



What is Acid Mine Drainage



Sources of Non-point Source Pollution

Acid Mine Drainage (AMD) is currently the main pollutant of surface water in the mid-Atlantic region. AMD is caused when water flows over or through sulfur-bearing materials forming solutions of net acidity. AMD comes mainly from abandoned coal mines and currently active mining. AMD degrades more than 4,500 stream miles in the mid-Atlantic region with the loss of aquatic life, and restricts stream use for recreation, public drinking water and industrial water supplies.

What is Mine Drainage?

- Mine drainage is metal-rich water formed from chemical reaction between water and rocks containing sulfur-bearing minerals.
- The runoff formed is usually acidic and frequently comes from areas where ore or coal mining activities have exposed rocks containing pyrite, a sulfur bearing mineral.
- Metal-rich drainage can also occur in mineralized areas that have not been mined.

How does Mine Drainage Occur?

- Mine drainage is formed when pyrite, an iron sulfide, is exposed and reacts with air and water to form sulfuric acid and dissolved iron.
- Some or all of this iron can precipitate to form the red, orange, or yellow sediments in the bottom of streams containing mine drainage
- The acid runoff further dissolves heavy metals such as copper, lead, mercury into ground or surface water
- The rate and degree by which acid-mine drainage proceeds can be increased by the action of certain bacteria.

Problems Associated with Mine Drainage

- Contaminated drinking water
- Disrupted growth and reproduction of aquatic plants and animals
- Corroding effects of acid on parts of infrastructure such as bridges

Acid Mine Drainage

- Mines built as early as the 1800's were developed in a manner which utilized gravity drainage, to avoid excessive water accumulation in the mines
- As a result, water polluted by acid, iron, sulfur and aluminum drained away from the mines and into streams

Results of Acid Mine Drainage

- Acid mine drainage is one of Region 3 most serious water pollution problems
- It is not only an ecological concern to the states but an economic concern as well



Economic Concerns Resulting from Acid Mine Drainage

- A region impacted by acid mine drainage often has a decline in valued recreational fish species such as trout as well as a general decline in outdoor recreation and tourism along with contamination of groundwater drinking supplies

Additional Information

- For additional information regarding information on this page contact [Dan Sweeney](#) at 215-814-5731
- [US EPA Region 3 Water Protection Division Nonpoint Source Pollution Program](#)
- Public Information Hotline - 800-438-2474