

We hope the acid mine drainage pollution control demonstration projects now being contemplated under S. 2760 will give us a better insight than we have had up to now.

Active mines are the minor source of acid mine drainage because responsible coal operators spend millions of dollars annually on drainage control measures, including planned mining, land reclamation, and discharge management. This is in addition to discharge treatment efforts, which are still needed because complete control is an ideal. A single mine may have to handle a daily discharge running to millions of gallons, with the volume depending on both controllable factors—such as the methods and scope of mining—and such uncontrollables as rainfall, the permeability of the overburden, and the geology and hydrology of the area.

The coal industry favors preventive measures because it cannot commit itself entirely to drainage treatment for economic reasons, apart from the technical gaps in the state-of-the-treatment art. The composition and flow of mine waters are so variable from area to area that every discharge may require custom treatment.

The true economic yardstick of mine drainage treatment is not the cost per thousand gallons of mine water treated but the cost added to each ton of coal produced. That added cost could be excessively burdensome in many cases. For example, two mines might be required to treat the same volume of similar quality water—say 1,000 gallons per minute—yet one might produce 5,000 tons of coal daily and the other only 1,000 tons. Spreading the fixed cost of water treatment over the smaller production would mean a serious competitive disadvantage.

Water is cleared from most underground mines by pumping it from a sump through a borehole to the surface. Intermittent pumping can result in a “slugging” the stream system with mine drainage. The Coal Industry Advisory Committee to Orsanco has set up mining practice guides that call for equalizing the flow of mine water discharges to streams by lagooning or other form of storage. The CIAC practices also include all practical diversion of surface and ground water to prevent its entry into mining areas or at least reduce its flow through workings; handling water that does get in by suitable channeling, or, preferably, piping, with adequate pumping for quick removal; and effective handling and disposal of refuse from coal mining and processing to minimize acid drainage from gob piles to streams. The CIAC to Orsanco publication “Principles and Guide to Practice in the Control of Acid Mine Drainage” is attached as a supplement to this statement.

There are possibilities for mine drainage control by operational planning that have not yet been completely evaluated technically or economically. Mine layout, for example, to minimize water inflow or channel the water for quickest removal; partial coal extraction to avoid caving to water-bearing strata; and avoidance of excessive coal fracturing during mining. Fringe thinking on the acid mine water problem has extended to the use of antioxidant chemicals in ground water to coat—and thus inhibit reaction by—acid-forming materials. Wide application of this idea would have to be preceded by more basic research in both chemistry and hydrology.