

ing, we believe steps should be initiated immediately to design and build a plant to desulfurize a gas stream equivalent to that from a 30 megawatt power plant. There has been sufficient indication of interest from industry that it may be possible to build such a plant as a cooperative venture between industry and Government.

Before concluding my statement, I would like to refer briefly to two additional problem areas of air pollution, which, although of comparatively limited scope, are nonetheless significant.

The first involves mine tailings. These are the materials rejected during the processing and concentration of minerals from ores. There are hundreds of millions of tons of such tailings throughout the country that are the frequent source of the air-borne material of dust storms. Locally, this type of pollution disposal can reach annoying proportions.

The Bureau is working on several techniques that can be broadly applied to the majority of problems of tailings piles. Many piles are composed of relatively barren material. In these piles, the originally desired mineral has been efficiently extracted and there are no accompanying minerals worth removing. For these tailings, the only solution is disposal in an unobjectionable manner and we are investigating two methods of doing this. One involves chemical treatment for temporary stabilization, followed by fertilization and seeding with selected seeds to provide a permanent cover of vegetation that will minimize or prevent wind and rain erosion and the accompanying air and water pollution. The scenic blight caused by barren tailings dumps is also minimized by this procedure. The other approach involves injection of slurried tailings into underground strata. This technique has been shown to be technically feasible even for relatively coarse material, and the economics are now under investigation.

The other problem area that has been generally recognized for some time involves the pollution of the atmosphere within underground mines. In recent years the Bureau has attacked the control of airborne quartz that, when inhaled in excessive quantities, causes silicosis, and has undertaken an extensive survey of dustiness levels in bituminous coal mines where a chest disease known as coal miners' pneumoconiosis is found as part of a joint program with the Public Health Service. More recently in response to the growing concern with respect to the occurrences of lung cancer among uranium miners, we have surveyed 175 mines to evaluate the level of alpha radiation from radon daughters to which the men have been exposed and made recommendations for ventilation improvement, wherever we could, to reduce their exposure. Seventy-five of the mines were subsequently resurveyed. In those mines, the proportion of the men receiving less than 1.0 Working Level Day of exposure increased from 38.4% to 65% in the interim. One Working Level Day corresponds to the present requirement promulgated by the Department of Labor under the Walsh-Healey Act.

In conclusion, I would like to stress that the problems of environmental pollution, including pollution of the atmosphere, are, to a large degree, a byproduct of our economic progress, as well as past neglect and apathy. And these problems can be expected to increase in importance as our technology and standard of living continue to grow. It is unfortunate indeed, that our scientific knowledge of the causes and character of environmental pollution is more extensive than the technology to handle the waste products of our industrial civilization. Nevertheless, we believe that through continued research and engineering development, it will be possible to solve the problems confronting the Nation effectively and economically. The Bureau of Mines recognizes its responsibilities for the control of pollutants produced as a result of the production, processing, handling, and utilization of the Nation's mineral and mineral fuels resources and will continue to work for technically and economically feasible solutions to the problems arising therefrom.

Thank you for the opportunity to appear before you today, Mr. Chairman. I am at your service to answer any questions that may have occurred to you or the committee members.

ADDITIONAL STATEMENT BY DR. BLOMQUIST

In the testimony cited by Mr. Daddario, Dr. Bennett said: "The problem is not that we lack evidence that some of these pollutants do affect health. We are lacking evidence that they actually cause disease. There is abundant evidence