry, the overriding factor is whether increased costs will be able to be passed on to the consumer. In 1971, the industry was overproducing, profits were low, and costs could probably not have been passed on. The reverse

was true in 1973, and prices could have risen except for price controls. Based on past history, supply may again exceed demand, making it difficult to pass costs on.

Among the synthetics, there would be no great economic impact on production of viscose rayon. At present, rayon staple producers are optimistic because prices on competitive fibers, cotton and polyester staple are expected to rise. With demand and prices high, producers would switch to staple should demand for textile filament and industrial filament decline. The situation with cellophane producers differs. Markets have been declining and show no signs of a turnaround. Costs are rising, and although they may be offset by increasing costs for competitive materials, this segment does not have the same pricing flexibility as does viscose rayon. The standards are expected to make production of cellophane decline still further. They should have a negligible effect on cellulose acetate and triacetate fibers, however, since producers appear well on their way to compliance.

Petroleum. The costs for the petroleum industry to meet the 1977 standards are approximately $637 million, with an annual cost of $255 million. For the 1983 standards, the total costs are approximately $625 million, with an estimated annual cost of $250 million. In terms of production costs, the annual cost amounts to approximately 5.8 cents per barrel by 1977 and 9.8 cents per barrel by 1983. Although many refineries will be forced to provide additional capital for in-plant alternatives for water conservation (average of 2.3 cents per barrel by 1977), only a small portion of these expenditures would be reflected in price increases, which are estimated to be about 0.1 cents per gallon by 1977 and 0.2 cents per gallon by 1983.

There is tremendous variability in the treatment costs in refineries of less than 25,000 barrels, as compared with the relative stability of costs for larger refineries. Two to 11 small refineries representing at most 0.3 percent of current capacity may incur pollution abatement costs large enough to force their closure. Approximately 100 to 500 out of the 150,000 refinery employees would be the maximum number to face job losses. Since these refineries are located in several geographical areas, the community and regional impacts of even the maximum unemployment do not appear to be substantial.

Although the $1 billion required expenditure for water pollution control appears to be relatively large, it is not expected that this requirement will jeopardize the petroleum industry's capacity for expansion throughout the decade. Estimated capital expenditures for the petroleum industry in 1971 were approxi-

mately $7 billion. Furthermore, the industry itself claims to have spent $288 million in 1972 alone on water pollution abatement, while the 1977 guidelines would require annual capital expenditures of only $250 million. With rapidly increasing profitability, the industry should find the needed capital.

Rubber. The U.S. rubber industry consists of two segments. The first is 28 plants producing different types of synthetic rubber; 18 plants producing a single rubber are part of a diversified plant complex manufacturing other products such as rubber processing chemicals, plastics, and organic chemicals. Most plants are located in heavily industrialized areas, and in the case of synthetic rubber, near sources of raw materials and refineries.

The second segment of the rubber industry consists of 56 plants producing tire and tube products. The plants vary in capacity from 5,000 to 30,000 tires per day. Water pollution problems depend in part on the age and general maintenance of the plant, since most water originates from washdown of facilities and blowdown of cooling water. However, most tire plants have been expanded and modernized since 1967 when belted bias tires were introduced. Older plants located in heavily built-up industrial sections have no land on which to build ponds and lagoons, while the newer ones in less confined areas do.

Most firms in the industry are large with a high level of integration, some of which are owned by the petroleum industry and some of which are not involved in the manufacture of consumer products.

The standards will not seriously affect the economic viability of the rubber industry. The probable price effect on tires and inner tubes is less than 0.8%; and for the synthetic rubbers, the effect is less than 1% except for SBR latex, where the price effect is as high as 3.5 percent. Thus, while price increases of around 1 percent will occur in most segments, not all producers will be able to recover the full cost of pollution by raising prices. The required annual costs for plants in the industry are estimated to range from 0 percent to 3.1 percent of sales.

Timber. The timber industry assessment focused on three segments. Their products are generally noncompetitive; the sectors are in differing states of growth; and, the companies active in one sector are not necessarily active in another.

Hardboard is manufactured primarily from wood cellulose fiber and is used for paneling, siding, furniture, and millwork. The product can be producted by the "dry process," which uses little process water, and by "wet process," which is analogous to the

manufacture of pulp and paper and uses substantial process water. The study considered 17 dry process mills and nine wet process mills.

The plywood and veneer sectors was further broken into softwood plywood/veneer and hardwood plywood/veneer. Products within each sector are generally not competitive. Softwood plywood is used for structural applications—for example, exterior sheathing and residential homes; hardwood plywood is used for its decorative qualities—in furniture, for example. Moreover, while both industries have approximately the same number of plants (200), the total output of hardwood plywood and veneer is approximately 12 percent of the softwood sector. The softwood industry is concentrated in the Pacific Northwest and in the Southeast.

The hardwood plywood and veneer sector is characterized by small operations owned and operated by an independent business. The industry is concentrated in the mid-South and Southeast, and also in the North Central and Northeast States.

The third sector of the timber industry is the wood preserving industry. It is composed of more than 400 plants, many of which are small, privately owned companies with long-standing technology and largely depreciated plant and equipment. The top four producers account for about 35 percent of production and are owned by large, public corporations in the chemical and timber products industries.

The 1977 standards will have essentially no major impact on the hardboard and the softwood plywood sectors. The impact is focused more specifically on hardwood plywood and wood preserving, since these industries are more the province of the small, independent business. There will be essentially no overall production in curtailment in any of the four industry sectors. Where plants are forced to close, they will be smaller firms, with relatively little impact on total industry output. In addition, with the exception of the hardboard industry, which is operating at more than 90 percent of capacity, the industry is characterized by flexible capacity. (Certain producers move in and out of production depending on price/profitability levels.) The industries typically operate at 70 to 80 percent of total capacity. Thus, any production deficiency that results from plant closures can be offset by the remaining facilities.

About 75 to 85 plants are predicted to close due to the effluent guidelines. In most cases, these plants are already marginal because of their low profitability over the preceding 5 to 10 years.

The added burden of air pollution abatement costs and difficulties in raising capital may result in a shutdown decision.

Price increases will vary by industry segment, but will range from 1 to 8 percent. Unemployment effects will impact most severely on operations in the mid-South and Southeast. The total effect on unemployment will not be great, perhaps 1600 nationwide, but for 30 to 40 individual communities, as much as a quarter of the work force could become unemployed.

Construction Industry

Recent legislation will make it necessary to increase substantially the rate of construction of new water pollution control facilities and the modification of existing facilities. An increase of the magnitude called for in the 1972 Amendments (from close to $3 billion/year in 1971 to $9 billion/year in 1976) will place additional demands on the capacity of the construction industry to produce these facilities and possibly create an unacceptable increase in the cost of the facilities or in construction costs in general. EPA initiated several studies in order to assess the impact of these expenditures on the construction industry as a whole and the impact on particular sub-sectors of the construction industry.[10]

One type of study estimated the impact of the incremental EPA-stimulated demand on the price and output of the construction industry. Since this type of study assumed that past relationships will hold in the future, unforeseen events such as the energy crisis may lead to basic changes in the system and therefore outcomes may be very different from those predicted. A second type of study examined the possible existence of specific bottlenecks, such as the supply of skilled labor or entrepreneurs, that would limit the construction industry's capacity to meet EPA stimulated demand. The following material describes

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[10] George F. Brown, Jr. and Louis Jacobson, "An Assessment of the Sabotka Study," Order No. P3-01-02905, September 1973.

Bureau of Labor Statistics, Department of Labor, "Manpower Implication of Alternative Levels of Sewer Construction," Agreement No. EPA-IAG-0240 (D), October 1973.

Chase Econometrics Associates, Inc., "The Economic Impact of Pollution Control Expenditures Needed to Meet Waste Water Discharge Standards by 1980 with Particular Emphasis on the Effect on Construction Prices," Contract No. 68-01-1532, April 1973.

Stephen Sabotka and Co. and McKee-Berger-Mansueto, Inc., "The Economic Impact of the Additional Demands Caused by New Environmental Protection Standards," Contract No. 68-01-0554, December 1972.

in some detail one of the macro studies and summarizes the qualitative discussion on specific bottlenecks.

Macro Estimate. Very little analytical work has been performed examining the questions considered in this report. In particular, the study described in this section [11] is only an initial effort to determine the flexibility of construction supply to meet increased demand. As such, the work must be considered preliminary and additional research is necessary to obtain definitive results.

The method of analysis used in this study is an econometric model. The model attempts to reflect the economic behavior of the construction industry through the use of mathematical techniques. A model by its very nature must make certain simplifying assumptions and specify only some of the many relationships which may bear upon the economic behavior of the construction industry. Thus a model represents an aggregation of many relationships. Some models are more complex than others as they attempt to specify the behavior of a particular industry. Accordingly, the results of any model should be viewed with due respect for the balance between detail and aggregation.

Before describing the model in more specific terms it is important to be clear about precisely what questions this analysis addresses. The analysis attempts to estimate the *incremental* impact on the level and price of construction given an *incremental* change in demand due to increased expenditure on water pollution control. The analysis does not examine the determinants of price increases that are unrelated to changes in construction demand. EPA does recognize, however, that the recent devaluation of the dollar has increased the demand for exports (such as a larger European demand for U.S. steel reinforcing rods) and that this change will increase the price of domestic construction and result in some shortages. Similarly, EPA recognizes that uncertainty about future prices and deliveries of inputs into the construction process may result in significant increases in the price of construction.

Description of Models. Model 1, an aggregate model of construction demand and supply, was estimated using annual time-series data for the period 1958–1972.[12] It includes two equations. One represents the demand for construction as a function of the

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[11] George F. Brown, Jr. and Louis Jacobson, "An Assessment of the Sabotka Study," Order No. P3-01-02905, September, 1973.

[12] The estimation was carried out using two-stage-least-squares (TSLS) regression procedures.

price of construction, the price of other commodities, the level of gross national product (GNP), and the mortgage interest rate. The second equation defines the supply of construction as a function of the price of construction, other prices, and the size of the prime-age male labor force.

Model 2 differs from Model 1 in two principal ways. First, Model 2 includes four equations representing the supply and demand of construction labor measured separately in terms of hours and numbers of workers. The supply of labor is specified as a function of the wage rate in the construction industry, the wage rate in manufacturing industries, and the size of the prime-age male labor force. The demand for construction labor is derived from an analysis of a model of production in the industry. Construction input is assumed to be a function of the levels of capital and labor used as inputs.

The second difference is that, rather than examining construction activity in the aggregate, Model 2 identifies five separate sectors and estimates demand and supply equations for each. The five sectors are private residential construction, private nonresidential construction, public building construction, public nonbuilding construction excluding sewers, and sewer construction. Over the period of estimation (1969–1972), these five sectors accounted for, roughly 45 percent, 24 percent, 12 percent, 17 percent, and 2 percent of total construction activity. These percentages have shown considerable volatility over time. The public sectors, in particular, can be expected to respond to various legislative programs. Thus, Model 2 consists of 14 equations: four for construction labor and 10 for construction activity.

Results of Models

Demand for Construction. When viewed in the aggregate (Model 1), the demand for total construction appears to be influenced to a far greater degree by overall factors in the economy, (for example, GNP and the interest rate) than by the price of construction. For example, a 1 percent increase in the price of construction is predicted to lead to a decrease of only 0.025 percent in demand. In contrast, a 1 percent increase in GNP would increase construction demand by 0.47 percent, and a 1 percent increase in the interest rate would lead to a 0.22 percent decrease in construction demand. The overall implication is that construction demand is quite price inelastic and is more a function of the overall state of the economy.

This same conclusion applies as well to each of the five sepa-

rate sectors in Model 2. For each sector, the estimated price elasticity of demand is less than unity. (However, the estimated coefficients are not statistically significant for all sectors other than sewers.) This implies that the percentage change in demand is smaller than the percentage change in price. On a relative basis, public building and public non-building construction respond more to price changes than do either of the private sectors. This may be due in part to the specific policy of using public construction projects to even out total demand.

The private sectors, which make almost 80 percent of construction activity, respond more strongly to GNP and the interest rate than to price. Other things being equal a 1 percent increase in GNP would lead to increases of 4.3 percent and 0.93 percent in private residential and private non-residential construction, respectively. A 1 percent increase in the interest rate also has a marked impact on residential construction—Model 2 predicts a decrease of 0.49 percent. This is to be expected. The major 'cost' of purchasing residential construction is the mortgage payment. Changes in the rate of mortgage interest are likely to have greater influence on the total cost of housing than change in construction price. Similarly, the major determinant of business investment in non-residential construction is the expected return from a given expenditure. The return is likely to fluctuate more closely with the general level of economic activity than with the cost of the project.

However, one might expect the interest elasticity of demand to be greater than the value estimated. A possible reason for the low value is that mortgage money is subject to considerable non-price rationing, particularly at the peak of business activity. Thus the relatively high elasticity of demand with respect to the level of GNP may reflect a high correlation between non-market rationing of mortgage money and GNP. If so, the analysis should have included a measure of the availability of credit (in addition to the rate of interest) in the model. While this variable would modify the importance of the GNP variable, it would not significantly change the estimate of the price elasticity of demand.

The impact of GNP on public construction is also sizeable. A 1 percent increase in GNP leads to increases of 1.2 percent in public building and 0.40 percent in public non-building construction. Increases in the interest rate, while also statistically significant, have a smaller absolute impact on the public sector construction demands. Decreases of 0.2, 0.37, and 0.46 percent in public building, non-building, and sewer construction demand

are predicted to result from a 1 percent increase in the interest rate.

In summary, the models suggest that:

- Construction demand is relatively price insensitive, particularly so in the private sector, which makes up the bulk of the industry demand.
- The level of GNP has a much more important impact on construction demand, suggesting that the level of economic activity is a primary determinant.
- The availability of credit may be a more important determinant than indicated by this model. However, it appears that the interest rate would have to undergo quite substantial changes to impact greatly on construction demand.
- The levels of GNP and the interest rate have relatively larger effects on private demand than on public demand.

Supply of Construction. Viewed in the aggregate (Model 1), the supply of construction appears to be quite responsive to both economic factors and the price of construction, which, unlike demand, responds very little to price changes. A 1 percent increase in the price of construction leads to an increase of 6.5 percent in construction volume, while an increase of 1 percent in the prime-age male labor force leads to an increase of 3.9 percent in construction supply. On an aggregate basis, this suggests that construction supply is quite price elastic: Small price changes lead to large changes in the supply of construction.

This same conclusion remains when the five-sector model is considered. The supply of construction appears to respond most to price changes in the private residential and public non-building sectors. The prices of construction inputs have, as predicted, negative impacts upon supply. Of the two variables, construction wage rates appear the more important: in four of the five sectors the wage coefficient exceeds the interest rate coefficient. The impact of construction wages appears particularly large in the public non-building sector: a 1 percent increase in wages is predicted to decrease supply by 1.9 percent. In no other category is the estimated elasticity greater than 1.0.

In summary, the supply of construction appears to have the following characteristics:

- Relatively small price changes elicit sizeable changes in the supply of construction.

- Construction supply increases with the size of the available labor force, but decreases with the price of inputs.
- The largest sector of construction, private residential, is also the sector in which price changes elicit the largest supply response.

Aggregate Impact of the Incremental EPA Stimulated Demand. The aggregate demand and supply curves described in Model 1 and estimated from annual time series data can be combined to assess the impact of additions to demand. An increase in incremental demand over the baseline is estimated to be $4.9 billion for the sewer component of the aggregated construction industry (Table VII–11). It is the component stimulated by EPA. Using the values of the estimated elasticities and parameters for Model I to estimate the aggregate impact on 1976 construction, an increase of $4.9 billion results in an increase in total construction of $4.6 billion and an increase in relative prices of 1.3 percent. One effect of higher prices however is to reduce the amount of construction that would take place in other segments of the construction industry. This explains why an increase of $4.9 billion in demand for one part of the construction industry results in a net increase in total construction of $4.6 billion.

This result is shown graphically in Figure VII–1. The impact of an increase in aggregate demand is to shift equilibrium price and quantity from (P1, Q1) to (P2, Q2). The increase in the one component is shown by the differences between Q3 and Q2. The price increase is shown by the difference between P2 and P1. Due to the price increase there is a decrease in demand by other components of the construction industry amounting to the difference between Q3 and Q1. Thus the net increase in total construction demand is shown by the difference between Q2 and Q1.

Construction Labor Market. The supply of construction labor, measured in terms of either hours or employment, appears to respond exactly as theoretically predicted. Wages in both the construction industry and in competing occupations are important determinants of labor supply. A 1 percent increase in construction wages is predicted to lead to a 2.0 percent increase in construction employment and a 2.2 percent increase in construction hours, while a 1 percent increase in alternative (manufacturing) wages is predicted to lead to a 2.7 percent decrease in employment and a 3.2 percent decrease in hours. The size of the male labor force is similarly an important determinant of supply:

TABLE VII–11
PROJECTED EPA-STIMULATED AND EPA BASELINE CAPITAL OUTLAYS FOR POLLUTION CONTROL FACILITIES

Facilities	1974	1975	1976	1977
		(billions of dollars)		
Municipal*				
EPA Stimulated (4–4 plan)	0.8	2.1	2.8	1.8
Baseline	2.8	2.9	3.0	3.2
Total	3.6	5.0	5.8	5.0
Nonthermal Industrial Costs†				
EPA Stimulated	1.5	1.5	1.5	0.9
Baseline	1.0	1.0	1.0	1.0
Total	2.5	2.5	2.5	1.9
Thermal Industrial Costs‡				
EPA Stimulated	0.5	0.6	0.6	0.6
Baseline	--	--	--	--
Total	0.5	0.6	0.6	0.6
Total EPA-Stimulated Costs	2.8	4.2	4.9	3.7

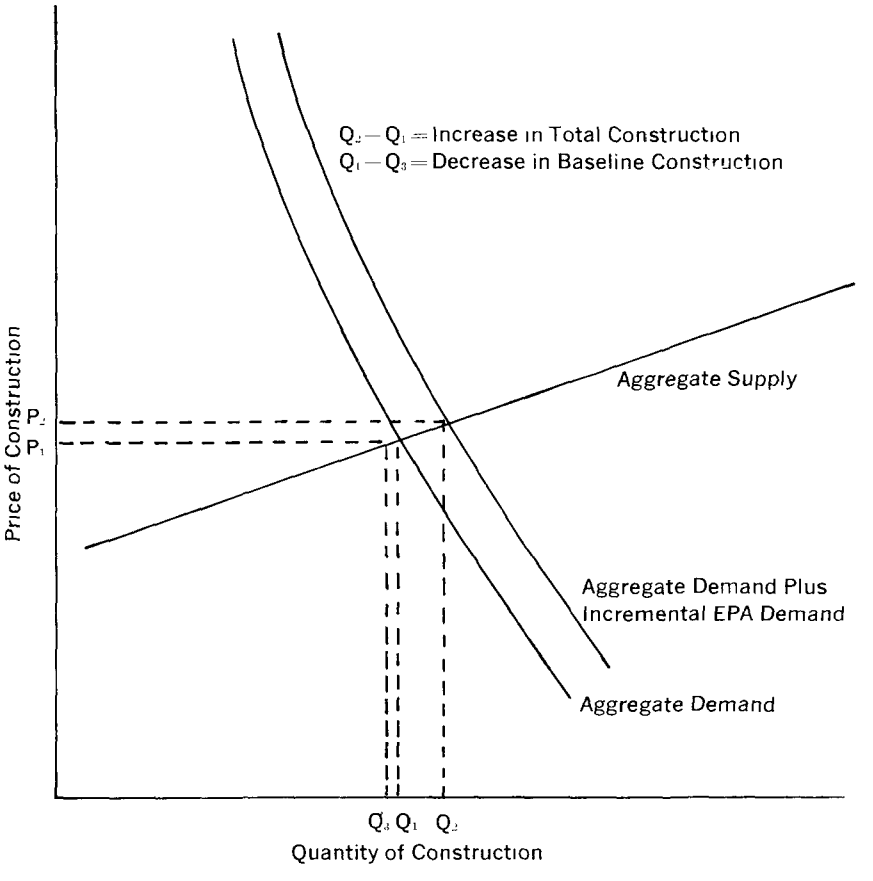
*This capital outlay reflects an allotment of $4 billion in FY 1975 and $4 billion in FY 1976.
†This capital outlay is based on the $11.9 billion estimate in Chapter 4 to achieve best practicable treatment. It assumes $2.5 billion capital outlays in years 1973–1976 and a $1.9 billion capital outlay in year 1977.
‡This capital outlay is based on the $2.3 billion estimate in Chapter 4 to meet the thermal effluent guidelines given the exceptions provided by Section 316 of the 1972 Amendments. It assumes a $0.5 billion capital outlay in year 1974 and $0.6 billion capital outlays in years 1975–1977.

A 1 percent increase in the male labor force is predicted to lead to a 1.7 percent increase in employment and a 2.7 percent increase in hours. All of these estimated coefficients are statistically significant.

These results suggest a large and flexible supply of labor to the construction industry. Both the expanding labor force and the rapid supply response to wage changes suggest that the changes in construction activity can be conducted by the existing labor force. (The data did not enable estimates of production functions using disaggregated labor categories. Hence the wage and employment figures represent the current aggregate of skill classes and are not particularly applicable to predicting specific skill shortages that may occur.) Quantitative estimates of these impacts can be deduced from the reduced form employment and hours equations, which result from "solving" the demand and supply equations to give equations relating the endogenous variables to the exogenous variables in the model. From these reduced form equations, the elasticities of construction hours and wages are estimated to be 0.86 and 0.20, respectively. Given the estimates of a $4.6 billion in aggregate construction, these elasticities imply an impact of increasing construction hours by 2.8 percent and of increasing construction wages by 0.7 percent.

One additional observation about the construction labor market comes from the estimated labor demand equations. The elasticities of total construction activity on employment and hours are 0.69 and 0.89, respectively. This suggests that the demand reac-

FIGURE VII–I
SUPPLY-DEMAND RELATIONSHIPS OF THE CONSTRUCTION INDUSTRY



tion may be more heavily concentrated on increased hours per worker than on additions to the construction labor force. Thus, the potential for expansion of hours suggests further capacity for handling short-term fluctuations in construction activity.

Model 2 was augmented to permit estimation of demand and supply for four important skill categories of construction labor—bricklayers, iron workers, plumbers, and electricians. They account for 15 percent of year-long sewage plant construction jobs and 30 percent of the construction trades jobs (Table VII–12).

A 1 percent increase in wages will lead to increases of 3.0 percent in the number of plumbers, 1.8 percent in the number of electricians, 3.3 percent in the number of bricklayers, and 1.8 percent in the number of iron workers. These predictions closely correspond to the 2.0 percent increase predicted in aggregate construction labor.

As was the case for aggregate labor, hours respond even more rapidly than employment. A 1 percent increase in wages is predicted to lead to an increase in hours worked of 3.7 percent for plumbers, 2.9 percent for electricians, 4.0 percent for bricklayers, and 2.4 percent for iron workers, versus the overall aggregate estimate of 2.2 percent. This might suggest that barriers to entry, either union-induced or the result of the higher levels of skills required, lead to proportionately larger increases in hours in these four categories than in the other categories. The possibility that these barriers may be somewhat union-induced is further

TABLE VII–12
ON-SITE YEARLONG JOBS REQUIRED FOR SEWAGE PLANT CONSTRUCTION (1971)*

	Number/billion dollars of sewage construction	Percent of total
Administrative & Supervisory	2,260	9.1
Supervisors & General Foreman	(1,740)	(7.0)
Professional & Technical	(200)	(0.8)
Clerical	(320)	(1.3)
Construction Trades	13,000	52.5
Bricklayers	(450)	(1.8)
Carpenters	(3,200)	(12.9)
Electricians	(870)	(3.5)
Iron Workers	(1,120)	(4.5)
Operating Engineers	(4,565)	(18.4)
Painters	(320)	(1.3)
Plumbers	(1,290)	(5.2)
Cement Finishers	(645)	(2.0)
Other Skilled Trades	(570)	(2.3)
Labor Foremen	570	2.3
Laborers†	7,365	29.7
Other Occupations‡	1,590	6.4
All Occupations	24,800	100.0

*Based on 1,800 man-hours a year per job.
†Includes laborers, helpers, tenders, pipelayers, flagmen, and watchmen.
‡Includes truckdrivers, oilers, and power tool operators.
Source: Bureau of Labor Statistics.

supported by the fact that the estimated elasticities of employment and hours for the size of the male labor force are below those obtained for aggregate labor.

In terms of the impact on wages, a 1 percent increase in total construction activity will lend to increases in the wages of plumbers by 0.06 percent, of electricians by 0.20 percent, of bricklayers by 0.02 percent, and of iron workers by 0.14 percent. These estimates are slightly below those obtained for aggregate labor. Given the $4.6 billion increase in overall construction in the peak year, the model predicts rises of 0.2, 0.7, 0.1, and 0.5 percent in the wages of plumbers, electricians, bricklayers, and iron workers, respectively, from EPA-stimulated demand.

In summary, the labor market flexibility predicted in the aggregate analysis appears to carry over to these four skill categories. An increase in the demand for labor is met to a greater extent by increases in hours and a lesser extent by increases in numbers of workers at least in the short run.

Impact of Capital Markets on Construction. An earlier section of the report concluded that the impact of the EPA-stimulated demand on interest rates would likely be quite small. (For example, peak year incremental funding requirements represent only about 3.0 percent of 1970 gross private domestic investment and 1.0 percent of 1970 mortgage debt.) In addition, the results presented earlier suggest that only very large interest rate changes would substantially impact on construction activity. Even if EPA-stimulated demands cause interest rates to rise as much as 1 percent, overall construction would probably decrease by only 0.22 percent, with a maximum decrease (but of only about 0.49 percent) in the private residential construction category. These liberal estimates of the impact via the capital markets suggest that impacts induced by interest rates will probably be negligible.

Sector Impact. In assessing the impact of the EPA-stimulated demand on the five construction sectors contained in Model 2, it is important to note that the overall impact is predicted to be a decrease of $0.3 billion in the peak year. The private residential and the public non-building sectors are estimated to have the largest relative decrease in construction activity due to their (relatively) high demand elasticities and (relatively) low supply elasticities. Of the predicted decrease in baseline construction, $0.16 billion would be concentrated in the private residential sector and slightly less than $0.15 billion in the public non-building sector. (A conceivable reason for the high demand elasticities for the public sectors is that public works projects are timed somewhat to smooth the overall level of construction activ-

ity. Thus these estimates could be somewhat in error if the practice of contracting for public building in periods of slack activity [low prices] is not continued.)

Bottlenecks. To supplement the studies discussed above which examined the flexibility of the construction industry, additional studies were carried out that attempted to examine the possibility of bottlenecks developing that could not be foreseen using the more formal techniques.[13] These studies were based primarily on an examination of the institutional framework of the construction industry. Possible supply bottlenecks examined were manpower, entrepreneurial skills, and construction materials.

Manpower. The ability of the economy to supply sufficient manpower to meet the needs generated by the increased demand for pollution control construction was examined by a special report prepared for EPA by the Bureau of Labor Statistics (BLS). The conclusions of this study can be summarized by the following quotations from the BLS report: "The construction industry in the past had demonstrated a remarkable capability to expand its work force to meet short-term spurts in demand. Shortages in certain construction occupations do occur, however, in some geographical locations during periods of peak demands or as a result of shifts in the composition of construction engineering." [14] These findings are consistent with the results generated by the formal model of labor supply. While there is clearly a potential for a bottleneck to develop, the labor market in the past has been able to adjust adequately. The BLS study did suggest expansion of formal training programs in the certain construction trades to prevent future bottlenecks.

The Sabotka study also examined labor supply conditions and reached similar conclusions with regard to the overall sufficiency of supply. However, the study pointed out that the degree of union power is very large and may lead to significant price increases, particularly if the growth of construction output is sustained at a high rate.

A major problem not specifically addressed in the above

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[13] Bureau of Labor Statistics, Department of Labor, *Manpower Implications of Alternate Levels of Sewer Construction,* Agreement No. EPA–IAC–V0240(D), Oct., 1973.

Stephen Sabotka and Co. and McKee-Berger-Mansueto, Inc., *The Economic Impact of the Additional Demands Caused by New Environmental Protection Standards,* Contract No. 68–01–0554, Dec. 1972.

[14] Bureau of Labor Statistics, Department of Labor, *Manpower Implications of Alternate Levels of Sewer Construction,* Agreement No. EPA–IAC–V0240(D), Oct., 1973, p. 38.

studies is the possible impact of Davis-Bacon type legislation. This legislation calls for the payment of the "prevailing" wage on government-supported construction projects. The prevailing wage has come to be defined as the union scale. In many labor markets this represents a significant increase in the construction wage over the actual prevailing level. Frequently this inhibits non-union contractors from bidding on contracts. This institutional arrangement means that even if sufficient capacity exists for an expansion of construction output it will be used only if there is a considerable price increase. In fact, a large increase in Federally-assisted construction, such as called for in the 1972 Amendments, may lead to large increases in construction prices. One study has estimated that a 10 percent increase in the proportion of Federally-financed construction would increase union wages by 6.8 percent relative to wages of production workers in manufacturing.[15]

Entrepreneurial Skill. The large number of contract construction firms, the ease of entry, and the relatively general skills needed to produce water pollution abatement facilities have been pointed out as factors facilitating the expansion of this type of construction. However, there is the possibility that several barriers to expansion exist. The small firm size makes the possibility of business failure very high. This means risk premiums add significantly to the cost of construction. These take the form of performance bonding, which is a type of insurance and high interest rates on bank loans. Also, "tight money" conditions may make an expansion of construction output very difficult.

In addition, the riskiness of construction may cause firms to greatly increase their bids on slightly unfamiliar tasks. The Sabotka Study indicates that while this inhibits expansion it does not inhibit expansion significantly.

Construction Materials. The Sabotka report indicates that the supply of construction materials "could expand to meet any foreseeable demand for the next decade though there might be lags and local shortages." In light of the recent fuel shortages and devaluation of the dollar this optimistic view may need revision. Such commodities, such as steel reinforcing rods, timber products, and even concrete, may greatly increase in price.

Equipment Supply

Meeting the new effluent standards will have an impact on in-

[15] John P. Gould, *Davis Bacon Act: The Economics of Prevailing Wage Laws*, Special Analysis Number 15 (Washington, D.C.: American Enterprise Institute, 1971) p. 38.

dustries supplying water pollution abatement equipment, especially during the critical period of construction activity extending from 1972 through 1980.[16]

Since industrial activity in the water pollution abatement equipment field cannot be forecast with precision, the demand and impact analyses were performed assuming three alternative futures: (I) a *Baseline* scenario that extrapolates pollution abatement activity from a base year predating major environmental legislation; (II) a *Federal Compliance Schedule* that simulates on-time enforcement of existing standards; and (III) an *Expected Compliance Schedule* that reflects forecasts of what may alternatively occur.

The following analysis was completed in 1972. It was based on statements of equipment suppliers and secondary statistics. Its primary focus was on the productive capacity of the industry rather than the availability of raw material and skilled labor inputs. The latter categories may cause, as recent evidence indicates, some disruptions in short-time supply.

Pollution Abatement Equipment Industry. More than 400 firms participate in the water pollution abatement equipment industry. The four volume leaders hold about 20 percent of the market, which totaled about $475 million in 1971—about $275 million for wastewater treatment and $200 million for water treatment.

The market structure of the industry is complex, frequently involving multiple layers of municipal governments, consulting engineering firms, contractors, local health departments, and federal agencies. One effect of this marketing structure is an extended delay (3 to 5 years) between the decision to buy equipment and its delivery. A second, and maybe more important, effect is the pressure on these parties to protect their respective positions by conservative decision-making. As a result, the municipal water pollution control market is generally slow to respond to federal compliance pressures and to technological change.

The industry has enjoyed glamour status, largely due to the great publicity afforded water pollution control problems and programs. Its performance, however, has thus far been a relative disappointment. The pollution abatement equipment business is attractive enough however, to encourage the development of as

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[16] Arthur D. Little with U.S. Environmental Protection Agency—December 1972, *Economic Impact Study of the Pollution Abatement Equipment Industry,* Contract No. 68–01–0553.

much long-term supply as may be needed through 1980. There are several reasons that support this conclusion:

- The profit margins enjoyed by pollution control companies on their pollution business have generally exceeded the margins on their other businesses in the same industrial categories.
- Companies in which pollution control is a significant activity (greater than 5 percent of sales) have slightly higher return on assets than companies in which pollution control is a minor activity.
- Comparing the returns on assets, companies "in" the pollution business have out performed those in closely related SIC's.
- Examination of the returns of selected companies in two industries which have indicated strong interests in entering the business—the chemical and aerospace industries—shows that the returns of water pollution control specialty chemical companies were greater than their rates of return.

Demand From Municipal Sector. Aggregate needs for municipal sewage and ancillary facilities were developed from figures in EPA's *Economics of Clean Water* reports. Current market and product mix estimates were based on surveys made by the Department of Commerce. Projections of changes in product mix were developed by the contractor's staff with assistance from persons within the industry. On a constant dollar basis, the recent history of municipal expenditures has been disappointing. The average annual growth since 1965 has only been 0.6 percent per year. This plateau of municipal demand has resulted primarily from the waiting by municipalities for promised Federal assistance—assistance which has not been up to those expectations. The aggregate demand for total municipal sewage system expenditures between 1972 and 1980 is estimated at $27 billion. The mix of expenditures between treatment plants, ancillary facilities, and collection systems were further adjusted to reflect EPA's survey of specific municipal needs. The results of the demand analyses under the three alternative futures are shown in Table VII–13 and Figure VII–2.

Case I—Baseline. The starting line for the baseline projection was 1965, which marked the first promise of significant Federal funds for municipal construction and correspondingly marked

the beginning of a plateau in municipal spending that only recently has been exceeded. From the 1965 level of expenditures, the baseline was updated to 1971 by a multiplier (about 1.04) corresponding to the growth in municipal water usage over that period. Similar multipliers were used to grow the baseline over the 1971–80 period. Figure VII–2 shows that the baseline exceeds the level of activity in Cases II and III until 1974, thus emphasizing the impact that the municipal waiting game has had upon not only the progress of the national water pollution control program but upon the operation rates and profits of the water pollution control equipment industry.

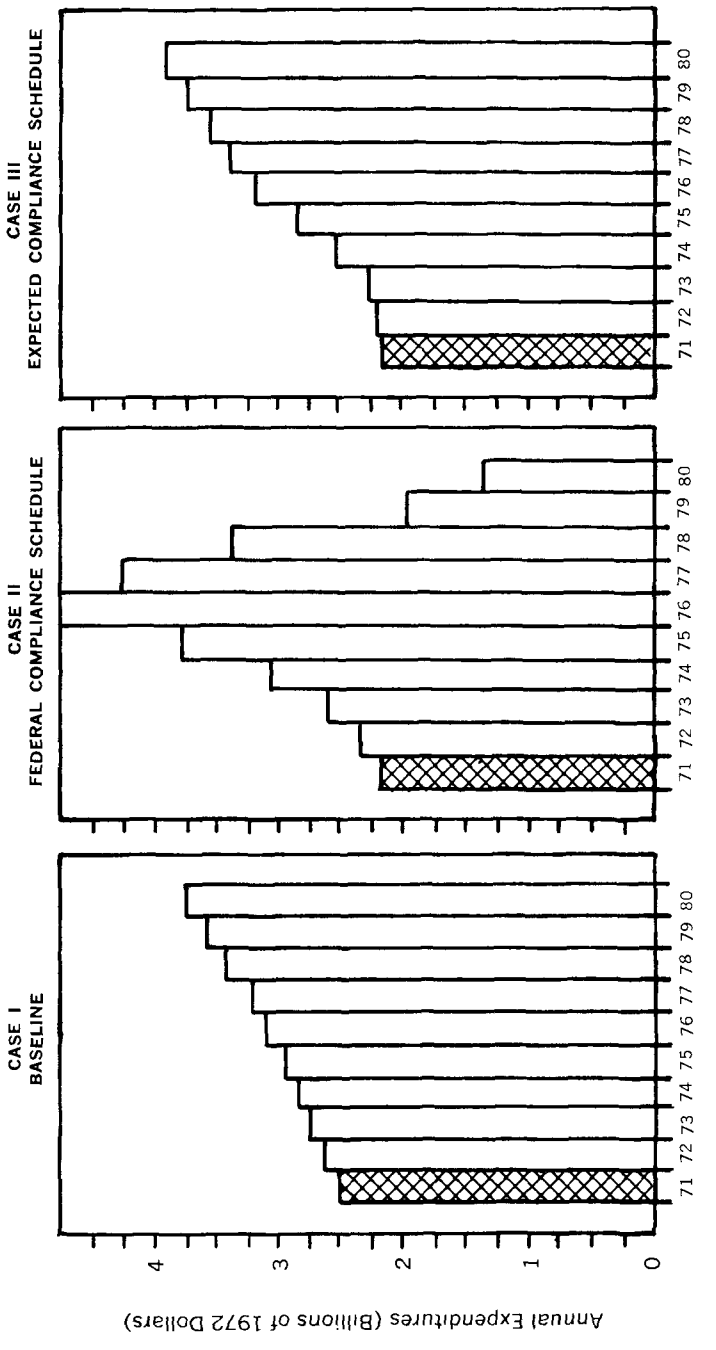
Case II—Federal Compliance Schedule. This case reflects at least some flexibility in waiving compliance to contemplated water effluent standards in selected situations, particularly in recognition of the long delay between Federal grants and final equipment delivery in the municipal market. The Federal compliance schedule portrays a fast growing industry that peaks quickly and then falls to a presumed situation of low operating rates and low profits.

Case III—Expected Compliance Schedule. The expected growth of municipal sewage treatment demand encompasses a continuation of lower growth rates in annual investment through 1973, an acceleration of expenditures in 1974–76, and the tapering off to an acceptable growth rate through 1980. Hidden within the curves in Figure VII–2 are the greater growth rates of specialty equipment indicated in Table VII–13. These higher growth rates

TABLE VII-13
ESTIMATED ANNUAL SHIPMENTS, 1972-80 OF POLLUTION ABATEMENT EQUIPMENT INDUSTRY

		Annual Shipments (Millions of 1972 Dollars)										Growth (%/Year)	
		1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1971-75	1975-80
MUNICIPAL SEWAGE TREATMENT													
Case I:	Baseline												
	Specialty equipment	96	100	104	109	114	119	125	132	138	145	4.3	5.0
	Instrumentation	11	12	12	13	13	14	15	15	16	17	4.3	5.0
Case II:	Federal compliance schedule												
	Specialty equipment	110	126	159	221	292	368	300	211	113	73	27.6	−24.4
	Instrumentation	17	21	28	39	54	78	65	52	23	15	33.0	−23.0
Case III:	Expected compliance schedule												
	Specialty equipment	110	114	123	152	186	222	239	255	277	293	14.1	9.5
	Instrumentation	17	19	21	26	33	42	48	54	62	69	17.9	15.9
INDUSTRIAL WASTEWATER TREATMENT													
Case I:	Baseline												
	Specialty equipment	56	59	63	66	69	73	77	81	86	91	5.4	5.4
	Instrumentation	13	14	14	15	16	17	18	19	20	21	5.4	5.4
Case II:	Federal compliance schedule												
	Specialty equipment	172	192	211	228	239	248	151	85	75	63	8.6	−23.4
	Instrumentation	26	31	35	38	42	44	28	17	14	13	12.7	−21.0
Case III:	Expected compliance schedule												
	Specialty equipment	172	184	197	207	213	217	198	124	80	73	5.5	−19.3
	Instrumentation	26	30	32	34	36	38	36	23	16	15	8.5	−16.1

FIGURE VII–2
COMPARATIVE EXPENDITURES, 1972–80, FOR MUNICIPAL SEWAGE TREATMENT



Source Arthur D Little, Inc estimates

for the equipment proportion of the total are due to changes in product mix and the relative proportion of total investment represented by treatment plant expenditures. From the point of view of either specialty equipment or total expenditures, the pattern of growth in Case III presents a more favorable future for the water pollution control equipment industry. However, Case III will also suffer a declining market after 1980, providing new legislative targets are not set by then. The 1972 Amendments affect more the source of monies for municipal sewage treatment than targets of control. Thus, the backlog of needs remain roughly the same, $27 billion.

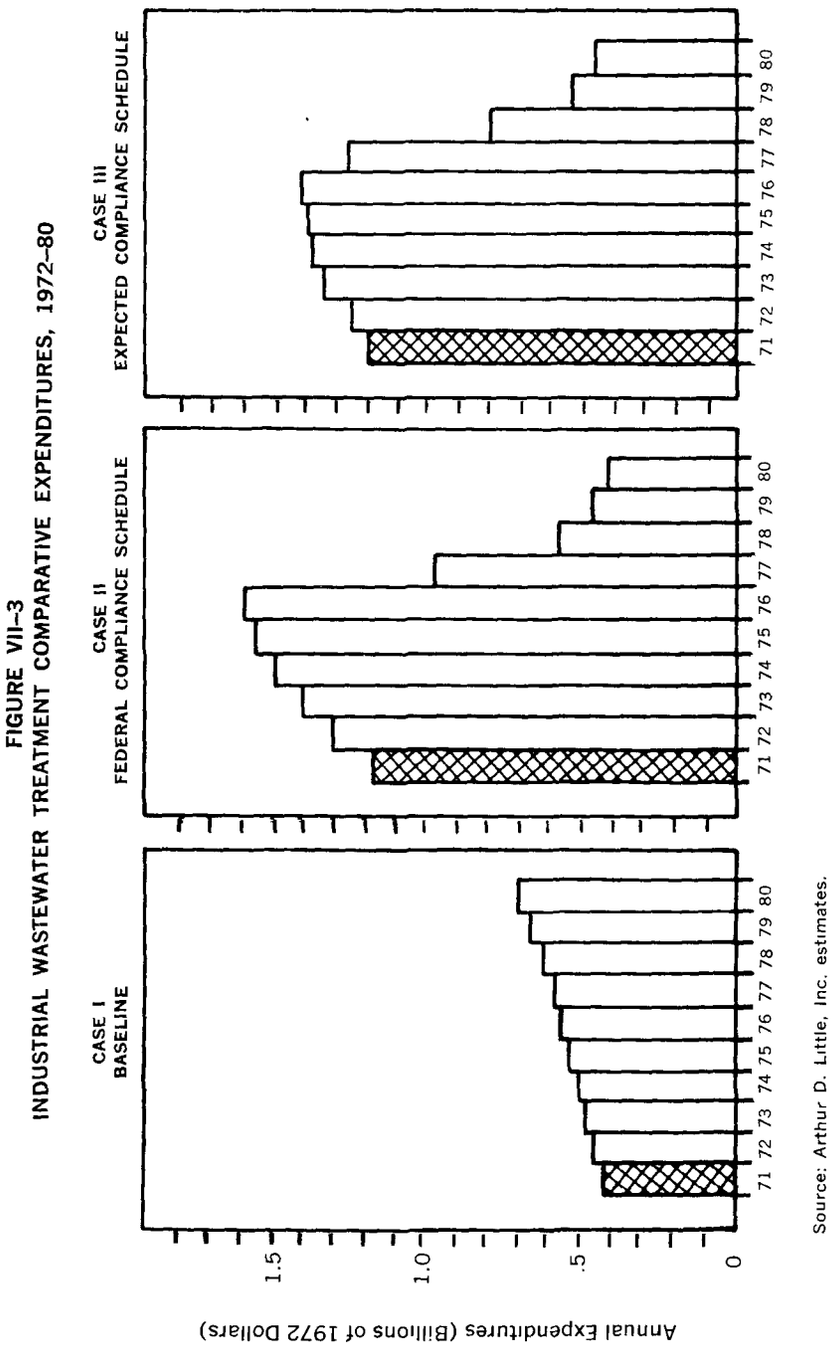
Demand From Industrial Sector. Reliable information on industrial wastewater treatment expenditures was difficult to obtain. Department of Commerce surveys were used for estimating the level of current equipment shipments and the product mix. From this information, the 1971 market for specialty equipment and instrumentation was estimated at about $192 million (current dollars). Aggregate demand estimates for the 1972–80 period were, with slight modifications, based on *Economics of Clean Water* reports. The aggregate demand for industrial expenditures estimated for the period was estimated to be $9.7 billion. Demand was also forecast for the market for industrial wastewater treatment.

Case I—Baseline. Again, 1965 was selected as the base year. The baseline (Figure VII–3) was constructed using the level of shipments in 1965, a growth index reflecting industrial plant investment (at 5.4 percent per year), and a constant product mix of equipment.

Case II—Federal Compliance Schedule. Since industry responds more quickly to Federal enforcement than municipalities, the majority of industrial wastewater treatment is assumed to be taken care of by 1976. Indeed, the apparent level of expenditures by industry in 1971 is already so high that it took only a small growth rate to achieve the needed expenditures by 1975 (about 7.2 percent).

Case III—Expected Compliance Schedule. Industry will apparently have no great difficulty in accomplishing most of the backlog (as now measured) by 1976. This is partly based on estimates that industrial expenditures are already at a level ($1.2 billion) which, with only a modest growth, could reach the estimated target by 1976–77. As a result, in industrial wastewater treatment, the possibilities of a declining market during the 1970's exist in Case III just as they do in Case II. This implies that either industry is close to solving its water pollu-

FIGURE VII-3
INDUSTRIAL WASTEWATER TREATMENT COMPARATIVE EXPENDITURES, 1972-80



Source: Arthur D. Little, Inc. estimates.

tion problems under present objectives (excluding the implications of the 1972 Amendments) or that the cost of control have been greatly underestimated. Again, specialty equipment expenditures will grow at a faster rate than total expenditures because of the trend toward advanced treatment.

Impacts. The impact analysis focused upon balancing estimates of demand against the supply capabilities of the pollution abatement equipment industry. The analysis was hindered by a serious lack of reliable data on industry supply capacities if capacities are restricted to physical plant and equipment. "Supply" was looked upon in terms of not only physical plant and equipment (the impact of capital) but also in terms of the input of labor and materials.

By combining traditional production theory with basic accounting practice, total revenue was assumed equal to the sum of total payments for labor, capital, and materials. The proportions of these three production factors (as a part of total revenues) were estimated from data on selected SIC industries in the *Census of Manufactures* and from contacts with leading manufacturers. Three to five companies in each of the industry sectors (also employment agencies) were surveyed to determine the supply elasticities of different kinds of labor and materials. This survey was not exhaustive. It was made primarily to assure that the supply elasticities used in this analysis were of the right magnitude. An analysis of the elasticity of interest rates for corporate borrowing over time was made separately to ascertain the effects of increased capital costs upon the final price to customers. These analyses of the capital markets for this industry were confirmed through conversations with leading financial institutions.

The elasticity information from these surveys was then combined into individual supply curves for skilled labor, production labor, materials, and capital. These supply curves were used as annual short-run supply curves, relating increased cost premiums against increases in factory requirements over a given year.

A major simplifying assumption was that the short-run supply curves (actually developed for 1972) would be characteristic of the short-run factor supply markets for the rest of the decade. The second major assumption was that, except for operating effects, the *Census of Manufactures* breakdowns of the factors of production will also remain constant.

The supply curves were generally quite elastic. Supply curves for materials were more elastic than those for production labor, which in turn were more elastic than the skilled labor curves.

Supply curves for borrowed capital were actually stepwise curves indicating that above a certain annual increase in capital requirements the interest rate would jump from a lower to a higher level.

The objectives in balancing demand forecasts with empirical supply curves were to indicate what price increases would result if direct cost increases created by supply constraints were passed on to the customers. The demand forecasts were balanced with empirical supply curves. In short, a *cost push* was measured instead of forecasting prices directly. This cost push reflects factor scarcity. The forecast of actual prices would have to include other important considerations besides factor scarcity: the effects of operating rates upon the fixed cost loads, the relative price elasticity to the quality of product and service performed, and the prediction of corporate policies on pricing in times of short- and over-supply.

The economic impact upon the different industry sectors was analyzed in terms of the pollution abatement and closely-related businesses of the leading manufacturers. As the companies involved in water pollution control equipment are equally involved in water treatment markets, forecasts of water treatment equipment demand were included in the calculation of year-to-year growth factors. Similarly, because of a substantial overlap of companies in the air and water instrumentation markets and the probability that the overlap will increase in the future, these two markets were combined.

The comparative inflationary impacts are presented in Table VII–14. The baseline and expected compliance schedules would result in only a 0.3 percent average inflation, whereas the inflation would be 0.8 percent under the Federal compliance schedule.

The results of the analysis, which takes into account supply elasticities and operating rate conditions, are combined in a kind of composite supply curve for each industry component (Figure VII–4). These are not true supply curves in the sense of the ones used as inputs to the analysis. They simply summarize a plot of the results of the price impact analysis in the industry. For water pollution control equipment and specialty chemicals, the curve reflects a higher elasticity in the range of anticipated growth rates.

The lack of detailed studies of the manpower requirements in the pollution field for the equipment suppliers, and the smallness of the sample of manufacturers' estimates of the breakdown of the types of manpower they utilize, prevented a detailed

TABLE VII-14
COMPARATIVE INFLATIONARY IMPACT, 1972-80, FOR WATER POLLUTION CONTROL EQUIPMENT

	Case I	Case II	Case III
	Baseline	Federal compliance schedule	Expected compliance schedule
	Cumulative index	Cumulative index	Cumulative index
1972	1.0007	1.0013	1.0006
1973	1.0013	1.0026	1.0013
1974	1.0020	1.0046	1.0026
1975	1.0026	1.0090	1.0038
1976	1.0033	1.0131	1.0054
1977	1.0039	1.0141	1.0054
1978	1.0046	1.0100	1.0054
1979	1.0053	1.0087	1.0054
1980	1.0060	1.0087	1.0059
Inflated demand 1971–1980 (millions 1972) dollars)	$1,909.4	$3,677.0	$3,640.0
÷Base Demand 1971–1980 (millions 1972 dollars)	$1,903.0	$3,655.4	$3,636.0
=Average inflation (inflated demand) base demand	0.3%	0.8%	0.3%

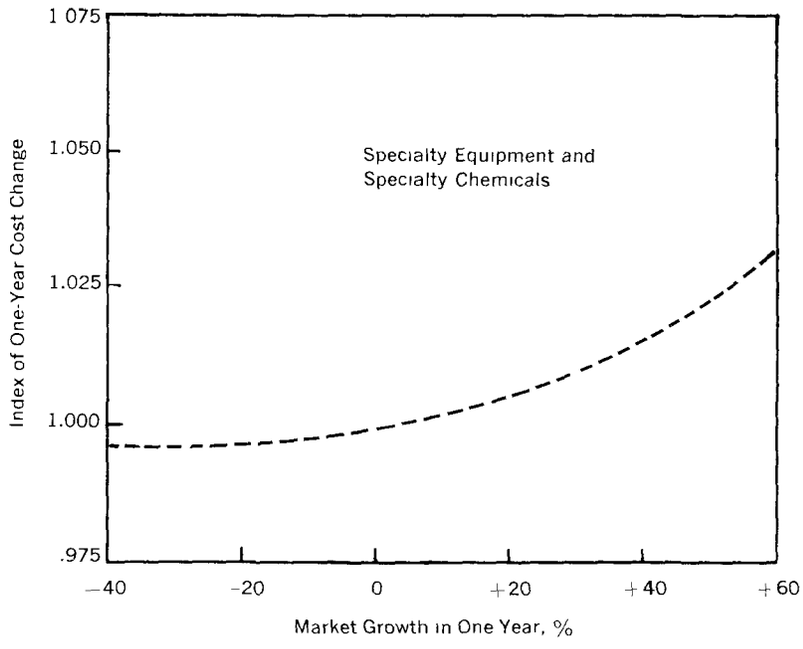
statistical analysis of manpower requirements. Based on average sales per employee ratios for leading companies in the business and the demand estimates developed, estimates were prepared of the gross manpower requirements for 1972, 1975, and 1980 (Table VII–15).

In Case III, the total employment is expected to increase from 20,000 in 1972 to 27,000 in 1975 and 30,000 in 1980. Employment in Case II is projected to increase to 35,000 in 1975 (up about 65 percent from 1972) but then decline to 17,000 people (less than current levels) by 1980.

Federal legislation has had a positive employment impact when the estimate of 20,000 people employed in 1972 under expected compliance schedules is compared to the estimated 14,000 people under baseline conditions. By 1975, the expected compliance schedule corresponds to an employment almost 170 percent that of baseline conditions. And by 1980 is one and one-half times as great.

A major cause of the present overcapacity in the pollution control industry has been the expectation of promised action. To the degree that standards and deadlines are set realistically and enforced on schedule, future overcapacity should be reduced.

FIGURE VII–4
EFFECTIVE "SUPPLY" CURVES
Water Pollution Control



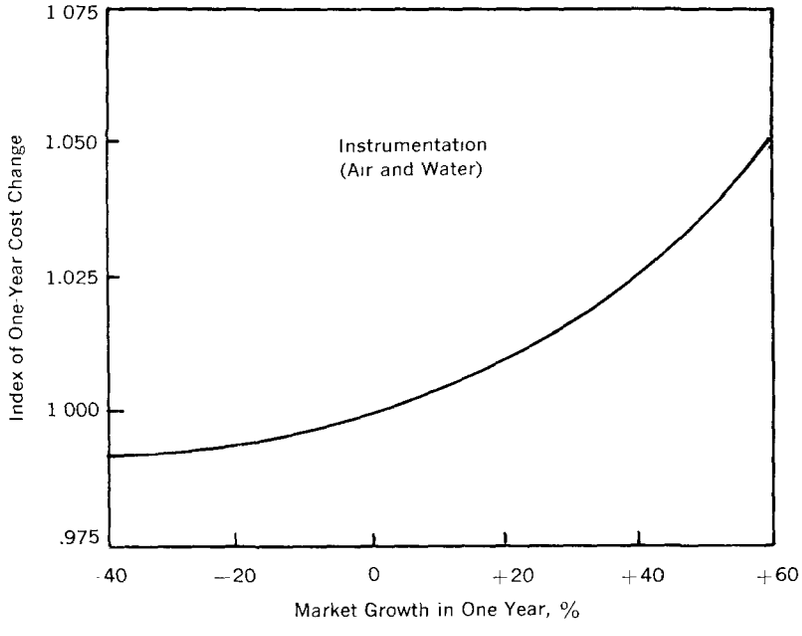


TABLE VII-15

PERSONNEL REQUIREMENTS OF WATER POLLUTION CONTROL EQUIPMENT INDUSTRY, 1972-80

	Case	1972 I	1972 II	1972 III	1975 I	1975 II	1975 III	1980 I	1980 II	1980 III
Water pollution control equipment—	Sales (millions)	$ 149	318	298	183	531	399	236	136	366
	Employees	4,890	9,780	9,170	5,630	16,300	12,300	7,260	4,160	11,300
Instrumentation air and water	Sales (millions)	34	80	69	38	198	109	50	45	166
	Employees	1,630	3,830	3,300	1,900	9,470	4,220	2,390	2,150	7,900
Specialty chemicals for water pollution control	Sales (millions)	282	289	289	318	339	336	392	419	418
	Employees	6,880	7,050	7,050	7,760	8,270	8,200	9,560	10,200	10,200
Total Employees		13,875	21,347	20,176	15,829	35,108	26,564	19,888	17,130	30,350

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