

I have four or five others, but I shall not give them to you. Your time has disappeared. I do want to be subject to whatever questions you may have that may disclose some of the remaining ones here.

Perhaps I should add the acid mine waste problem. The total problem of mines—the slag pile, the acid mine waste—is where I came in 35 years ago. We sat on a board, a regional board for the coal-producing States, what we now loosely include in Appalachia, and we spent, from memory, about \$20 million at that time. We did not succeed and the Bureau of Mines Director pointed out that they have no real solution to acid mine wastes.

Here is an area where deep-seated and prompt research is absolutely essential. We have let it ride for a period of about a third of a century, but there it is, and it never stops.

Mr. DADDARIO. You would not subscribe to the idea that because it has been said that nothing can be done about mine drainage, we ought to consider it to be a natural phenomena and forget about it?

Dr. WOLMAN. No. I do not think it ought to be left that way, because it does do a great deal of damage in many ways.

To be confronted with something unresolved for the rest of our lives does not sit well with me. Research on a multifaceted area needs to be pushed and sponsored. There is no question about it.

Some years ago, a group at the Johns Hopkins University did work on this for 2 or 3 years. It was thought, maybe overoptimistically, that a way of curbing it had been found. This turned out to be a biological phenomenon in the abandoned mines, the unworked mines, and it was approached from that standpoint. It meant in essence that one would have to go back into these mines and paint the exposed walls, which were the sources of sulfuric acid and the like. It never got anywhere.

I have the feeling that it ought to be reopened and other procedures isolated and determined if possible.

Mr. DADDARIO. Dr. Wolman, we don't have much time, but I would like you to touch on a point that we have talked about informally. I do think it is important to have your thoughts on the record.

Related to the question of separating sanitary and storm sewers is the possible expenditure of some twenty-five to thirty billion of dollars to accomplish certain end objectives. What would it and what would it not accomplish? What is your feeling generally about this part of the problem and its relationship to pollution generally? The expenditure on separate sewers is one of the largest put before us.

Mr. MOSHER. Mr. Chairman, he touched on this while you were out.

Mr. DADDARIO. Oh?

Dr. WOLMAN. May I resume it or simply summarize it very briefly?

I am opposed to a heroic expenditure on the assumption, first, that it can be done, but more important that if it were done it would be worth anything like that amount of money from the standpoint of the quality of the receiving body of water.

Now there are alternatives to that kind of a separation, that would cost very much less and which incidentally have already been put into practice in the last 4 or 5 years, at least in the State of Michigan, and probably in several other States.

They require that, if you put in the combined system, storage tanks must be constructed. Every rainfall exceeding the minimum amount