



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
7/3/2007

Dr. Richard Eskin, Ph.D., Director
Technical and Regulatory Services Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 450
Baltimore, MD 21230

Dear Dr. Eskin:

The U.S. Environmental Protection Agency (EPA), Region III, has reviewed the report, "Water Quality Analysis of Chlorpyrifos in The Patuxent River Middle and Lower Watersheds, Anne Arundel, Calvert, Charles, Prince George's and St. Mary's Counties, Maryland", which was submitted by the Maryland Department of the Environment (MDE) for final Agency review on April 30, 2007.

EPA agrees with MDE's determination that recent data show that Total Maximum Daily Loads (TMDLs) for Chlorpyrifos are not necessary for the Patuxent River Middle and the Patuxent River Lower Basins. The Patuxent River Middle (basin code 02-13-11-02) is a non-tidal watershed and was first listed by Maryland on its 1996 Section 303(d) list of water-quality limited segments as impaired by Chlorpyrifos, sediments, and metals-zinc. The 2004 listing identified impacts to biological communities as stream impairments. The Patuxent River Lower (basin code 02-13-11-01) was first identified on Maryland's 1996 Section 303(d) list as impaired by nutrients (1996), sediments (1996), bacteria (1996/1998/2004), toxics – chlorpyrifos (water) (2002), and the non-tidal portion of the basin for impacts to biological communities (2002/2004). The water quality analysis addresses only the Chlorpyrifos impairment. The listings for sediments, metals-zinc, and impacts to biological communities will be addressed separately at a future date.

The water column data collected in December 2005 and May 2006 at nine stations, three in the Patuxent River Middle and six in the Patuxent River Lower, show that all data are well below their respective freshwater and saltwater criteria (EPA 2006). The sediment quality in the Patuxent River Middle and the Patuxent River Lower Watersheds was evaluated using two 10-day whole sediment toxicity tests with the amphipods *Hyaella azteca* and *Leptocheirus plumulosus*. Survival of amphipods in the field sediment samples was greater than the average survival demonstrated in the control sediment samples in both tests. Average amphipod growth for all field sediment samples was greater than the control sediment samples as well. Thus, no sediment samples in the Patuxent River Middle and the Patuxent River Lower exhibited toxicity contributing to the mortality and the growth inhibition of tested amphipods. Therefore, the water column and sediment in the Patuxent River Middle and Lower Watersheds are not impaired by chlorpyrifos; the designated uses are supported and the water quality criterion is being attained.



If future evidence suggests that chlorpyrifos deriving from the Patuxent River Middle and Lower Watersheds is contributing to water quality problems, then MDE will need to readdress the chlorpyrifos impairment.

If you have any questions or comments regarding these reports, please contact Mr. Thomas Henry, TMDL Program Manager, at (215) 814-5752 or Mr. Kuo-Liang Lai at (215) 814-5473.

Sincerely,

/S/

Jon M. Capacasa, Director
Water Protection Division

cc: Melissa Chatham, MDE-TARSA
Nauth Panday, MDE-TARSA

Errata: 1. The second sentence should read, "The Patuxent River Lower (basin code 02-13-11-01) was identified on Maryland's Section 303(d) list of water quality limited segments as impaired by fecal coliform (1996, 1998, and 2004), nutrients (1996), sediments (1996), chlorpyrifos in the water column (2002), methylmercury (2002), and impacts to biological communities (2002 and 2004). The Patuxent River Middle (basin code 02-13-11-02) was identified on Maryland's Section 303(d) list as impaired by sediments (1996), nutrients (1996), chlorpyrifos in both the water column and underlying sediments (2002), and impacts to biological communities (2002 and 2004). All fecal coliform listings are for tidal shellfish areas, whereas the biological listings are for nontidal waters, except for the 2004 Patuxent River Lower biological listing. All other listings are for the tidal waterbody.

2. Sentences 5: The identification of metals-zinc should be changed to nutrients.

