Information Sheet
Proposed Total Maximum Daily Load (TMDL) for Beaver River

What is being proposed?

A Total Maximum Daily Load or TMDL plan has been developed to improve the water quality in the Beaver River basin.

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.

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?

The Beaver River watershed was determined to be impaired because excessive levels of PCB and chlordane 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 was Beaver River watershed selected for a TMDL?

In 1998, DEP listed Beaver River under Section 303(d) of the federal Clean Water Act as impaired due to elevated PCB and chlordane levels in fish tissue. The first fish consumption advisory was issued on June 26, 1986. This advisory applied to carp and channel catfish from New Brighton to Mouth due to PCB and chlordane contamination. The advisory is consistent with the advisory issued for the lower Allegheny and Monongahela Rivers and Upper Ohio River. It was done to recognize the fact that fish can move throughout this area.

What pollutant does this TMDL address?

The proposed plan provides calculations of the stream's total capacity to accept PCB and chlordane. Based on evaluation of the concentrations of PCB and chlordane in fish tissue, it has been determined that PCB and chlordane are a cause of impairment to the Beaver River basin.

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**.** There are no known sources of PCB in the watershed**.** However, the Westinghouse Sharon facility, inflow from the Shenango River, and possible sources in Ohio that influence the Manohing River have been identified as a previous potential sources that may have discharged PCBs into these segments of the Beaver River Basin. During the manufacturing process of transformers, oils containing PCB were used. Improper maintenance practices at the earlier sites resulted in PCB soil contamination which, over time, eroded off the site into area streams.

Chlordane is a man-made organochlorine compound that was widely used as a broad-spectrum agricultural pesticide before its use was restricted to termite control around building foundations. All uses of chlordane have been banned since April 1988. Chlordane may be introduced to surface waters through contaminated ground water or surface runoff, and therefore a non-point source contaminant. Once in a waterbody, chlordane becomes associated with solids particles and enters the sediments.

PCB and chlordane may also have been introduced through contaminated groundwater or surface runoff from other unknown sources.

How was the TMDL developed?

PCB and chlordane are 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 and chlordane 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 ug/L for PCBs and 0.0005 ug/l for chlordane (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 Beaver River under design conditions is 0.000469 lbs/day. The maximum amount of chlordane that can be safely absorbed by Beaver River under design conditions is 0.00586 lbs/day.

How will the loading limits be met?

Based on readily available information, there is no known source of PCB in the Beaver basin. As part of the proposed TMDL implementation plans for the Shenango River the level is expected to reduce aquatic toxicity and bioconcentration of PCB and chlordane through exposure to contaminated sediment or consumption of aquatic organisms. PCB and chlordane 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 Bharati Vajjhala at (412)442-4202 or by writing to her at Pennsylvania Department of Environmental Protection, 400 Waterfront Drive Pittsburgh, PA 15222-4745, or e-mail her at vajjhala.bharati@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.