

THE FEDERAL WATER POLLUTION CONTROL EFFORT IN NEW ENGLAND*

by
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The mission of the Federal Water Pollution Control Administration is the implementation and administration of the Federal Water Pollution Control Act. For many engineers and laymen within the New England states, contact with the Federal water pollution control program has been limited to (1) construction grants for municipal pollution control facilities and (2) enforcement to abate pollution. Although these are certainly significant, they represent only two segments of the total Federal role in pollution control.

To place the underlying principles of the Federal program in proper perspective the Declaration of Policy of the Water Pollution Control Act provides a valid guideline.

Section 1.(a) of the Act states: "The purpose of this Act is to enhance the quality and value of our water resources and to establish a national policy for the prevention, control, and abatement of water pollution."

Section 1.(b) states: ". . . it is hereby declared to be the policy of Congress to recognize, preserve, and protect the primary responsibilities and rights of the States in preventing and controlling water pollution, to support and aid technical research relating to the prevention and control of water pollution and to provide Federal technical services and financial aid to State and interstate agencies and to municipalities in connection with the prevention and control of water pollution."

These two statements are the foundation of the Federal Water pollution control program.

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WATER QUALITY ACT OF 1965

The Water Quality Act of 1965 amending the Water Pollution Control Act was a significant step toward an accelerated national attack on pollution. An outline of its major new authorizations is pertinent to this discussion of the Federal pollution control program.

Briefly, the Water Quality Act:

1. Creates the Federal Water Pollution Control Administration within the Department of Health, Education, and Welfare.

2. Authorizes \$20 million a year for grants and contracts to assist in developing and demonstrating new or improved methods for controlling discharges of untreated or inadequately treated sewage or other waste from storm or combined storm and sanitary sewers. These grants may not exceed 50 percent of project cost.

3. Increases the construction grant limitation for municipal sewage treatment works from \$600,000 to \$1.2 million for a single project, and from \$2.4 to \$4.8 million for a multi-municipal project (the limitation to 30 percent of construction cost remains); increases the annual grants authorization for this purpose from \$100 to \$150 million; modifies the formula for allotment of the funds to states and gives greater emphasis to the more populated areas. An additional 10 percent is authorized in the Federal grant for any project certified as conforming with a comprehensive development plan for a metropolitan area.

4. Provides that the individual states shall establish water quality standards for their interstate streams and delineates a plan for implementation and enforcement; and authorizes the Secretary of Health, Education, and Welfare to establish such standards in the absence of effective state action.

5. Extends the enforcement authority to waters where pollution results in substantial economic injury from the inability to market shellfish products in interstate commerce.

BOSTON REGIONAL OFFICE

Federal water pollution control responsibilities in the New England states are assumed by the Boston Regional Office of the Federal Water Pollution Control Administration. This office is currently staffed with ten professional

engineers and seven administrative people. Under a Regional Program Director, activities are subdivided into three sections: Construction Grants, Water Quality and Water Resources Development, each having specific responsibilities within the framework of the Federal Water Pollution Control Act.

The Construction Grants Section will distribute approximately \$9.5 million to the New England states in 1966, allocated as follows: Connecticut, \$1.74 million; Maine, \$1.41 million; Massachusetts, \$2.96 million; New Hampshire, \$1.12 million; Rhode Island, \$1.19 million; and Vermont, \$1.11 million. These are the funds which go to cities and towns to aid in their construction of municipal sewage treatment facilities. Since the grants program began in 1956, more than \$59.4 million in Federal grants has gone to some 352 community projects in New England for this purpose, and the communities themselves have invested a total of \$145 million in local funds in these projects.

The Construction Grants Section in the Regional Office is further responsible for:

1. reviewing design adequacy and conformance to law of plans and specifications for the municipal sewage facilities receiving the grants;
2. inspecting the projects at various stages of construction to assure conformance to regulations;
3. maintaining records, reports, and supporting documents and engineering plans and specifications on all projects;
4. providing consultation and assistance to the states, municipalities, consulting engineers and others associated with the projects.

The Water Quality Section administers those segments of the Federal water pollution control program relating to basic data, enforcement activities and public relations and information.

Basic data are a vital and invaluable component in achieving our stated program goals. Water supply and waste treatment inventories are formulated by the program in cooperation with the appropriate state agencies. Pollution-caused fish kill data are also prepared by this group. The water quality network stations which regularly monitor water quality at four locations in New England are also administered by the basic data personnel. The national network

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is made up of 130 stations on major waterways. Three of the New England stations are located on the Connecticut River and the fourth on the Merrimack River. The Connecticut River station at Suffield is pictured in Figure 1. The Basic Data people are also responsible for activities related to the storage and retrieval of New England water quality data as a part of the national system known as STORET. They are further responsible for the reporting of bond sales and contracts for sewerage facilities. Water works construction is an additional responsibility of the Section.

Enforcement activities are concerned with pollution abatement under the enforcement section of the Federal Water Pollution Control Act and subsequent developments. To date, four enforcement conferences have been called in major New England river basins. These involve the Androscoggin, Merrimack, Connecticut and Blackstone and Ten Mile Rivers. The enforcement personnel prepare surveys and reports required before or as a consequence of an enforcement conference and maintain a surveillance of pollution control progress following the proceedings.

The public relations and information aspects of the activities include dissemination of pollution control information in the form of literature, films, and speeches to states, municipalities, civic organizations, sportsmen's clubs, and interested citizens.

The Water Resources Development Section has as its primary function the preparation of engineering studies to determine the needs for and value of stream flow regulations for water quality control and for municipal and industrial water supply. The studies apply in particular to the development of federal multiple-purpose water resource projects or reservoirs proposed in New England by the Corps of Engineers. A diagram of such water resource development is shown in Figure 2. Reports on the Androscoggin, Merrimack, and North Nashua rivers will soon be completed by the Water Resources Development Section.

The section staff generally acts in an advisory capacity to the Corps of Engineers in the matters of municipal and industrial water supply and water quality control. Comprehensive water resource investigations are currently being conducted by the section in conjunction with the Corps to determine the reservoir storage needs in the two categories for the Connecticut River Basin to the years 1980 and 2020. In studying the needs for streamflow regulation for water

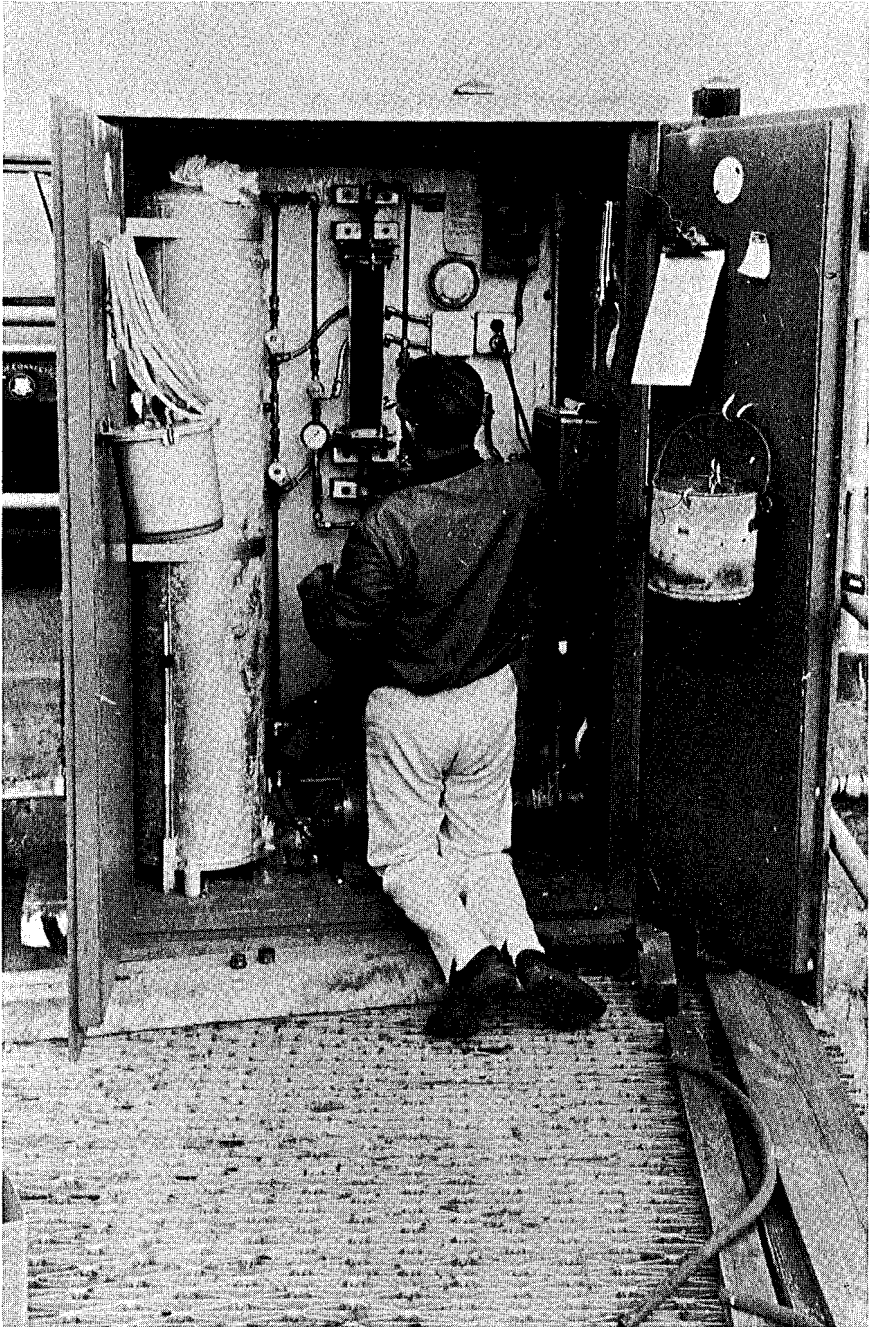


Fig. 1. National Water Quality Network Station - Connecticut River at the Enfield Dam, Suffield, Connecticut

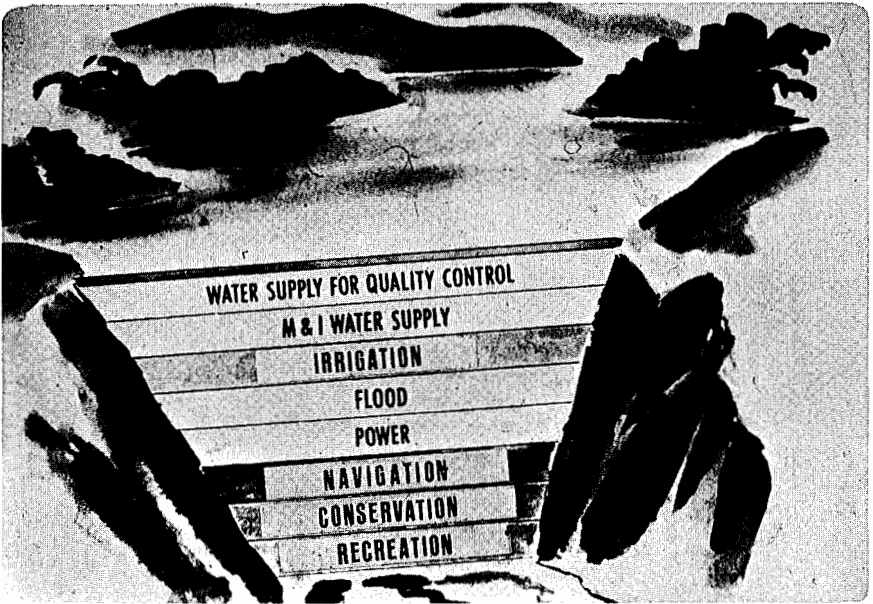


Fig. 2. Multiple Purpose Uses of Federal Water Resource Developments

quality control, they must also appraise the economic benefits.

Still another responsibility is the reviewing of Federal Power Commission licenses and Soil Conservation Service Watershed Work Plans submitted through the Federal inter-agency review process.

TECHNICAL ASSISTANCE AND INVESTIGATION

The Federal water pollution control program provides for technical assistance to the states, when requested. The Technical Advisory and Investigations Section is currently making two investigations at the request of the Governor of Maine. One concerns eutrophication and the associated weed and algal problems in Lake Sebasticook at Newport, Maine. The recreational potential of this 6.6-square-mile lake has been substantially reduced by rapid fertilization by both natural causes and man's encroachment. Also under study is the tidal dispersion of wastes in the Presumpscot Estuary off the coast of Portland, Maine. In all such Technical Assistance projects the hope is to come up with solutions to difficult water pollution problems that may be useful elsewhere in the nation in similar situations.

MERRIMACK RIVER PROJECT

When the conferees in a Federal enforcement action cannot agree on the extent of pollution or the remedial measures necessary to abate pollution, it often is necessary to conduct special studies to pinpoint pollution sources and the controls needed. Such was the case in the Merrimack River. At the request of the (then) Massachusetts Governor, Endicott Peabody, engineers began procuring data on stream characteristics and waste discharges along the Merrimack and its tributaries to supplement earlier information. The project personnel will relate their findings to the waste treatment requirements in this river system and will come up with specific recommendations for the Merrimack Basin which will meet the interstate water quality classification standards. They expect to complete this study and to report recommendations by July, 1966.

BOSTON FIELD WATER POLLUTION CONTROL LABORATORY

Recognizing that much of the national water pollution problem lies in a lack of knowledge and manpower that can only be filled by an accelerated research and training program, Congress has authorized 12 new laboratories, now in various stages of construction or planning. Ten of these will serve as regional centers for both research and training, and two will be national water quality laboratories to study and determine standards for fresh water and salt water needs, respectively. One of the Federal Water Pollution Control Administration's regional laboratories is programmed for construction in the Boston area to serve New England, and the national salt water standards laboratory is being established at Kingston, Rhode Island on Narragansett Bay.

The Boston laboratory will provide technical assistance and develop new technology relating specifically to pollution problems of the Northeast. It can be envisioned that it will direct some of its studies to eutrophication of lakes, improved methods of pulp and papermill waste treatment, use of public water supply reservoirs for recreation and methods to control pollution from recreational water craft and maritime shipping, as well as means of controlling pollutional

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discharges from combined storm and sanitary sewers and urban runoff. An architectural rendering of the laboratory structure is shown in Figure 3.

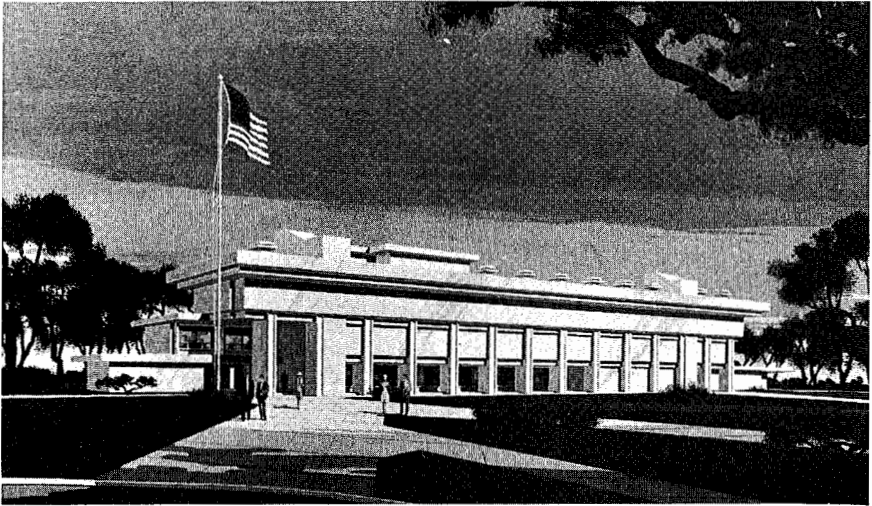


Fig. 3. Proposed Boston Field Water Pollution Control Laboratory

NEW ENGLAND RIVER BASINS COMPREHENSIVE PROGRAM

All of the activities described are integral and subsidiary parts of the comprehensive water pollution control programs in various stages of planning and activation in the major river basins of the nation. The New England River Basin Comprehensive Project is scheduled to start in July, 1966. With an initial staff of 15, this comprehensive program for water quality management in the rivers and coastal waters of New England will embody three major steps: (1) investigations and planning; (2) plan implementation; and (3) water quality surveillance.

The first phase will determine all sources and uses of water in New England and the sources, extent, and control needs of all pollution; and, on the basis of demographic and economic base studies, will estimate water use and pollution control needs of the future. The plan will determine and recommend what must be done by the people of the Northeast to assure water of adequate quantity and quality both for

the present and for the next 50 years. As dictated by the Federal Water Pollution Control Act, the planning will be a Federal, state, and interstate and local cooperative venture.

The data developed on such factors as stream hydrologic characteristics, reaeration, environment, stream response to pollution loads, etc., will provide the basis for formulating mathematical stream models suitable for computer application. These models will make possible the testing of alternate water pollution control plans for attaining a given water quality and for determining the costs of these plans. The people of New England themselves, through the various water-use interests and their several levels of government, will select their own water use and water quality goals, knowing in advance what it will cost them to attain the goals.

SUMMARY

The author has attempted to outline, in general, the Federal Government's role in water pollution control in New England. The role is intended to be a cooperative one, providing assistance, both technical and financial, and providing stimulus and incentive to the pollution control programs in the region. A job of tremendous magnitude remains to be done in the field of water pollution control and water quality management in New England. Many technical, economic, and public relations aspects of the problem must be resolved. Resolution of the problems falls squarely on our shoulders, yours and mine. This is a challenge to the water pollution control engineers of New England. The Federal Water Pollution Control Administration stands ready to assist you.