Information Sheet

TMDL for the Blacks Creek Watershed,
Butler County, Pennsylvania

What is being proposed?

A TMDL plan to improve the quality of water in the Blacks Creek Watershed, tributary to Slippery Rock Creek in Butler County Pennsylvania.

Who is proposing the plan? To whom? Why?

The Pennsylvania Department of Environmental Protection (DEP) is proposing to submit the plan to the US Environmental Protection Agency (EPA) for review and approval as required by the federal regulation.

In 1995, EPA was sued for not developing TMDLs when Pennsylvania did not do so. DEP has entered into an agreement with EPA to develop TMDLs for certain specified waters over the next several years. DEP developed this TMDL in compliance with the state/EPA agreement

What is a TMDL?

A Total Maximum Daily Load (TMDL) sets a ceiling on the pollutant loads that can enter a waterbody so that the waterbody will meet water quality standards. The Clean Water Act requires states to list all waters that do not meet their water quality standards even after pollution controls required by law are in place. For these waters, the state must calculate how much of a substance can be put in the water without violating the standard, and then distribute that quantity to all sources of the pollutant on that waterbody. A TMDL plan includes waste load allocations for point sources, load allocations for nonpoint sources and a margin of safety.

The Clean Water Act requires states to submit their TMDLs to EPA for approval. Also, if a state does not develop the TMDL, the Clean Water Act states that EPA must do so.

What is a water quality standard?

The Clean Water Act sets a national minimum goal that all waters be “fishable” and “swimable”. To support this goal, states must adopt water quality standards.

Water quality standards are state regulations, which have two components. The first component is a designated use, such as “warm water fishes” or recreation”. States must assign a use, or several uses to each of their waters. The second component relates to the instream conditions necessary to protect the use(s). These conditions or “criteria” are physical, chemical or biological characteristics such as temperature and the minimum concentration of dissolved oxygen and the maximum concentrations of toxic pollutants.

It is the combination of the “designated uses” and the “criteria” to support the use that make up a water quality standard. If any criteria are being exceeded, then the use is not being met, and the water is said to be violating water quality standards.

What is the purpose of the plan?

Tributaries of Blacks Creek suffer impairment due to acid mine drainage (AMD). Concentrations of metals are too high to support the designated uses of the waterbody.

The plan includes a calculation of the loading for each metal and acidity that can be safely put into the creek and meet the state water quality criteria. The metals associated with AMD are aluminum, iron and manganese. The proposed TMDL, when implemented, is expected to achieve the water quality standards for these metals.

Why did we choose Blacks Creek?

In 1996, the department listed Blacks Creek under the Section 303(d) of the clean water act as not meeting or expecting to meet water quality standards for metals. The listed segments and miles degraded are shown in the following table:

Stream Code	Stream Name	Miles Degraded
34731	Blacks Creek	4.6

What pollutants does this TMDL address?

The proposed plan provides calculations of stream's total capacity to accept metals (aluminum, iron and manganese) and acidity and maintain levels below water quality criteria

Where do the pollutants come from?

The pollutants come primarily from abandoned mine workings. The Blacks Creek Watershed was mined for coal from throughout the 20th century. The effects of this are still present.

How was the TMDL developed?

DEP used Monte Carlo Simulation to determine the long-term average concentrations that each stream segment could accept and still meet water quality criteria 99% of the time. Monte Carlo simulation allows for the expansion of a data set based on its statistical makeup. Since there was no one critical flow condition where criteria were exceeded, we used the average of the flow to calculate the loads.

How much Pollution is too much?

The allowable amount of pollution in a stream varies depending on several conditions. TMDLs are set to meet water quality standards at the defined critical flow condition. If there is more than one critical flow condition, the TMDL must be constructed to meet water quality criteria at all flow conditions. This is the case for Blacks Creek. For this reason we are using the long term average concentration values that will meet water quality criteria 99% of the time as the basis for the TMDL.

The applicable water quality criteria are as follows:

Parameter	Criterion value (mg/l)	Total Recoverable/ Dissolved
Aluminum*	0.75	Total recoverable
Iron	1.50	30-day average, Total recoverable
Manganese	1.00	Total recoverable
PH**	6 - 9	NA

- ** - The pH values shown will be used when applicable. In the case of freestone streams with little or no buffering capacity, the TMDL endpoint for pH will be the natural background water quality. These values are typically as low as 5.4 (Pennsylvania Fish and Boat Commission). This condition is met when the net alkalinity is maintained above zero.

How will these limits be met?
There is no a watershed rehabilitation plan available but the Blacks Creek Watershed TMDL Report contains a number of recommendations. To date none of the recommendations have been implemented.

How can I get more information on the TMDL?
To request a copy of the full report, contact Elias J. Heferle at (814) 797-1191 during business hours of 8:00 a.m. to 4:30 p.m. or by writing him at Knox District Mining Office, White Memorial Building P.O. Box 669, Knox, PA 16232-0669 or e-mail at eheferle@dep.state.pa.us.

How can I comment on the proposal?
You can provide written comments post marked no later than February 04, 2003 to the above address, or email to the above e-mail address.