

THE PROBLEMS

Why do abandoned coal mine hazards exist?

Coal mining began in Pennsylvania in the mid-1700s to support the colonial iron industry. By the 1800s, Pennsylvania coal was fueling the industrial growth of the entire country and was the primary fuel source for western Pennsylvania's growing steel industry. Anthracite and bituminous coal production peaked in 1918 with a combined production of 276 million tons. Coal's importance continued well into the twentieth century as it provided the energy to fight both World Wars. When the steel industry declined in the late 1940s, coal use was redirected into electricity generation. Today, coal supplies the majority of fuel for electric power generation in Pennsylvania and the nation.

For the first 200 years, coal was mined with little thought of environmental consequences and without formal regulation. When all available coal was extracted from a mine site, operators would move to another area and leave the original mine abandoned, failing to return the earth to its previous condition. Over 15 billion tons of coal were removed from Pennsylvania's ground and 250,000 acres of mine lands were left abandoned.

Pennsylvania's abandoned mine lands (AML) memorialize a period of great economic and industrial growth in the state and country. However, these acres scar Pennsylvania's landscape with environmental and safety hazards. The state's waterways are polluted from mine drainage and many people have suffered from lives lost and property damaged from unsafe and unstable AMLs.

Abandoned mine reclamation refers to the process of cleaning up environmental pollutants and safety hazards associated with a site and returning the land to a productive condition.

Since the 1960s, Pennsylvania has been a national leader in establishing mining laws and regulations to ensure reclamation occurs after active mining is completed. During the same time, Pennsylvania began an aggressive cleanup of abandoned mine sites.

What types of problems result from abandoned coal mines?

The federal Office of Surface Mining (OSM) under authority of the Surface Mining Control and Reclamation Act (SMCRA) (PL 95-87, as amended), defined a number of priorities and corresponding problem types.

- Priority 1 (P1) - the protection of public health, safety and property from extreme danger of adverse effects of coal mining practices;
- Priority 2 (P2) - the protection of public health and safety from adverse effects of coal mining practices;
- Priority 3 (P3) - the restoration of land and water resources and the environment previously degraded by adverse effects of coal mining practices including measures for the conservation and development of soil, water (excluding channelization), woodland, fish and wildlife, recreation resources and agricultural productivity.

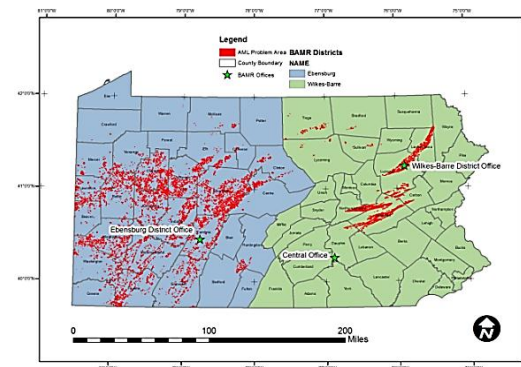
P1 and P2 problem types, those that adversely affect public health and safety, are as follows: Clogged Stream Lands, Clogged Streams, Dangerous Highwall, Dangerous Impoundments, Dangerous Pile and Embankment, Dangerous Slides, Gases - Hazardous/Explosive, Hazardous Equipment & Facilities, Hazardous Water Body, Industrial/Residential Waste, Polluted Water - Agricultural/Industrial, Polluted Water - Human Consumption, Portals, Subsidence, Surface Burning, Underground Mine Fire and Vertical Opening.

P3 problem types that only affect the environment, and do not impact human health and safety, include the following: Bench, Industrial/Residential Waste Dump, Equipment/Facility, Gob, Highwall, Haul Road, Mine Opening, Other, Pits, Spoil Area, Slurry, Slump, Water Problems and Water Supplies.

Where are AML problems located?

Abandoned surface and deep mines are scattered in the northeastern anthracite and western bituminous fields. Anthracite coal, or hard coal, is characterized by steeply sloping, sometimes vertical coal seams. Bituminous coal, or soft coal, lies in flat horizontal seams making coal extraction easier but the associated environmental and safety problems are similar to those in the anthracite fields.

Pennsylvania still accounts for one-third of the country's AML problem. Over \$1 billion of high-priority health and safety problems associated with Pennsylvania's abandoned mine lands are included in the OSM AML Inventory System and are in need of reclamation. Pennsylvania maintains an inventory of abandoned mine land problems, revising it as new problems are uncovered. Abandoned mine problem areas have been identified in 43 of Pennsylvania's 67 counties. The distribution of known AML problem areas is shown in the map below.



THE SOLUTIONS

Abandoned Mine Reclamation in Pennsylvania

The Bureau of Abandoned Mine Reclamation (BAMR) administers and oversees the Abandoned Mine Reclamation Program in Pennsylvania. BAMR is responsible for resolving AML problems which have resulted from past coal mining practices in accordance with requirements established by the OSM under authority of the SMCRA.

Abandoned Mine Land Funding

Congress enacted SMCRA on August 3, 1977. One of the primary purposes of SMCRA was to promote the reclamation of mined areas abandoned and left without adequate reclamation prior to August 3, 1977. These areas, in unreclaimed condition, substantially degrade the quality of the environment, prevent or damage the beneficial use of land or water resources or endanger the health or safety of the public. Title IV of SMCRA established the AML Trust Fund for the reclamation and restoration of areas affected by past mining. This fund is derived from a reclamation fee on clean coal produced by underground and surface coal mining. Currently, the reclamation fees are 28 cents per ton for surface-mined coal and 12 cents per ton for coal mined underground in accordance with the requirements set forth in the 2006 reauthorization of SMCRA. OSM collects the fees from coal production across the country and then grants the monies back to states and tribes with approved Abandoned Mine Reclamation Programs, like Pennsylvania.

SMCRA establishes that expenditures of monies from the fund shall reflect the established priorities.

SMCRA defines lands and waters that are eligible for reclamation as:

Lands and waters which were mined for coal or which were affected by such mining, waste banks, coal processing or other coal mining process and abandoned or left in an inadequate reclamation status prior to August 3, 1977, and for which there is no continuing reclamation responsibility under state or federal laws.

What is the procedure for getting AML problems reclaimed?

The following steps are the primary components in the AML reclamation process and involve a variety of BAMR staff, depending upon the complexity of the project:

- ✓ Problem Identification
- ✓ Property Owner Support
- ✓ Reclamation Plan Development
- ✓ Environmental Assessment
- ✓ Authorization
- ✓ Design
- ✓ Construction

BAMR reclamation projects, with respect to SMCRA priorities, focus on eliminating health and safety P1 and P2 problems. P3 problems are sometimes included if they are incidental to the reclamation of higher priority problems. Where possible, efforts are made to restore AML sites, to near pre-mining conditions.

Who performs the AML reclamation?

In general, AML reclamation projects managed by BAMR are constructed by either private contractors or BAMR's in-house construction personnel.

For contracted projects, the project is competitively bid and the construction contract is awarded by DEP to the lowest responsible bidder. BAMR construction inspection staff provides oversight of the contracts.

For smaller projects, the BAMR's in-house construction personnel and equipment will generally complete the work. This simplifies the entire process and speeds up the time period from investigation to construction.

BEFORE CONSTRUCTION



AFTER CONSTRUCTION



If you suspect you have an AML problem that needs to be addressed, please refer to the map of Pennsylvania below and contact the appropriate office.



For counties shaded in blue contact:

Department of Environmental Protection
Bureau of Abandoned Mine Reclamation
Ebensburg District Office
286 Industrial Park Road
Ebensburg, PA 15931-0149

Phone: 814-472-1800

For counties shaded in green contact:

Department of Environmental Protection
Bureau of Abandoned Mine Reclamation
Wilkes-Barre District Office
Two Public Square, 5th Floor
Wilkes-Barre, PA 18701-1915

Phone: 570-826-2371

For more information, visit the DEP website at: www.dep.state.pa.us. Look for **Abandoned Mine Reclamation** under the **Mining** category.

Pennsylvania's Abandoned Coal Mine Hazards

PROBLEMS AND SOLUTIONS

COMMONWEALTH OF PENNSYLVANIA



BUREAU OF ABANDONED MINE RECLAMATION