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

September 11, 2006

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 Analyses of Copper, Lead, Selenium, and Zinc in Zekiah Swamp, Prince George's and Charles Counties, Maryland," which was submitted by the Maryland Department of the Environment (MDE) for final Agency review on August 11, 2006.

EPA agrees with MDE's determination that the recent data show that copper, lead, selenium, and zinc Total Maximum Daily Loads (TMDL) are not necessary for the Zekiah Swamp. The Zekiah Swamp (basin code 02-14-01-08) was first listed by Maryland on its 1996 Section 303(d) list of water-quality limited segments as impaired by nutrients, suspended sediments, copper, lead, selenium, and zinc. The 2002 listing identified impacts to biological communities as stream impairments. All impairments were listed for the tidal waters except for impacts to biological communities and nutrients, which are listed for the non-tidal region. The water quality analyses address only the copper, lead, selenium, and zinc impairments. The listings for nutrients, suspended sediments, and impacts to biological communities will be addressed separately at a future date.

The water column data collected in April and August 2005 at seven monitoring stations shows that concentrations of copper, lead, selenium, and zinc in the water column do not exceed water quality criteria. Copper, lead, and zinc water quality criteria are adjusted for hardness. Selenium water quality criteria are not adjusted for hardness. Copper concentrations ranged from 0.23 µg/L to 1.75 µg/L. Lead concentrations ranged from 0.052 µg/L to 0.14 µg/L. Selenium concentrations ranged from 0.069 µg/L to 0.20 µg/L. Zinc concentrations ranged from 0.10 µg/L to 1.26 µg/L. The detection limit was 0.08 µg/L for zinc and 0.5 µg/L for copper, lead, and selenium. For all samples, hardness ranged from 27 mg/L to 414 mg/L. The copper, lead, and zinc concentration ranges were well below their respective fresh water aquatic life chronic hardness adjusted criteria. The selenium concentration range was well below the selenium fresh water aquatic life chronic criteria.

Furthermore, an ambient sediment bioassay conducted in Zekiah Swamp, by the

University of Maryland Wye Research Center, established that there is no toxicity in the sediment as a result of copper, lead, selenium, or zinc contamination. The bioassay toxicity tests indicated that it is unlikely that copper, lead, selenium, or zinc impact survival and reproduction.

If future evidence suggests that copper, lead, selenium, and/or zinc deriving from the Zekiah Swamp watershed is contributing to water-quality problems, then MDE will need to readdress the copper, lead, selenium, and/or zinc impairment.

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

Sincerely,

Signed

Jon M. Capacasa, Director
Water Protection Division

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

10/10/06
Erratum: Page 2, paragraph 1, last sentence – the word "reproduction" should be "amphipod growth" because the bioassay did not evaluate reproduction, only survival and growth.