Governor's Sustainable Water Infrastructure Task Force

Testimony Presented by Trout Unlimited

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Good afternoon. Thank you for inviting Trout Unlimited to participate in your meeting today. My name is Steve Moyer; I am Trout Unlimited's Vice-President of Government Affairs. Trout Unlimited is a national non-profit organization whose mission is to conserve, protect and restore North America's trout and salmon fisheries and their watersheds. TU has more volunteer members in Pennsylvania than in any other state and our volunteers contribute thousands upon thousands of hours every year on stream restoration and conservation projects.

I am here to talk to you today about some of TU's most prominent work in the Commonwealth, abandoned mine drainage restoration, and how it relates to clean water – or more specifically drinking water. In 1998 we embarked on the challenge of abandoned mine drainage remediation as it pollutes more than 5,400 miles of Pennsylvania streams and is the largest source of pollution to the Commonwealth's waterways. We began our abandoned mine drainage (or AMD for short) restoration work in the Kettle Creek watershed in northcentral Pennsylvania and launched the regional AMD cleanup effort for the entire West Branch Susquehanna River basin in 2004.

There are two areas of focus I'd like to discuss this afternoon: 1) AMD's effects upon ecosystem functions in streams, such as nutrient retention of nitrogen and phosphorus; and 2) AMD's impact upon public water supplies.

Beginning with the first topic of AMD's effects upon ecosystem functions in streams, let's start with understanding that healthy streams will have a good diversity of fish and other aquatic life. Thus, healthy streams have the capacity to produce, as well as process, organic nutrients. In turn, healthy streams also have the ability to utilize and retain organic nutrients such as nitrogen and phosphorus.

Add AMD pollution to the stream – typically that means high acidity and heavy toxic metals such as iron and aluminum – and a stream can no longer support diverse, or in many cases it can no longer support any, fish or aquatic life. Without any aquatic life, there are no organisms to produce or process organic nutrients. Take for instance an inflow of nitrogen and phosphorus from anthropogenic sources – now we have a stream whose capacity to utilize and retain these organic nutrients is significantly reduced.

Excess nitrogen and phosphorous are key ingredients that are degrading the Chesapeake Bay. As such, municipal wastewater treatment facilities in particular are being targeted throughout the Bay watershed to undergo expensive upgrades in order to reduce their nitrogen and phosphorus outputs. While this is certainly an important measure toward restoring the health of the Bay, there are likely other factors that also play into reduction of nitrogen and phosphorus, such as remediation of AMD pollution. Do not discount the role that AMD-impaired streams in the headwater regions of the Chesapeake Bay have with respect to the health of the Bay and its watersheds.

Moving on to my second topic of AMD's impacts upon public water supplies. Home to 1,205 miles of AMD polluted streams and more than 36,000 acres of abandoned mine lands, the list is long for remediation projects that are necessary to restore this beautiful

region and the price tag is (not surprisingly) quite high. Nevertheless, the benefits that will result from restoring streams and land impacted by abandoned mines are countless and enduring, ranging from an improved quality of life for residents and increased outdoor recreation and related business opportunities.

However, one benefit that people do not often consider is that in certain circumstances, AMD remediation may lead to providing clean drinking water. As part of an economic benefits analysis for AMD remediation of the West Branch Susquehanna River basin that TU commissioned, our consultants conducted interviews with nine municipal water authorities located in the most heavily AMD impacted area of the West Branch. Of the 56 water withdrawal sources, including surface and groundwater, 21 water withdrawal sources are on or near AMD-impacted streams.

Furthermore, several water authorities are being forced to look at additional water withdrawal sources, which include those polluted by AMD, due to drought conditions and population expansion. In a specific situation where drought conditions are causing a municipal water authority to locate other sources of water, the cost is simply too high to treat the AMD polluted water, even if that withdrawal source is nearby and plentiful. At this time, I do not have specific dollar figures to quote the additional costs incurred by municipal water authorities to bring AMD polluted water up to drinking water standards because our consultants are in the final stages of compiling the economic benefits analysis.

Our consultants have also investigated the economic impacts of AMD upon private drinking water systems as well. As of May 2007, more than $11 million has been spent by DEP and through bond forfeiture funds on waterline extensions to bring clean water to 696 residences and five businesses within the West Branch Susquehanna watershed.

Are there other, more cost-effective options for providing clean drinking water instead of expensive waterlines, chemical treatment at the municipal water facility, or replacement of private wells? We at Trout Unlimited believe there are other alternatives that will not only lead to providing clean drinking water, but will also restore healthy ecosystem function to streams.

Remediation of the mine drainage pollution should begin as close to the source as possible. Reclamation and remining are excellent remediation methods that yield permanent water quality benefits and would be particularly important to improving water quality of groundwater sources for drinking water. But, these are not always feasible options.

Passive treatment technology has proven to be a very cost-effective and reliable method of successfully improving water quality. When properly designed and constructed, passive treatment systems can remediate a wide range of AMD pollution, improve water quality and restore streams to where they can harbor healthy fish populations and provide important ecosystem functions such as processing organic nutrients (nitrogen and phosphorus). And ultimately, passive treatment systems may help to open up new

sources of surface water for public water supplies. Active treatment systems may also provide a reliable source of treatment for AMD, but the long-term operation and maintenance costs are higher than those for passive treatment and often more difficult to secure. Each AMD site is unique and both passive and active treatment systems must be considered.

In summary, remediation of AMD as close as possible to its source – whether through reclamation and remining, passive treatment, active treatment, or a combination of these – is going to provide the greatest suite of benefits and result in the most cost-effective approach to solving Pennsylvania's largest source of pollution, AMD, while at the same time helping to solve Pennsylvania's ever-increasing costs for providing clean water.

Thank you once again for inviting Trout Unlimited to participate today. I am happy to try to answer any questions you may have.