

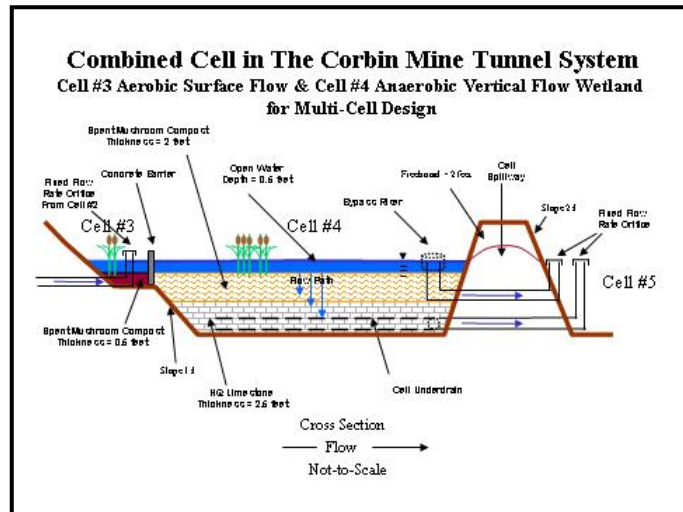
## PASSIVE TREATMENT OF THE SITE 15 ACID MINE DRAINAGE DISCHARGE

**Project Location:** Shamokin Creek, Shamokin, Northumberland County, Pennsylvania

**Project Duration:** October 2002-October 2005

**Client:** Ms. Carey Entz, Watershed Specialist  
Northumberland County Conservation District  
RR #3, Box 238-C  
Sunbury, PA 17801  
(570) 286-7114 ext. 4  
[waterbugs1@epix.net](mailto:waterbugs1@epix.net)

The Shamokin Creek Watershed is located in East Central Pennsylvania and drains an area of 137mi<sup>2</sup> (355 km<sup>2</sup>). The creek originates in Aristes and flows in a westerly direction until it reaches the Susquehanna River near Sunbury. Deep and surface mining in the Shamokin area have severely impacted the ecology of the watershed leaving a scared landscape that has healed to some extent through ecological succession or land reclamation. However, deep and surface mines (filled over time) discharge metal laden, acidic mine drainage (AMD) that continue to cause impacts to Shamokin Creek to such an extent that much of the stream is left lifeless with no recreational value.



The Shamokin Creek Restoration Alliance (SCRA), in partnership with the Northumberland County Conservation District (NCCD), initiated a project to treat the Corbin Mine Tunnel AMD discharge (Site 15) to Shamokin Creek. The Corbin Mine Tunnel Discharge severely impacts the Shamokin Creek by adding 300 lbs/day of iron and 1,400 lbs/day of acidity. As part of this project SCRA & NCCD interviewed several consulting firms and selected Dietz *et al* Consulting to assist with preparation of the “Growing Greener/319 Non-Point Source” grant application and to provide design services for the construction of a passive treatment system once funding was obtained.

Dietz *et al* Consulting (assisted by The EADS Group) is currently providing design services that will lead to the construction of a passive system to treat the Corbin Mine Tunnel discharge. The project involves conceptual design, detailed design, specifications, environmental permitting, land (right-of-way) transfer, and construction of an anaerobic vertical flow wetland (AVFW) treatment system to treat up to 250 gpm of AMD flow from the Corbin Mine Tunnel. The system utilizes a multi-cell surface flow and vertical flow passive treatment system with numerous innovations including: 1) hydraulic & surface loading design criteria developed by Jon Dietz, Ph.D. that will lead to stable longterm performance and operation; 2) flow partitioning to improve metal retention and decrease treatment system size; 3) passive flow controls to minimize operation requirements; and 4) combined surface flow & AVFW cells to improve space utilization.