

Comment Response Document for the Chlordane TMDL for Back River, Baltimore County, MD

Introduction

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Load (TMDL) for Chlordane, a banned pesticide, in the Back River Estuary of Baltimore County, Maryland. The public comment period was open from February 12, 1999 through March 15, 1999. MDE received one set of written comments. Below is a list of commenters, their affiliation, the date they submitted comments, and the numbered references to the comments they submitted. In the pages that follow, comments are summarized and listed with MDE's response.

List of Commenters

Author	Affiliation	Date	Comment No.
Wendy L. Myers and Jack D. Smith	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.	3/15/99	1, 2, 3, 4, 5

Comments and Responses

1. Maryland's proposed TMDL for the Back River Estuary fails to incorporate the necessary elements under applicable sections of federal law and regulation; therefore, it is not an approvable TMDL. Specifically, an approvable TMDL shall be established at a level necessary to implement the applicable narrative and numeric water quality standards with seasonal variations and a margin of safety.

Response: The proposed TMDL includes the necessary elements to be approved by EPA. The response to comment #3 addresses the specific issue of the proposed TMDL being established at a level necessary to implement the applicable water quality standards. In regard to the specific matter of accounting for seasonal variations, the proposed TMDL is represented as a concentration level that is protective of toxic human health effects at all times. Thus, the proposed TMDL accounts for seasonal variations since it is protective throughout the year. In regard to the margin of safety, the US Department of Agriculture, Food and Drug Administration fish tissue guidance level of 0.3 mg/kg, which considers fish consumption rates and other variables, is developed with margins of safety at each step of the risk-based calculation. The EPA human health criterion, which

serves as the proposed TMDL and is established to account for bioaccumulation in fish tissue, is also specifically designed to include a margin of safety. Thus, both the water quality standard endpoint and the TMDL include built-in margins of safety.

2. Section 5.0 of the proposed TMDL is devoted to discussing Total Maximum Daily Loads and Load Allocations; however, the section fails to establish any numeric loads. Although the proposed TMDL attempts to establish a 0.00059 $\mu\text{g/L}$ fish tissue concentration as the TMDL, this number in and of itself does not adequately satisfy the elements of an approvable TMDL. Maryland has failed to show any data or analysis used to support the use of this concentration as the chlordane TMDL.

Response: As a point of clarification, the TMDL is established in a manner that identifies the US Department of Agriculture, Food and Drug Administration fish tissue guidance level of 0.3 mg/kg as the water quality standard endpoint for the proposed TMDL. The fish tissue concentration of interest is not 0.00059 $\mu\text{g/L}$, and the TMDL is not expressed as a fish tissue concentration. Rather, the proposed TMDL is a water column concentration of 0.00059 $\mu\text{g/L}$, which is based on analyses conducted by EPA to be protective of human health when considering accumulation in the food chain. The response to comment #3 elaborates on why this is an appropriate measure for the proposed TMDL.

3. Maryland's proposed TMDL is not a total maximum daily load. It is a concentration, specifically it is the 0.00059 $\mu\text{g/L}$ criterion recommended by EPA as the concentration of chlordane that is not to be exceeded in the water column.

Response: According to 40 CFR 130.2(i) a total maximum load may be expressed as either a mass per time, toxicity, or other appropriate measure. Criteria for both acute and chronic toxicities are almost exclusively expressed as concentrations. The proposed chlordane TMDL is expressed analogously in the form of the human-health-based water column concentration. This concentration was developed by EPA to account for bioaccumulation in fish tissue. Using this measure for the proposed TMDL is appropriate because the Back River Estuary was placed on Maryland's 303(d) list on the basis of fish tissue sample data.

4. EPA regulations define a TMDL as the sum of the allocations of the allowable loading to each of the individual point and nonpoint and background sources of a pollutant. Maryland's proposed TMDL provides none of such allocations.

Response: The TMDL documentation explains that "there are no significant point source or nonpoint sources of chlordane" in part because it is a banned substance. The only significant source of chlordane is the bottom sediments of the Estuary. The TMDL will be revised based on this comment to make more explicit reference of the allocation to the bottom sediments, which are the source of the elevated concentrations of chlordane in the water column.

5. Maryland's proposed TMDL for chlordane in the Back River Estuary can be contrasted with the TMDL developed by EPA Region X for 2,3,7,8-TCCD (dioxin) in the Columbia River Basin. As EPA recognized in that TMDL, development of a TMDL must include the following steps: a) define the loading capacity of the river at key points; b) identify sources which potentially contribute loads of the pollutant; c) allocate loads to point sources, nonpoint sources, and background; d) implement the TMDL through Water Quality Management Plans and NPDES permits. Maryland's proposed TMDL includes none of these steps.

Response: The noted comparison has limited applicability in the current context because the proposed TMDL for chlordane is for a banned pesticide. Chlordane is no longer being introduced in significant amounts to the Back River by sources other than background (bottom sediments). In contrast, a review of the referenced TMDL for dioxin indicates that, in the face of very limited information about the sources of dioxin, the Columbia River TMDL was simply allocated evenly between multiple potential sources and the MOS.

Specific responses to the lettered comments are provided below:

- a) The loading capacity, expressed in terms of a water column concentration of 0.00059 $\mu\text{g/L}$, is provided by the proposed chlordane TMDL for all points in the Back River Estuary.
- b) Based on the best readily available data, which included some historic stream inflow data and sewage treatment plant data, all sources have been considered. Bottom sediments of the Back River Estuary are the only significant source causing elevated concentrations in fish tissue samples, for which the water body was placed on Maryland's 303(d) list.
- c) This issue has been addressed in the response to comment #4.
- d) Neither the Clean Water Act nor EPA regulations require states to develop a detailed implementation plan as part of the TMDL development and approval process. The TMDL does, however, make reference to Maryland's future intentions in the second paragraph of Section 5.0 of the proposed Chlordane TMDL.