

Information Sheet

Proposed Total Maximum Daily Load (TMDL) for Shenango River

What is being proposed?

A Total Maximum Daily Load or TMDL plan has been developed to improve the water quality in the Shenango River from the Shenango Lake Dam to the mouth.

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 load 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.

What is a Water Quality Standard?

The Clean Water Act sets a national minimum goal that all waters are to be "fishable" and "swimmable". To support this goal, states must adopt water quality standards.

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 the instream 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?

This segment of the Shenango River watershed was determined to be impaired because excessive levels of PCBs and chlordane were found in fish tissue, resulting in a fish consumption advisory. The plan includes a calculation of the allowable loading for PCBs and chlordane that will meet the water quality objective.

Why was this segment of the Shenango River watershed selected for a TMDL?

In 1996, DEP listed this segment of the Shenango River under Section 303(d) of the federal Clean Water Act as impaired due to elevated levels PCBs and chlordane in fish tissue. This segment was listed again in 1998, do to elevated PCB levels in fish tissue.

What pollutant does this TMDL address?

The proposed plan provides calculations of the stream's loading capacity for PCBs and chlordane. The loading capacity is the greatest amount of loading that a water can receive without violating water quality standards.

Where do the pollutants come from?

The production and use of PCBs in the United States were banned in 1979. PCBs were introduced into the environment while their use was unrestricted. Once in a waterbody, PCBs become associated with solids particles and enter the sediments. PCBs are very resistant to breakdown and can remain in sediments for many years. One known source of PCBs in the watershed is the former Westinghouse site in Sharon. Westinghouse used PCBs for dielectric fluid in the manufacture of transformers. The source of PCB contamination at the site includes leaking tanks containing PCBs and fly ash contaminated with PCBs that was disposed in an unlined moat located at the site.

In addition to the former Westinghouse Electric Corporation site, the William Taylor Estate site located in the Borough of Wheatland, the Dupont/New Castle Junk Yard site in New Castle, and the River Road Landfill have been identified as possible sources of PCBs.

Chlordane was widely used as an agricultural pesticide before its use was restricted to termite control around building foundations. All uses of chlordane have been banned since April 1988. As with PCBs, chlordane also becomes associated with solids particles and enters the sediments once in a waterbody.

How was the TMDL developed?

PCBs and chlordane are probable human carcinogens. 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 was developed by calculating the maximum amount of the pollutant that could be discharged under design conditions without violating the water quality criterion of 0.0004 micrograms per liter for PCBs and 0.0005 micrograms per liter for chlordane. 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 PCBs and chlordane that can enter the water column in this segment of the Shenango River without violating the water quality criteria is 0.000099469 lbs/day and 0.001243365 lbs/day respectively.

How will the loading limit be met?

Cleanup activities are being conducted at the former Westinghouse site and the three other sites identified as possible sources of PCBs. The goal of the cleanup activities includes the mitigation of the release of pollutants, including PCBs and chlordane, from these sites. A Record of Decision (ROD) is to be issued by the EPA for the former Westinghouse site, which will include the remedial actions that will be utilized for the sediments. The ROD may require excavation of the sediments. Remediation of the river sediments at the other three sites is not planned. The only known location of sediments containing high levels of PCBs is at the former Westinghouse facility.

With the ban on the production of chlordane and PCBs, the mitigation of their release into the environment as the result of the remedial actions being conducted, and the continued natural attenuation that is occurring in the receiving stream, it is believed the criteria for these pollutants in the water column will eventually be achieved.

How can I get more information on the TMDL?

To request a copy of the full report, contact Donald Luttmann at 814-332-6685 or by writing to him at Pennsylvania Department of Environmental Protection, 230 Chestnut Street, Meadville, PA 1635 or e-mail him at luttman.donald@dep.state.pa.us.

The TMDL can be viewed and printed on the DEP Website, <http://www.dep.state.pa.us>, by typing the acronym **TMDL** in the direct link field, and clicking **GO**.

How can I comment on the proposal?

You may provide e-mail or written comments postmarked no later than November 29, 2000 to the above address.