

efficiency returns. The processes are, however, both effective and economical for achieving treatment up to the 80 to 90 percent range. In addition, current treatment plants represent a very substantial capital investment. Accordingly, a major portion of our research effort will be to couple good biological treatment with tertiary advanced waste treatment processes which would be "built on" to existing conventional processes. We shall, also, be conducting research on entirely new processes or treatment system which could be more effective than current conventional treatment.

In direct response to question 10, I believe that acceleration of construction of conventional treatment plants is completely justified because (1) it is necessary to alleviate critical and near-critical pollution problems now and (2) many of the new waste treatment systems will involve tertiary processes which can be added to existing facilities.

*Question 8: Has your agency ever worked out a timetable for an estimate of the total cost of works it believes to be necessary for an adequate program of water pollution control and planned such a program including the necessary research and development steps in advance of the need for the actual works? If this has not been done, can you produce such a plan, with costs and a timetable for carrying out the plan, for the Committee?*

Answer: This question is related to question 5, in that an accurate estimate of the total costs of the measures for pollution control is not presently available. As indicated in question 5, a study to determine an answer to this problem was requested by the Public Works Committee, U.S. Senate. An optimum program of research and development, however, has been worked out in conjunction with the "Ten-Year Program of Federal Water Resources Research" prepared for the Office of Science and Technology.

Estimated expenditures for Federal Water Resources Research during fiscal years 1965-71 are listed on page 32 of the above-referenced document and shown below.