

Information Sheet

Proposed Total Maximum Daily Load (TMDL)

for Valley and Little Valley Creeks

What is being proposed?

A Total Maximum Daily Load or TMDL plan has been developed to improve the water quality in the Valley and Little Valley Creek basins.

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 regulations.

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 water 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 among all the 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 "swimmable". To support this goal, states must adopt water quality standards.

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Water quality standards are state regulations which have two components. The first component is the designated use, such as "warm water fishes" or "recreation". States must determine the uses supported by each of their waters. The second component relates to thimstream conditions necessary to protect the uses. These conditions, or "criteria", are physical, chemical or biological characteristics such as temperature, the minimum concentration of dissolved oxygen, and the maximum concentrations of toxic pollutants.

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

What is the purpose of the plan?

The Valley and Little Valley Creek watersheds were determined to be impaired because excessive levels of PCB were found in fish tissue, resulting in a fish consumption ban. The plan includes a calculation of the allowable loading for PCB that will meet the water quality objective.

Why were Valley and Little Valley Creek watersheds selected for a TMDL?

In 1996, DEP listed Valley Creek under Section 303(d) of the federal Clean Water Act as impaired due to elevated PCB levels in fish tissue. Valley Creek was listed again in 1998, along with Little Valley Creek, which was also listed due to elevated PCB levels in fish tissue.

Since the fish consumption advisory upon which the 1996 listing was based applied throughout the entire Valley Creek watershed, the inclusion of Little Valley Creek on the 1998 list did not reflect an additional impaired segment, but was a result of reformatting of the 1996 list.

What pollutant does this TMDL address?

The proposed plan provides calculations of the streams total capacity to accept PCB. Based on evaluation of the concentrations of PCB in fish tissue, it has been determined that PCB is the cause of impairment to the Valley and Little Valley Creek basins.

Where does the pollutant come from?

The production and use of PCB in the United States was banned in 1979. PCB was introduced into the environment while its use was unrestricted. Once in a waterbody, PCB becomes associated with solids particles and enters the sediments. PCB is very resistant to breakdown and can remain in sediments for many years. One known source of PCB in the watershed is the Paoli Rail Yard site, located north of the town of Paoli in Chester County. During the 1950s, oils containing PCB were used to cool the transformers in the trains. Maintenance and repair practices at the rail yard resulted in PCB soil contamination which, over time, eroded off the site into area streams. Because Valley and Little Valley Creeks are relatively urbanized watersheds, PCB may also have been introduced through contaminated groundwater or surface runoff from other unknown sources.

How was the TMDL developed?

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PCB is a probable human carcinogen. The Department's water quality toxics management program controls carcinogens to an overall risk management level of one excess case of cancer in a population of 1 million. In other words, the probability of an individual getting cancer is increased by a factor of 1 in 1 million. The TMDL for PCB was developed by calculating the maximum amount of the pollutant that could be discharged under design conditions without violating the water quality criterion of 0.00004 micrograms per liter. The Department uses the harmonic mean flow as the design condition for dealing with carcinogens because it represents a long-term average exposure to a pollutant.

How much pollution is too much?

The maximum amount of PCB that can be safely absorbed by Valley and Little Valley Creeks under design conditions is 0.0000055 lbs/day.

How will the loading limit be met?

Based on readily available information, the Paoli Rail Yard site is the only known source of PCB in the Valley and Little Valley Creek basins. The Paoli Rail Yard is a National Priorities List, also known as Superfund, site. As part of the remedial action plan for the site, stream sediments in excess of 1 part per million will be excavated. This level is expected to reduce aquatic toxicity and bioconcentration of PCB through exposure to contaminated sediment or consumption of aquatic organisms. PCB levels are also expected to decline in the watershed due to bans on use and natural attenuation, such as the covering of contaminated sediments with newer, less contaminated materials and the flushing of sediments during periods of high stream flow.

How can I get more information on the TMDL?

To request a copy of the full report, contact Laurel Ateyeh at 610-832-6075 or by writing to her at Pennsylvania Department of Environmental Protection, 555 North Lane, Lee Park, Suite 6010, Conshohocken, PA 19428, or e-mail her at ateyeh.laurel@dep.state.pa.us.

How can I comment on the proposal?

You may provide e-mail or written comments postmarked no later than April 17, 2000 to the above address.