

Qualified Hydrologic Unit Plan Process

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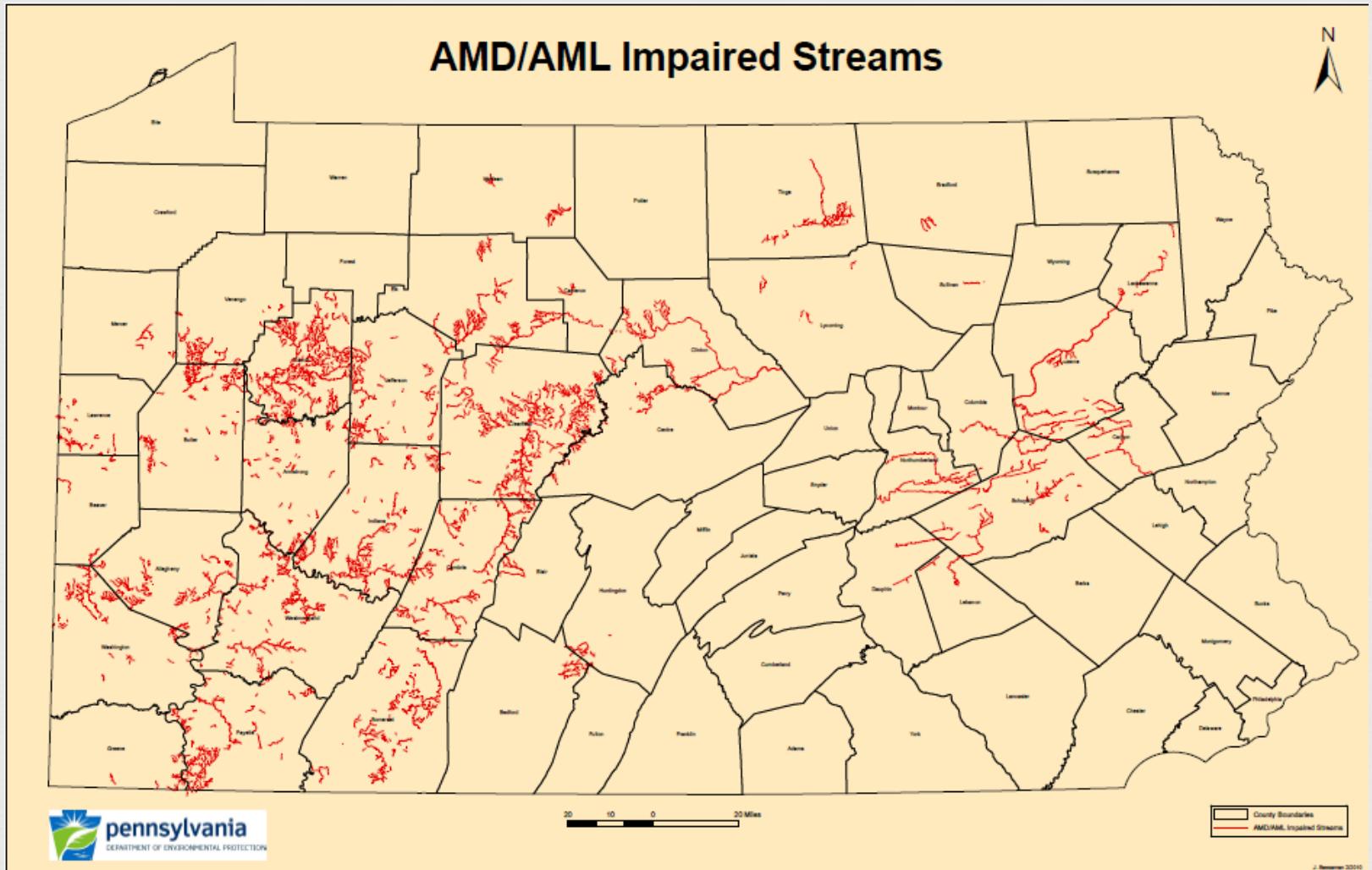


pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

HISTORY

5,543 stream miles impaired by AMD



1990 Amendment to SMCRA



- ☞ Allowed for up to 10% of grant to be deposited in an AMD Abatement and Treatment Fund
- ☞ Allowed states to implement, in consultation with the NRCS, acid mine drainage abatement and treatment plans approved by OSM
 - ☞ Plan shall provide for the comprehensive abatement of the causes and treatment of the effects of AMD within **qualified hydrologic units**
 - ☞ PA called these Hydrologic Unit Plans or HUP

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



New Set-Aside Statutory Language

SMCRA Section 402(g)(6)



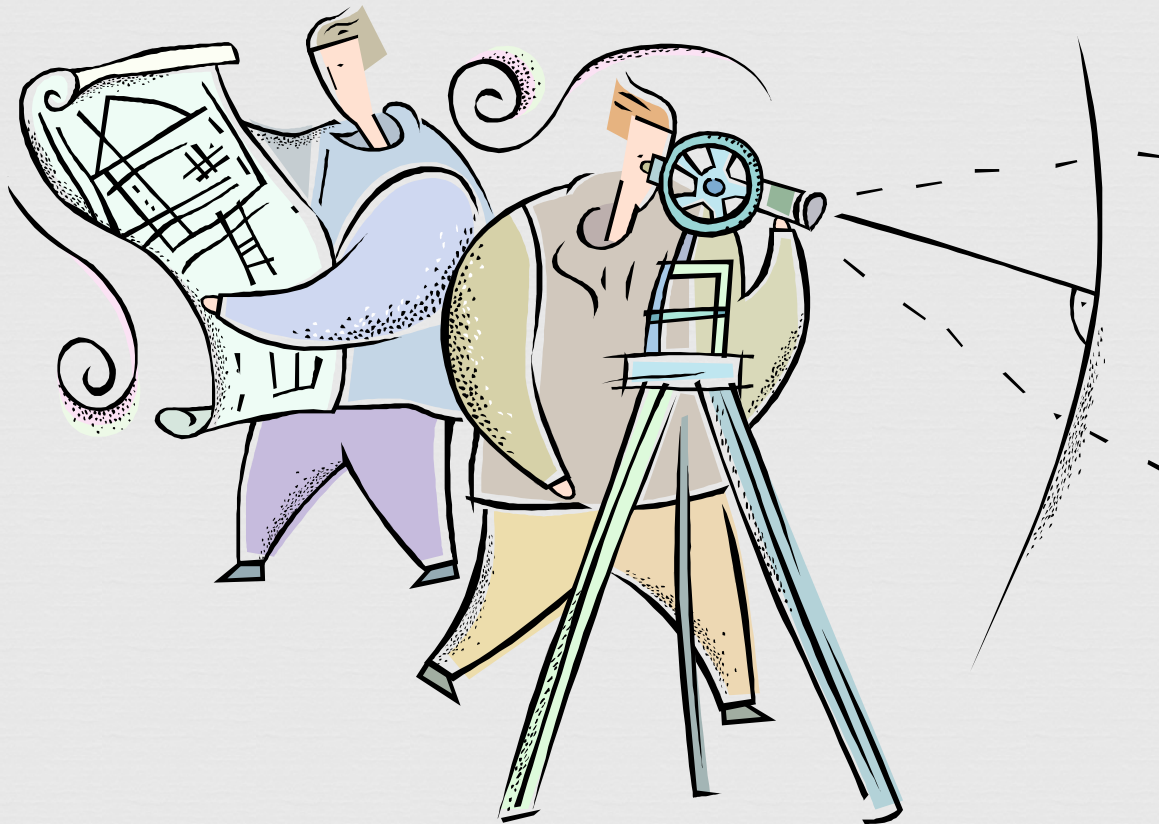
- (A) ... up to 30 percent of the total of the grants ...for the abatement of the causes and the treatment of the effects of acid mine drainage in a comprehensive manner within qualified hydrologic units affected by past coal mining practices.
- (B) In this paragraph, the term “qualified hydrologic unit” 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.

Program Impacts of Re-Authorization



- ❧ PA no longer is required to develop abatement and treatment plans (HUPs) that must be completed in conjunction with NRCS and submitted to OSM for approval
- ❧ However, for auditing purposes, PA must document that Set-Aside funds are being expended within **Qualified Hydrologic Units**
 - ❧ PA developed a form to use that documents compliance with SMCRA requirements (Later)
 - ❧ Form is completed from information that should be found in a Restoration Plan

Restoration Plan



Where to Start??



- ❧ A Model Plan for Watershed Restoration is available on BAMR web site at: (Under Publications tab)
<http://www.portal.state.pa.us/portal/server.pt?open=514&objID=588907&mode=2#Appendix%20A>
- ❧ Describes most of what is needed for a restoration plan
- ❧ Additional information should be included that is found in the Set Aside Guidelines so the plan can be scored.
<http://www.portal.state.pa.us/portal/server.pt?open=18&objID=503101&mode=2>
- ❧ Plan must have well defined, measurable, and realistic goals

Defining Restoration Boundaries



- ❧ Can be small, such as a small tributary or headwaters of a larger stream, or quite large, such as Upper West Branch Susquehanna River (35 mile length)
- ❧ Must tie back to restoration goals – what can be accomplished?
- ❧ Includes an evaluation of existing aquatic life conditions – what is listed as impaired?
- ❧ Stream modeling is very useful for this
- ❧ Benefit/Cost analysis may determine boundaries

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 (Example in Set Aside Guidelines)
 - ❧ Pennsylvania Fish and Boat Commission (Benefit)
 - ❧ Recreational Use Loss Estimates for PA Streams Degraded by AMD 2006
 - ❧ AMD Treat is a useful tool for determining costs when this info is not available (Cost)

Developing new QHUs



- ❧ Watershed must be determined to be qualifying (meet SMCRA criteria – see form)
- ❧ Watershed must have a positive Benefit/Cost ratio to be scored
- ❧ Score watersheds using Set-Aside guidelines
- ❧ High or exceptional worth watersheds will be considered to be developed into Qualifying Hydrologic Units (QHU)

Over-Arching Goals



- œ DEP will use a two-tiered approach that relies on the level of biological restoration that can reasonably be achieved
- œ 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
- œ 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 macro invertebrates

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**. Macro invertebrate 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. Macro invertebrate surveys will also be used.

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”

Score Sheet Summary

Restoration Plan Scoring Criteria	Total Section Score (e)	Maximum Criteria Score (f)	Weighted Percentage (g)	Score [(e) / (f) x (g)]
A.1 – Local Support		70	10	
A.2 – Background Data		90	10	
A.3 – Restoration Goals		25	5	
* A.4.a – Technological Analysis		140	15	
* A.4.b – Alternative Analysis		25	5	
*A.4.c – Other Considerations		35	5	
B. – Benefits		25	15	
C.1 – Capital Costs		25	15	
C.2 – Match Money and Projects Completed by Others		50	10	
C.3 – Matching Funds for Operation & Maintenance		70	10	
* These are the combined weighted scores of all projects	Overall Restoration Plan Score			

Restoration Plan Worth's



Restoration Plan Worth	Overall Plan Score
Exceptional Worth	> 90 – 100+
High Worth	> 70 – 90
Moderate Worth	> 50 – 70
Low Worth	50 or less

Qualifying Hydrologic Unit Determination Form

(Prepared by BAMR)



Qualified Hydrologic Unit Determination
Surface Mining Control and Reclamation Act Amendments of 2006

Hydrologic Unit: _____

Description of Qualified Hydrologic Unit (unit boundaries, stream segment(s), tributaries included, etc.):

Section 402(g)(6)(A):

The above Hydrologic Unit is described under a restoration plan that addresses the abatement of the causes and treatment of the effects of AMD in a comprehensive manner?

Yes _____ No _____

Restoration plan includes the following:

Assessment/evaluation of the problem

A scientific analysis of the pollution load and the known source contributions

Identification and Prioritization of AML/AMD sites that are adversely affecting water quality

Realistic, Specific and Measurable Restoration Goals

Realistic Solutions and Measurable Treatment Goals for discharges proposed for treatment/abatement

Yes _____ No _____

If any of the above is missing from the Restoration Plan, a supplement to the Plan must be attached to this document that addresses missing items.

Section 402(g)(6)(B)(i):

The above Hydrologic Unit has been significantly affected by acid mine drainage from coal mining practices in a manner that adversely impacts biological resources?

Yes _____ **No** _____

Describe and provide references (may include references to TMDL, 303(d) list, watershed assessments or remediation plans, or BAMR water and biological sampling)

Section 402(g)(6)(B)(ii):

(I) The above hydrologic unit contains land and water that are eligible (Section 404: Lands and water eligible for reclamation or drainage abatement expenditures under this title are those which were mined for coal or which were affected by such mining, wastebanks, coal processing, or other coal mining processes, except as provided for under section 411, and abandoned or left in an inadequate reclamation status prior to the date of enactment of this Act [*August 3, 1977*], and for which there is no continuing reclamation responsibility under State or other Federal laws).

Yes _____ **No** _____

Provide references and documentation of eligible lands and water (attach applicable signed Eligibility Determinations).

(II) The above hydrologic unit 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.

Yes _____ **No** _____

Provide references and documentation of State expenditures to abate and treat AMD.

Set-Aside Program Priorities



1. Operate and maintain active treatment plants constructed by DEP or operated by DEP within approved HUPs/QHUs (currently \$2 million/yr).
2. Complete all necessary restoration work or required OM&R within existing approved HUPs/QHUs.
3. Complete projects or OM&R for newly developed QHUs in watersheds where DEP has already committed to funding projects
4. Complete projects or OM&R in future QHUs in high and exceptional worth watersheds where there are already restoration plans in place and already treatment systems constructed.
5. Complete projects or OM&R in future QHUs in "new" watersheds where there has not yet been a significant amount of activity or commitment by the Department.

Priorities 3, 4, and 5



- ❧ 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 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

Current Status of Set-Aside



- ❧ Balance of \$15 million as of 3/28/11
- ❧ Two Active Plants are currently in construction: B&T 15 and Hollywood
- ❧ Total Set-Aside expenditures of \$12 million for the 2 plants (already encumbered and accounted for)
- ❧ Staff is currently working on priority 2 activities (assessing existing HUPs) and developing priority 3 QHUs
- ❧ Set-Aside and capital budget funds will be used to build 2 more active plants (Set-Aside costs are unknown - may exceed \$10 million total)
- ❧ Using the Set-Aside fund to address long-term OMR of passive and active systems is a likely scenario
- ❧ Due to the above activities, both staff and funding resources for projects in new watersheds is very limited

What is the role of Set-Aside in addressing OMR?



- ❧ Watershed Groups and BAMR
 - ❧ Responsible for routine maintenance
- ❧ Growing Greener (from 2007 – 2010, funded 19 O&M projects, \$2.2 million cost, \$0.5 million match)
 - ❧ Quick Response – funded 37 projects @ \$618,198
 - ❧ TAG – including Datashed funding (Datashed.org)
 - ❧ Individual O&M projects funded
- ❧ Set-Aside Fund
 - ❧ Funds being used to support active (approx. \$2 million/yr) and passive systems in approved HUPs/QHUs
 - ❧ Approx. \$4.0 million in O&M sub-account (not being drawn upon at this time)

O&M Concerns



- ❧ Approximately 300 passive systems have been constructed
- ❧ Some passive systems are not able to adequately treat the AMD they are receiving - usually due to plugging from metals - and may need significant capital costs to repair passive systems or replace with active treatment
- ❧ GG funding is decreasing while the need is ongoing to fund O&M projects, Quick Response and TAGs for watershed technical assistance and Datashed
- ❧ A very large fund will be needed to generate income to address long-term needs - estimated at approx. **\$91 million** to provide approx. \$4.55 million annually (to operate existing active systems and estimates for existing passive systems)

Moving Forward

- ❧ Need to continue to fund Quick Response, Dashed and other O&M projects through Growing Greener, as well as new passive treatment systems
- ❧ Determine funding source for long-term passive and active O&M needs. If the Set-aside fund is to be the sole source of long-term funding, DEP will need to work toward a goal of a **\$91 million** balance (this will impact the ability to construct new systems)
- ❧ Continue to follow Set-Aside program priorities in determining which new and O&M projects to fund
 - ❧ Systems that are not within HUPs/QHUs are not eligible for funds and will need other funding sources to meet O&M needs
- ❧ Other funding sources must be used (319 NPS Program) and new ones found for both capital and O&M funds
- ❧ Public/private partnerships need to be explored and encouraged
 - ❧ Marcellus well development water needs
 - ❧ Other users (industrial, water supplies)

QHU Plan Process Summary



- ❧ Develop Watershed Restoration Plan
 - ❧ Well defined, measurable, and realistic goals
 - ❧ Benefit/Cost Analysis

- ❧ Submit plan to DEP-BAMR for consideration
 - ❧ BAMR will score restoration plan based on Guidelines
 - ❧ “High” or “Exceptional” worth plans will be considered

- ❧ DEP-BAMR prepares QHU Determination
 - ❧ Watershed will be eligible for Set-Aside funding based on prior Department commitments and available funding

QUESTIONS ???

