

equipment manufacturer can help. My suggestion concerns plant operation and technique.

*Question 4: Do you believe it is realistic to force industry to return "pure" water to streams regardless of the cost of necessary treatment? Are you not afraid that lack of capital will hinder any such effort?*

Answer: Sir, a chemical engineer can never ignore costs. Granted that cleaning up pollution is expensive. But not cleaning up pollution is expensive, too. Industry pays to clean up its water supply. Municipalities pay to clean up their water supplies. There are damages to public and private property caused by filth and corrosion. And there are other costs, the esthetic losses. It may be, in fact, unrealistic not to require industry to return clean water to streams—on a cost basis alone. I haven't seen a balance sheet on these costs; some say it will cost too much, and some say it will be worth the cost. A good, complete balance sheet would be useful in permitting an objective assessment of which approach will actually cost less. Perhaps this committee could authorize the development of such a balance sheet.

*Question 5: Your statement suggests that you are unwilling to consider use of streams for disposal of any waste material. Would you propose to eliminate even natural accumulation of wastes in streams? Is not a certain amount of organic waste healthy for a stream in providing the necessary food for the life cycle of plants and lesser species of living organisms that provide food for fish? How would you propose to set standards for what is permissible in streams to be used for various purposes, such as drinking water, recreation, industry, in the absence of studies of the problems and analytic techniques and the like which you suggest should be eliminated?*

Answer: I'm proposing that the standards be set for effluents entering streams. These effluents should be as pure as present science and technology can make them, with aggressive technological and business management seeing to it that the cleanup is conducted efficiently and skillfully and that cleanup operations are upgraded just as constantly as production operations are.

I do not propose eliminating all studies. Meaningful studies suggest solutions and attractive suggested solutions should be tried in realistic programs. I endorse meaningful studies.

*Question 6: Do you believe we should install devices to control emissions into the atmosphere even if the emissions are found to be harmless?*

Answer: Well, if emissions are found harmless through the expedient of putting them out into our atmosphere and seeing who complains or what the environment suffers, then I'd certainly prefer prior control. Prior understanding at the very least.

*Question 7: What kind of legislation do you believe is needed to bring about an upgrading of our pollution control efforts?*

Answer: I think that uniform, countrywide enforcement of past and presently proposed legislation would upgrade pollution control efforts. Ways should be found to permit increasing use of pollution abatement field evaluation programs and funds to prosecute them forcefully should be provided.

I think that the approach to and the philosophy of pollution control has to be changed, as I suggested in my prepared statement.

*Question 8: How much has been spent and is available for develop-*