

# **Implementation Guidelines for the AMD Set-Aside Program in Pennsylvania**

**By Pam Milavec and Eric Cavazza  
Bureau of Abandoned Mine Reclamation**



July 15, 2009



**The Surface Mining Control  
and Reclamation Act  
(SMCRA)  
2006 Reauthorization**

# New **Set-Aside** Statutory Language

## SMCRA Section 402(g)(6)

- (A) ... up to **30 percent** of the total of the grants ...for the abatement of the causes and the treatment of the effects of acid mine drainage in a **comprehensive manner** within **qualified hydrologic units** affected by coal mining practices.
- (B) In this paragraph, the term “**qualified hydrologic unit**” means a hydrologic unit—
- (i) in which the water quality has been **significantly affected by acid mine drainage from coal mining** practices in a manner that adversely impacts biological resources; and
  - (ii)(I) contains land and water that are **eligible**  
(II) contains land and water that are the subject of **expenditures by the State** from the forfeiture of bonds required under section 509 or from other State sources to abate and treat abandoned mine drainage.

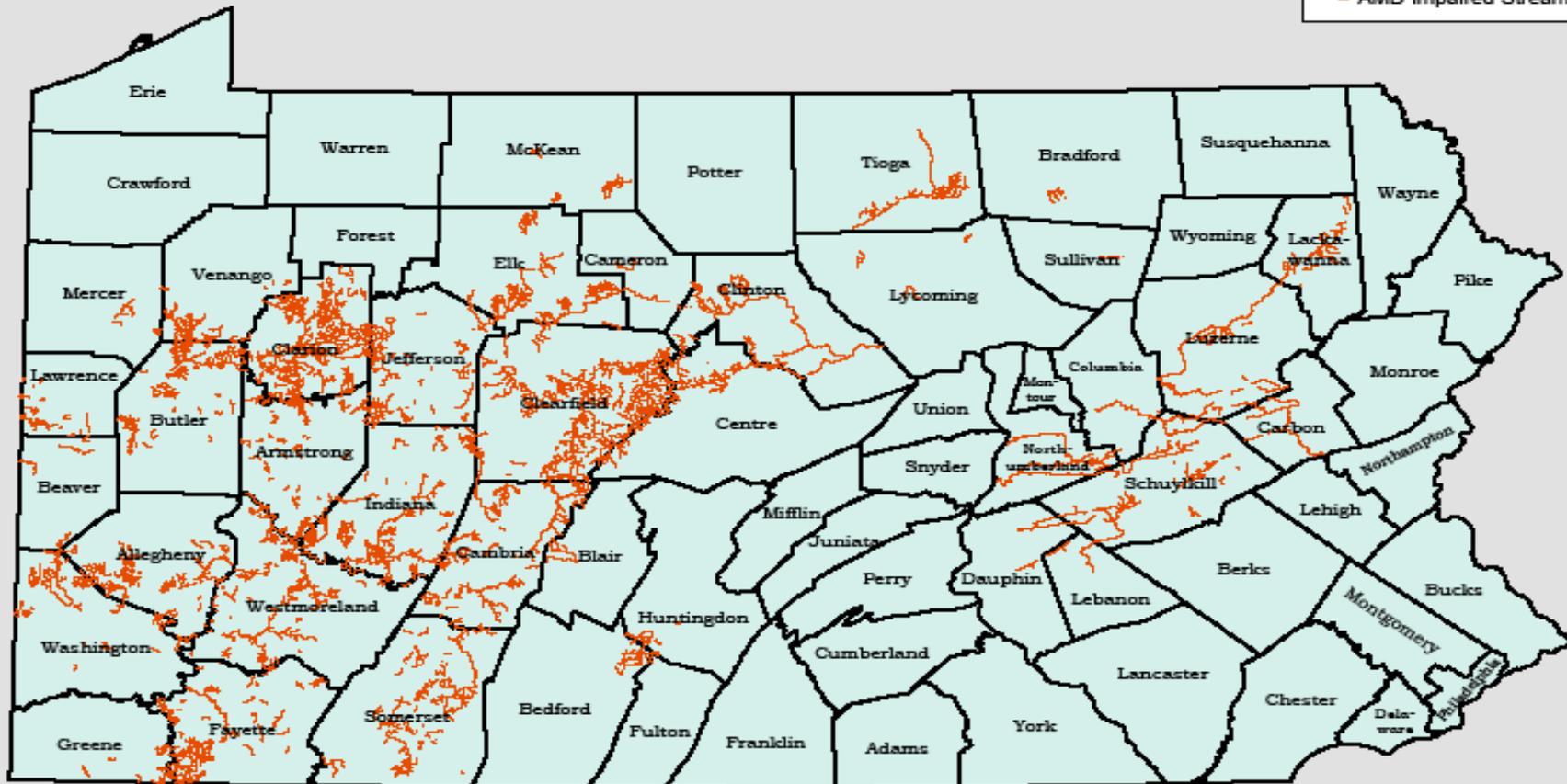
# Up to 30% Set-Aside

- Must be balanced with P1 and 2, health and safety projects
- At current estimates, Pennsylvania could potentially focus \$300-\$400 million of Title IV funds toward AMD problems over the next 15 years
- However, due to the magnitude of the problem, and O&M needs, many AMD problems will not be addressed through the AML Program during this time

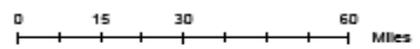
# 5,543 stream miles impaired by AMD

## STREAMS OF PENNSYLVANIA Stream Status as of October 2006

~ AMD Impaired Streams



**Data Source:**  
Streams Integrated List, DEP-Bureau Watershed Mgmt  
(Based on National Hydrography Dataset (NHD), USGS)



For Informational Display Purposes Only  
**BMR DEP**  
Bureau of Mining and Reclamation  
Pennsylvania Dept. of Environmental Protection

# **PA's Approach - Solicit Public Input on Reauthorization of SMCRA**

- In 2007, the DEP, CAC and MRAB held 10 public town hall meetings across the coal fields of PA in order to receive public input on the AML program
- The Department then conducted focus group meetings as a second part of its public outreach efforts for the purpose of examining selected issues important to the efficient operation of PA's AML Program

# Results of Public Input on Pennsylvania's

- About 340 people attended the ten town hall meetings, generating over 800 pages of transcripts
- Majority of Commenters:
  - Take a full 30% set-aside
  - Address OMR funding for passive treatment systems with set-aside funding

# PA DEP Response

- Comment and Response Document on-line
- Development of a draft Set-Aside issue paper, also on-line

Both can be found at:

[www.depweb.state.pa.us](http://www.depweb.state.pa.us)

- **DEP Programs (A-Z): Abandoned Mine(s)/Abandoned Mine Reclamation**

# Primary Points of Issue Paper

- PA shall take the maximum 30% set-aside at the earliest possible time that provides a balance with land reclamation responsibilities
- Decision-making will be defined, transparent and open for public comment (Process outlined in AMD Set-Aside Issue Paper)
- Money from the fund shall be made available for operation, maintenance and replacement of AMD treatment systems constructed with Commonwealth funding
- Money will be made available for grants, thru the existing Grant Center and thru sole-sourcing, when it is an effective alternative to state contracting

# Mine Drainage Set-Aside Workgroup

In November 2007, the Department, in cooperation with the Federal Office of Surface Mining (OSM), established a workgroup to develop “AMD Set-Aside Program Implementation Guidelines” for OSM Title IV funded AMD projects

# Main objective of the Workgroup

To develop Set Aside program guidelines that ensure the efficient and effective expenditure of funds that achieve measurable and comprehensive restoration of watersheds impacted by abandoned coal mine drainage in accordance with the requirements of SMCRA

# Timeline for Development of Implementation Guidelines

- First Draft presented at Focus Group meeting on June 10, 2008
- Accepted Comments until July 14, 2008
- Compiled and evaluated comments – July through November 2008
- Initiated data collection effort for all passive treatment systems in PA – November 2008
- Evaluated additional treatment systems for performance – February 2009
- Revised guidelines based on all public input and additional data received – March through May 2009 revisions to guidelines
- Revised guidelines sent to Focus Group participants in early June 2009

# Summary of Comments Received

- Support for the guidelines and approach being pursued by the workgroup
- **Treatability Criteria**
  - **Technological Analysis and the Risk Analysis Matrix**
    - **Several requests received for additional background/supporting documentation**
    - **Some commented that approach is too conservative – discourages many currently used passive treatment technologies**
    - **Others favored approach**

# Summary of Comments Received

- Cost/effort needed for data collection
- Cost/benefit analysis should be more direct
- Complexity of the project scoring procedure
- Watershed approach vs. individual project evaluation
- Role of watershed groups
- General and editorial comments

# Data Collection Effort

In order to facilitate the review of data from as many passive treatment systems as possible, DEP undertook a data collection effort beginning in November 2008

Letters and project information forms were sent to 279 individuals or groups identified in a database developed by OSM of publicly-funded treatment systems

# Data Collection Effort

Approximately 50% of the forms were returned along with a great amount of additional data and information including monitoring data, as-built drawings, watershed plans, O&M plans, photographs, and more

All information received was converted to electronic format and, in a collaborative effort with the Western Pennsylvania Coalition for Abandoned Mine Reclamation, is being uploaded to a website that will provide public access: [www.datashed.org](http://www.datashed.org)

# **Notable revisions to the June 2008 Draft Guidelines**

- Data collected used to refine technological analysis and project risk matrix
- Evaluation conducted on watershed wide basis rather than an individual project basis
- A preliminary benefit to cost analysis needs to be completed before scoring a watershed
- Over-arching goals for the Set-Aside Program have been developed
- An evaluation of the viability of the local project sponsor/watershed group is included

# Initial Benefit/Cost Analysis

- Ratio between the net present values of the benefits to the net present value of the costs of restoring a watershed impacted by AMD
- Takes into account all the present and future benefits of restoring a watershed and compares them to the capital and annual O&M costs over time
  - Pennsylvania Fish and Boat Commission
    - Recreational Use Loss Estimates for PA Streams Degraded by AMD 2006

# Over-Archiving Goals

- PA Code, Title 25, Environmental Protection, Chapter 93, Water Quality Standards sets forth water quality standards for surface waters of the Commonwealth
  - The standards defined in Chapter 93 were used to help in develop overarching program goals
  - Input on goal development was provided by many groups including TU, PFBC, WPCAMR, and DEP's Water Deputate

- DEP will use a two-tiered approach that relies on the level of biological restoration that can reasonably be achieved
  - The goal for the upper tier is to reach full biological attainment for aquatic life uses and remove the targeted stream or stream segment from DEP's Impaired Waters List
  - The goal for the lower tier will be a lesser level of biological recovery, focusing primarily on the attainment of a recreational fishery

- Watersheds with minor impairments due to a small number of AMD discharges or AML sites would be reasonable candidates for upper tier restoration goals
  - Headwater streams with no other sources of impairment are likely to be good candidates
- For the majority of watersheds, the lower tier is a more reasonable and cost effective goal
  - This goal will keep restoration costs lower in watersheds where there are many sources of AMD, as well as other conditions that will make full biological attainment extremely difficult
  - This goal will require improvements to in-stream water quality to a level that allows a diversity of fish and macroinvertebrates.

# Upper Tier Restoration Goal

**Upper Tier** - The goal for the targeted stream is to be delisted from DEP's Impaired Waters List. The following in-stream contaminant concentrations must be met, with infrequent, minor exceedances that do not adversely impact aquatic life: **pH > 6.0, alkalinity > acidity** (unless in a naturally acidic headwater stream with a functioning biological community upstream of impairment), **total Fe < 1.5 mg/l, total Al < 0.5 mg/l** and **TDS < 1,500 mg/l**. Macroinvertebrate surveys must be completed to determine that the stream meets DEP delisting criteria (full attainment).

# Lower Tier Restoration Goal

**Lower Tier** - The goal for the targeted stream or stream segment is to provide for biological restoration, including, where applicable, a recreational fishery. The following in-stream contaminant concentrations must be met during normal stream flow conditions: **pH > 6.0**, **alkalinity > acidity** (unless in a naturally acidic headwater stream with a functioning biological community upstream of impairment), **total Fe < 1.5 mg/l**, **total Al < 0.5 mg/l** and **TDS < 1,500 mg/l**. Where applicable, fish surveys will be necessary to determine if the recreational fishery criteria have been met. Macroinvertebrate surveys will also be used.

# Existing Hydrologic Unit Plans and Development of New Qualified Hydrologic Units

- Currently, there are 26 approved Hydrologic Unit Plans (HUPs)
- New Hydrologic Units must be determined to be qualifying under SMCRA before being scored
- Existing restoration plans will be evaluated to determine the benefit to cost ratio
  - if  $>1$ , watershed will be scored
- Watersheds scoring a high or exceptional worth will be developed in to QHUs

# Approved Hydrologic Unit Plans



## Hydrologic Units



### Hydrologic Unit Plans

- 1 Roaring Run
- 2 Cucumber Run
- 3 Schrader Creek
- 4 Loyalhanna
- 5 Sugar Creek
- 6 Cold Stream
- 7 Little Paint Creek
- 8 Stony Creek
- 9 Laurel Run
- 10 Crooked Creek
- 11 Beaver Run
- 12 Bells Gap Run
- 13 Little Toby Creek
- 14 Sandy Run
- 15 Loyalsock Creek
- 16 Twomile Run & Shintown Run
- 17 Swatara Creek
- 18 Glenwhite Run
- 19 Lucky Run
- 20 Dunkard Creek
- 21 Rausch Creek
- 22 Pine Creek (Wildwood)
- 23 Swamp Creek
- 24 Sterling Run
- 25 Indian Creek
- 26 Bennett Branch

- DEP intends to use existing watershed restoration plans to the greatest extent possible when evaluating and scoring watersheds proposed for new QHUs

- Most active watershed groups have received funding from Growing Greener and other sources and have completed restoration plans for their watersheds
- It may be necessary for DEP staff to supplement the existing plans with additional data collection, and/or to work with the group to further develop their restoration goals and stream modeling

# Pennsylvania's AMD Set-Aside Program Priorities

1. Operate and maintain active treatment plants constructed by BAMR or operated by or on behalf of BAMR within approved HUPs or QHUs
2. Evaluate existing HUPs and decide whether goals have been met, what additional work is needed, or whether these watersheds are no longer a priority of DEP
  - Proceed with completion of projects to accomplish restoration if the hydrologic units are still a DEP priority
  - Provide for O&M of passive systems already constructed and operating within these HUPs

# Program Priorities continued

3. Develop QHUs, under the re-authorized SMCRA, for watersheds where DEP has already committed to funding projects

- For example, staff is currently working on documentation of a QHU for the Upper West Branch Susquehanna River watershed due to commitments with the Susquehanna River Basin Commission (SRBC) to provide treated mine water during low flow periods
- This work will continue into 2010

# Program Priorities continued

4. Develop QHUs for high and exceptional worth watersheds, in accordance with these guidelines, where there are already restoration plans in place and already treatment systems constructed
  - The reasons for this are that work has already been done and resources already expended, and there is already an interest in and local support for restoration
  - In addition, in order for the existing treatment systems to receive future O&M monies from the AMD Set-Aside Program, the systems will need to be in Qualified Hydrologic Units
  - DEP intends to begin considering these new watersheds sometime in 2010, as BAMR staff resources allow

# Program Priorities continued

5. Develop QHUs for "new" high or exceptional worth watersheds where there has not yet been a significant amount of activity
  - These new watersheds will not be evaluated to determine their worth until all watersheds with existing treatment systems have been evaluated.

# **Coordination with other Programs**

To the extent practicable, BAMR will coordinate with other funding agencies to complete watershed restoration, including

- DEP's Growing Greener Program
- The 319 Non-Point Source Program
- Other Federal Programs
  - Natural Resources Conservation Service
  - Army Corp of Engineers

# **Evaluation and Scoring of Restoration Plans**

## **Scoring the Restoration Plan and Projects within the Plan**

- Local Support**
- Background Data**
- Restoration Goals**
- Technological and Alternative  
Analysis for Individual Projects**
  - Technological Analysis**
  - Alternatives Analysis**
  - Other Considerations**

# Evaluation and Scoring of Restoration Plans

## Scoring the Benefits of Implementing the Restoration Plan

- Stream Miles Restored and Other Water Resource Benefits
- Other Benefits

## Scoring the Costs

- Capital Costs
- Non-Title IV Match Money and Projects Completed by Others
- Operation, Monitoring, Maintenance and Replacement (O & M) Requirements and Costs

# Evaluation and Scoring of Restoration Plans

## Restoration Plan Worth Determination

- Exceptional Worth
- High Worth
- Moderate Worth
- Low Worth

In most cases, DEP will not consider funding mine drainage projects in watersheds that are not determined to have either “High Worth” or “Exceptional Worth”.



**Questions?**