

and associated groups in an effort to find a practical, economical, and effective method of removing the acid contaminants from the mine drainage waters. A number of theories are being reviewed. The most popular approach to the problem has been the neutralization approach. This, however, has its shortcomings in that with the volume of mine water to be treated in a large operation, the cost could be highly unrealistic.

In 1963 the Pennsylvania Coal Research Board began intensive research into various problems confronting the coal industry, with main emphasis placed on pollution control.

And just a few months ago the Northern West Virginia Coal Association announced that it would spend \$150,000 for a study of that State's No. 1 water conservation problem—mine acid drainage. This 2-year study will be conducted by the West Virginia University School of Mines with two primary and immediate research objectives:

- (1) To discover the sources of pollution and determine corrective measures by which its volume may be reduced; and
- (2) To obtain factual engineering and economic data on chemical treatment of mine drainage by actual operation of a field pilot plant.

In the final session of this subcommittee's public hearings, Dr. Abel Wolman, a recognized authority in the field of ecology and pollution control, testified that 35 years ago he had been a member of one of the earlier research teams investigating the discharge of acid waters from mines in the Appalachian area. The project spent \$20 million and in Dr. Wolman's words: "We did not succeed and the Bureau of Mines Director pointed out that they have no solution to acid mine wastes." This lends credence to the contention of the coal industry that a great deal more research and study is necessary if the problem of acid mine waste is to be solved. Dr. Wolman agreed that this was a field "where deep seated and prompt research is absolutely essential."

Much research has been done here by the U.S. Bureau of Mines and by private research organizations, as well as by those institutions supported by the various States. Perhaps there has been too much independent action by the researchers. As one means of eliminating this situation, Bituminous Coal Research, Inc., is cooperating with the Coal Industry Advisory Committee to the Ohio River Valley Water Sanitations Commission in developing a program, to be financed by funds from CIAC with BCR contributions, to set up a coordinating agency whereby all of the various research projects that are now being conducted in the area of mine drainage can be brought together and summarized and evaluated. By this means, the various independent research sponsors can recognize any areas of duplication or conflict and avoid any waste in the funds much needed for the ultimate solving of the problem. On this subject, we would urge that the subcommittee look into the possibility of a recommendation that at least a sizable part of Federal funds that are appropriated to meet the needs of research and pilot plant tests be made available to some of the independent groups that are doing such a dedicated job in this effort to find a way out of the disconcerting maze that presently surrounds every perimeter of the mine drainage continent.

Reclamation of disturbed lands is another area in which the broad concept of environmental conservation is involved. Surface mining