

standards for combinations, including combinations where there are synergistic or interacting effects.

Each of those is reduced in some proportion so you get something less than the standard for the individual pollutants you started out with. So this problem is not unique, you see, to American experience.

Mr. CARPENTER. Then, the answer to my question is that the large number of possible combinations does rule out criteria establishment for complex atmospheres?

Mr. WILLIAMS. No.

Mr. AUERBACH. Are you talking about a single criterion for air pollution?

Mr. CARPENTER. Or for two. For sulfur oxide and particulates, to be specific.

Would you contemplate issuing a criteria for those two in combination?

Dr. MIDDLETON. I guess I am having difficulty understanding what the real point of the question is.

It would have to be a third-party system. Where you had particulates and sulfur oxide interacting and certain concentrations having effect, you would have a variable number, depending upon relative proportions.

Mr. CARPENTER. It would be like this oxidant chart on page 8 of the Commerce publication.

Dr. MIDDLETON. Well, if we knew that the enhancement or synergistic effect took place in a physical-chemical way as this, it could be predicted. We don't know that now. The size of the particles is very important, but we are uncertain whether the nature of the particle is important. Present indications are that maybe the nature of the surface of the particle is less important than its size. We simply don't have enough information at this time to put together this kind of a synergistic criteria system.

Mr. CARPENTER. OK. That answers my question. The last one, and one I am particularly interested in:

Are our planned efforts and expenditures in air pollution control being subjected anywhere in government to a comparison with other alternatives to increase the general health of the public?

Dr. MIDDLETON. The Congress has clearly established the fact that it is concerned about air pollution and it has set some goals. The new amendments to the Clean Air Act, for example, call for some specific missions to be performed.

The fact that we have appropriations and funds seems to me to have uniquely and explicitly described the extent to which we do need to expand at least this effort to cope directly with the air pollution problem.

As to trade-offs, you will recognize that we have a specific request in the Clean Air Act that addresses itself to the cost of air pollution, in the order of cost-effectiveness studies and the like.

And, we have a number of contracts that are beginning to be set in motion that relate to this question.

So I answer you in the sense that we have a mandate to clean up the air with a law that says how we would like it done, and we are pursuing that, and the larger nature of the question you described is a matter of departmental concern here.