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[Environmental Protection Agency's Implementation of Consultant's Study Report Recommendations on Demonstrations of New Wastewater Treatment Technologies]. CED-78-69; E-166506. March 7, 1978. 3 pp. + 2 enclosures (14 pp.).

Report to Rep. George E. Brown, Jr., Chairman, House Committee on Science and Technology: Environment and the Atmosphere Subcommittee; by Elmer B. Staats, Comptroller General.

Issue Area: Environmental Protection Programs (2200).

Contact: Community and Economic Development Div.

Budget Function: Natural Resources, Environment, and Energy: Pollution Control and Abatement (304).

Organization Concerned: Booz-Allen & Hamilton, Inc.; Environmental Protection Agency.

Congressional Relevance: House Committee on Science and Technology: Environment and the Atmosphere Subcommittee. Rep. George E. Brown, Jr.

Authority: Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251). Clean Water Act of 1977 (P.L. 95-217). H. Rept. 95-830.

Studies performed by the Environmental Protection Agency's (EPA's) contractor highlight the need for timely implementation of innovative technologies to achieve water pollution abatement goals and elimination of factors inhibiting the marketing and adoption of such technologies in municipal wastewater treatment. The reports recommend the reinstatement of full-scale demonstrations of new technologies. EPA's demonstration grant expenditures were reduced beginning in 1972 because of competing priorities and limited resources. There are plans to provide about \$2.2 million in fiscal year (FY) 1978 for funding projects demonstrating new technologies, and EPA has requested a supplemental FY 1978 appropriation of \$9.5 million to finance a project demonstrating the land application of wastewater in Lubbock, Texas. An internal budget plan indicates that EPA plans to provide only \$400,000 in FY 1979 for demonstration of percolation bed rejuvenation techniques for small flows, and funding for other demonstrations were dropped from the plan. No action was planned on report findings and recommendations until results of an ongoing study of a municipal wastewater research and development program were known. However, completion of the study has been delayed. Incentives provided in the Clean Water Act of 1977 may enhance the likelihood of the greater use of innovative technologies. (HFR)

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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March 7, 1978

The Honorable George E. Brown, Jr.
Chairman, Subcommittee on the Environment
and the Atmosphere
Committee on Science and Technology
House of Representatives

Dear Mr. Chairman:

Your letter of November 15, 1977, requested that we assess certain areas of the Environmental Protection Agency's water quality research and development program that were of concern to your Subcommittee. As agreed during a meeting with your office on December 19, 1977, this report addresses the actions taken or planned by the Environmental Protection Agency to implement the recommendations contained in two reports issued by its contractor, Booz-Allen & Hamilton, Inc., on the development and use of innovative technology in municipal wastewater treatment. The two studies were authorized at a cost of about \$100,000 to obtain information supporting the position of the Agency's Office of Research and Development on the need for increased funding of the demonstration grant program for innovative wastewater treatment technologies. The contractor's reports highlight (1) the need for timely implementation of innovative technologies to achieve water pollution abatement goals and (2) the factors inhibiting the marketing and adoption of such technologies in municipal wastewater treatment. The reports recommend, among other things, the reinstatement of full-scale demonstrations of new technologies. A detailed discussion of both reports is presented in enclosure I.

The Agency said that it reduced the level of municipal wastewater control technology research and development beginning in 1972 because of competing priorities and limited resources. It determined that its primary responsibility was to conduct the health and ecological processes and effects research necessary to set sound effluent standards dictated by the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251). Consequently, demonstration grant program expenditures, as reported by the Agency, decreased from about \$7.2 million in calendar year 1971 to \$780,958 in 1976 and to \$444,200 in fiscal year 1977, as shown in the following table.

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<u>Calendar year</u>	<u>Amount</u>
1971	\$7,234,970
1972	1,584,171
1973	1,115,547
1974	473,000
1975	1,424,366
1976	780,958
a/ 1977	444,200

a/Figures for calendar year 1977 were not available. So, fiscal year 1977 was used instead.

An Agency official informed us that the Office of Research and Development plans to provide about \$2.2 million in fiscal year 1978 for funding projects demonstrating new technology. In addition, the Agency has requested a supplemental fiscal year 1978 appropriation of \$9.5 million to finance a project demonstrating the land application of wastewater in Lubbock, Texas. This 6-year project would make a side-by-side comparison of the latest soil treatment technology with a similar facility which has been in service for more than 40 years.

An internal budget plan indicates, however, that the Agency plans to provide only \$400,000 for demonstrations in fiscal year 1979--to finance the demonstration of percolation bed rejuvenation techniques for small flows. Funding of other demonstrations, such as a demonstration program for solving small town wastewater problems economically, were dropped from the budget plan because of low priority. An Office of Research and Development official told us that the Office had decided to take no action on the report findings and recommendations until the results of an ongoing Program Evaluation Division study of the municipal wastewater research and development program were known. Division officials informed us, however, that completion of the study had been delayed by higher priority work and no target date had been established.

The incentives provided in the Clean Water Act of 1977 (P.L.95-217) may enhance the likelihood of the greater use of innovative and alternative technologies in future municipal wastewater treatment facilities. For example, the act:

--Increases Federal grants made during fiscal years 1979 to 1981 from 75 percent to 85 percent of construction costs of municipal wastewater treatment projects using innovative or alternative technologies.

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- Authorizes the Agency to make a grant to fund all costs of modifying or replacing any such facility if it fails to meet design specifications.
- Requires that 2 percent of a State's fiscal years 1979 and 1980 construction grant allotments and 3 percent of the fiscal year 1981 allotment be expended only for increasing such construction grants from 75 to 85 percent of project construction costs.
- Authorizes the Agency to make grants for treatment works using innovative and alternative technologies if the life cycle cost of such facility does not exceed the life cycle cost of the most cost-effective alternative by more than 15 percent.

Pertinent sections of the act are summarized in enclosure II.

The Conference Report on the Clean Water Act of 1977 (H.R. Report No. 95-830, December 6, 1977) specifically emphasized the intent of the act to expand the utilization of innovative and alternative wastewater treatment processes and techniques. The report noted that the supplemental assistance provided by the act "is intended to force technology so that new and better alternatives will be utilized."

As agreed during the December 19, 1977, meeting with your office, we plan to provide copies of our reports on land application and other reuse of wastewater and on onsite sewage treatment as soon as they are issued. We are also providing, on an informal basis, certain other information on current and projected Agency research efforts and potential areas of research weaknesses.

Sincerely yours



Comptroller General
of the United States

Enclosures - 2

SUMMARY OF TWO ENVIRONMENTAL PROTECTION AGENCY
CONTRACTOR REPORTS ON THE DEVELOPMENT
AND USE OF INNOVATIVE TECHNOLOGY IN
MUNICIPAL WASTEWATER TREATMENT

Pursuant to the request of the Chairman, Subcommittee on the Environment and the Atmosphere, House Committee on Science and Technology, the following sections summarize the findings and recommendations contained in two reports on studies made by Booz-Allen & Hamilton, Inc., a management consultant firm, for the Office of Research and Development (OR&D), Environmental Protection Agency (EPA). The comments of EPA officials on actions taken or planned relative to the studies' recommendations are also included.

"A SURVEY OF THE USE OF INNOVATIVE
TECHNOLOGY IN MUNICIPAL WASTEWATER TREATMENT"

EPA authorized this study by Booz-Allen & Hamilton, Inc., in October 1975. The purpose of this study was to provide information to support a possible legislative proposal to permit EPA to use a percentage of the construction grant funds to finance OR&D demonstrations. Also, the study was to determine if the demonstration grant program was needed in accelerating the implementation of innovative technology in the construction grant program. Booz-Allen & Hamilton, Inc., issued the final report on February 19, 1976.

Report findings and conclusions

Booz-Allen & Hamilton, Inc., identified the following problem areas:

1. Conservatism dominates the technology selection process in municipal wastewater treatment. Reluctance to adopt innovative processes stems largely from doubts about process reliability and uncertainty over costs of construction, operation, and maintenance.
2. Certain needs in wastewater treatment are likely to become more critical in the near future and will require the application of technologies not currently in common use. Among the areas needing greater development are (a) the ultimate disposal of sludge, (b) wastewater reuse, (c) treatment needs of small communities, and (d) energy consumption.

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3. Factors inhibiting the implementation of new technology are common to all elements of the development process, comprising equipment manufacturers, consulting engineers, municipalities, and State and Federal regulatory bodies. These factors include:

- Limited financial ability of equipment manufacturers to develop a new process to the point where it is ready for widespread application to municipal systems.
- Reluctance of consulting engineers to recommend the use of innovative technology because (a) the first priority is to provide the municipality with the most reliable available system; (b) adequate data for evaluation of innovative technologies is frequently lacking; (c) time constraints resulting from the many municipalities seeking construction grants dictates against the thorough evaluation of innovative technologies; (d) evaluating the cost-effectiveness of a new technology usually requires detailed study; and (e) required operator skill levels are often higher than those available to the municipal client.
- Conservatism of municipalities in the selection of wastewater treatment technologies because of uncertainties in operation and maintenance costs of new technologies and the need to upgrade operator skill levels and operating staff levels.
- Constraint of State regulatory agencies in adopting new technologies because of the need to promptly commit allocated Federal funds, varying degrees of familiarity with innovative technology, and, in most States, lack of research budgets or funds for demonstration programs.
- Top priority of EPA's construction grant program to get treatment systems "into the ground" in time to meet the deadlines set by the Federal Water Pollution Control Act Amendments of 1972. Consequently, those technologies furthest along in development are adopted most readily, while those processes lagging for lack of adequate demonstration are adopted slowly, if at all.

4. Attempts to streamline the technology development process should be preceded by improvements in tracking and disseminating data from projects using innovative technologies to the parties involved in the technology selection process.
5. Alternatives must be considered to encourage the development of potentially cost-effective new technologies for use in municipal wastewater treatment systems. This finding suggested various possible methods for funding demonstration projects and also suggested modifying the function of the EPA construction grant groups to include the promotion of new, cost-effective processes. The report noted, however, that the identification and recommendation of alternatives will need more detailed study before an appropriate course of action can be selected.

Recommendations and Agency actions

The study report contained no separate recommendations. Booz-Allen & Hamilton, Inc., included their final recommendations in the second report.

"EPA'S ROLE IN THE DEVELOPMENT OF INNOVATIVE TECHNOLOGY FOR MUNICIPAL WASTEWATER TREATMENT"

The contractor's first report provided a qualitative assessment of the problems inhibiting greater use of innovative wastewater treatment technology. An EPA working group determined that an additional study to quantify the economic benefits resulting from the use of specific innovative treatment processes was necessary to back up the OR&D position on the need to revitalize the demonstration grant program. EPA authorized Booz-Allen & Hamilton, Inc., to make the second study in July 1976.

Subsequently, however, OR&D requested the contractor to redirect the scope of the second study to deal with the entire market and show how certain technologies evolved over time and what EPA's role has been in that evolution, rather than use site specific information in comparing the costs of alternative wastewater treatment technologies. The Booz-Allen & Hamilton, Inc., report on the second study was issued on May 5, 1977.

Findings and conclusions

The May 5, 1977, study report contained the following findings and conclusions.

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1. Innovative technologies offer potential advantages in cost-effectiveness through improvements in performance, reliability, and resource use over conventional alternatives and can be implemented in time to facilitate attainment of the goals of the Federal Water Pollution Control Act Amendments of 1972.
2. Full-scale demonstration is central to the general acceptance of innovative wastewater treatment technologies by key decisionmakers in the technology selection process. The State regulatory agencies, the municipalities, and the consulting engineers are likely to base their evaluation of innovative processes on information developed in full-scale demonstrations.
3. A successful demonstration project greatly reduces a manufacturer's commercialization risk in the wastewater treatment market.
4. The lack of true cost-effectiveness in the technology selection process penalizes innovative technologies. For example, the 75-percent Federal subsidy provided by the construction grant program pertains to capital costs only; therefore, capital-intensive technologies with low operating and maintenance (O&M) costs can have a decisive financial advantage for municipalities over low capital cost technologies with high O&M costs.
5. OR&D has concentrated on the development of innovative processes without comprehensively addressing technology commercialization, including (a) seeking the aggressive support of an industrial sponsor; (b) promptly publishing the results of research and development projects and highlighting the important advantages of innovative processes; and (c) giving adequate consideration to specific market requirements when initiating new technology development. Also, the downgrading of the demonstration grant program has seriously retarded the commercialization of new technologies.

OR&D officials indicated general agreement with the study findings and conclusions.

Recommendations and Agency actions

The study report contains three recommendations. The Municipal Construction Division in the Office of Water Program

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Operations would be responsible for implementing the first recommendation, which calls for strengthening the cost-effectiveness guidelines for technology selection. Division officials informed us that they had no particular interest in the study reports because the studies were made for OR&D and stated they had no plans for implementing the recommendation.

OR&D would be responsible for implementing the other two recommendations which suggested (1) placing greater emphasis on market-related aspects of the technology development process and (2) establishing a technical information system to track ongoing R&D projects and to provide updated information to those involved in the technology selection process.

The Director, Wastewater Research Division of EPA's Municipal Environmental Research Laboratory (MERL) told us that (1) the problems discussed in the study reports were, for the most part, made known to the contractor by Division personnel, (2) many of the deficiencies are chronic problems which are not easily resolved, (3) any EPA actions taken or planned would have happened independently, of the contractor's studies, and (4) the principal goal of the studies--assessing the worth of demonstrations--has not resulted in increased funding for the demonstration grants program. The Division Director believed that the most constructive action taken since the issuance of the study reports has been the enactment of the Clean Water Act of 1977, which sets aside a portion of construction grants funds to increase Federal grants from 75 percent to 85 percent for construction of treatment works using innovative and alternative processes and techniques and authorizes Federal funding of modification or replacement of such facilities in case of failure. (See enc. II.)

The specific report recommendations are discussed in greater detail in the following sections.

Recommendation number 1: EPA's guidelines on cost-effectiveness should be strengthened to insure a true comparison among competing alternatives for municipal wastewater treatment

The EPA official responsible for drafting cost-effectiveness guidelines said he had not previously read the report and was unaware of its findings, conclusions, and recommendations. He took exception to most aspects of the recommendation and said that many of the matters of concern to the contractor were covered in separate facilities planning guidance. He agreed, however, that the EPA guidance may not have been consistently followed in all regional reviews of construction grant applications.

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EPA is revising the cost-effectiveness guidelines, however, to comply with the requirements of the Clean Water Act of 1977 and plans to publish them in May 1978.

Recommendation number 2: within EPA's municipal wastewater research and development program greater emphasis should be placed on market-related aspects of the technology development process

The specific subparts of this recommendation are discussed below.

- (1) Technologies selected for development should respond directly to end-use market conditions determined by current regulations, anticipated requirements, and regional needs.

To ascertain the then-current technology development needs to meet the requirements of the Federal Water Pollution Control Act Amendments of 1972 (P.L.92-500), the OR&D Municipal Environmental Research Laboratory completed a study in January 1976 which (1) assessed the ability of existing technology to meet the effluent quality requirements of the act and (2) determined areas in which research was needed to upgrade current deficiencies. ("Interim Report on the Impact of Public Law 92-500 on Municipal Pollution Control Technology," EPA-600/2-76-018).

The MERL study concluded that

"A comparison of existing technology with projected needs indicates that some form of technology (although not necessarily optimum technology) is available for meeting required suspended solids, nitrogen, and phosphorus removals. Additional development and demonstration of technology are needed for BOD removal to [less than] 5mg/l, and for alternate disinfection processes. Special research emphasis should be placed on optimizing the cost effectiveness of available and newly developed technology for municipal treatment plants in the smaller flow ranges."

The MERL study's conclusions regarding needed technology were primarily based on EPA's 1973 Needs Survey--which the contractor considered inadequate for market identification--because other potential information sources, such as State basin plans and pollution control discharge permits, were either incomplete or not readily available.

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The Director of the Wastewater Research Division said that MERL knows what treatment levels are currently needed but is unable to forecast technology needs with any degree of certainty because:

--Future legislative and regulatory requirements are not readily predictable.

--The impact of most toxic pollutants on municipal wastewater is not known. Research is needed to answer questions about the presence of toxics and metals in municipal wastewater, source determinations, capability of current treatment processes, and development of new, effective removal processes.

--The Public Law 92-500 goal of "fishable and swimmable waters" cannot be readily translated into technology goals. Congress needs to clarify the goals to enable an appropriate technology response.

--It is impossible to work towards a national control technology for specific pollutant limitations because the States determine which river segments shall be water quality limited (and require more stringent pollutant limitations than secondary treatment). This results in changing pollutant control requirements when a river crosses State lines.

The Director informed us that, because of limited resources, he determines which technologies to research and develop on the basis of the most critical requirements. Consideration is also given to control technology capability, costs, and expected benefits. He believed section 208 areawide planning could provide significant information for OR&D's technology development, if the water quality requirements were related to the source control requirements and highlighted.

- (2) To insure the eventual commercialization of technologies selected for development, EPA should elicit the participation of potential industrial sponsors through appropriate policies and incentives.

The Director of the Wastewater Research Division said OR&D's existing approach is consistent with the recommendation. OR&D's goal is to (1) define needs, (2) define technology alternatives, (3) develop technology on a pilot basis, (4) solicit commercial interest, and (5) assist in the commercialization of demonstrations. He also said that information is shared with private industry and his project officers are encouraged to work closely with equipment manufacturers.

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- (3) As the pivotal point in the commercialization effort, an aggressive program for the full-scale demonstration of developed technologies should be reinstated in ORD.

The Director of the Wastewater Research Division said that OR&D has not reinstated an extensive demonstration grant program because of competing requirements for available funds.

- (4) Greater attention needs to be focused on the analysis of wastewater treatment needs, the selection of processes for development, and the timely dissemination of technical information at all stages of process development.

The matter of analysis of wastewater treatment needs and the selection of processes for development is discussed in item (1). The Director of the Wastewater Research Division told us that budgetary and procurement problems hamper expanded analyses but a number of studies of specific needs have been made. For example, a "Problem Assessment Report" dated July 1977 discusses sludge management issues and needs in the construction grants program.

Regarding the timely dissemination of technical information, the Director of the Wastewater Research Division said that although OR&D may take several years to issue a technical report, more timely reporting has been accomplished by articles in the Technology Transfer Newsletter, writing capsule reports, conducting technology transfer seminars, and issuing design manuals before publishing the final research reports.

To improve the technical information dissemination system, OR&D's Environmental Research Information Center awarded a contract to a consultant in February 1977 for the review of all of OR&D's technical information dissemination mechanisms. The consultant is expected to issue a report in March 1978.

- (5) EPA's regional offices should input to the delineation of the wastewater treatment market by identifying regional needs and priorities.

The Director of the Wastewater Research Division agreed with this item but noted that budgetary and personnel

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resources limitations restrict this cooperative function. The contractor acknowledged these constraints on page V-14 of the report.

- (6) EPA patent policy should recognize the special risks borne by small equipment manufacturers in setting the ground rules for their participation in the program.

OR&D has been concerned with this matter and believes the current EPA patent policy could have a severe impact on future research. CR&D has arranged to discuss EPA's patent policy with the Office of General Counsel.

- (7) Incentives to encourage the timely adoption of innovative technologies by municipalities need to be identified.

The Director of the Wastewater Research Division believes that this has been accomplished by the incentives provided in the Clean Water Act of 1977. (See enc. II.)

Recommendation number 3: A major technical information system should be established to track ongoing R&D projects and to provide updated information to consulting engineers, municipal officials, equipment manufacturers, EPA regional personnel and others in the technology selection process

Features of this information system could include:

- (1) Service offered to groups identified above on a subscription basis, if appropriate.

The quarterly Technology Transfer Newsletter is distributed on a subscription basis to all interested parties. The newsletter may discuss the results of certain technical research projects and announce upcoming seminars and recent publication of technical documents. The newsletter also lists available process design manuals, technical capsule reports, municipal seminar publications, brochures, and handbooks. All technology transfer publications are available free of charge. Other pertinent comments on technology transfer activities are included under item (4) of recommendation number 2.

The Clean Water Act of 1977 establishes a new information dissemination requirement. Section 7 requires EPA to establish within the Agency, or through contract with

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an appropriate public or nonprofit organization, a national clearinghouse for the collection and dissemination of information on alternative treatment technologies for rural and other areas where conventional community-wide sewage systems are not feasible or where such other factors as soil conditions preclude the use of septic tank and drainage field systems.

- (2) Technical reports, design manuals, capsule reports, etc., provided as done currently.

As noted by the contractor, this is being done.

- (3) Quarterly updates of status of R&D projects provided along with names of contacts in a quarterly or monthly publication.

This information is being provided in a quarterly report issued by MERL.

- (4) Progress of step 1 construction grant projects involving pilot plants tracked.

During the period November 1976 through January 1977, OR&D surveyed the 10 EPA regions to collect specific information on new/innovative municipal wastewater treatment technology pilot studies that are supported by step 1 facilities planning grants within the regional construction grants programs. The resulting report, entitled "Report of Survey of New/Innovative Technology Studies Supported by U.S. EPA Step-1 Wastewater Treatment Facilities Planning Grants in the 10 Regions" (dated March 25, 1977, revised September 26, 1977), included descriptions of the ongoing pilot studies and recommendations for keeping OR&D routinely informed of proposed future studies. The Director of the Wastewater Research Division informed us that OR&D has received no additional information on construction grant program pilot studies since completing the survey.

- (5) Technological design bases and performance and reliability data provided.

MERL officials said they make the maximum review possible of technology development projects and publish design and performance data and, where appropriate, also include negative information. The officials also

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informed us that MERL is making a 4-year study to computerize performance and reliabiltiy data of 5,000 treatment plants.

- (6) Cost estimates and guides specific to design bases made available.

The Director, Wastewater Research Division, said that cost estimates are made available in the OR&D publications.

CLEAN WATER ACT OF 1977SECTIONS PROVIDING INCENTIVES FORUSE OF INNOVATIVE AND ALTERNATIVEMUNICIPAL WASTEWATER TREATMENTTECHNOLOGIES

- Section 7 Requires EPA to establish within the Agency, or through contract with an appropriate public or nonprofit organization, a national clearinghouse for the collection and dissemination of information on alternative treatment technologies for rural and other areas where conventional community-wide sewage systems are not feasible or where such factors as soil conditions preclude the use of septic tank and drainage field systems.
- Section 9 Authorizes EPA to make a grant to any grantee who received an increased grant of 85 percent of the cost of constructing a treatment facility using innovative or alternative processes. These grants may pay up to 100 percent of the costs of technically evaluating the facility's operation, the costs of training, and the costs of disseminating technical information on the facility's operation.
- Section 12 Prohibits EPA from making construction grants from funds authorized for any fiscal year beginning after September 30, 1978, unless the grant applicant has satisfactorily demonstrated that innovative and alternative wastewater treatment processes and techniques have been fully studied and evaluated.
- Section 14 Authorizes EPA to make grants for construction of privately owned treatment works serving one or more existing primary residences or small commercial establishments where a public body applies for such grant on behalf of a number of such units and will assure that such treatment works are properly operated and maintained and where such private service is more cost-effective than collection and central treatment. User charges are required, and small commercial establishments must pay back their attributable Federal costs. (Ordinarily, this authority is not to be used to construct septic tanks serving individual residences.)

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- Section 15 Requires EPA to encourage waste treatment management methods, processes, and techniques which will reduce total energy requirements.
- Section 16 Authorizes EPA to make construction grants for treatment facilities using innovative and alternative technologies meeting EPA guidelines, if determined by EPA to be in the public interest and if the life cycle cost of such facility does not exceed the life cycle cost of the most cost-effective alternative by more than 15 percent.
- Section 17 Provides that the amount of a construction grant made during fiscal years 1979-81 for a treatment facility using innovative or alternative processes or techniques shall be 85 percent of the construction cost. Also authorizes EPA to make a grant to fund all costs of modifying or replacing any such facility if it fails to meet design performance specifications.
- Section 20 Authorizes States to modify priority lists to give higher priority for Federal grants for preparing construction drawings and specifications (step 2) of treatment facilities using innovative and alternative processes and techniques.
- Section 27 For fiscal year 1979 and thereafter, EPA (1) shall set aside 4 percent of construction grant funds allotted to any State with a rural population of 25 percent or more of its total population and (2) may set aside no more than 4 percent of the funds allotted to any other State for which the Governor requests such action. Such set-aside funds shall be available only for financing alternatives to conventional sewage treatment works for municipalities having a population of no more than 3,500 or for highly dispersed sections or larger municipalities.
- Section 28 Requires that 2 percent of the construction grant funds allotted to a State for fiscal years 1979-80 and 3 percent of the State's fiscal year 1981 allotment shall be set aside to increase grants from 75 to 85 percent for constructing treatment facilities using innovative and alternative processes and techniques. Of the set-aside funds at least one-half of 1 percent of the State's allotment must be spent for innovative processes and techniques.

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- Section 37 Includes land used for storing treated wastewater in land treatment systems prior to land application within the definition of a treatment works.
- Section 38 Requires EPA to develop and operate a continuing public information and education program on recycling and reuse of wastewater, the use of land treatment, and methods for the reduction of wastewater volume.
- Section 49 Requires EPA to promulgate by June 25, 1978, guidelines for identifying and evaluating innovative and alternative wastewater treatment processes and techniques.
- Section 60 Requires that a Federal wastewater treatment facility on which construction begins after September 30, 1979, shall use alternative and innovative treatment processes and techniques unless its life cycle cost exceeds the life cycle cost of the most cost-effective alternative by more than 15 percent.
- Section 72 Requires EPA to submit to the Congress by December 27, 1979, a report with recommendations for legislation on a program to require coordination between water supply and wastewater control plans as a condition for construction grants.