The competencies and expertise of private industry must be enlisted in the research and development programs for water pollution control. Legislation currently under consideration by the Congress would greatly facilitate our ability to utilize the industrial resources by authorizing suitable funds for contracting.

We are very optimistic that our water pollution problems can be solved. In fact, we must be able to control pollution if we are to continue our national growth, prosperity, and well-being. With adequate budgetary and legislative support, total water pollution control can become a reality long before the end of this century. Indeed, major scientific and technical answers can be available within a decade.

Mr. Chairman, that completes my statement and I will be very pleased to answer any additional questions.

Mr. DADDARIO. Thank you.

Mr. Vivian?

Mr. VIVIAN. I would like to come back to the question which you posed earlier; which I mentioned is repeated in your statement a number of places. That is, there was a distinct tie between the methods of treatment and the extent to which augmentation would be required. Suppose a city which is now using a typical secondary treatment plant anywhere from a few years to 10 years, or 20 years, vintage desires to upgrade the quality of its effluents to avoid the search for the source of supplemental water at low flow portions of the year. What additional cost would a city incur and would there be any likelihood of significantly reducing it in the visible future rather than the unforeseeable future?

Dr. WEINBERGER. The treatment which could be added on, and our effort in the past has been directed primarily to improving existing facilities, by such a municipality would most likely make use of something such as activated carbon. And the cost, which I previously indicated is our best estimate based upon our pilot plant work, of such facilities would be in the neighborhood of $100 a million gallons.

To indicate what this means in magnitude, I might point out that the present sewage treatment cost for the conventional biological treatment would be between $50 and $200 a million gallons.

Mr. VIVIAN. That is approximately doubling the cost of an existing facility?

Dr. WEINBERGER. Yes, sir.

Mr. VIVIAN. The operating cost as well as the capital cost?

Dr. WEINBERGER. Yes, sir. Capital cost as well as operating cost would be roughly doubled. I might point out that the figure for operating cost which I am giving includes amortization of the capital cost over a 20-year period of time which is what we normally figure.

Mr. VIVIAN. However, is the result of doubling the cost, that the residual wastes are reduced by a factor of about 20? In other words, say from 85 or 90 percent to roughly 99 percent?

Dr. WEINBERGER. Yes, sir. This is an extremely important concept that when one goes from 90 to 95 percent removal, although it appears that there is only a 5-percent increase in efficiency, you actually have reduced by 50 percent the load which you are putting on the stream, and if you go from the 90 to 99 percent, you are actually reducing the load on the stream by 90 percent.