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James J. Gusek

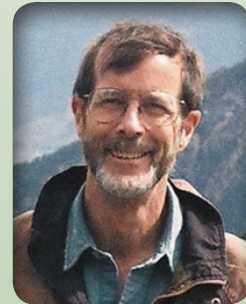
Senior Consultant, Golder Assoc

“Passive Treatment 101: An Overview of the Technologies”

There are basically three kinds of passive treatment technologies for treating mining influenced water (MIW): Abiotic, Limestone-based methods for treating net-acidic MIW have been effective in adding alkalinity; semi-biological methods condition MIW for subsequent limestone dissolution; and biologically-facilitated components round out the list. Some of the biological components can function without plants: Biochemical Reactors (BCRs) are typically applicable to metal mine drainage with high acidity and a wide range of metals. In contrast, Aerobic Cells containing cattails and other plants are typically applicable to coal geology derived MIW where iron and manganese and mild acidity are problematic.

However, iron terraces and manganese removal beds at metal mine sites could be included in this group. Most passive treatment systems employ one or more of these cell types. The track record of aerobic cells and limestone-based methods in treating coal geology MIW is impressive, especially back in the eastern coalfields of the US. BCRs have tremendous potential in metal mining and coal mining geological environments but have not seen as wide an application.

Mr. Gusek is a Senior Consultant with Golder Associates, Inc. He graduated from the Colorado School of Mines in 1973 with a B.Sc. in Mining Engineering. He specializes in the design of passive treatment systems for mine influenced water. Since 1987, his work with acid rock drainage prevention and passive water treatment systems has included about 50 projects throughout the U.S. and internationally. He is on the steering and mitigation committees of the Acid Drainage Technology Initiative - Metal Mining Sector (ADTI-MMS).



Thursday, March 21, 2013, 2:00pm MDT

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