**Eastern Mine Drainage Federal Consortium (EMDFC)**

The Eastern Mine Drainage Federal Consortium (EMDFC) was organized in 1993 by Ray George of the United States Environmental Protection Agency and others to help coordinate a federal agency response to emerging water quality issues related to coal mining and reclamation activities in the eastern United States. Much of the initial attention was focused on the flooding and subsequent discharge of underground mine pools as the coal industry moved from shallow mines near outcrops to deeper mines in the center of the Pittsburgh Coal Basin. For over 20 years, the coordination of policy initiatives, research, and cooperation with state agencies and industry have ‘managed’ the mine drainage problem. Industry manages active and abandoned mine pools on an essentially regional scale rather than on an individual mine discharge basis.

The EMDFC provides a forum to promote and coordinate the review of technical issues and policies regarding water quality related to coal mining and reclamation activities in the eastern United States. The consortium membership consists of federal agencies with regulatory, land and water management, or research mandates. Accomplishments of the EMDFC initiative include the Appalachian Clean Streams Program (1995), the Acid Drainage Technology Initiative (1997), and the WV173 Monongahela Basin Mine Pool Project (2004).

The current focus of the EMDFC is on flooding mines and potential impacts to receiving streams from degraded mine drainage in the northern Appalachian coalfields. Active mines have been pumping and treating drainage from abandoned mines for decades. As these active mines close, the states may face the prospect of untreated water being discharged and degrading the receiving streams. In order to devise proactive strategies for efficient means and methods of handling water from these mine pools on a basin-wide scale, EMDFC is working with states, industry, academia, and other interested parties to develop a comprehensive GIS database that contains information pertaining to underground mines, mine pools, discharges, and receiving streams. Draft contingency strategies to control and treat the water from large mine pool complexes exhibiting future vulnerability will be preliminarily devised based on the project results. Ultimately, a proactive long-term management strategy for the region is a projected outcome.

The agencies involved with the EMDFC are uniquely positioned, based on regulatory duties and programmatic mandates, to foster cooperation between state and federal agencies, coal operators, academia, and other interested parties to create an all-encompassing GIS database. Large mine complexes, mine pools, and potential impacts from mine discharges may extend across state lines, therefore federal agencies are well positioned to coordinate interstate cooperation. The following federal agencies are represented in the EMDFC:

* U.S. Environmental Protection Agency
* U.S. Office of Surface Mining Reclamation and Enforcement
* U.S. Geological Survey
* U.S. Army Corps of Engineers
* U.S. Forest Service
* U.S.D.A. – National Resources Conservation Service
* U.S. Fish and Wildlife Service
* Appalachian Regional Commission
* National Mine Lands Reclamation Center
* U.S. Department of Energy

The work to achieve this objective will be long-term and relies on the cooperation and concerted efforts of all parties involved. Information and data will be collected from state mining records, research reports, institutional knowledge of experienced individuals, and other sources. Data gaps will be filled in by additional work. The data and information sought to create this GIS database include, but may not be limited to:

* Mine and company name, permit numbers, locations and operation outlines
* Coal seam(s) mined and extraction rates
* Type(s) and dates of mining
* Geologic structure and average coal thickness
* Current mine pool elevations and conditions (if available) – steady-state with seasonal fluctuations, still flooding and rising, no pool (free draining), etc.
* Mine pool monitoring point (wells, shafts, etc.) locations, elevations, construction details
* If the mine is discharging or not
* Presently existing treatment, if any
* Type(s) of treatment and capacity of the systems
* Discharge locations and rates
* Raw water quality
* Watershed and receiving streams
* Responsible entity, if any
* Degree of interconnectedness to adjacent, over, and underlying mines
* Calculate/estimate mine pool volumes

This information will be used to build the GIS database with associated metadata that will in turn be used to develop watershed-scale contingency strategies to handle major mine discharges should the coal companies no longer be able to treat. The contingency strategies will outline the most effective means to convey the water to centrally-located points as well as the most cost-effective and efficient treatment methods prescribed by the effluent quality and quantity. The treatment strategy will also be to some degree based on the receiving stream(s) assimilative capacity predicated on the stream-use designation. The initial stage of this project will be primarily limited to the northern Appalachian coalfields of western Pennsylvania, eastern Ohio, Maryland, and northern West Virginia.