Comment Response Document for the Chlordane TMDL for Lake Roland, Baltimore County, MD

Introduction

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Loads (TMDLs) for Chlordane in Lake Roland. The public comment period was open from September 27, 2000 through October 27, 2000. MDE received one set of written comments.

Below is a list of commenters, their affiliation, and the date they submitted comments. In the pages that follow, comments are summarized in conjunction with MDE's responses.

List of Commenters

Author	Affiliation	Date
James Stuhltrager, and Susan Mack	Widener University Environmental and Natural Resources Law Clinic, on behalf of the Sierra Club and the American Littoral Society; Earthjustice Legal Foundation on behalf of the Chesapeake Bay Foundation	10/27/00

Comments and Responses

1. The commenter indicated that the TMDL was developed without the necessary information about sediment concentrations. They cite the Back River TMDL for chlordane, and suggest that similar sediment data be collected in Lake Roland for use in the TMDL analysis. The commenters also ask if there are monitoring data showing a pollution trend over time.

Response: Although chlordane data associated with Lake Roland are limited, it is the Department's judgement that the only significant source of chlordane is the bottom sediments of Lake Roland. This conclusion is supported by three factors, EPA's cancellation of the product's registration in 1993, the resultant expected reduction in external sources, and because chlordane chemically binds to sediment it quickly ends up in bottom sediments of the waterbody.

The chlordane TMDL analyses for both the Back River, and Lake Roland, are independent of observed sediment data. Rather, they are based on the chemical behavior of the chlordane, and resultant computations for predicting fish tissue concentrations.

In the case of Back River, where observed data was available, it was used for two purposes, but not for computing the TMDL. First, Back River data shows a decline over time in sediment concentrations (Baker et. al, 1997). Such declines in concentrations have also been observed elsewhere in the Chesapeake Bay region (Eskin et. al, 1996), and are anticipated to occur in reservoirs like Lake Roland, due to burial by sediments. Second, Back River data shows that present sediment concentrations are below what would be expected to cause elevated concentrations in fish tissue. Fish tissue sampling will be conducted over time to confirm this. Because sediment data is not available for Lake Roland, these computations were not performed; however, as explained above, the data is not necessary for computing the TMDL.

MDE's most essential environmental management responsibility in this matter is to assure protection of human health by maintaining fish consumption advisory if warranted by fish tissue sampling. The Department's fish tissue sampling program is adequate to assure this primary goal, and to evaluate the chlordane TMDL analyses. (See response to comment #3.)

2. The commenter states that the TMDL does not meet requirements of the Clean Water Act (CWA) and implementing regulation, 40 CFR 130.2(i), because it is not stated in terms of a load (mass per unit time).

Response: Under the particular circumstance of this TMDL, a water column concentration is an "appropriate measure" within the meaning of 40 CFR 130.2(i), which states that a total maximum load may be expressed as either a mass per time, toxicity, or other appropriate measure. The fish tissue concentration of chlordane serves as the water quality standard endpoint, and a water column concentration threshold has been set as the TMDL to be protective of bioaccumulation in fish tissue. Using this measure for the proposed TMDL is appropriate, particularly in view of Lake Roland having been placed on Maryland's 303(d) list on the basis of fish tissue data. EPA concurs with this interpretation, as evidenced by their approval of the Back River chlordane TMDLs, which was based on the method being applied to Lake Roland.

3. The commenter indicates that the TMDL does not include an implementation plan to ensure that the water quality standards will be met.

Response: Neither the Clean Water Act nor EPA regulations direct states to develop a detailed implementation plan as part of the TMDL development and approval process. Implementation measures, therefore, are beyond the scope of this process. However, a few points are worthy to note regarding Maryland's approach to this matter.

Aside from the processes of natural recovery, physical removal of the bottom sediments from this impoundment would be the only other means of removing the chlordane-contaminated sediments. Environmental concerns, coupled with the high costs associated with dredging and dredged material disposal, place chlordane impairment in Lake Roland in the category of "Extremely Difficult Problems" as defined in Chapter 6 of the Report of the Federal Advisory Committee on the TMDL Program, July,

1998.

Biologically available chlordane levels in Lake Roland's sediments are expected to decline over time due to natural processes including biodegradation, redistribution, and natural burial by sedimentation. Maryland has a fish tissue monitoring program in place that collects and analyzes samples for contamination in Lake Roland on a regular basis. Maryland is proposing triennial monitoring of the fish in the lake to track the natural attenuation of chlordane. An evaluation of the required sampling frequency will be considered each year as information from the statewide monitoring network is developed. As contamination levels decline, and appear low enough to protect human health and the environment, these data and results from additional samples will be evaluated to determine if the consumption advisory should be modified or withdrawn.

References

Baker, J., Mason, R., Cornwell, J., Ashley, J., Halka, J. Hill, J. "Spatial mapping of Sedimentary Contaminants in the Baltimore Harbor/PatapscoRiver/Back River System." Report to the Maryland Department of the Environment, 1997.

Eskin, R.A., Rowland, K.H., Alegre, D.Y. "Contaminants in Chesapeake Bay Sediments 1984-1991", Chesapeake Bay Program, CBP/TRS 145/96, 1996

U.S. Environmental Protection Agency, Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program, The National Advisory Council for Environmental Policy and Technology (NACEPT). EPA 100-R-98-006, July 1998.