Enviro dep FACTS

ACID MINE DRAINAGE

Correcting coal's biggest environmental problem

When coal was formed, various metals in the coal forming plants were concentrated and immobilized. As coal seams are mined or opened during road construction, these metals are released and exposed to oxygen. If present in substantial concentrations, these releases result in acid mine drainage (AMD), that may contain dissolved iron, manganese, and aluminum as well as sulfates.

Less than 5 percent of active West Virginia mines have any water quality problems. Coal seams in some areas produce poor quality drainage with varying concentrations of acidity and metals. Most AMD is from abandoned mines, where no one has the responsibility to correct the problem. As a result, hundreds of miles of streams and rivers in West Virginia are affected. Acid mine drainage sources are classified under one of these three categories:

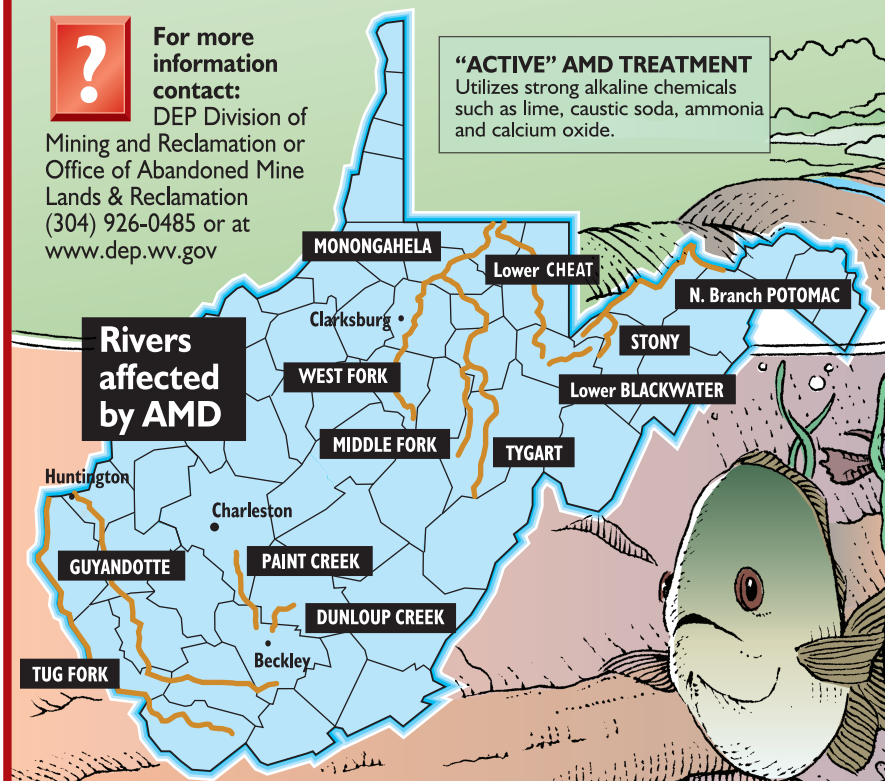
- *ACTIVE mine sites where the operator is required to treat discharges to acceptable pH and metal concentrations. Often drainage quality improves as the site is reclaimed.*
- *BOND FORFEITURE mines where the operator has failed to meet his obligations or is financially insolvent and DEP has revoked the permit and may use securities to mitigate the drainage. About 45 percent of bond forfeitures have water quality problems. The DEP chemically treats at several sites to protect water uses, and has integrated passive amelioration at other sites as it reclaims them.*
- *ABANDONED MINE LANDS where mining ceased prior to new laws in 1977. DEP initiates water quality improvement efforts as it reclaims dangerous and unsightly remnants of past mining.*

Water and mine soil testing and extensive planning, combined with rigorous enforcement in potentially acidic areas prevent future AMD problems at current mine sites.

For more information contact:
DEP Division of Mining and Reclamation or Office of Abandoned Mine Lands & Reclamation
(304) 926-0485 or at
www.dep.wv.gov

"ACTIVE" AMD TREATMENT
Utilizes strong alkaline chemicals such as lime, caustic soda, ammonia and calcium oxide.

"PASSIVE" AMD TREATMENT
Includes reclamation, limestone sand in streams, and directing the drainage through limestone ditches, buried channels, or contructed wetlands.



AMD harms streams, lakes and rivers.

Acid mine drainage reduces the amount of oxygen available to fish and other aquatic life.

AMD also corrodes pipes and structures.

AMD also can pollute groundwater and impair water use.

The best solution to AMD at abandoned mine sites is industry re-mining of problem areas and proper containment at the source.

FROM AMD TO RECOVERY

Some ways AMD pollutes are shown in this illustration of the transition that can occur with reclamation. DEP has aggressive stream restoration projects on several impacted rivers.

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