military facilities and associated with military systems, or which has a bearing upon pollution abatement problems. No specific problems have been experienced insofar as approval of necessary research, development, test, and evaluation programs is concerned. However, due to the structure of the research program of the Department, it is sometimes difficult to identify all elements of the research program which might be considered as having a relationship to pollution abatement. Here again, this problem has been recognized and is currently subject of study and evaluation to determine the best course of action to be followed in the future. There were a number of recommendations contained in the President's Science Advisory Committee's report which have definite implications to the Department of Defense's research activities. In addition to means of better identification of the projects and programs conducted by the military department, the need for some specialized overall research identification and program is being carefully considered.

Question 5: Do you believe that many of the currently proposed programs, such as the $30 billion program to separate storm and sanitary sewers are "cost effective" with regard to our military installations?

Answer: The question of "cost effectiveness" of pollution abatement works is extremely difficult to answer. Before elaborating upon some of the general issues, information on the specific case of separation of combined sewers may provide an insight into the larger question.

The majority of Defense facilities and installations have been built with either separate sanitary and storm drainage systems or storm water is carried away through surface runoff channels. At some installations, it has been found that there is a large volume of water infiltrating into the combined storm and sanitary sewer collection systems. As a result, the flow reaching the waste water treatment facility is vastly disproportionate to the population served. Cost of constructing new separated collection systems has been compared to the initial capital outlay and annual operating costs which would be required to provide for the total flow. In other instances, increasing buildup of the occupied areas of the installation has resulted in a decrease in the time of concentration of surface runoff reaching the combined sewers as well as an increase in volume. Here again, analysis has indicated that a tradeoff exists in the costs of new collection systems versus increases in plant capacity. At such installations, plans have been formulated for modification and improvement of the existing collection system.

Another consideration in determining separation of existing combined sewers at some military bases has been the heavy degree of industrialization of the military installation with resulting generation of industrial wastes which adversely affect domestic sewage treatment operations.

It is emphasized that these projects have been undertaken on an individual installation by installation basis based on demonstrated needs. Insofar as current and future construction projects are concerned, the three military departments have established policies for the construction of only separate systems.