

FINAL

Comment Response Document Regarding the Draft Final “Total Maximum Daily Loads of Polychlorinated Biphenyls in the Northeast and Northwest Branches of the Nontidal Anacostia River, Montgomery and Prince George’s Counties, Maryland”

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Loads (TMDLs) of Polychlorinated Biphenyls (PCBs) in the Northeast Branch (NEB) and Northwest Branch (NWB) of the Nontidal Anacostia River. The public comment period was open from July 7, 2010 to August 5, 2010. MDE received two (2) sets of comments. This document summarizes all of the comments and provides MDE’s responses.

List of Commentors

Author	Affiliation	Date	Comment Number
Harriette Phelps, Ph.D.	University of the District of Columbia – Biology Professor Emeritus	7/16/2010	1-7
Robert G. Hoyt, Director	Montgomery County Department of Environmental Protection	8/5/2010	8-11

COMMENTS AND RESPONSES

Comment 1: The Commentor points out that the Commentor’s and MDE’s active biomonitoring clam study had somewhat similar results. The Commentor also highlights that while MDE followed the Commentor’s methodology, the findings of the two methods have never been compared or discussed.

Response 1: Although MDE based its biomonitoring clam study on the Commentor’s methods, there are some noteworthy differences between the two approaches, which make comparison between the two studies quite complicated. The most noticeable difference is associated with the reference clam total PCB (tPCB) concentrations. MDE used clams from a relatively uncontaminated population in the Upper Choptank River at Red Bridges, where in 2007 the average concentration was 2.21 nanograms per gram wet weight (sample size = 9). The Commentor’s reference clams came from Fort Foote, MD, where clam concentrations tend to be significantly higher.

Consequently, the primary reasons why a comparison of the two sets of results has not been conducted include:

- 1) High reference clam concentrations make it difficult to identify whether the observed clam concentrations are elevated due to (i) sources of PCBs in the watershed where clams have been deployed or (ii) the initial high reference clam concentrations.
- 2) MDE uses different congener based analytical methods for its PCB analysis (see Appendix E of the main report for a description of MDE’s methods) than have been used in the Commentor’s study.
- 3) MDE clam cages were deployed during a different time period than the Commentor’s clams.

All of this makes comparison between the two studies complicated.

FINAL

Comment 2: According to the Commentor, presentation of waste load allocations (WLAs) and load allocations (LAs) was both inadequate and unsubstantiated. The Commentor points out that there was little or no correlation of location-specific clam tPCB results with listed point sources, such as the two Wastewater Treatment Plants (WWTPs) at the Beltsville Agricultural Research Center (BARC). The Commentor points out that Commentor's study (see reports under <http://www.his.com/~hphelps/>) found the lowest clam concentrations at the Upper Beaverdam Creek site, which is downstream from one of the BARC WWTPs and where, according to the Commentor, MDE also found low clam concentrations.

Response 2: As stated in the TMDL report, the TMDL analysis is required to assess baseline loads and assign WLAs to point sources that are managed under the National Pollutant Discharge Elimination System (NPDES). Identified point sources include two WWTPs located in the NEB drainage basin and all stormwater discharges in the Maryland portion of the watershed that are regulated under Phase I or Phase II of the NPDES storm water program. Any other sources were treated as nonpoint sources and have been assigned to the LA component of the TMDL equation.

It is hard to rely on the correlation analysis suggested by the Commentor due to the ubiquitous nature and historical use of this contaminant as well as the spatial extent of the biomonitoring clam data. Additionally, tPCB clam concentrations observed by MDE downstream of the two WWTPs (i.e., at the Upper Beaverdam Creek and Little Paint Branch sites) are neither on the low or high end of the distribution; thus neither imply presence or absence of obvious nearby sources. Consequently, MDE went about evaluating the contribution from the identified point sources in a slightly different manner:

- 1) MDE conducted preliminary monitoring to characterize loads from the two WWTPs in the nontidal NEB. The observed concentrations from both facilities were above Maryland PCB water column criterion. The estimated WWTP loads will be further evaluated via the permitting process to ensure that they are not contributing to the PCB impairment.
- 2) Maryland NPDES Regulated Stormwater baseline loads have been estimated using a weighted approach based on:
 - (i) the overall load from the watershed,
 - (ii) tPCB clam concentrations observed in each characterized sub-watershed,
 - (iii) 2006 land cover data and the association between urban land use and NPDES Regulated Stormwater entities, and
 - (iv) sediment runoff coefficients for each land cover category.

The identified contaminated sites were treated as nonpoint sources. Baseline loads from these sites have been assessed based on available tPCB soil data, Revised Universal Soil Loss Equation Version II calculations, and an edge-of-field to edge-of-stream load conversion. Baseline loads from the remaining nonpoint sources were estimated using methods similar to those used to estimate loads from NPDES Regulated Stormwater sources. Additional location specific monitoring will be required during the implementation phase to determine potential PCB sources throughout the NEB and NWB.

FINAL

Comment 3: The Commentor asserts that the simple application of edge-of-field calculations can and must be verified with much more location-specific active biomonitoring to justify action on applicable TMDL allocations.

Response 3: MDE assumes that the Commentor is referring to the contaminated site edge-of-field load calculations, as edge-of-field load calculations were not used to characterize loads from the identified point sources (i.e., WWTP and/or NPDES Regulated Stormwater). As stated in the TMDL report, the term contaminated site used throughout the report refers to areas with known PCB soil concentrations, as documented by state or federal hazardous waste cleanup programs (i.e., state or federal Superfund programs). When compared against the human health screening criteria for soil and groundwater exposure pathways, PCBs are not necessarily a contaminant of concern at these sites, but they have been screened for and detected above method detection levels during formal site investigations. A number of contaminated sites present throughout the NEB and NWB watersheds have already undergone remediation, and their tPCB baseline loads are estimated to constitute a relatively small percentage of the Total Baseline Load (0.38%). However, if future monitoring indicates that: 1) these sites are contributing a more significant load than is currently estimated, and 2) the TMDL goals cannot be achieved without load reductions from these sites, additional reduction measures might need to be considered.

Due to the ubiquitous nature and historical use of this contaminant, the success of the implementation process will depend in large part on the feasibility of locating and evaluating opportunities to control not yet identified on-land and perhaps instream PCB sources, such as unidentified contaminated sites, leaky equipment, and contaminated soil or sediment. A collaborative approach involving MDE and the identified NPDES permit holders, as well as those responsible for nonpoint source PCB runoff throughout the watershed, will be used during the implementation process to work toward attaining the WLAs and LAs presented in this report. The implementation process will involve additional monitoring, as suggested by the Commentor, and should focus first on the sub-watersheds with the highest clam tPCB concentrations (see Figure 7 of the TMDL report), since the discovery and elimination of significant, active sources of PCBs in these sub-watersheds is expected to produce the most beneficial results.

Comment 4: The Commentor points out that expensive removal activities that might be necessary to achieve the assigned WLAs and LAs can mobilize sediment-sorbed PCBs and should be a last resort following more active biomonitoring.

Response 4: MDE agrees with the Commentor and will ensure that any remediation actions are well thought out and closely monitored.

Comment 5: The Commentor points out that there needs to be more monitoring of local fish and/or minnow populations to further characterize current sources of PCBs.

Response 5: MDE intends to work with permit holders to come up with the most effective plans to further characterize and eliminate significant, current sources of PCBs.

Comment 6: The Commentor states that with 8 out of 18 NEB and NWB monitoring stations showing higher clam tPCB levels than measured at the Upper Beaverdam Creek station, additional instream active biomonitoring sites should be chosen to focus on the PCB source areas. The Commentor points out that MDE recently traced a PCB source to a specific outfall from an

FINAL

Industrial Park in Lower Beaverdam Creek (a site outside of the current study area) and goes on to state that Prince George's County has many Industrial Parks. According to the Commentor, even limited additional surveys would enable a much more specific focus and justification of PCB sources.

Response 6: See the Responses to Comment 3 and 5 above.

Comment 7: The Commentor states that although this PCB TMDL is timely, it is not adequately researched to specifically name WLAs or LAs or to suggest remediation in segments of the nonfluvial Anacostia River watershed responsible for the elevated PCB loadings. The Commentor feels it would be premature to proceed at this time on the basis of solely the data presented in the TMDL to target WLA remediation activities. According to the Commentor, it would not take a great deal of additional effort to localize stream PCB sources using active biomonitoring to justify action on WLAs. If that cannot be incorporated, then the Commentor thinks the TMDL should be revised or postponed.

Response 7: TMDL development is only the first step in the remedial process which should lead to the achievement of tPCB water quality standards in the NEB and NWB of the nontidal Anacostia River. The proposed TMDL is based on the best available information. Additional smaller scale monitoring is expected to be incorporated as part of the implementation process, similar to actions that are currently taking place in the Lower Beaverdam Creek sub-watershed.

Comment 8: The Commentor states that Montgomery County has identified a significant concern related to the County's municipal separate storm sewer system (MS4) permit requirements, which the Commentor feels should be addressed before this document is forwarded to the US Environmental Protection Agency (EPA) for approval. The identified problem stems from the fact that MDE has provided only one stormwater WLA (as shown in Table ES-1) which "refers to all known NPDES stormwater dischargers (...) identified in Appendix C." Table C-1 does not list all of the MS4 permit holders in the Anacostia watershed, lacking those covered under the State's Phase 2 permits. These permittees include the federal facilities such as White Oak Naval Surface Warfare Center and the Beltsville Agricultural Research Center, which are significantly large federal landholdings in the Anacostia watershed.

The Commentor further points out that Section III.J. of the County's current MS4 Permit on Total Maximum Daily Loads requires that the County develops implementation plans to meet its "storm drain system's share of WLAs in EPA approved TMDLs" within one year after EPA approval (MDE 2010). According to the Commentor, in order for Montgomery County to develop an implementation plan to meet this requirement, MDE must provide a WLA that is based on those lands that are under the County's direct responsibility. These lands do not include state or federal roads or other state or federal land holdings. The Commentor points out that MDE has provided such County specific WLAs in the TMDLs developed for other water bodies in Montgomery County's portion of the Anacostia River watershed in the past.

Response 8: As stated in the TMDL report, the EPA recognizes that available data and information are usually not detailed enough to determine WLAs for NPDES regulated stormwater discharges on an outfall-specific basis (US EPA 2002). Consistent with EPA guidance, at this point, MDE is most comfortable with presenting tPCB NPDES Regulated Stormwater WLAs as a single WLA for all urban stormwater sources within each County, which may

FINAL

include any or all of the NPDES stormwater discharges listed in Section 2.3 (see Appendix C for a list of specific stormwater permits within the watershed). As stated in the note to Table C-1: stormwater tPCB loads from general Phase II state and federal MS4s (i.e., military bases, hospitals, etc.) are inherently accounted for within the NPDES stormwater WLAs presented in this document.

The main reasons for not breaking out the tPCB NPDES Regulated Stormwater WLAs any further than the County-level are as follows:

- 1) Traditional methods of breaking out NPDES stormwater WLAs (i.e., associating land use with various types of stormwater permits) used for other pollutants (i.e., sediments) are not applicable for PCBs. Urban land use classifications are expected to have very different levels of PCBs associated with them (i.e., industrial areas would likely have higher PCB loadings, in general, than residential areas). Furthermore, depending on specific activities at individual sites (i.e., use of PCB containing equipment, spills, etc.), similar urban land use classifications (e.g., industrial) are also expected to have very different levels of PCBs, which would entail location specific, small scale monitoring data to aid a break out at this level of detail. Consequently, the use of traditional methods of breaking out the NPDES Regulated Stormwater WLAs would result in individual tPCB allocations that are not necessarily representative of the existing condition.
- 2) Urban stormwater PCB loadings to the watershed stream system are not an actual stormwater/flow control problem, but are rather associated with site specific historical and/or ongoing spills and soil contamination.
- 3) PCBs are transferred via urban stormwater conveyance systems, but the actual problem is associated with yet unidentified PCB source areas that happen to be located within the drainage area of the conveyance systems.
- 4) Identification and elimination of these source areas should be the focal point of future implementation strategies. Any future implementation actions are expected to focus on the identification and elimination of these sources, rather than the implementation of structural BMPs, which are not expected to result in a significant decrease in PCB loadings.

Thus, at this point, sub-allocation of the NPDES stormwater WLA would not be appropriate.

Comment 9: The Commentor states that Montgomery County intends to work with MDE and other watershed stakeholders to inventory and assess possible sources of PCBs into the receiving streams. Montgomery County will look to MDE to provide technical guidance on the most effective approaches for eliminating these sources since there are no studies which show that stormwater best management practices are effective at reducing PCB levels in stormwater.

Response 9: MDE intends to work closely with permit holders in identifying, and where necessary eliminating, existing sources contributing to the tPCB water quality impairment.

FINAL

Comment 10: The Commentor wonders about the calculation of the edge-of-stream contributions from known contaminated sites in the watershed. The Commentor states that MDE has included a list of known contaminated sites along with their potential instream PCB contribution in Table D-4, and MDE concluded that the contamination from these sites represents a small proportional contribution. The Commentor states that, based on Figure 7, the active biomonitoring clam station downstream of the White Oak and Adelphi Laboratory facilities in sub-watershed 3 shows the highest apparent accumulated tPCB concentration, which is much higher than any other station in Montgomery County and higher than downstream stations in the same tributary. The proportional contribution from these two federal facilities may be higher than the loadings calculated in Table D-4.

Response 10: As stated in the Responses to Comment 2 and 3 above, given the ubiquitous nature and historical use of this contaminant, it is difficult to derive correlations between instream clam tPCB concentrations and the data available from the identified contaminated sites. This will require additional small scale, location specific monitoring from potential PCB sources throughout the NEB and NWB drainage basins. A number of contaminated sites present throughout the NEB and NWB watersheds have already undergone remediation and their tPCB baseline loads are estimated to constitute a relatively small percentage of the Total Baseline Load (0.38%). However, if future monitoring, as referenced above, indicates that 1) these sites are contributing a more significant load than is currently estimated, and 2) the TMDL goals cannot be achieved without load reductions from these sites, additional reduction measures might need to be considered.

Comment 11: The Commentor commends MDE's commitment as expressed in the TMDL document to work with all of the NPDES stormwater permittees and continue monitoring. The Commentor points out that monitoring is necessary to document the anticipated continual decline in ambient water column tPCB concentrations as well as any possible reductions from best management practices. The Commentor looks forward to working with the other property owners and stakeholders in the watershed for the restoration of the Anacostia River and its tributaries.

Response 11: MDE also looks forward to working with Montgomery County and its partners in identifying, and where necessary eliminating, existing sources contributing to the tPCB water quality impairment.

REFERENCES

US EPA (U.S. Environmental Protection Agency). 2002. *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*. Washington, DC: U.S. Environmental Protection Agency.

MDE (Maryland Department of the Environment). 2010. *Montgomery County National Pollutant Discharge Elimination System Phase I Municipal Separate Storm Sewer System Discharge Permit*. Baltimore, MD: Maryland Department of the Environment.

NEB and NWB PCB TMDL
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