Response-To-Comment Document
for the
Tidal Potomac PCB TMDL

Prepared by
Interstate Commission on the Potomac River Basin
Rockville, MD

with the assistance of
District of Columbia Department of the Environment
Maryland Department of the Environment
Virginia Department of Environmental Quality
U.S. Environmental Protection Agency
LimnoTech

and submitted
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to

Watershed Protection Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Acknowledgements

This document was compiled by the Interstate Commission on the Potomac River Basin (ICPRB), but many of the responses to comments were written by the Agencies and organizations represented in the Potomac PCB TMDL Steering Committee. All of the responses have been reviewed by the Agencies. Thus, this document should be viewed as a joint response of the three jurisdictions to the comments received. The following individuals from the Steering Committee contributed to this document.

Carlton Haywood Claire Buchanan	Interstate Commission on the Potomac River Basin (ICPRB)
Monir Chowdhury	District of Columbia Department of the Environment (DDOE)
Leonard Schugam Anna Soehl	Maryland Department of the Environment (MDE)
Mark Richards Arthur Butt Bryant Thomas Katie Conaway Chris French	Virginia Department of Environmental Quality (VADEQ)
Victor J. Bierman, Jr. Scott C. Hinz Daniel K. Rucinski	LimnoTech
Charles App	US Environmental Protection Agency, Region III (EPA)

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TABLE OF CONTENTS

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INTRODUCTION

The District of Columbia Department of the Environment (DDOE), Maryland Department of the Environment (MDE), and Virginia Department of Environmental Quality (VADEQ) opened for public comment a TMDL for 28 Polychlorinated Biphenyl (PCB) impairments in the tidal Potomac and Anacostia Rivers on July 17, 2007. This Total Maximum Daily Load (TMDL) analysis is a joint effort of the three jurisdictions, with assistance from the U.S. EPA, the Interstate Commission on the Potomac River Basin (ICPRB), Metropolitan Washington Council of Governments (MWCOG), and LimnoTech (together comprising the Potomac PCB TMDL Steering Committee). Announcements were placed in the Virginia electronic Town Hall (public register), the District of Columbia public register, and local newspapers in Maryland, and distributed via e-mail to "TMDL interest groups" by each jurisdiction. The documents were placed in local libraries in Maryland and the District of Columbia and posted on the ICPRB website http://www.potomacriver.org/water_quality/pcbtmdl.htm. Notices and links to the ICPRB webpage were placed on VADEQ and MDE websites. The draft TMDL also was distributed on CD-ROMs at public meetings. An Addendum to the draft TMDL was released on August 8, and the comment period extended to August 23, 2007. Four informational meetings were held July 17-19, 2007, one in each jurisdiction plus one for the Technical Advisory Committee, to present the technical basis for these TMDLs. A total of 95 written comments were received from 17 agencies or organizations. This document presents the detailed responses of the Steering Committee to these comments. The Steering Committee carefully considered these comments in preparing the final tidal Potomac PCB TMDL report.[1]

OVERARCHING THEMES

Six overarching themes were identified among the public comments. The Steering Committee determined that it would be most effective to address these themes separately and then respond to each individual comment with a reference to the appropriate theme response or other information as appropriate. The six themes are presented on the next pages and, following that, each individual comment is presented with its specific response. Each theme is presented as a paraphrased remark and its respective response follows. The themes are:

A. All of the PCBs found in the estuary can be accounted for by atmospheric deposition to the land surface.
B. Method 1668a is not an approved method for analysis of samples.
C. TMDLs must be based on adopted water quality standards, not on some other water target.
D. The TMDL does not address actual sources of PCBs

[1] Haywood, H. C. and C. Buchanan. 2007. *Total maximum daily loads of polychlorinated biphenyls (PCBs) for tidal portions of the Potomac and Anacostia rivers in the District of Columbia, Maryland, and Virginia.* Interstate Commission on the Potomac River Basin. ICPRB Report 07-7. Rockville, MD. September 2007.

E. PCBs in wastewater treatment plant effluent are a pass through from source water supplies
F. The three jurisdictions have different standards and targets.

Theme A: Accounting for atmospheric deposition of PCBs to the land surface.

Several commenters suggested:
- that this TMDL does not account for atmospheric deposition to land surfaces; and
- that an extrapolation to the watershed of the atmospheric deposition rates that were applied to the tidal water surface generates annual load numbers equal to or larger than the loads the TMDL assigns to those watersheds and therefore the watershed loads are from atmospheric deposition and not the responsibility, or beyond the ability, of local governments or point source facility operators to address.

Theme A Response

With respect to the first bullet, this TMDL study estimated loads for sources that delivered PCBs to the tidal Potomac. It is beyond the scope of this study to investigate within the watersheds to determine what the ultimate sources are or where they are located. Atmospheric deposition to land is accounted for indirectly through loading calculations from the various source categories (tributary, direct drainage, etc.). The task of determining ultimate, specific, source locations will occur in the TMDL implementation phase which is described in Section VII of the TMDL report.

With respect to the second bullet, multiplying atmospheric deposition rates by watershed area to estimate an atmospheric deposition load to tidal waters is not appropriate because it does not account for the volatilization, storage, and decay of PCBs before the remainder is transported to a stream and ultimately to tidal waters. A comparison of atmospheric deposition rates to watershed runoff is meaningless unless these processes are factored in. There is circumstantial evidence that some, perhaps most, of atmospheric PCBs come from local sources. A recent study in the Delaware basin found that most of the atmospheric PCBs can be attributed to volatilization from local sources (contaminated sites, etc.) near highly urbanized areas. The Chesapeake Bay study cited by some commenters and used by us to assign atmospheric deposition rates for this TMDL found a 10:1 ratio for net PCB deposition near urban centers compared to locations distant from urban areas. One can infer from this ratio that volatilization from sources in and around urban areas is the major component of the atmospheric PCB deposition in the tidal Potomac. Results from these two studies suggest that the best way to reduce atmospheric deposition of PCBs is to find the local, land based sources and remove the PCBs.

Theme B: The Agencies have used an unacceptable analytical method, with poor quality assurance.

- Method 1668A has not been shown to produce reliable data – no Method Validation study has been performed.
- The participating labs appear to be reporting data at Quantitation Levels they see as being required by the agencies, without a proper QA demonstration.

- Non-Part 136 methods are not permitted for uses required by National Pollutant Discharge Elimination System (NPDES) permit, such as the analyses that this TMDL anticipates for implementation.

Theme B Response

EPA Method 1668A was released as a final method in December, 1999 with a full complement of quality assurance steps, and two validation studies have been performed. Method 1668A is suggested for use in data gathering and monitoring associated with the Clean Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, and the Safe Drinking Water Act (EPA-821-R-00-002). This includes its use for generation of data used to determine total maximum daily loads (TMDLs) and for characterization of ambient concentrations and loadings under EPA's Clean Water Act programs (May 31, 2000 letter from William Telliard, Director, Analytical Methods Staff, EPA Office of Water). At the time of its publication, EPA had validated Method 1668 in two laboratories and Method 1668A in a single laboratory. The peer review (February, 2000) conducted of Method 1668A prior to its publication as a final method found that "Method 1668A is acceptable for reliability and ease of use." EPA has recently conducted a six lab inter-laboratory validation study of method 1668A in wastewater and fish tissue matrices. The results of the study are favorable enough to consider proposing Method 1668A for inclusion in 40CFR Part 136. However, it is Agency policy to peer review validation study before deciding whether to conduct a rulemaking. The peer review is scheduled to be completed in late October, 2007 after which EPA will review the comments received and decide on a course of action.

Since Method 1668A has not yet been approved under 40 CFR Part 136, its use by regulatory agencies in the NPDES permit program must be examined on a case by case basis. The NPDES permit regulations (40 CFR 122.41(j)(1), 122.41(j)(4), 122.44(i)(1)(iv), 122.48) allow for this flexibility on a case by case basis. However, the use of Method 1668A for Clean Water Act purposes other than NPDES compliance is entirely appropriate, as noted in the above paragraph.

Method 1668A is performance based. The detection limits and quantitation levels in this Method are determined by the laboratories and are usually dependent on the level of interferences and laboratory background levels rather than instrumental limitations. The GC/MS portions of this Method are for use only by analysts experienced with HRGC/HRMS or under the close supervision of such qualified persons. Since 1668A is a performance based method, steps are taken to minimize or eliminate background and interfering compounds. Applied steps can include increasing the volume of sample analyzed, rigorous sample clean-up, baking glassware at a high temperature, increasing pre-post extract injection rinses, minimizing solvents used in extraction by keeping the sample at the appropriate nominal volume, etc. By improving technical procedures as described above, the Estimated Method Detection Limits (EMDLs) and the Estimated Minimum Levels (EMLs) presented in the EPA Report (EPA-821-R-00-002) documenting Method 1668A can be significantly improved upon.

With respect to quality assurance safeguards, all data collected and analyzed during the course of the tidal Potomac TMDL study were in conformance with approved Quality Assurance Management and Quality Assurance Project Plans.

In the generation of PCB data from point source effluents, a consistent approach was utilized in the collection and analysis of effluent samples. A Field Sampling Protocol which provided detail on PCB sampling using clean sampling techniques was developed and shared with all participating point source

dischargers. For additional consistency it was decided that a single laboratory would be used for the 1668A analysis (Texas A&M, Geochemical and Environmental Research Group). In all instances where samples were collected by the regulatory agencies, proper quality assurance was applied and if specific data did not meet the requirements, the data were discarded. Ninety-two percent of the total data met QA requirements. Additionally, to account for concerns regarding elevated background concentrations associated with blanks, use of a technically sound procedure (Ferrario et al, 1997) was agreed upon with point source stakeholders and adopted to adjust final PCB concentrations for background removal. This blank correction addressed the concerns regarding background noise.

For the analysis of PCBs in point source effluents in this TMDL study, the lowest calibration level was sample dependant and ranged from 8-11 pg/L on a congener basis. Furthermore, the NPDES program defines the quantification level (QL) as the lowest concentration used for the calibration of a measurement system. Therefore, justification for reporting PCB congeners at the specified concentrations is determined by the method as defined by the NPDES regulatory program.

Experience has shown that a reporting limit below 10 pg/L on a congener basis can be consistently and reliably achieved by increasing sample volume. For example, the Battelle laboratory analysis of Potomac River and tributary ambient water samples using method 1668A has shown that a reporting limit of 4.0 pg/L on a congener basis can be consistently and reliably achieved with a sample volume of 2.5 liters. Increasing the sample volume to 5 liters results in a reporting limit of 2.0 pg/L on a congener basis. In comparison, the EPA Part 136 approved Method 608 is much less selective because it only measures PCB congeners as a group (Aroclors), and with a Method Detection Limit of 65.0 ng/liter or 65,000 pg/L vs. 4 pg/L with 1668A. Also note that the District of Columbia's water quality standard for PCBs is 64 pg/L, a level that is nondetectable with Method 608. The use of a low detection limit congener method such as Method 1668A is absolutely necessary in the development of a PCB TMDL in order to accurately determine the low level PCB concentrations that may exist in effluents and ambient water.

Method 1668A has been and continues to be successfully and reliably used by a variety of agencies and organizations for determination of PCB congeners at low levels of detection. A few examples are cited below:

- The Delaware River Basin Commission used 1668A for characterization of point source PCB loads and ambient water conditions in the development of the PCB TMDL for the Delaware Estuary.
- EPA used 1668A for the analysis of PCBs in fish tissue in conducting the National Lake Fish Tissue Study (2000-2003 sampling years).
- The State of New Mexico required the use of 1668A of compliance monitoring in its water quality certification of the NPDES permit for the Los Alamos National Laboratory.

References

Environmental Protection Agency (EPA). 1999. Method 1668, Revision A: Chlorinated Biphenyl Congeners in Water, Soil, Sediment and Tissue by HRGC/HRMS, EPA-821-R-00-002, December 1999. *(With corrections and changes through 8/20/03).*

Ferrario, J., C. Byrne, A. Dupuy, Jr. 1997. Background Contamination by Coplanar Polychlorinated Biphenyls (PCBs) in Trace Level High Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS) Analytical Procedures. Chemosphere, Vol 34, No 11. pp. 2451-2465.

Theme C: The TMDL has been based on "target values" determined from bioaccumulation factors (BAFs) and have ignored the state adopted numeric water quality criteria, which should have been used to develop the TMDL.

- If the existing water quality standards are not protective of fish tissue, each jurisdiction has an established process for changing water quality standards that should be employed.
- The target value approach is not in conformance with law. Virginia law authorizes ad hoc calculated criteria only for parameters for which Virginia has not adopted numeric water quality criteria.
- The Virginia target was incorrectly based on one fish species (gizzard shad) which is a bait fish and not a food fish.
- Although "Target Value" approaches have been used in other parts of the US, their proper application includes consideration of factors not present here, for example:
    - whether point sources are the primary contributing cause of nonattainment;
    - whether the approach can reasonably be expected to lead to attainment; and
    - technical feasibility and economic reasonableness.

Theme C Response

The State of Maryland, the Commonwealth of Virginia, and the District of Columbia have issued fish consumption advisories for the waters that are the subject of this PCB TMDL study based on elevated levels of PCBs in fish tissue. In addition, as documented in the TMDL report's Introduction, the District of Columbia, the Commonwealth of Virginia and the State of Maryland have listed these waters as being impaired due to elevated levels of PCBs in fish tissue. TMDLs must, according to Section 303(d)(1)(C) of the Clean Water Act, "be established at a level necessary to implement the applicable water quality standards" and "site specific information should be used whenever possible." Water quality standards consist of (1) designated uses, (2) both narrative and numerical criteria and (3) an antidegradation policy. As a result, the TMDL must be designed to address the use impairment due to PCBs in fish tissue as well as achieve the applicable numeric criteria. The objective of the PCB TMDL is to ensure that the fish consumption use is protected in each of the impaired Water Quality Limited Segments (WQLSs) by ensuring that both the numeric criteria are achieved and the state fish tissue threshold that triggered the 303(d) listing are not exceeded.

Based on current scientific procedures, the water concentration of PCBs that would restore and maintain the safe fish consumption use was calculated. This is referred to as the "BAF based, target water concentration" in the report. This endpoint, while more stringent than the currently adopted numeric water quality criteria for PCBs, was developed with the used of site specific data, and is consistent with and supports attainment of each jurisdiction's narrative criteria for the fish consumption designated use.

Furthermore, there is considerable evidence that the existing numeric criteria for PCBs in the state water quality standards, particularly for VA and MD, are not protective of the fish consumption use in the tidal Potomac and Anacostia rivers, as discussed on page 5 of the TMDL report. This further highlights the need to specifically address the fish tissue levels of PCBs, as was done.

TMDLs must be designed to achieve all applicable water quality standards that are effective at the time the TMDL is approved. In the process of developing this TMDL it was determined that the existing water quality criteria are not protective of the fish consumption designated use in the tidal Potomac and Anacostia Rivers. In the future, a determination will have to be made if the current PCB water quality criteria are protective of designated uses in other WQLSs. In the meantime, to ensure that the TMDL is protective of the fish consumption designated use in the tidal Potomac and Anacostia rivers, the TMDL analysis not only considered the numeric criteria, but also fish tissue levels of PCBs. The approach taken is entirely consistent with jurisdictional Water Quality Standards (9 VAC 25-260, section 10 - Designation of Uses and section 20 - General Criteria; Maryland: COMAR 26.08.02.02 (Designated Uses) and COMAR 26.08.02.03(B) (General Water Quality Criteria); District of Columbia: Title 21- D.C. Municipal Regulations, Chapter 11.

In Virginia, the use of target parameters for TMDL development has been established, primarily in TMDLs that address benthic impairments. An example of where a target was established below existing water quality standards is the Unnamed Tributary (UT) to the Chickahominy Benthic TMDL, completed and approved in 2004. The TMDL established a Total Phosphorus load for a poultry processing plant in a watershed where a special nutrient standard had been in place since the mid-1970's (for details see 9 VAC 25-260-310, Special Standards and Requirements, Virginia Water Quality Standards, January 2006 for details). The TMDL limit was incorporated into the VA Water Quality Management Planning Regulation (9 VAC 25-720). Thus, the process for identifying water quality targets to restore impaired waters to supporting beneficial uses when existing water quality standards are not sufficient has already been established in Virginia.

The selection of Gizzard Shad by Virginia as the indicator species is based on the fact that this species was specifically mentioned in the impairment listing by the Virginia Department of Health (VDH) for many of the Virginia embayments. While the Gizzard Shad may not be fished or consumed like many "sport fish", it does serve as a surrogate for those planktivorous fish that were not represented in the fish tissue surveys and thus are lacking PCB tissue data from which the VDH can act upon. In choosing the more sensitive species, there is assurance that all fish species will be protected.

Regarding the comment that the proper use of the "target value" approach must include other factors, the Steering Committee knows of no technical or policy guidance governing the development of TMDLs that requires consideration of those factors mentioned, with the exception regarding whether "the approach can reasonably be expected to lead to attainment." The Steering Committee believes that issue has been addressed in the "TMDL Implementation and Reasonable Assurance" section (pgs. 10- 18) of the TMDL report.

Theme D: The TMDL does not address the "actual" sources of PCBs.

Several commenters suggested that:

- the TMDL "largely ignores the true source of PCBs;"
- actual sources were not identified;
- the principle sources are "nonpoint," "upstream," "historical," "background," or "atmospheric;"

- the TMDL's assigned Waste Load Allocations (WLAs) and Load Allocations (LAs) are misplaced; and
- the responsibility for additional source identification and remediation belongs with state and federal agencies.

Theme D Response

The purpose of this TMDL is to determine by how much the PCB loads delivered to the tidal Potomac must be reduced in order to remove the cause of the impairment listings. To that end the focus is on PCB loads as delivered to tidal waters, including each tributary stream, direct drainage (nonpoint source) within defined small watershed areas, atmospheric deposition to the water surface, each combined sewer overflow and wastewater treatment plant discharge into tidal waters or located in direct drain areas, and each known contaminated site in direct drain areas. This level of detail for characterizing loads is consistent with EPA guidance for developing TMDLs and does not include the pathways that PCBs follow within watersheds to get to these sources (see Theme A for a discussion of atmospheric deposition within watersheds).

The Steering Committee agrees with the commenters that the principle sources are nonpoint and upstream (if upstream is defined as tributaries, including the non-tidal Potomac River). This was taken into account in the allocation of loads for the TMDL, in the sense that the largest reductions by mass were assigned to tributaries and direct drain nonpoint source. None of the source categories, however, were ignored. The assignment of WLAs and LAs to all source categories was driven by the water target concentrations and what the Potomac PCB (POTPCB) model showed was necessary to meet those targets. The POTPCB model showed, for example, that significant reductions in every source category are necessary in order to achieve the DC water target in the Anacostia River. The POTPCB model also showed that wastewater treatment plant loads, even though quite small compared to tributary and direct drain loads when summed across the Potomac watershed, are, in certain specific locations, significant contributors of PCBs. Thus wastewater treatment plant (WWTP) load reductions are a necessary part of the TMDL (see comment #19).

The terms "background" and "historical" are neither relevant nor correct with respect to this TMDL. What level is background depends on one's point of spatial and temporal comparison. The observed PCB data show us that there is a two to three orders of magnitude difference in annual loads per unit drainage area in different parts of this watershed so clearly at least some of the watershed is not at "background". Although new manufacture of PCBs was banned in the late 1970s, they are still widely used and their release into the environment may have occurred at any time including the present. Whether background or not, or historical or not, the fact remains that PCBs must be removed from the environment in order to remove the PCB caused fish consumption advisories.

Theme E: The Publicly Owned Treatment Works (POTWs) are shown to generally be net removers of PCBs. The data show that POTW effluent PCBs are a pass-through from the potable water systems, the source of which is the Potomac itself.

Theme E Response

This comment is not a TMDL development issue, but rather raises an implementation issue regarding NPDES permitting. Whether or not POTWs are sources themselves of PCBs, each POTW is, in fact, a point source loading. Through the TMDL development process for the Potomac River, it has been established that POTWs are sources of PCBs to the impaired water body. As a result, they are required to receive a Waste Load Allocation (WLA) as part of the TMDL. The implementation aspects of a TMDL are not required by EPA to be included in the TMDL submittal. This issue should be addressed further with the NPDES permitting authority on a case by case basis and will likely require additional data before serious consideration can be reached concerning the contribution of intake water to effluent PCB concentrations.

The data presented to the PCB TMDL Steering Committee purporting to show that effluent PCB concentrations are the same (or lower) as source water PCB concentrations are not conclusive. In fact, effluent and source water samples were collected from different systems on different dates and congener patterns are different which suggests different PCB sources. However, this information supports the need for additional data related to sources of PCBs to regional POTWs from effluent and intake waters.

Theme F: The three jurisdictions have different standards and targets based on different assessments of the risk posed by PCBs, but fish move across jurisdictional boundaries both during and after life. A single standard should be applied.

Theme F Response

While it would be convenient and much simpler if all three jurisdictions had identical water quality standards and fish consumption advisory thresholds, there is no requirement that they be identical. Quite the contrary, Section 303 of the Clean Water Act clearly identifies the adoption of water quality standards as a state role, subject to EPA review and approval to ensure they are consistent with the applicable requirements of the Act. The EPA water quality standards program allows the states some flexibility in determining the standards that are protective of specific water uses, as long as the applicable EPA requirements are met. As a result, the three states do have differing water quality standards. Water quality standards consist of (1) designated uses, (2) both narrative and numerical criteria and (3) an antidegradation policy. As a result, the TMDL must be designed to address the use impairment due to PCBs in fish tissue as well as achieve the applicable numeric criteria. As stated on pg. xi of the TMDL report, the objective of the PCB TMDL is to ensure that the fish consumption use is protected in each of the impaired WQLSs by ensuring that both the numeric criteria are achieved as well as not exceeding the jurisdictional fish tissue threshold that triggered the 303(d) listing. TMDLs must, according to Section 303(d)(1)(C) of the Clean Water Act, "be established at a level necessary to implement the applicable water quality standards." The tidal Potomac PCB TMDL must therefore be established at a level that will achieve the water quality standards in the waters of all three jurisdictions, which is what was done.

Regarding the movement of fish across jurisdictional boundaries, the indicator species used in calculating the bioaccumulation factors (BAFs) and in setting the fish tissue (BAF based) water quality targets were all resident species with a limited range. This helps minimize concerns with fish movement across jurisdictional boundaries. It should also be recognized that the DC (0.059 ng/L) and VA (0.064 ng/L) BAF based water targets are very similar, with only the Maryland (0.26 ng/L) BAF based water target being significantly higher. Therefore the only concern might

be if a fish spent most of its life in Maryland waters and then swam over to DC or VA waters. In that case the fish tissue may somewhat exceed the DC or VA threshold for an advisory. However, this issue is minimized through the requirement that upstream waters meet "downstream" water quality targets, which often resulted in the additional reductions allocated to Maryland in order to meet Virginia and DC targets. Additionally, a 5% "margin of safety" (MOS) was applied to the TMDL in order to account for any uncertainty. In summary, the Steering Committee do not believe this situation has a high probability of occurrence and is minimized by the MOS, the indicator species limited range, and the requirement to meet the "downstream" water quality target, and therefore the Steering Committee does not believe this to be a significant concern.

LIST OF COMMENTERS

The organizations and persons who submitted comments and a numerical reference to their comments are listed below. In the following section, the individual comments and the Steering Committee responses are presented in numerical order.

Organization	Person Submitting	Comments
Fairfax County PWES Stormwater Planning Division	Randolph Bartlett	1 – 17
Virginia Association of Municipal Wastewater Agencies, Inc.	Frank Harksen, Jr.	18 – 25
Alexandria, VA	Lalit Sharma	26 – 30
Env Stewardship Concepts	Peter deFur & Kyle Newman	31 – 35
Natural Resources Defense Council	Melanie Shepherdson	36 – 37
Prince William County Service Authority	Chuck Weber	38 – 40
St Marys Co Metro Comm	Harry Norris & Steven King	41 – 48
Univ. of Maryland Law School	Jonathan Cheng & Jane Barrett	49 – 51
Utility Water Act Group	Brooks Smith	52 – 55
Virginia Association of Municipal Stormwater Authorities	Michael Schaefer	56 – 60
DC Water And Sewer Authority	John Dunn	61 – 67
Northern Virginia Regional Commission	G. Mark Gibb	68 – 77
Fairfax County PWES Wastewater Mgmt Div.	Shahram Mohsenin	78– 83
Upper Occoquan Sewage Authority	Charles Boepple	84 – 85
Alexandria Sanitation Authority	Maureen M. O'Shaughnessy	86 – 91
Arlington County	Robert Mace	92 – 93
Chesapeake Bay Field Office, US F&WS	Fred Pinkney	94 – 95

In their individual comments, a number of commenters expressed support and/or endorsement of comments made by other organizations.

- The Northern Virginia Regional Commission endorsed the Virginia Municipal Stormwater Association's position that "the draft TMDL should be changed to acknowledge the true source of the problem, historical contaminations and atmospheric deposition, and that the TMDL specifically note that 'the tributary and Direct Drainage' Load Allocations proposed do not imply any reduction in the MS4 loadings other than any reductions that may be possible through (state or federal) remdiation of current or historical PCB site issues (August 23, 2007).
- The District of Columbia Water and Sewer Authority "adopts and incorporates by reference the comments on the TMDL submitted by VAMWA [Virginia Association of Municipal Wastewater Agencies, Inc.] during both the stakeholder process and the public comment period."
- The Upper Occoquan Sewage Authority "endorses and incorporates by reference the comments the Association [Virginia Association of Municipal Wastewater Agencies, Inc.] submitted on behalf of its members."
- Prince William County Service Authority "generally concurs with the VAMWA [Virginia Association of Municipal Wastewater Agencies, Inc.] comments and wishes to include those comments by reference."
- The Arlington County Department of Environmental Services "supports the extensive comments offered to date from the Virginia Municipal Stormwater Association and individually from Fairfax County."
- The Alexandria Sanitation Authority "concurs fully with the comments submitted by VAMWA [Virginia Association of Municipal Wastewater Agencies, Inc.] under separate cover, and includes them by reference.

The VAMWA comment letter included as attachments and "incorporated by reference" comments made in letters sent to Steering Committee individuals on January 16, February 28, June 7, July 16, and August 13 (all 2007). The comments made in these letters referred to aspects of the work in progress and were either addressed in previous correspondence or meetings or are addressed in the responses in this document to the comments summarized as "principle technical and regulatory issues" in their August 23 letter (included here).

RESPONSES TO INDIVIDUAL COMMENTS

#	Comment	Response
# 1	As stated on page 2 of the TMDL, new production of PCBs was banned in 1979, so there are no active or intentional discharges. The impairments identified are simply the results of the redistribution of historic discharges. A Total Maximum Daily Load is designed to identify and reduce ongoing sources of pollution in a watershed. The TMDL process is not an appropriate vehicle for addressing PCB pollution.	While it is true that PCB production ceased in the United States in the late 1970's, it is not true that there are no active or intentional discharges. As stated also on page 4 of the TMDL report (page 2 of the draft), PCB use in existing electrical equipment was allowed to continue after production was banned. Many types of electrical equipment containing PCBs are still being used. In many cases this equipment has a useful life of fifty years or more. In addition, PCBs are a frequent contaminant in waste sites and at disposal facilities. They may also be inadvertently manufactured. PCBs are released into the environment through leaks or fires in PCB containing equipment, accidental spills during transport, illegal or improper disposal, burning of PCB containing oils in incinerators, leaks from hazardous waste sites, and historical releases during manufacture, use and disposal. Therefore the PCBs currently being released into the tidal Potomac are from both historical as well as ongoing, active sources. TMDLs must, according to Section 303(d)(1)(C) of the Clean Water Act, "be established at a level necessary to implement the applicable water quality standards". The TMDL Regulations (40CFR Part 130.7 (c)(1)(ii)) state that "TMDLs shall be established for all pollutants preventing or expected to prevent attainment of water quality standards…" and the EPA listing guidance for Section 303(d) of the Clean Water Act specifically identifies PCBs as a "core indicator" of the fish consumption designated use. As such, PCBs are an appropriate pollutant for development of a TMDL. There is no distinction made regarding the source of the water quality impairment. As stated above, the PCBs currently being released into the tidal Potomac are from both active as well as historical sources and must be reduced as specified in the TMDL in order to achieve the designated water use of fish consumption. The TMDL process is a very appropriate and legally required process for addressing PCB pollution when there are water body impairments due to PCBs, such as the tidal Potomac situation. In fact, EPA is under a court order to ensure that such a TMDL for PCBs is developed and approved by the end of October, 2007.
#2	The TMDL does not identify or address the actual sources of PCBs, using sediment as a surrogate instead. But PCBs are found everywhere, including in the air we breathe and the water we drink. Implementation should focus on the actual sources: contaminated sites and atmospheric	See Theme Responses A and D for details regarding atmospheric deposition and the actual sources of PCBs, respectively. Total suspended solids were used as a surrogate for PCBs loads from tributaries and nonpoint source runoff. As explained in the TMDL document, Appendix A, the Total Suspended Solids (TSS) to PCB relationship is based on regressions of observed data. Known contaminated sites

#	Comment	Response
	deposition.	contribute less than 0.1% of the PCB load to the Potomac estuary. It is possible that unknown contaminated sites may yet exist and identifying and cleaning up those sites is recommended for the implementation phase, but is beyond the scope of this TMDL study. Atmospheric deposition (direct to water surface) contributes about 9% of the PCB load. Atmospheric deposition to the land surface is addressed in Theme A and D Responses.
#3	The three jurisdictions have different standards and targets based on different assessments of the risk posed by PCBs, but fish move across jurisdictional boundaries both during and after life. A single standard should be applied.	See Theme F Response.
#4	The jurisdictions' different standards are indicative of the fact that the health risks of PCBs are unknown. Should our first concern be enforcement of an ambient water quality target that attains an acceptable level of PCBs in fish tissue? It would seem that control of atmospheric and drinking water exposures would be a higher priority.	Different jurisdictional PCB criteria are a result of the various and different assumptions that each jurisdiction applies as part of risk management decision-making (i.e., risk level, fish intake, etc.). This TMDL is written specifically to address the impairment that caused these waters to be placed on the 303(d) impaired waters list due to PCB concentrations exceeding jurisdictional fish tissue 303(d) listing thresholds (i.e., high levels of PCBs in fish that restricts the fish consumption designated use). Health risks associated with breathing PCBs or with PCBs in drinking water were not a cause of the impairment and as such are not addressed by this TMDL. It should be noted, however, that the drinking water maximum contaminant level (MCL) for total PCBs is 500 ng/L, roughly three orders of magnitude higher than the Maryland water target, which is the highest of the three jurisdictional BAF-derived water quality targets. Therefore, the TMDL end points will also provide benefit from PCB exposure through other pathways.
#5	The technology does not exist to achieve the reductions in sediment required by the TMDL, and it will not only be very expensive to implement, both in terms of load reduction measures and monitoring, but may be physically impossible to attain.	This TMDL does not require reductions in sediment. The TMDL study used correlations between suspended solids and PCB concentrations to estimate PCB loads from streams and overland flow, but no causal relationship is claimed. Some PCB removal strategies may involve reducing sediment erosion, but the most effective strategies are likely to focus on cleaning up specific 'hot spots' Identified during the implementation phase.
# 6	Page xi of the Executive Summary states that the "PCB sources were identified", but this is not an accurate statement. Flow and TSS loads into the estuary were quantified, and PCB loads were estimated based on those quantities	Language in the Executive Summary will be clarified. TMDL loads were estimated for some specific sources such as individual wastewater treatment plants and certain contaminated sites plus direct drain watershed areas, tributaries, Combined Sewer Overflows (CSOs), and

#	Comment	Response
	using a regression equation. The TMDL fails to identify any sources in the tributaries, including the Potomac at Chain Bridge. These estimated loads are simply assigned reductions without identifying or quantifying point and nonpoint sources within each watershed.	atmospheric deposition.
# 7	The first table on page xii of the Executive Summary presents the bioaccumulation factors (BAFs) calculated by each jurisdiction and Appendix D describes how they were derived. While we understand the logic behind the BAFs, all three jurisdictions have established water quality standards that should be used to develop the TMDL. If the existing water quality standards are not protective of fish tissue, each jurisdiction has an established process for changing water quality standards that should not be bypassed.	See Theme C Response.
# 8	The second table on page xii of the Executive Summary presents the total PCBs delivered to the Tidal Potomac by source category. The 2005 loads presented in this table are not consistent with the 2005 loads presented in the supplemental table on page 57 of Appendix A (37,156 g/yr vs. 34,682).	In the draft document the table in Appendix A reported loads in terms of PCB3+ (PCB homologs 3-10) rather than total PCBs. In the final document, when PCB3+ values are presented, the distinction between PCB3+ and total PCBs is more clearly identified. See Appendix B for a full discussion of PCB3+ versus total PCBs.
# 9	Page xiii of the Executive Summary states that "PCB reduction activities will include the reissuance of permits for NDPES regulated WLAs and LAs after the tidal Potomac River TMDL has been approved." These are regulatory activities, not reduction activities. The state and PA have not identified BMPs for PCB reduction.	The sentence is clarified in the final report. It is not necessary to identify Best Management Practices (BMPs) for PCB reduction in a TMDL study.
#10	Page xiii of the Executive Summary also presents a table of annual loads to each impaired waterbody and lists the 2005 load to Accotink Creek as 618 g/yr. The Accotink Creek watershed is approximately 40 square miles in size and is located in the "DC Urban" atmospheric deposition zone. As we learned in response to our February 28, 2007 comments on the Potomac PCB TMDL External loads summary (Draft January 27, 2007), the TMDL does not account for atmospheric deposition to land surfaces. It does, however, assume that water surfaces in the DC Urban zone receive 16.3 ug/m2/yr of PCBs through atmospheric	Using the best information available, it is estimated that the current (2005) PCB annual load from all sources to the Accotink Creek impaired water body is 618 grams and that the load needs to be reduced to 85.9 grams/year to meet the TMDL goal. See Theme A Response for an explanation of why it is erroneous to relate atmospheric deposition of PCBs in the watershed on a one-to-one basis to nonpoint source loads delivered to tidal waters. The Steering Committee agrees with the commenter that "better source identification is needed" and Section VII of the TMDL describes an Adaptive Implementation Strategy that focuses on additional data collection concurrently with activities to reduce PCB loadings. Section VII(2), Implementation of Waste Load Allocations, emphasizes data collection first, followed by non-numeric

#	Comment	Response
	deposition. Applying that same deposition rate to the area of the Accotink Creek watershed results in an estimated annual PCB load of 1,688.7 g/yr, almost three times the load delivered to the Tidal Potomac from the Accotink Creek watershed. While we understand that fate and transport of PCBs deposited on the land surface is not well understood, there is the potential that the entire load assigned to Accotink Creek is from atmospheric deposition alone. Clearly a better source identification is needed before any allocations of PCBs can be established. Fairfax County had no control over this load and it would be arbitrary and capricious to incorporate PCB reductions into our MS4 permit without understanding the actual sources.	BMPs to be implemented where warranted to eliminate PCBs at the source.
#11	Comments made on February 28, 2007 noted an increase in the estimated PCB loading from Accotink Creek from 55 g/yr in October 2006 to 362 g/yr in January 2007. As stated above, the table on page xiii of the July 2007 draft lists the PCB load from the Accotink Creek Watershed as 618 g/yr. almost doubling the January estimate and an order of magnitude higher than the October estimate. What is the cause of this second, huge increase in the load estimate? Fairfax County does not believe that the WM5 can accurately simulate flow and TSS at the smaller scale needed to develop this TMDL.	Preliminary results were provided at each Technical Advisory Committee meeting to give stakeholders the earliest possible sense of how the technical work was progressing. At each of these meetings the information provided was accompanied by a warning that everything was draft and subject to change. As the study developed, many changes were made including refinements to load estimation and characterization techniques. The change from 362 g/yr reported in the draft loadings document and 618 g/yr as reported in draft (and final) TMDL has multiple causes. First, there was a refinement in the Chesapeake Bay Watershed Model that led to some changes in PCB load estimates. Second, the loads reported in January were 1994-2005 averages while in the TMDL calendar 2005 loads are used to represent baseline conditions. Third, the loads reported in January are PCB3+, while the loads reported in the TMDL are total PCBs. The reasons for using the Chesapeake Bay Watershed Model (WM5) to estimate PCB loads are explained in Appendix A of the TMDL report. The TMDL report acknowledges in, section V(7), that there is some uncertainty in the load estimates. The maximum allowable PCB loads, however, are so much smaller than the estimate of current loads (10 – 1000 times) that the Steering Committee is confident in our assessment that significant reductions in PCB loads are necessary.
#12	Page 5 of the TMDL states that output from the Chesapeake Bay Watershed Model (WM5) was used to estimate loads from the lower basin tributaries and direct drainage areas. Page 6 states that a Loadest program	The reasons for using the Loadest Model #9 to estimate PCB loads at Chain Bridge are explained in Appendix A, Part IV(2). Some of the other tributaries, but not all, have gages with long term flow records, but don't have sufficient TSS data to enable a regression model such as Loadest to generate

#	Comment	Response
	regression model was used with USGS gauged flows to estimate daily carbon and PCB loads from the Potomac at Chain Bridge. Page 3 of Appendix A states that "Loadest Model # 9 projections proved to be superior to the WM5 model". It seems inconsistent to use one approach, WM5, for the tributaries, but a different approach, Loadest Model #9, for the Potomac at Chain Bridge, which is essentially a large tributary. Given the acknowledged problems with the WM5 TSS calibration, why weren't the WM5 flows used with the Loadest Model #9 projections? Accotink Creek has a long term flow gauge, so why was it not handled in the same manner as the Potomac at Chain Bridge?	a time series with a better fit to observed data than the WM5 model. There is a flow gage with a long term record on Accotink Creek but it is not located at the watershed outlet so its use to represent all of Accotink Creek is questionable.
#13	Page 6 states that "For this TMDL, the definition and interpretation of tributary and direct drainage flows and loads are as the WM5 defines them." In our February 28, 2007 comments, we raised the concern that Accotink Creek is being simulated as a tributary while neighboring Pohick Creek is being simulated as direct drainage, despite the fact that the watersheds are similar in size and both have impoundments that are likely to trap sediment. The response to this comment was that this is a constraint of using the WM5. This only reinforces our belief that the use of the WM5 to develop this TMDL is not appropriate.	Accotink Creek is represented as a tributary because there are sufficient flow and water quality data in Accotink Creek to enable calibration in the WM5 model as a tributary. Pohick Creek does not have the requisite historical flow and water quality data so it is represented as direct drainage.
#14	Page 1 of Appendix A states that "daily time series of external flows, and carbon and PCB loads […] are inputs to the PotPCB model." The response to our February 28, 2007 comment regarding the use of TSS as a surrogate for PCBs despite the better correlation of PCBs with organic carbon stated that the decision to use TSS was made for two reasons: there were more TSS:PCB data pairs available on which to base the regression, and the WM5 is better calibrated for TSS than for organic carbon. Given the fact that the TSS loads delivered from WM5 to the PotPCB model had to be converted to particulate carbon, and given our concerns regarding the WM5 TSS calibration, is it really more accurate to use TSS as a surrogate for PCBs? It seems that using organic carbon would not	Two factors must be considered in the selection of a surrogate parameter (or predictor) to estimate mass loadings of a target parameter. The first is the strength of the relationship between the target and surrogate parameters, and the second is the accuracy and uncertainty in the mass loadings for the surrogate parameter. The decision was made to use TSS as a surrogate parameter to estimate PCB mass loadings because the relationship between PCB and TSS was strong, and because there was a higher degree of confidence in the mass loadings for TSS than for organic carbon. The weight of evidence favored the selection of TSS as a surrogate parameter even though the relationship between PCB and organic carbon was also strong. The decision was made to also use TSS as a surrogate parameter to estimate particulate organic carbon mass loadings from the watershed for essentially the same two reasons. The relationship between particulate organic carbon and TSS was

#	Comment	Response
	only better represent the fact that PCBs bind to the organic carbon portion of TSS, but would also eliminate the need for a second regression in delivering the surrogate loads to the PotPCB model.	strong, and there was a higher degree of confidence in the mass loadings for TSS than for particulate organic carbon. It should also be noted that particulate organic carbon loads from the watershed during the model calibration period (2002-2005) were only 3.8% of the total particulate organic carbon loads to the water column. Most (96.2%) of the particulate organic carbon loads to the water column were from internal primary productivity and did not depend on the WM5 model.
#15	The response to our February 28, 2007 comment regarding the representativeness of samples collected at the Route 1 crossing of Accotink Creek stated that the two known contaminated sites at Fort Belvoir are located downstream of the sampling location. Given that Fort Belvoir is the most likely location of an additional, unknown contaminated sites in the watershed and that a significant portion of the property is upstream of the sampling site, Fairfax County maintains that these samples should not be considered representative of water quality in Accotink Creek, and that additional samples should be collected upstream of Fort Belvoir.	As described in the response to the February 28, 2007 comment, PCB sampling on Accotink Creek has been performed at the Route 1 bridge crossing. This location is upstream from the two PCB-contaminated sites identified within the grounds of Fort Belvoir. The two sites, identified as A-23 and A-24, are both located well downstream of the Route 1 bridge crossing over Accotink Creek. The surface drainage from these sites flows into the tidal waters of Accotink Bay and the Potomac River. The Route 1 location on Accotink Creek is located upstream of the head of tide, or upper range of the tidal influence, on Accotink Creek. While Fort Belvoir does have land holdings upstream from Route 1, there is no information that suggests that PCBs are coming from these land areas in any capacity greater than the rest of the upstream watershed. The Steering Committee does agree that additional sampling should be conducted upstream in the Accotink Creek watershed to track potential sources of PCBs. This testing may try to isolate the military land holdings as well as the commercial and industrial areas along Fullerton Road and Terminal Road. Follow-up monitoring to this study is addressed in the Tidal Potomac PCB TMDL under Section VII(7) Implementation and Reasonable Assurance Provisions for Virginia. Additionally, it should be noted that the data collected from Accotink Creek at Route 1, along with other tributary sampling in the region, was used to generate the regression equations described in Appendix A of the report for predicting PCB loadings. Therefore, the samples collected from Accotink Creek at Route 1 were not relied upon exclusively for characterizing the loadings from this watershed.
#16	The direct drainage load presented on page 10 of Appendix A is not consistent with the load presented in Table A-11 on page 31 of the same appendix (4,881 g/yr vs. 4,976 g/yr).	This discrepancy is resolved in the final report.
#17	Seventeen editorial comments were provided by Fairfax County addressing language usage.	All of these comments were taken into account in the writing of the final report.

#	Comment	Response
#18	**The Data Show that POTW Effluent PCBs are a Pass-Through from Potable Water Systems, the Source of Which is the Potomac Itself** • The six major Virginia POTWs average 250 pg/l effluent PCB concentration • The D.C. WASA effluent PCB concentration was most recently 347 pg/l • Fairfax Water Authority and Washington Aqueduct finished water data average approximately 450 pg/l effluent PCB concentration • Other local water systems exhibit comparable or higher finished water concentrations • These data demonstrate that POTWs are generally a net remover of PCBs from the Potomac • Given this, the POTWs do not exhibit "Reasonable Potential" for water quality standards exceedance, and there is no regulatory basis for TMDL Implementation plan requirements, or for permit limitations, whether numeric or BMP-based • The Virginia regulations include an additional net/gross provision specifically addressing POW effluents, which the TMDL process and the agencies have ignored	This comment is addressed in Theme E Response. In addition, Virginia regulations provide for consideration of credits under the Pollutants in Intake Water rule at 9 VAC 25-31-230.G. The application of intake water credits will be conducted in accordance with the provisions of the regulations. Additionally, Virginia is currently developing guidance procedures for point source PCB monitoring that will benefit future data collection efforts. This guidance document is scheduled to be completed in 2007 and may be considered a companion document to the TMDL for implementation measures in Virginia. The collection of additional information will help DEQ and point sources to better understand the nature of PCBs discharges, contributing sources of PCBs to POTWs, and any future actions that may be required to track down sources of PCBs in effluent streams. Likewise, this information may be used to indicate that no additional action is needed for certain effluent streams. Where warranted, the TMDL can be re-opened to amend, clarify or otherwise address the WLA. In support of Virginia regulations, such data may include: o PCB sampling under wet (to account for Inflow and Infiltration) and dry flow conditions; o The time and date of intake water and effluent monitoring; o Pollutant concentrations of the intake water and effluents; o Comparison of the PCB congener patterns between intake water and the effluent; o Evaluation of industrial inputs as a potential source from inadvertent production of PCBs; o Consideration of hydrologic connections where receiving waters and source waters are not the same waterbody, and the localized effects on receiving waters.
#19	**The TMDL Appears to Have Focused Substantial Attention on POTW Effluent, Without any Analysis of the Benefits, if any, to be Gained From That Focus** • The draft TMDL merely assumes that reduction or maintenance of POTW effluents at PCB "Target Values" is necessary for correction of the PCB problem • Despite VAMWA's specific request, no model sensitivity runs were performed to evaluate whether POTW efforts have any	After the draft TMDL report was written a set of model runs were done to evaluate the impact of wastewater treatment plants (POTWs or WWTPs) in isolation from other PCB sources. These model runs and results are described below in "Figures Supporting Response to Comment #19". In summary, these WWTP isolation model runs show that wastewater treatment plant discharges do have an impact on local PCB concentrations in tidal waters and that reductions in PCBs from selected facilities are a necessary part of the solution to the PCB contamination problem.

#	Comment	Response
	impact on PCB-caused impairments • VAMWA's understanding from the agencies' presentations is that, for at least some of the POTWs, there is no positive water quality impact from POTW controls • Although NPS LAs were established, apparently with modeled determinations of environmental impact, a "policy decision" was made to set POTW WLAs based on ad hoc "Target Values," regardless of impact. This "policy decision" is inconsistent with years of effort on a sophisticated model in TMDL development	
#20	**The TMDL Has Substantially Ignored the True Source of the PCB Problem** • The agencies acknowledge that PCBs are largely from non-point sources • 44% of PCB loadings are shown to be from the Upper Potomac watershed, i.e., carried in surface waters from above the tidal sections • The agencies' data attribute 8% to atmospheric deposition of PCBs to open waters of the Lower Potomac Basin • This ignores atmospheric deposition to land surfaces in the Lower Potomac Basin, despite the conclusions of EPA documentation on which the estimates are based that such deposition also occurs over land surfaces • A proper use of the atmospheric deposition data would conclude that atmospheric deposition plus the loading from the Upper Potomac account for all of the total projected PCB load to the Lower Potomac • Based on the agencies' own data, this means that all of the external loadings are from upstream and the remaining tributary and "Direct Drainage" loads coming from atmospheric deposition.	This comment is addressed in Theme A and D Responses.
#21	**The Agencies Have Ignored Duly Adopted Numeric Water Quality Standards, in favor of a "Target Value" Approach** • Each jurisdiction has an adopted numeric water quality standard for PCBs • In spite of the standards, this TMDL process	This comment is addressed by the Theme C Response.

#	Comment	Response
	has focused on *ad hoc* "Target Values". In the Virginia case, this "Target Value" is 27-fold more stringent than the duly adopted standard • The "Target Value" approach is not in conformance with law. Virginia law authorizes *ad hoc* calculated criteria only for parameters for which Virginia has <u>not</u> adopted numeric water quality criteria. 9 VAC 25-260-140.B • The Virginia target was incorrectly based on one fish species (gizzard shad) which is a bait fish, and not a food fish • Although "Target Value" approaches have been used in other parts of the U.S. (and we understand in Virginia), their proper application includes consideration of factors not present here, for example: • Whether point sources are the primary contributin cause of nonattainment; • Whether the approach can reasonably be expected to lead to attainment; and • Technical feasibility and economic reasonableness.	
#22	**For District of Columbia Purposes, the Use of a Highest 30-day Concentration was in Error** • For Virginia and Maryland waters, the proposed TMDL correctly focused on instream PCB concentrations on an annual harmonic mean basis • For D.C. waters, the proposal incorrectly used the highest 30-day average concentration. The proposal stated that this was based on D.C. regulations • The regulations for all three jurisdictions, as well as EPA guidance, specify the harmonic mean basis for application of criteria such as PCBs • Under D.C. water quality standards the design flow basis for numeric human health standards is the harmonic mean flow. D.C. Mun. Regs. Tit. 21, 1105.5(C). • The use of highest 30-day average incorrectly makes calculations of PCB reductions needlessly stringent. • The TMDL must correct the D.C. waters flow basis	The Potomac PCB TMDL has been developed based on a design flow that approximates the harmonic mean flow calculated from the long term record of flows, which is consistent with the D.C. water quality standards. The design flow used for development of the PCB TMDL was in fact, the actual 2005 observed flows. This hydrology approximates the harmonic mean flow. In addition, the cumulative frequency distribution of the daily flows for 2005 closely resembles the cumulative frequency distribution of the long-term period of record. The D.C. water quality standards also specify how the human health criteria should be applied. In D.C. Municipal Regulations, Title 21, Chapter 11, 1104.8 (Table 3), Class D human health criterion for PCBs is set as the highest 30-day average. The TMDLs for the District's impaired waters were developed in compliance with the D.C. water quality standards.

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#23	**The Agencies Have Used an Unacceptable Analytical Method, with Poor Quality Assurance, as if the Data Met the Usual High Standards of the NPDES Program** • Method 1668A has not been shown to produce reliable data • No Method validation study has been performed • Rather, the participating labs appear to be reporting data at Quantitation Levels they see as being required by the agencies without a proper QA demonstration • Methods that have not been promulgated in 40 CFR Part 136 are not prohibited from use in TMDL development • However, non-Part 136 methods are not permitted for uses required by NPDES permit, such as the analyses that this TMDL anticipates for implementation, 40 CFR 136.1(a) & (b) • The signal-to-noise ratio and sample contamination issues with the Method should rule out any use of the data other than qualitative use to indicate data trends	This comment is addressed in the Theme B Response.
#24	**Although All of the Specific Wasteload Allocations Should be Withdrawn, it was Incorrect to Propose WLAs for Most POTWs, While Leaving UOSA Without an Individual WLA** • There was not an individual WLA proposed for the Upper Occoquan Sewage Authority POTW effluent, and VAMWA understands that a WLA was somehow considered to be implicit or included within the load allocations for the affected tributary • The data show that UOSA effluent is very low in PCB concentration. However, that fact should not penalize UOSA by providing for no individual WLAs • Although all of the specific wasteload allocations should be withdrawn, it was incorrect to propose WLAs for most POTWs, while leaving UOSA without an individual WLA • To the extent that the TMDL includes POTW WLAs, the TMDL should be revised to make it clear that UOSA WLAs are included at	The TMDL study area is the Potomac River estuary. The PCB loadings and the POTPCB model were developed to characterize and represent the dynamics of the estuary. A breakdown of the individual sources, either point sources or nonpoint sources, contained within the tributary loading category is not within the scope of this study. While the calculation for the UOSA waste load allocation (WLA) is presented in Table 9 of the TMDL report, it is presented only for reference purposes. It would not be appropriate to include a specific WLA because the complexities of delivery of PCB loadings to the estuary through Bull Run and the Occoquan Reservoir. The assignment of a WLA to UOSA would require an associated reduction in the Occoquan River tributary loading which cannot be accurately computed at this point. It is important to note that Bull Run, the receiving stream for the UOSA discharge, is currently on the §303(d) list of impaired waters for not supporting the fish consumption use due to elevated levels of PCBs in fish tissue. A TMDL to address this impairment is scheduled to be completed by 2014. The Bull Run PCB TMDL will include a specific WLA for the UOSA facility.

#	Comment	Response
	design flow and based on the adopted water quality standard for PCBs	
#25	**The Use of the PCB_{3-10} Modeling Approach Was in Error, and Substantially Detracted from Modeling Accuracy** • Modeling used the sum of PCB homologs 3 through 10, rather than using total PCBs, which would have been consistent with the jurisdictions' water quality standards. The principal stated reason was the lack of homolog one and two data in the GMU data set. • The poor quality assurance of the data should counsel against the serial manipulations involved in converting to PCB_{3-10} and back again to total PCBs. ▪ The more correct approach would be to correct the GMU data, if there is a basis for doing so, or to replace that data. ▪ Because for the dominant air deposition source there is no homolog information, the use of PCB_{3-10} introduces an unacceptable level of assumptions into the modeling. • No basis is provided in the TMDL documents for the agencies' assertion that modeled fate and transport may be more accurate if based on a limited number of homologs. • The modeling simply used weighted averages of chemical coefficients for homologs three through ten. Modeling could have been performed using weighted averages of chemical coefficients for homologs one through ten, without introducing the approximations inherent in the PCB_{3-10} approach. • The effect of the PCB3-10 approach is to make all of the potential PCB sources look the same, and to camouflage the fact that POTW effluents have a substantial shift to the lower homologs, as compared to all the other sources and as compared to the dominant homologs (five to seven) in fish tissue.	The lack of GMU data for PCB homologs 1 and 2 was only one of several reasons why PCB3+ was selected as the model calibration target instead of total PCBs. There is great variability in homolog distributions among sources (below fall line tributaries and WWTPs), ambient conditions (sediments and water column particulates) and impacted resources (filets of bottom feeding fish) in the Potomac and Anacostia. In addition, there is high variability among the tributaries for homologs 3-6 and no single homolog stands out as being representative. Finally, there is analytical variability among the five different laboratories. The available data for atmospheric deposition of PCBs to the water surface did not permit determination of homolog distributions. The inputs to the model for PCB loads from this source corresponded to total PCBs, which were assumed to approximate PCB3+. This assumption is reasonable, based on independent data from the Delaware Estuary atmospheric deposition monitoring program which are consistent with very low proportions of homologs 1 and 2. Furthermore, PCB3+ loads from atmospheric wet/dry deposition during the model calibration period (2002-2005) were only 6.7% of the total PCB3+ mass load from all external sources. It would have been possible to model total PCBs as a single variable by taking weighted averages of physical-chemical coefficients for homologs one through ten. This approach would not have been as scientifically sound as using PCB3+ because the physical-chemical properties (e.g., octanol-water partition coefficients) of PCBs vary over approximately four orders of magnitude from homologs 1 through ten, but vary over a range that is six times smaller for homologs 3 through ten. Consequently, PCB3+ can be characterized with much greater precision and less uncertainty than total PCBs. In addition, if the model represented total PCBs and not PCB3+, then data would not have been available for all of the required loading inputs or for calibration of the model to ambient PCB concentrations. If it is true that POTW effluents have a substantial shift to the lower homologs, as compared to other sources and to the dominant homologs in fish tissue, then use of PCB3+ would not camouflage this shift. In fact, the use of PCB3+ would actually camouflage all POTW loadings of homologs 1 and 2 because these homologs are not included in the determination of PCB3+ mass loadings. From a regulatory standpoint, all that matters is total PCBs

#	Comment	Response
		and hence all potential PCB sources should look the same. No individual source can claim a "discount" because, for example, they contribute different homologs than the dominant homologs in fish tissue. In developing the TMDL, the jurisdictions agreed to apply a consistent policy to all POTWs for determining load allocations. The allocations are determined by facility design flow times the applicable jurisdiction water target, expressed as total PCBs. This approach is consistent with the PCB TMDL targets in DC, MD and VA waters which are expressed as total PCBs for the protection of human health from carcinogenic effects. The underlying water quality standards are also expressed as total PCB concentrations in the water column and/or in fish tissue, as are the EPA human health national criteria for PCBs as applied to both water and fish consumption.
#26	Based on the data available for PCB sources, specific Waste Load Allocation to municipal permitted sources (CSOs or Stormwater) are inappropriate and unwarranted.	The TMDL must account for PCB loadings from all sources of the contaminant. Regional monitoring in the Potomac PCB TMDL study area establishes urban stormwater as a source of PCBs to the tidal Potomac River. Stormwater sources may include CSOs, regulated stormwater under the municipal sanitary sewer system (MS4) and non-regulated stormwater from diffuse nonpoint sources. Accordingly, the TMDL allocates PCB loadings to these source categories. Section VI. TMDL Implementation and Reasonable Assurance of the report provides the general approach that is intended for implementing the TMDL WLA and LA components. In Virginia, it is anticipated that stormwater sources regulated under the NPDES program will focus efforts on tracking potential PCB sources. This tracking will first entail review of historical activities and land use identifying potential high-risk areas. Water, sediment and soil testing are options that can be employed for source tracking. It should be noted that the TMDL WLA for the City of Alexandria CSO does not require a reduction from the 2005 base year. The revised text in the final document will clarify that there is no reduction applied to the Alexandria CSO for the impaired segments of Hooff Run/Hunting Creek and the Lower Potomac.
#27	Based on the data and findings of the TMDL, additional PCB sampling of the City municipal discharges is unnecessary. The City is doing substantial monitoring of its permitted discharges. It is important that this monitoring remain focused on issues that can be controlled and are of significance.	It is the understanding of the Steering Committee that low-detection level monitoring of PCBs from the City of Alexandria CSO has not been performed. While the TMDL WLA for this source does not call for any reductions from the 2005 base year, any testing requirements will be determined during the NPDES permit reissuance
#28	The Proposed TMDL is not set up to implement water quality standards, as is	This comment is addressed by Theme C Response.

#	Comment	Response
	required and is instead focused on Target Values.	
#29	The TMDL does not recognize that the principal sources are nonpoint and upstream	This comment is addressed by Theme D Response.
#30	In light of these issues, it is not appropriate to establish PCB limits for the City's CSO or MS4 permits at this time. We further recommend that monitoring not be required of City permitted discharges as this will do little to identify and remove actual PCB sources. Limited public funds would be much better directed at the larger contributors to the PCB loading in the lower Potomac Basin.	The findings and recommendation of the TMDL study are based on the best available data at the time along with scientifically proved methods (refer to Theme B, C, and Comment #4 responses). The Federal Clean Water Act (CWA) requires each state to identify those water bodies whose quality does not meet minimum criteria for designated uses in documents commonly referred to as 303(d) lists. The CWA further requires that a Total Maximum Daily Load (TMDL) be determined for each impaired waterbody (also referred to as a Water Quality Limited Segment (WQLS)) and each impairing substance on the Section 303(d) List which the Report does. A TMDL reflects the loading of an impairing substance a waterbody can receive and still meet water quality standards which is the combination of a designated use for a particular body of water and the water quality criteria designed to protect that use. In this case, Virginia's designated uses are not being met. The TMDL itself establishes categorical WLAs for the CSOs and MS4s by jurisdiction to address direct or indirect communities that likely discharge PCBs into the tidal Potomac River. This information, along with the existing loadings specified, shows the PCB reductions necessary to attain water quality standards. The TMDL does not require PCB monitoring or testing. Rather, the TMDL report discusses various strategies to implement the TMDL WLAs to reduce PCB discharges from point sources as addressed in the Tidal Potomac PCB TMDL under Section VII(6), Implementation and Reasonable Assurance Provisions for Virginia. Monitoring and testing recommendations of the TMDL shall be considered for NPDES permitted sources during the permit reissuance.
#31	The Plan is focused on the protection of humans and aquatic life such as gizzard shad and shellfish. We support the inclusion of the above endpoints, but there needs to be a greater focus on other wildlife that uses the watershed such as piscivorous birds and aquatic mammals. Bald eagles and osprey are known to nest and hunt in the watershed and are particularly sensitive to PCBs. Mink are also especially vulnerable to PCBs and have the potential to be found within the watershed. Given the sensitivity of the above species, it is	This TMDL was written to address the specific reason these water bodies were placed on the jurisdictions' 303(d) lists: non attainment of the fish consumption designated use. The listings were triggered by PCB concentrations in fish tissue exceeding jurisdictional 303(d) listing thresholds. The impact of PCBs on wildlife is beyond the scope of this study. Wildlife should benefit, however, through implementation of this TMDL and by reducing PCB to levels that are protective of the impaired designated use.

#	Comment	Response
	more prudent to work to completely eliminate discharges rather than to significantly reduce them.	
#32	The plan to reduce each source by 5% to account for uncertainty should serve the function of reducing the source's allocation; any other purpose would be counterproductive and should be eliminated. This percentage is not sufficient; a larger percentage closer to 10% needs to be set aside.	There are no strict EPA guidelines or methodologies for selecting a Margin of Safety (MOS), except to suggest that a MOS may be an explicit value or a set of conservative assumptions built into the analysis. The MOS is intended to account for uncertainty in water quality modeling and an uncertainty inherent to natural systems. The Steering Committee believes that with an overall reduction of 95.9%, an explicit MOS equal to 5% and the selection of an adaptive implementation represent a reasonable approach for incorporating uncertainty. In addition to the explicit MOS, a conservative approach was used when selecting the TMDL target based on a bioaccumulation factor (BAF) of the most sensitive fish species of concern. For this project an explicit MOS was used in the following manner. First, the TMDL scenario allocations were established based on the model results that demonstrated attainment of the fish consumption designated use. Then, an explicit MOS was applied by subtracting 5% from each TMDL scenario allocation.
#33	In addition, each source needs to be on a plan to eliminate PCB's from the effluent or release. The present TMDL Plan proposes reduction in each PCB source or source category in order to reach water quality standards (WQS). The Plan needs to be phased.	A goal of a TMDL is to result in the achievement of the appropriate water quality standard or target endpoint resulting in attainment of the fish consumption designated use as defined by each jurisdiction. This does not mean a zero discharge of PCBs which would be an infeasible and unnecessary expectation. Given the ubiquitous nature of the pollutant and its widespread historical use as well as significant load contribution from the nontidal upstream watersheds, large scale improvements in water quality are expected to be realized over an extended period of time. Through the use of adaptive implementation and lessons learned in the Great Lakes and Delaware Bay, the jurisdictions plan to employ creative and cost-effective solutions for reducing loadings of PCBs to the tidal Potomac. The adaptive implementation approach is summarized in Section VII of the TMDL document.
#34	It is encouraging to see the Plan noting the importance of atmospheric deposition and loadings from contaminated sites to overall levels of PCBs within the river. Controlling both classes of source loadings is critical to the success of PCB TMDLs. Efforts should be made to increase the accuracy of models	Section VII of the TMDL report addresses implementation and, for each jurisdiction, there is an emphasis on additional data collection which will enable better characterization of loads and tracking down of specific source locations. These data will be valuable for any future model development.

#	Comment	Response
	incorporating these two forms of loadings so they can be adequately controlled.	
#35	The report also overlooks an important source of PCBs- the river itself. Strong storms and other events that disturb the sediment within the river can release significant quantities of PCBs, particularly if the disturbance occurs in highly contaminated areas. Given the long time period that the Potomac has been accepting PCB loadings, water quality standards will never be met by only reducing external sources. The report needs to acknowledge this added layer of complexity to the cleanup of the Potomac River if it is to be protected in the future.	Water column PCB concentrations are influenced by external sources from the watershed and atmospheric deposition, as well as legacy contamination in the sediments. The PCB mass balance model includes both the water column and sediments, and explicitly includes the influence of sediment PCBs on water column PCB concentrations. The TMDL water column targets can be met by reducing only external PCB sources, but achievement will require a period of time sufficient for sediment PCBs to attenuate and reach long-term, quasi-steady state, equilibrium conditions with these reduced external PCB sources. Under these conditions there is no net flux of PCBs across the air-water interface, and both the surface and deep sediment layers are net sinks for PCBs throughout the estuary, not sources. The significance of sediment PCBs is their influence on the response time of the estuary to changes in external PCB loadings. Water column PCB concentrations in rivers or estuaries typically respond to changes in external loadings on time scales of days to weeks, while sediment PCB concentrations typically respond on time scales of years to decades because PCBs are much less mobile in bedded sediments. Model results for the Potomac indicate that depending on location within the estuary, water column PCB concentrations could require 50 years or more to achieve the TMDL targets even if all external PCB loadings were completely eliminated. Although remediation of sediment PCBs is not necessary to achieve the water quality criteria under the TMDL design conditions, it could potentially shorten the time frame required for achievement.
#36	The Final TMDL Must Include Separate WLAs For Each Point Source. The draft TMDL merely allocates WLAs to three general categories of point sources, waste water treatment plants, MS4s, and combined sewer overflows. However, the TMDL must separately allocate a WLA for each point source in each of these categories. This is crucial to ensure that NPDES permits that are issued, reissued or modified after the TMDL approval date are consistent with the WLAs, as required by 40 C.F.R. § 122.44(d). In addition, 40 C.F.R. § 130.2(h) provides that a "wasteload allocation" in a TMDL means "[t]he portion of a receiving water's loading capacity that is allocated to one of its existing	The TMDL does include WLAs for each point source. See Table 9 in the TMDL report for wastewater treatment plant WLAs.

#	Comment	Response
	or future point sources of pollution." The fact that the draft TMDL indicates that the three jurisdictions will implement the waste load allocation by collecting additional data from selected NPDES permitted facilities to better characterize PCB discharges reveals that the draft TMDL fails to adequately identify the PCB inputs from the various specific point sources in the Anacostia and Potomac, making it difficult to include adequate pollution reductions in NPDES permits to achieve water quality standards. The final TMDL must establish WLAs that will achieve water quality standards and that can be incorporated into enforceable NPDES permits.	
#37	The Final TMDL Must Provide Adequate Assurances that the Plan Will Result in Achieving Water Quality Standards.Although the draft TMDL mentions some implementation concepts, it does not actually provide an implementation plan that spells out how it intends to achieve the TMDL's goals. The three jurisdictions must adopt a comprehensive implementation plan and include the public in the process. Without an actual implementation plan, there is no assurance that the TMDL will achieve water quality standards. An important component of such an implementation plan is a *timetable for implementation* of PCB pollutant reduction measures for each specific source and source category. The draft TMDL fails to include such a timetable; it needs to do so, along with implementation benchmarks that indicate the actions that are to be taken by each responsible party or government entity by a date certain.	Various pollution reduction measures to be undertaken by each jurisdiction have been outlined in the TMDL document. Each jurisdiction will also use an adaptive implementation strategy, which is an iterative implementation process that makes progress toward achieving water quality goals while using new data and information to reduce uncertainty and adjust implementation activities. Specific schedules and pollution reduction measures are addressed in TMDL implementation plans, which is beyond the scope of this effort. Under the current USEPA regulations, a detailed implementation plan is not required as part of the TMDL development.
#38	We do not believe that anything we can do, at any cost, will hasten the time when PCB fish tissue advisors [sic] can be removed from the Potomac River or its embayments.	See response to comment #39.
#39	As pointed out in the VAMWA comments, the TMDL clearly identifies the historic PCB load as being fully accounted for by the Chain Bridge upstream load and the total regional air deposition load. Not withstanding the adoption of dubious water quality "target	Several statements in this comment are inaccurate. The first is that Chain Bridge and "regional" atmospheric deposition fully account for the PCB loadings in the Potomac. Chain Bridge accounts for 44% of PCB loadings in the Baseline Scenario. There has been no analysis to show what fraction of regional atmospheric deposition reaches tidal waters, or to what extent

#	Comment	Response
	values" based on a bait fish species and the total disregard for the model results at the last step of the TMDL development process, there is nothing that can be achieved at the Mooney WRF that would meaningfully reduce the circulation of historic PCB loads.	the source of regional atmospheric deposition is local. Theme Response A addresses atmospheric deposition at greater length and Section IV of the TMDL document explains what are the sources of PCB loads to the Potomac. Second, there is the assumption that PCBs are historic and nothing can be done about them. While PCB production has been banned since the late 1970's, these chemicals are still found throughout the environment, thus being labeled a **persistent** bioaccumlative toxicant (PBT). PCBs remain widely in use in electrical equipment, and are a frequent contaminant at waste sites and disposal facilities. They may also be inadvertently manufactured and their future release must be prevented. PCBs in the environment have declined steadily over the past 30 years and it is expected that the decline will continue in the Potomac. Nevertheless, achieving the TMDL loads will require substantial effort across many programs both within the Estuary and to achieve reductions in the boundary inputs from the air, Chesapeake Bay, and upstream tributaries (see also Themes A and D Responses). Current sources to wastewater treatment conveyance systems can be determined by implementing a localized pollution minimization plan (PMP). PCB reductions through PMPs and resulting follow-up programs have been shown successful in the Delaware Tidal Estuary where facilities have already implemented PMPs (Cavallo, personal communication). This success can be mimicked in the Potomac estuary.
#40	In fact, the apparent data generated from the use of method 1668A indicates that our effluent PCB concentration is less than that apparently contained in the drinking water sources in the region. Further monitoring and BMP practices would only serve to waste time, money and effort better applied to completing upgrades in progress which have the potential to result in real water quality improvements.	This comment is addressed by Theme E Response and the responses to comments #1 and #18.
#41	Although MetCom and Leonardtown appreciate the substantial efforts that the agencies have experienced in developing the proposed TMDL, and although we appreciate the difficulty of this multi-state effort, we are concerned that as proposed the TMDL would not move the Lower Potomac water quality effort forward, although it would require major non productive efforts for the Leonardtown facility and other POTWs. The agencies acknowledge, and the data	While the PCBs production and installation of PCBs containing equipment has been phased out, it is expected that there are still a number of ongoing and unidentified sources of PCBs in the tidal Potomac and Anacostia watersheds (originating directly from old leaky equipment or produced as an unintended byproduct). Because there are existing fish consumption use impairments in all three jurisdictions, these jurisdictions are responsible for assessing the current point and nonpoint loadings and establishing load allocations that would result in the attainment of the impaired fish consumption use. TMDL development is only the first step of addressing the

#	Comment	Response
	demonstrate, that PCB-caused use impairments are a non-point source problem. However, the current TMDL proposal includes provisions and could require through NPDES permits substantial efforts in an attempt to identify and reduce PCB effluent loadings, when such loadings are the clear result of the ubiquitous nature of PCBs in the environment, influenced by decades of deposition of PCBs from many sources. The proposed TMDL thereby focuses on "effect" (the historical contamination of the environment with PCBs) rather than "cause". Further, the proposal appears to contemplate extremely minimal wasteload allocations for POTWs, below levels that would reflect adopted Maryland water quality standards.	impairment. The implementation process will need to focus on identifying local sources and coming up with cost-effective measures to address these sources. Achieving the TMDL loads will require substantial effort across many programs. Although point sources do not represent the largest component of the overall PCBs loading, from the perspective of attaining local water quality, they are not insignificant (see response to Comment 19) and need to be responsible for equitable load reductions necessary to attain the fish consumption use. Due to high cost and limited technology of end of pipe measures, the jurisdictions envision that to demonstrate compliance with the TMDL, point sources will be expected to concentrate on source assessment and waste minimization plans. For related information please refer to Theme C and D responses.
#42	The TMDL proposal also will not comply with the legal requirements for TMDLs. Under Clean Water Act Section 303(d), TMDLs must be "established at levels necessary to implement the applicable water quality standards…" 33 USC 1313(d)(1)(C) (emphasis added): see 40 CFR 130.7(C)(1). Because much of the focus of this proposal is on point sources that are merely symptomatic of the nonpoint source nature of the impairment, the proposal does not comply with this basic requirement. Further, rather than focusing on the applicable water quality standard, the TMDL focuses on the other *ad hoc* numbers. However, the proposal could readily be made to conform with these basic requirements and could be made to focus more directly on the causes of the impairment in either one of two ways. First, there are numerous serious technical and regulatory errors that could be corrected, and the proposal could be made to focus on the actual source of the PCBs. Second, the proposal could be changed to acknowledge the true source of the problem, could specifically reserve WLAs, and provide that the TMDL does not imply any reduction in POTW loading other than any reductions that may be possible through (state or federal) remediation of current or historical PCB waste sites and the eventual reduction of atmospheric deposition, to the extent that either contribute	See Response to Comment 41 and also Theme C, D, and E Responses.

#	Comment	Response
	to PCBs in a POTW system. This would necessarily include an acknowledgement within the Maryland portion of the TMDL that any point source wasteload allocation implicitly are at levels that reflect the background source of the PCBs and the inability of owners to influence such loadings.	
#43	<u>The Proposed TMDL Largely Ignores the True Source of the PCBs</u> A large part of the loadings (44%) is acknowledged to be from the Upper Potomac, carried past Chain Bridge to the Lower Potomac. Essentially, all of the remainder appears to be from atmospheric deposition, reflected in runoff of deposition over the past decades. The proposal has addressed atmospheric deposition, but only to the open water areas (the Potomac itself, tributaries, and embayments) of the Lower Potomac Basin. No distinction between water surfaces and land surfaces is apparent in the mechanisms that would cause atmospheric deposition. The proposal relies on EPA's 1999 Chesapeake Bay Basin Toxics Loading and Release Inventory for atmospheric deposition rates, which we incorporate by reference. Although EPA's work also focused on deposition to water surfaces, it acknowledged that atmospheric deposition loads to land surfaces are partially accounted for in urban runoff estimates. Whatever the reason for this qualified conclusion, the document makes it clear that atmospheric deposition occurs of the entire basin, including the land surfaces. Atmospheric deposition is characterized as the result of (1) wet deposition "to the earth's surfaces," (2) dry aerosol deposition "to terrestrial and aquatic surfaces," and (3) gas exchange. No information is presented that would distinguish the first two as to water and land surfaces. In fact, given the acknowledged mechanisms whereby PCBs adhere to Carbon particles, it would be correct to conclude that these mechanisms are more important over land (soil being carbon rich) than over water.	The intent of the tidal Potomac PCB TMDLs' implementation is to first identify and address the most significant local sources through tributary screening and monitoring programs as well as BMP implementation by the stormwater and water treatment entities. At the same time the jurisdictions will be working on evaluating and addressing the upstream PCBs conditions. For other issues raised in this comment please see response to Comment 19 and Theme A and D responses.

#	Comment	Response
	The proposed TMDL attributes 3070 gm/yr of total PCBs to atmospheric deposition to water surfaces (457 sq mi). If this figure is extended to the total (3120 sq mi) area of the basin, the total atmospheric deposition load would be 21,000 gm/yr. Combined with the upstream chain bridge load, this nearly exactly accounts for all the projected loadings to the Lower Potomac Basin. Similarly, the sum of the loadings projected for the tributaries, direct drainage, the water surface atmospheric deposition, and CSOs is a similar figure. Although we recognize the difference in atmospheric deposition loading estimates to urban, transition, and rural areas, these numbers illustrate that the true sources of PCB loadings are the upstream load and atmospheric deposition reflected in the NPS runoff. It is arbitrary for the TMDL process to ignore atmospheric deposition to land surfaces in favor of an attribution of part of the problem to POTWs and other point sources that have nothing to do with the problem. If atmospheric deposition is reduced, as the TMDL contemplates, point sources and the tributary and direct drainage loads will necessarily be reduced. TMDL does not identify any possible sources of PCB concentrations in POTW collection systems other than runoff reflected in infiltration and inflow from this historical deposition to land surfaces or runoff from historical PCB sites, and it is wrong and counter productive to address POTW sources as if they were somehow independent sources of PCBs. The ubiquitous nature of PCBs in the environment can only be effectively addressed by addressing the underlying atmospheric deposition. The known historical PCB sites are the responsibility of the agencies to address. We would be, of course, agreeable to effective and common sense approaches to looking for additional historical PCB sites within our sewer system.	
#44	<u>The TMDL Proposal Ignores Maryland's Adopted Water Quality Standard for PCBs,</u>	This comment is addressed by Theme C Response.

#	Comment	Response
	Derived to Protect the Fish Consumption Use, in Favor of an ad hoc "Target Value" Approach Maryland has an adopted water quality standard for PCBs of 640 pg/l, designed to protect the fish consumption use. However, the proposed TMDL ignores this standard, adopted through the public process mandated by Maryland and federal law, and focuses on a much lower water column "Target Value" of 260 pg/l. There is no legal basis for the use of such Target Values. Separately, the derivation of the Target Values, if there was some regulatory basis for them, was incorrect. The point of adopting numeric pollutant-specific water quality standards is for those numbers to be the target values to address possible use impairment that the TMDL addresses fish flesh contamination. Accordingly, the only legal numeric targets are the existing standards. We recognize that a "Target Value" approach has been used in other parts of the country for TMDLs. The proper use of such an approach is illustrated by, for example, the Ohio regulations, which provide for use of "Target Values" only in conjunction with (1) a consideration of whether point sources are the primary contributing cause of use impairment, (2) whether the approach can reasonably be expected to lead to attainment, and (3) consideration of technical and economic reasonableness. This would appear to be an effective use of a "Target Value" approach. However, none of these factors are present in the situation addressed by the proposed Lower Potomac TMDL, underlining the error in the "Target Value" approach. If a "Target Value" approach was acceptable, the Maryland value was calculated incorrectly. The 260 pg/l Maryland water column number was determined using a Bioaccumulation Factor for only a single fish species (the highest Maryland factor determined). A proper Bioaccumulation factor for such purposes would be derived as a weighted average of factors from a representative group	

#	Comment	Response
	of fish from the Maryland waters that are consumed by humans.	
#45	<u>There is no Legal Basis for Establishing Wasteload Allocations Based on Pollutant Concentration Less than Adopted Water Quality Standards</u> The agencies are aware that the typical approach to settling wasteload allocations is to set them consistent with the underlying numeric water quality standards. Although we recognize that these are situations where such WLAs may not be consistent with the correction of use impairments, it is important that the correct legal process be followed. Water quality standards need to be developed to address maintenance of beneficial uses through the designated public process. There is no point of adopted water quality standards at all, if TMDLs are going to ignore them and apply *ad hoc* numbers. If there was a legal basis for use of WLAs based on "Target Values", such WLAs as developed by the agencies in the Lower Potomac TMDL process would be incorrect because there has been no showing that a reduction in POTW sources to such PCB concentrations would be either possible or necessary to address the use impairment. We understand that model sensitivity runs were performed separately (1) with all of the tributary inflows set at the respective jurisdictions' "Target Values" and (2) with all of the direct drainage inputs set the same. However, this procedure does not appear to address what level of POTW reduction would be necessary for any particular TMDL result, or whether any specific POTW systems have any positive impact on such TMDL result. Accordingly, we believe that there has been no demonstration that the POTW wasteload allocations are necessary or even useful for achieving the TMDL goals. It appears that the approach taken to settling the TMDL WLAs and LAs was to simply set the various inputs at the "Target Values" of the jurisdiction in which the points sources and NPSs occur, and to allow the model to	This comment is addressed by Theme C Response and by the response to comment #19.

#	Comment	Response
	project (apparently after a 50-100 year period) the reduction in Lower Potomac Basin water column concentrations to below those same "Target Values". It does not appear that any determination was made as to whether such reductions were projected to be necessary to achieve such targets. Rather, we understand that in at least some cases no reduction was necessary in order to achieve such goals. The current approach is unacceptable for a TMDL process on which the agencies have spent substantial funds, and into which substantial efforts have placed by all involved. The TMDL at a minimum must evaluate what levels of PCB reductions are needed to bring about consistency with the underlying standards. Even using the faulty "Target Value" approach, it does not appear that the reductions that the TMDL contemplates are need to correct the use impairments in Maryland waters or even to address the improper Maryland "Target Value".	
#46	The proposal appears to incorrectly anticipate implementation using an unproven and now discredited non-part 136 analytical method.	This comment is addressed by Theme B Response.
#47	**The Use of the PCB_{3-10} Modeling Approach Was in Error, and Seriously Detracted from the Usefulness of the Modeling** We understand that the consultant's PCB fate and transport modeling effort used the sum of PCB homologs three through ten, rather than total PCBs. Of course, total PCBs would have been consistent with the underlying water quality standards and with the fish consumption advisories. The stated principal reason for the use of PCB_{3-10} was the lack of homolog one and two data in the GMU data set. The more accurate approach to that issue would be to correct the GMU data, if there is a basis for doing so, or to replace that data. The very poor quality assurance of the PCB data derived through Method 1668A should counsel against the serial manipulations of data involved in converting to PCB_{3-10} and then back again to total PCBs. Further, because for the dominant atmospheric source there is no homolog data, the use of PCB_{3-10}	See responses to Comment #25.

#	Comment	Response
	introduces an unacceptable and unnecessary level of assumptions into the modeling. No basis is provided in the TMDL documents for the modelers' assertions that modeling fate and transport may be more accurate with PCB_{3-10}. The modeling simply used weighted averages of chemical coefficients for homologs three through ten, where it could have just as easily used weighted averages for homologs one through ten, without introducing the approximations inherent in the PCB_{3-10} approach. We are concerned that the net effect of the PCB_{3-10} approach is to make all of the potential PCB sources look the same, and to camouflage the obvious fact that POTW effluents have a substantial homolog shift to the lower homologs, as compared to the other claimed PCB sources and as compared to the dominant five through seven homologs in fish tissue.	
#48	<u>MDE Should Either Correct the Errors in the Proposal, or Withdraw POTW Wasteload Allocations and Implementation References</u> Because of these serious problems with the TMDL as proposed, the agencies should take one of two different courses for the Maryland portions. First the agencies could work to correct the various technical and regulatory deficiencies, and generate a new proposal that focuses on the actual source of PCBs, and with results that are shown to in fact be necessary for water quality standards consistency. Alternatively, we ask that the agencies adopt the overall tributary and direct drainage Load Allocations determined necessary, but specifically not adopt any specific WLAs or purport to conclude that any POTW WLAs would necessarily reflect effluent concentrations below the applicable Maryland water quality standard. This approach would also allow MDE to independently focus its further efforts and a Maryland-only implementation plan on the true sources of PCBs. We would also ask that MDE commit to determine, more accurately and more specifically than has been done in	This comment is addressed by Theme B and D Responses as well as in the responses to comments 19 and 43.

#	Comment	Response
	the initial effort, where PCB reductions are needed to attain relevant standards. Most importantly, because the effluent PCB level attributed to the Leonardtown facility (with which we disagree in any event) is well below the Maryland water quality standard, there is no regulatory basis for permit requirements other than occasional monitoring. We would not object to a minimal monitoring effort, using approved Part 136 analytical methods, and to a commons sense BMP program involving an inquiry for possible PCB sources within the POTW collection system. Because by definition any "hot spots" would be at much higher levels than the observed environmental levels, the approved Part 136 methods should be specified for any such effort.	
#49	TMDL should not allow for <u>ANY</u> PCB loading. The CWA aims to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. To that end, the CWA, as amended in 1972, ambitiously declared a national goal to eliminate the discharge of <u>all pollutants</u> into navigable waters by 1985. Twenty-two years have passed since 1985 and our nation's waters remain polluted. According to the most recent national report on water quality, approximately 40% of surveyed water bodies are too polluted to support fishing, swimming and other designated uses. Even worse, future studies will likely reveal more impaired waters as state monitoring programs have only surveyed approximately 1/3 of the nation's waters.	See response to comment #33.
#50	A "phased" TMDL that lacks a schedule or timetable for necessary iterative implementation does not ensure WQS. Potomac Riverkeeper is concerned that the current draft {CB TMDL does not meet the minimum requirements of a "phased" TMDL set forth in 40 C.F.R. 130.7, the April 1991 EPA document, "Guidance for Water Quality-Based Decisions: the TMDL Process" (hereafter "1991 EPA guidance"), and the	The Potomac PCB TMDL is not a phased TMDL. The allocated PCB loads to sources are the maximum amounts that can be discharged and not violate the water quality targets. The jurisdictions have described their strategies for implementing the TMDL in the TMDL Implementation and Reasonable Assurance section of the TMDL document. Jurisdictions have adopted an adaptive implementation strategy, which is an iterative implementation process that makes progress toward achieving water quality goals while using new data and information to reduce uncertainty and

#	Comment	Response
	August 2, 2006 EPA Memorandum "Clarification Regarding "Phased" Total Maximum Daily Loads." Under the draft TMDL, the jurisdictions will employ an iterative implementation strategy that focuses first on (1) collecting additional data while concurrently implementing activities to reduce PCB loading; and (2) use new data to steer control strategies aimed to mitigate PCB loading into the Potomac estuary and to better understand key PCB loading sources. As for future data collection, the jurisdictions have agreed to focus efforts on monitoring PCB loading from Chain Bridge, atmospheric deposition, tributaries and direct drainage, and the Chesapeake Bay downstream boundary. Although the jurisdictions list areas where they will continue to monitor for PCB loading levels, they do not specify when they will begin monitoring. Nor do they mention when they will revise the current draft BMDL's load allocations. Potomac Riverkeeper is concerned about the lack of an implementation schedule or timetable in the current draft TMDL. As you know, "phased" TMDLs are only effective to the extent that the TMDLs load allocations are adjusted according to new reported data on impaired water. Yet the draft TMDL does not include a schedule or a timetable. As such, the jurisdictions are not bound to perform any further action necessary to attaining WQS. Potomac Riverkeeper believes that the jurisdictions' failure to include a schedule or timetable that would establish enforceable deadlines for subsequent TMDL implementations violates the CWA to the extent that it will not assure water quality standards ("WQS") as required by EPA regulation 40 C.F.R. 130.7. EPA guidance on "phased" TMDL implementation confirms our worry that the jurisdiction's current draft PCB TMDL requires but does not contain a schedule for future implementation actions. According to the 1991 EPA guidance:	adjust implementation activities. While the focus of this approach is not generally anticipated to lead to re-opening of the TMDL, the TMDL and allocation scenarios can be changed if warranted by new data and information. Because of limited available data from certain sources, it was decided that additional monitoring should be conducted to better understand the sources and to determine effective strategies for reducing PCB loads to the Potomac. Specific schedules and pollution reduction measures are addressed in TMDL implementation plans, which is beyond the scope of this effort. Under the current USEPA regulations, a detailed implementation plan is not required as part of the TMDL development.

#	Comment	Response
	"..., a TMDL under the phased approach **will establish the schedule or timetable** for the installation and evaluation of point and nonpoint source control measures, data collection, the assessment for water quality standards attainment, and, if needed, additional predictive modeling... The schedule for the installation and implementation of control measures and their subsequent evaluations will include **descriptions of the types of controls, the expected pollutant reductions, and the time frame within which water quality standards will be met and controls reevaluated**. As the 1991 guidance makes clear, EPA requires "phased" TMDLs to include schedules or timetables for implementation of additional monitoring anc controls. Yet the jurisdiction's draft TMDL includes no schedule or timetable whatsoever. Instead, it merely provides that monitoring will be implemented when resources allow. EPA recently issued the following memorandum, "Clarification Regarding 'Phased' Total Maximum Daily Loads" (hereafter "2006 EPA memorandum") to address the misconception among States that "phased" TMDLs need not meet applicable water quality standards. In its w006 guidance, EPA roundly rejected this interpretation. "...["Phased"] has sometimes been misinterpreted and resulted in TMDLs that are not calculated to meet applicable water quality standards. This misconception is not consistent with EPA's interpretation of 40 CFR Part 130.7. The regulations require all TMDLs to be calculated to achieve applicable water quality standards. [See US EPA 1991]. EPA's interpretation was affirmed by a recent court decision. [*See Minnesota Center for Environmental Advocacy v. EPA* No. 03-5450 (D. Minn. June 23, 2005)]." EPA's 2006 memorandum also provides guidance as to how states should properly craft "phased" TMDLs to meet applicable WQSs. To that end, the 2006 memorandum reemphasizes the import role schedules and	

#	Comment	Response
	timetables perform in TMDLs of the "phased" variety, such as the jurisdiction's draft PCB TMDL. "..., EPA recommends that a phased TMDL document or its implementation plan **include a monitoring plan and a schedules timeframe for revision** of the TMDL. (These elements would not be an intrinsic part of the TMDL and would not be approved by EPA, but may support a rationale for approving the TMDL.)" As the 1991 and 2006 EPA guidance documents make clear, schedules or timetables are crucial to the success of "phased" TMDLs. As the jurisdictions readily acknowledge, the draft TMDL is based upon data that is subject to many uncertainties. Future monitoring will likely reveal PCB loading conditions inconsistent with the data and assumptions relied upon for the current draft TMDL. For example, if future monitoring reveals PCB levels greater than indicated in the current data, then the TMDL's load allocations ("Las") and waste load allocations ("WLAs") will necessarily need to be made more stringent to ensure that water quality standards are met. Yet the current draft TMDL, as written, does not assure that future actions will be taken because it lacks a timetable or schedule; the future "phases" of this draft TMDL are not guaranteed. Instead, the draft only provides that future monitoring acts will be implemented when resources allow. When will that be? Concerned citizens, the regulated community, and EPA are left to guess. Potomac Riverkeeper believes that the lack of an implementation schedule or timetable prevents the current draft TMDL from ensuring WQS for the impaired segments of the Potomac and Anacostia rivers. Accordingly, Potomac Riverkeeper requests that the jurisdictions include an implementation schedule or timetable so as to ensure future revisions to the PCB TMDL that will protect the Potomac River from excess PCB loading. As mentioned above, such a timetable is highly recommended by EPA because it will demonstrate that the	

#	Comment	Response
	jurisdictions are committed to refining their "phased" TMDL to meet applicable WQSs.	
#51	Maryland's implementation plan does not reasonably assure compliance with the draft TMDL's WLAs and LAs. Potomac Riverkeeper is concerned that the Maryland Department of the Environment's ("MDE") TMDL implementation plan will not ensure compliance with the draft TMDL's WLAs and LAs. In order to implement the WLAs and LAs set forth in the draft TMDL, the Maryland Department of the Environment ("MDE") does not propose a single new PCB loading control mechanism. Instead, MDE promises that existing state and local programs will ensure compliance.[21] For point sources, MDE expects to control PCB WLAs through existing programs such as MS4 stormwater regulation.[22] For non-point sources, MDE intends to meet the TMDL's PCB load allocations through existing TMDLs for sediments and nutrients and the following existing programs: Stormwater Management (2000), Sediment and Erosion Control Program (developed in 1970)[23], Watershed Restoration Action Strategy (2000).[24] Potomac Riverkeeper is concerned that MDE's existing programs, some that date back to and have not been revised since 1970, fail to reasonably assure successful implementation of the forthcoming PCB TMDL which requires significant reductions across the board to PCB loading. The jurisdictions drafted the current TMDL based on estimates of PCB loaded into the Potomac River during hydrologic year 2005.[25] Accordingly, the draft TMDL mandates that Maryland reduce its total PCB loading into the Potomac River from approximately 3,029 grams/year in 2005 to 572 grams/year under the forthcoming TMDL- an 80% across-the-board reduction.[26] Although MDE's existing programs have not changed since 2005, MDE promises that they will effectively reduce PCB loading into the Potomac River by 80%. How will the same programs that allowed 3,029 grams of PCB	An implementation plan is beyond the scope of this TMDL. While MDE plans to use existing programs to implement the tidal Potomac TMDL, these programs have not yet been fully implemented. For example the Anacostia sediment TMDL, which calls for significant reductions in sediment loads to the Anacostia River, has just been approved. Additionally, in the near future additional Chesapeake Bay sediment and nutrient TMDLs will call for further controls which are also excepted to result in PCBs removal. As achieving the TMDL loads will require substantial effort across many programs, the TMDL incorporates an adaptive implementation approach (not Phased TMDL as suggested by the commenter) requiring jurisdictions to continue their work in the tidal Potomac and Anacostia watersheds in order to achieve water quality standards through additional assessment, identification, and control of sources in the watershed. At the same time the jurisdictions will be working on evaluating and addressing the upstream PCBs conditions. The Steering Committee believes that this issue has been addressed in the "TMDL Implementation and Reasonable Assurance" section of the document.

#	Comment	Response
	loading in 2005, without more, limit annual PCB loading to 572 grams as mandated by the current draft TMDL? Potomac Riverkeeper fears that they will not. Our fears are substantiated by the fact that Maryland's implementation and reasonable assurance provisions are inconsistent with EPA guidance. According to 1991 EP A guidance, it is recommended that States include descriptions of the new controls they plan to implement in order to comply with the more stringent LAs developed in the TMDL. ". . ., nonpoint source controls may be established by implementing Best Management Practices (BMPs) so that surface water quality objectives are met. These controls should be based on LAs developed using the TMDL process."[27] "For a TMDL developed under the phased approach, States should also submit to EPA a description of the controls to be established. The schedule for data collection, establishment of the control measures, assessment for water Quality standards attainment, and additional modeling if needed." [28] EPA probably requires states to create and describe new controls and strategies for implementing TMDLs because the old controls have already proved unable to protect water quality. Yet instead of creating new controls based on the draft TMDL's WLAs and LAs, MDE plans to implement controls that have already failed to protect the Potomac River from excess PCB loading. As mentioned earlier, MDE plans to implement the same programs in effect in 2005 that resulted in levels of PCB loading five times over what the Potomac River can tolerate in order to meet WQS.[29] For the foregoing reasons, Potomac Riverkeeper requests MDE to describe what new controls it plans on implementing to meet the more stringent requirements of the draft TMDL. A good way to begin clarifying	

#	Comment	Response
	Maryland's PCB TMDL implementation strategy would be for MDE to explain how it will improve stormwater management in Maryland pursuant to the recently enacted Stormwater Management Act of 2007. The Act requires MDE to (1) promulgate new regulations and model ordinance to incorporate Environmental Site Design ("ESD") into stormwater management; (2) establish by way of rulemaking more stringent stormwater plans to meet a wide spectrum of criteria; and (3) promulgate regulations that strengthen MDE's authority to approve grading, sediment control, and stormwater management programs.[30] In the alternative, Potomac Riverkeeper requests that MDE explain in more detail how its current programs (some dating back to 1970) will enable Maryland to meet the draft TMDL's 80.0% reduction in PCB loading.	
#52	**UWAG strongly supports the proposed approach for implementing the wasteload allocations in the TMDLs.** The TMDLs provide that the States will implement the wasteload allocations using non-numeric permit requirements. More specifically: This approach will first entail additional data collection from selected NPDES permitted facilities to better characterize PCB discharges. Where warranted, non-numeric, best management practices will be implemented. These BMPs are intended to focus on PCB source tracking and elimination at the source, rather than end-of-pipe controls. (TMDLs at 11).	Comment noted.
#53	**UWAG opposes the water quality target used in the TMDLs.** As a matter of federal law, the TMDLs must be "established at a level necessary to implement the applicable water quality standards." 33 U.S.C. §1313(d)(1)(C). Here, the applicable standards include specific water column criteria adopted by the States. Instead of using these criteria as the water quality target for the TMDLs, the Commission derived *ad hoc* fish tissue concentration targets. In each jurisdiction, the fish tissue based water concentration [is] lower than the	This comment is addressed by Theme C Response.

#	Comment	Response
	current water quality standards. The fish tissue based water concentration was selected as the target concentration for [these TMDLs]. (TMDLs at 5). These *ad hoc* targets have not been adopted by the States into their water quality standards. Nor have they been approved by EPA. As a result, they may not lawfully be used as a target for the TMDLs.	
#54	**If the States elect to adopt fish tissue based criteria to serve as the water quality target for the TMDLs, then they must do so using a scientifically defensible approach.** The TMDLs rely on a fish tissue based target that is not scientifically defensible. This target was derived using (a) assumptions about bioaccumulation of PCBs in fish that are not supported by the data, and (b) bioaccumulation factors ("BAFs") that are unnecessarily conservative. **(a) Assumptions** The technical basis for the TMDLs is predicated on the following assumptions: • A calculated BAF represents a chemical's propensity to bioaccumulate, for a given species. • There is a predictable linear relationship between a calculated BAF and bioavailability [A]; in other words, the higher the BAF, the higher the bioaccumulation potential. According to the Commission, "a higher BAF will result in a lower target water concentration which should be protective of all fish species with lower BAFs." (TMDLs at 5). • There is a predictable linear relationship between levels of PCBs in water, and resulting levels in fish; in other words, there is sufficient statistical confidence that if one variable is known, the other can be calculated without bias or site-specific adjustments to account for bioavailability. [B] • Other factors affecting bioaccumulation in fish (e.g., lipid content, age or size, trophic ecology) are less	The commenter refers to Figures 6 and 7 in the main body of the draft Tidal Potomac PCB TMDL. The purpose of these figures (renumbered as Figures 7a-7c in the final report) is solely to demonstrate that current water quality standards are sometimes not protective of the fish tissue concentration threshold (i.e. samples in quadrant D pass the water quality standard but fail the fish impairment threshold). In their criticisms of the method used to derive the water and sediment PCB targets, the commenter makes erroneous inferences from these two graphs and never refers to the detailed method description in Appendix D (*"Derivation of Water Column and Surface Sediment PCB Targets"*). Information in Appendix D, and in documents written by the U.S. Environmental Protection Agency (EPA 2000, EPA 2003), is used to respond to specific statements (identified by inserted superscript letters) in the comment. [A] A "linear relationship between a calculated BAF and bioavailability" was not assumed. The field-measured, or total, BAF is the chemical concentration in the organism divided by the chemical concentration in water (EPA 2003, Eqn. 2-2). This is a simple ratio and it does not assume a linear relationship with its denominator. The species-specific BAFs used in the tidal Potomac PCB TMDL do not show a consistent or significant relationship with PCB concentration in the water. It is correct to say that species with higher BAFs (i.e. a species that has a greater potential than other species to accumulate a particular contaminant) "will result in a lower target water concentration which should be protective of all fish species with lower BAFs." [B] We did not assume that there was a predictable linear relationship between levels of PCBs in water, and resulting levels in fish. [C] We did not assume other factors affecting bioaccumulation in fish (e.g., lipid content, age or size, trophic ecology) are less important (or are not

#	Comment	Response
	important (or are not relevant) than measured levels of PCBs in water. [C] Using these assumptions, the Commission derived the fish tissue-based target using a simple, two-step process. First, the Commission calculated BAF values using measured PCB levels in various fish species and "median PCB water concentrations in the fish's home range (see caption for Figure 6, TMDLs at 34). Then, the Commission selected the fish species with the highest calculated BAF value to back-calculate (using totally linear assumption) water concentrations that would not cause an exceedance of the jurisdictions' fish tissue impairment thresholds (channel catfish in Maryland and District of Columbia; gizzard shad in Virginia). Although the Commission also calculated a sediment-based water concentration target, it did not use this target in the TMDLs. [D] UWAG disputes the Commission's assumption of a predictable linear relationship between levels of PCBs in the affected river segments and corresponding levels in fish. The Commission relies on Figures 6 and 7 to bear out this assumption, [E] but these figures are imprecise and appear to demonstrate just the opposite. The Commission does not explain the spatial and temporal correspondence between the measurement of PCBs in water and fish samples. [F] Were both samples collected on the same day? The caption for Figures 6 and 7 indicates that the PCB water levels are "…median PCB water concentrations in the fish's home range." UWAG questions the validity of such an imprecise pairing of data. In addition, both the dependent and independent variables are provided as untransformed values, suggesting that levels of PCBs in water and fish are independent, have homogeneity of variance, and have a normal (Gaussian) distribution. Levels of pollutants in water and fish tissue, however, often display a log-normal distribution (Helsel, 1990). UWAG questions why the Commission did not provide a rationale in	relevant) than measured levels of PCBs in water. [D] Several misstatements in this comment include: "using these assumptions," "a simple two-step process," "the Commission selected the fish species," "using totally linear assumptions," and "did not use [sediment-based targets] in the TMDLs." Please refer to Appendix D for a complete and accurate description of how the BAFs and water quality targets were developed by the PCB Steering Committee. [E] Figures 6 and 7 (now 7a-7c) demonstrate that current water quality standards are sometimes not protective of fish consumption (i.e. samples in quadrant D pass the water quality standard but fail the fish threshold). They do not illustrate, and were not intended to illustrate, a predictable linear relationship between levels of PCBs in the affected river segments and corresponding levels in fish. [F] The spatial and temporal correspondence between the measurement of PCBs in water and fish samples is explained in detail in Appendix D. [G] The reason for transforming data is to ensure the data are normally distributed before applying parametric statistics. There is no reason to do that in figures 6 and 7 (now 7a-7c). [H] PCB data for 23 species have been pooled to create these two figures. Therefore, the comments in this paragraph do not apply. Positive relationships are found *for individual species* between $[PCB]_{tissue}$ and $[PCB]_{water}$ and between $[PCB]_{tissue}$ and $[PCB]_{sediment}$, where there are enough data, although these results were not presented in the report. [I] See response H. BAFs for planktivore, benthivore-generalists, and predators are given in Table D-2 and D-4 of Appendix D. [J] The species used to calculate the water and sediment targets were selected because their adjusted BAFs (i.e. adjusted to a system-wide median %lipid and median [freely-dissolved PCBs]) indicate they are among the most susceptible to PCB bioaccumulation. PCBs levels in gizzard shad tissues were specifically cited as the cause of 303(d) impairments in some Virginia embayments (Virginia Department of Environmental Quality 2006).

#	Comment	Response
	support of plotting untransformed values. [G] More fundamentally, Figures 6 and 7 do not indicate a linear relationship between PCB levels in water and PCB levels in fish, an assumption that must be demonstrated in order to use the BAF back-calculation method. The scatter plot for Maryland samples (Figure 6) suggests, if anything, that fish PCB levels actually increase with lower water concentrations. At fish tissue levels at or less than the fish tissue threshold (about 90 ng/g), tissue levels are completely unresponsive to water concentrations, as indicated by the wide range of water concentrations that correspond to the fish tissue threshold. The scatter plot for Virginia samples (Figure 7) shows less variability in measured water levels, but a linear relationship between the two variables is not apparent. Like Figure 6, the scatter plot indicates that the fish tissue threshold level can be found over a range of water PCB levels, including levels that are well above the calculated water quality target. [H] Figures 6 and 7 seem to reflect fish tissue levels for a variety of fish species. A species-by-species graphing would probably be more appropriate, since different species have differences in important variables that affect PCB bioaccumulation (lipid content, trophic level, and age). [I] **(b) Factors** The Commission used fish species with the highest BAF values to set the target in the TMDLs. This approach is inconsistent with EPA guidance that favors the use of a trophic level weighted mean approach (U.S. EPA, 2003; U.S. EPA, 2006), based on actual or assumed patterns of fish species consumption. Selecting a BAF value based on gizzard shad is intuitively inappropriate, as this species is a forage, not sport (harvested) species. [J] EPA guidance also recommends the use of lipid content (in fish) and total organic carbon levels (in water) to normalize species-specific BAF values. The Commission did not do so. [K]	[K] Lipid content (in fish) and total organic carbon levels (in water) were used to normalize species-specific BAF values and calculate baseline BAFs. Please refer to Appendix D for details. [L] Baseline BAFs were calculated for each species-specific sample using the sampled fish's measured % lipid and the % freely-dissolved PCB estimated from all water samples in the species' home range area surrounding the sampling site. The % freely-dissolved PCB was calculated from measured dissolved organic carbon concentrations and PCB homolog distributions in the water column. The median Baseline BAF for each species is listed in Table D-3 of Appendix D. <u>Literature Cited</u> U. S. Environmental Protection Agency. 2000. *Methodology for deriving ambient water quality criteria for the protection of human health (2000).* Office of Water, Washington, DC. EPA-822-B-00-004. Available on-line at http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf. U. S. Environmental Protection Agency. 2003. *Methodology for deriving ambient water quality criteria for the protection of human health (2000). Technical support document volume 2: development of national bioaccumulation factors.* Office of Water, Washington, DC. EPA-822-R-03-030. Available on-line at http://www.epa.gov/waterscience/criteria/humanhealth/method/tsdvol2.pdf. Virginia Department of Environmental Quality. 2006. *Virginia 305b/303d Integrated Report to Congress and the EPA Administrator for the period January 1, 2000 to December 31, 2004*. Department of Environmental Quality and Department of Conservation and Recreation, Richmond, VA.

#	Comment	Response
	According to EPA, "[f]or a given species and exposure condition, the total concentration of a nonionic organic chemical in the tissue of an organism at or near steady state varies in direct proportion to the lipid content of the tissue of interest." (U.S. EPA, 2003, at 4-2). Further, "[a]s shown by Equation 6-1, the final baseline BAFs [for nonionic organic chemicals] are used to derive national BAFs by adjusting for the organic carbon content expected in representative U.S. surface waters and the lipid content of commonly consumed aquatic organisms. (Id. at 6-2). In short, EPA recommends the use of both organic carbon content (in water) and lipid content (in commonly consumed organisms) to adjust either national or site-specific BAF values. UWAG urges the Commission to follow EPA's recommendation in this proceeding. [L]	
#55	**UWAG supports the Commission's focus on average annual loading and urges the Commission to clarify that the average daily loading will not be implemented through NPDES permits.** The Commission properly focused on average annual loading, given that "fish tissue concentrations are reflective of exposure over time periods of season to annual length, and human health impacts occur over periods of years." (TMDLs at 8). UWAG recognizes that the Commission added daily expressions solely to comply with guidance issued by EPA in November 2006. (*Id.*). However, UWAG is concerned that these expressions could be misinterpreted or misapplied in the permitting process. To address this concern, UWAG urges the Commission to clarify its assumption and requirement that the daily loads will not be implemented through NPDES permits. Those loads may serve as valuable references for gauging whether TMDL implementation is on track, but they are not appropriate for compliance or enforcement purposes.	**Virginia DEQ response:** In adhering with EPA's June 22, 2007 Draft Guidance on Options for Expressing Daily Loads in TMDLs, at this time Virginia will not require any changes in the implementation of WLAs in Virginia Pollutant Discharge Elimination System (VPDES) permits. To further clarify, WLAs do not have to be expressed in a permit the same way they are expressed in a TMDL. **DDOE Response:** According to the EPA Memo issued on November 15, 2006, "… all future TMDLs and associated load allocations and wasteload allocations be expressed in terms of daily time increments. However, EPA does not believe that the Friends of the Earth decision requires any changes to EPA's existing policy and guidance describing how a TMDL's wasteload allocations are implemented in NPDES permits." DDOE will follow the EPA guidance in implementing the TMDL. Because the TMDL addresses impairments resulting from a long-term accumulation of PCBs in fish, annual loadings are more appropriate for compliance or enforcement purposes.
#56	<u>The Proposed TMDL Largely Ignores the True Source of the PCBs</u> A large part of the loadings (44%) is acknowledged to be from the Upper Potomac, carried past Chain Bridge to the Lower	This comment is addressed in Theme A and D Responses. All of the areas for which the assigned TMDL loads imply reductions from current levels for tributaries and direct drainage, have atmospheric deposition rates higher than the "Regional" deposition rate. Higher than regional atmospheric deposition rates suggests local, rather than distant, sources for

#	Comment	Response
	Potomac. Essentially all of the remainder appears to be from atmospheric deposition, reflected in runoff of deposition over the past decades. The proposal has addressed atmospheric deposition, but only to the open water areas (the Potomac itself, tributaries and embayments) of the lower Potomac Basin. No distinction between water surfaces and land surfaces is apparent in the mechanisms that would cause atmospheric deposition. The proposal relies on EPA's 1999 Chesapeake Bay Basin Toxics Loading and Release Inventory for atmospheric deposition rates, which we incorporated by reference. Although EPA's works also focused on deposition to water surfaces, it acknowledged that atmospheric deposition loads to land surfaces are "partially" accounted for in urban runoff estimates. Whatever the reason for this qualified conclusion, the document makes it clear that atmospheric deposition occurs over the entire Basin, including the land surfaces. Atmospheric deposition is characterized as the result of (1) wet deposition "to the earth's surfaces." (2) dry aerosol deposition "to terrestrial and aquatic surfaces." and (3) gas exchange. No information is presented that would distinguish the first two as to water and land surfaces. In fact, given the acknowledged mechanisms whereby PCBs adhere to carbon particles, it would be correct to conclude that these mechanisms are more important over land (soil being carbon-rich) than over water. The proposed TMDL attributes 3070 gm/yr of total PCBs to atmospheric deposition to water surfaces (457 sq mi). If this figure is extended to the total (3120 sq mi) area of the Basin, the total atmospheric deposition load would be 21,000 gm/yr. Combined with the upstream Chain Bridge load, this nearly exactly accounts for all of the projected loadings to the Lower Potomac Basin. Similarly, the sum of loadings projected for the tributaries. Direct Drainage, the water surface atmospheric deposition, and CSOs is a similar figure. Although we recognize the differences in atmospheric deposition loading estimates to urban, transition and rural areas, these	the atmospheric PCBs. The way to reduce atmospheric deposition is to find and clean up the local sources from which PCBs volatilize into the atmosphere.

#	Comment	Response
	numbers illustrate that the truce sources of PCB loadings are the upstream load and atmospheric deposition reflected in NPS runoff. It is arbitrary for the TMDL process to ignore atmospheric deposition to land surfaces in favor of an attribution of this part of the problem to MS4s. If atmospheric deposition is reduced, as the TMDL contemplates, MS4s and the other tributary and Direct Drainage loads will necessarily be reduced. The TMDL does not identify any historical deposition to land surfaces or runoff from historical PCB sites, and it is wrong and counterproductive to address MS4 sources as if they were somehow independent sources of PCBs. Background runoff can only be effectively addressed by addressing the underlying atmospheric deposition. The know historical PCB sites are the responsibility of the agencies to address. We would be, of course, agreeable to effective and common sense approaches to looking for additional historical PCB sites within MS4 jurisdictional areas.	
#57	<u>The TMDL Proposal Ignores Virginia's Adopted Water Quality Standards for PCBs Derived to Protect the Fish Consumption Use, in Favor of an ad hoc "Target Value" Approach</u> Virginia has an adopted water quality standard for PCBs of 1.7 ng/l, designed to protect the fish consumption use, which DEQ currently proposes to reduce through trienniel review to 640 pg/l. However, the proposed TMDL ignores this standard, adopted through the public process mandated by Virginia and federal law, and focuses on a water column "Target Value" of 64 pg/l. There is no legal basis for the use of such Target Values. Separately, the derivation of the Target Values, if there was some regulatory basis for them, was incorrect. The point of adopting numeric pollutant-specific water quality standards is for <u>those numbers to be the target values to address</u>	This comment is addressed by Theme C Response. Use of an "average" bioaccumulation factor would set the TMDL water endpoint at the "average concentrations of PCBs in certain "popular" fish species in the Potomac River as being at the acceptable target concentration of PCBs. This approach would not result in removal of the reason for the impairment (fish contamination above an acceptable level). In fact, the use of an "average bioaccumulation factor" will allow the species that are more sensitive to PCB bioaccumulation to become over contaminated above the acceptable level of contamination. The main value in using the most sensitive endpoint produced in the dataset is the Gizzard Shad serves as a surrogate value for use in protecting all other fish species for which there are limited data. When the most sensitive species are protected, then all the other species should also be protected.

#	Comment	Response
	possible use impairment. The existing numeric standards for PCBs address the specific impairment that the TMDL addresses- fish flesh contamination. Accordingly, the only legal numeric targets are the existing standards. This point is made even more obvious by reference to the Virginia Water Quality Standards Regulation authorization for alternate calculated numeric criteria, which is only for parameters for which the Commonwealth has not adopted numeric criteria. We recognize that a "Target Value" approach has been used in other parts of the country for TMDLs. The proper use of such an approach is illustrated by, for example, the Ohio regulations, which provide for use of "Target Values" only in conjunction with (1) a consideration of whether point sources are the primary contributing cause of use impairment, (2) whether the approach can reasonably be expected to lead to attainment, and (3) consideration of technical and economic reasonableness. This would appear to be an effective use of a "Target Value" approach. However, none of these factors are present in the situation addressed by the proposed Lower Potomac TMDL, underlining the error in the "Target Value" approach. If a "Target Value" approach was acceptable, the Virginia value was calculated incorrectly. The 64 pg/l Virginia water column number was determined using a Bioaccumulation Factor for only the gizzard shad (the highest factor determined). The gizzard shad is a bait fish, and not a food fish. A proper Bioaccumulation Factor for such purposes would be derived as a weighted average of factors from a representative group of fish from the Virginia embayments that are consumed by humans.	
#58	There is no Legal Basis for Establishing Wasteload Allocations Based on Pollutant Concentrations Less Than Adopted Water Quality Standards The agencies are aware that the typical approach to setting wasteload allocations is to	This comment is addressed, in part, by the Theme C Response. In addition, with respect to the comment that "there has been no showing that a reduction in MS4 sources to such PCB concentrations would be … necessary to address the use impairment", a detailed explanation of the process for determining the TMDL allocations appears in the TMDL report, Section V(1) (this explanation was not in the draft

#	Comment	Response
	set them consistent with the underlying numeric water quality standards. Although we recognize that there are situations where such WLAs may not be consistent with the correction of use impairments, it is important that the correct legal process be followed. Water quality standards need to be developed to address maintenance of beneficial uses through the designated public process. There is no point in adopted water quality standards at all, if TMDLs are going to ignore them and apply ad hoc numbers. If there was a legal basis for use of WLAs based on "Target Values" such WLAs as developed by the agencies in the Lower Potomac TMDL process would be incorrect because there has been no showing that a reduction in MS4 sources to such PCB concentrations would be either possible or necessary to address the use impairment. We understand that model sensitivity runs were performed separately (1) with all of the tributary inflows set at the respective jurisdictions' "Target Values" and (2) with all of the Direct Drainage inputs set the same. However, this procedure does not appear to address what level of MS4 reduction would be necessary for any particular TMDL result, or whether any specific MS4 systems have any positive impact on such TMDL result. Accordingly, we believe that there has been no demonstration that the MS4 wasteload allocations are necessary or even useful for achieving the TMDL goals. It appears that the approach taken to setting the TMDL WLAs and LAs was to simply set the various inputs at the "Target Values" of the jurisdiction in which the point sources and NPSs occur, and to allow the model to project (apparently after a 50-100 year period) the reduction in Lower Potomac Basin water column concentrations to below those same "Target Values". It does not appear that any determination was made as to whether such reductions were projected to be necessary in order to achieve such goals. The current approach is unacceptable for a TMDL process on which the agencies have spent substantial funds, and into which substantial efforts have	TMDL report). In this study, the external loads estimates combine MS4 and unregulated stormwater areas together into the direct drain watershed segments. There was not sufficient information to characterize MS4 areas separately. For the TMDL, the load from each direct drain area was allocated to unregulated stormwater and to regulated stormwater proportional to the fraction of developed land. In the series of model runs that were made to arrive at TMDL allocations, the impact of different levels of reductions to direct drain loads were tested repeatedly by adjustments, up and down, of load reductions from each source. These model runs showed that no reduction in stormwater loads is necessary in watersheds south of Neabsco Creek in Virginia and Piscataway Creek in Maryland. Neabsco and Piscataway Creeks and all watersheds to the north, except Pohick Creek, do require reductions in direct drain loads. Reductions to the direct drain load category were not made unless it was necessary to achieve the PCB targets. Particularly in the area immediately adjacent to the District of Columbia, where load reductions FROM ALL SOURCES were required to be above 90%, the evidence is overwhelming that significant reductions in PCBs from both regulated and unregulated stormwater is essential in order to remove the PCB impairments.

#	Comment	Response
	been placed by all involved. The TMDL at a minimum must evaluate what levels of PCB reductions are needed to bring about consistency with the underlying standards. Even using the faulty "Target Value" approach, it does not appear that the reductions that the TMDL contemplates are needed to correct the use impairments in the Virginia embayments or to address the Maryland standards or the relatively high Maryland "Target Value" in the main stem of the Potomac.	
#59	<u>The Proposal Appears to Incorrectly Anticipate Implementation Using an Unproven Non-Part 136 Analytical Method</u> The proposal discusses implementation plan development, and VAMSA agrees with much of that discussion. We agree that MS4 permits should include BMP provisions including review of the history of activities for historical presence or known spills of PCBs, and for PCB spill response programs. <u>Draft TMDL section V1(7).</u> The implementation discussion also specifies testing of outfalls and source tracking involving congener-specific data using Method 1668A. That non-EPA approved (non-Part 136) method should not be specified because its use is unnecessary and it has not been demonstrated to generate accurate data. In fact, it has been shown to generate inaccurate data, with very high Method Blank and Trip Blank values. It appears that Method 1668A, at the levels considered here, is really reporting background noise, likely influenced by non-quantifiable low levels of PCBs Congener-specific data are unnecessary because the Lower Potomac PCB impairments are not based on congener-specific data or determinations, and the draft TMDL was not developed with a congener-specific methodology. Instead, to our knowledge, the fish data on which the listings are based are non-congener-specific. The development of the TMDL focused on homolog groups rather than individual congeners, and it only focused on the homolog groups as a fool for modeling.	This comment is addressed in Theme B Response.

#	Comment	Response
	The draft TMDL itself is expressed as total PCBs. Therefore there is no value in congenerspecific data. Further, as you know, the data generated for the TMDL effort using Method 1668A have had substantial QA/QC problems. This is not surprising for a method that specifies standard quantitation levels of between 50 and 1000 pg/l for the various congeners, and where the labs have been asked to report at the 10 pg/level. The Method Blank and Trip Blank results that the agencies have seen in this effort reflect the unrealistic target quantitation levels. An initial step in the approval of new methods, or in the provisional approval by EPA of non-Part 136 methods, is an interlab validation study. As DEQ discovered at its second (June 11) meeting of its PCB Monitoring TAC, there has been no validation study and none is planned. We submit that no validation study is planned because EPA knows that such a study would fail to validate the method. Under these circumstances the TMDL should not specify the use of this non-Part 136 method. Fortunately, the search for historical or other PCB "hot spots" by definition accurate, approved Part 136 methods. Finally, laboratory analyses specified by NPDES permit must be by Part 136 methods, 40 CFR 136.1, unless there has been an Alternative Test Procedure approval, id. 136.5. There has not been an Alternative Test Procedure approval for Method 1668A. These legal requirements are in place for a reason - to make sure that high quality data are employed in the NPDES program and in decision making that will affect regulated parties. If EPA wishes to quantify PCB effluent or water column data at very low levels, it is incumbent on EPA to develop a method that will do that accurately.	
#60	**<u>The Department Should Either Correct the Errors in the Proposal, or Withdraw MS4 Wasteload Allocation and Implementation References</u>** Because of these serious problems with the	This issue is addressed in the Tidal Potomac PCB TMDL under Introduction. The findings and recommendation are based on the best available data at the time along with scientifically proved methods (refer to Theme B, C, and D Responses). The Federal Clean Water Act (CWA) requires

#	Comment	Response
	TMDL as proposed, the agencies should take one of two different courses for the Virginia portions. First, the agencies could work to correct the various technical and regulatory deficiencies, and generate a new proposal that focuses on the actual sources of PCBs, and with results that are shown to in fact be necessary for water quality standards consistency. Alternatively, we ask that the agencies adopt the overall tributary and Direct Drainage Load Allocations determined to be necessary, but specifically not adopt any specific WLAs or purport to conclude that any MS4 WLAs would necessarily reflect effluent concentrations below the applicable Virginia water quality standards. This approach would also allow Virginia to independently focus its further efforts and a Virginia-only implementation plan on the true sources of PCBs. We would also ask that the Department of Environmental Quality commit to determine, more accurately and more specifically than has been done in the initial effort, where PCB reductions are needed to attain the relevant standards.	each state to identify those water bodies whose quality does not meet minimum criteria for designated uses in documents commonly referred to as 303(d) lists. The CWA further requires that a Total Maximum Daily Load (TMDL) be determined for each Water Quality Limited Segment (WQLS) and each impairing substance on the Section 303(d) List, which the TMDL report does. A TMDL reflects the loading of an impairing substance a waterbody can receive and still meet water quality standards which is the combination of a designated use for a particular body of water and the water quality criteria designed to protect that use. In this case, Virginia's designated uses and general standard are not being met (9 VAC 25-260-10 & -20). The TMDL itself establishes categorical WLA for MS4s by jurisdiction to address direct or indirect communities that likely discharge into the tidal Potomac River. This information, along with the existing loadings specified, show the PCB reductions necessary to attain water quality standards (9 VAC 25-260-10 & -20). The TMDL does not require PCB minimization plans and related activities. Rather, the TMDL report discusses various strategies to implement the TMDL WLAs to reduce PCB discharges from point sources as addressed in the Tidal Potomac PCB TMDL under Section VII(6), Implementation and Reasonable Assurance Provisions for Virginia.
#61	**The Proposed TMDL is Arbitrary and Does Not Comply with EPA's Regulations** EPA's regulations require that TMDLs be established at levels necessary to attain and maintain compliance with applicable water quality standards. 40 CFR 130.7©)(1). Therefore, a TMDL which is established at a level that is either more or less stringent than necessary to comply with water quality standards does not comply with EPA's regulations. As explained below, although developed through the same multi-state process, the proposed TMDL is really three different TMDLs for the same pollutant for the same body of water. All three purport to protect the same beneficial use (human consumption of fish), yet each would allow different exposures to PCBs from fish taken from the same body of water. Therefore, the proposed TMDL is arbitrary and does not comply with EPA's regulations because allowing different exposures to PCBs from	This comment is addressed by Theme F Response.

#	Comment	Response
	fish taken from the same body of water can not possibly provide for attainment and maintenance of the beneficial use that the TMDL is designed to protect. The table below summarizes the fish, fish tissue and water concentrations used to establish the target water concentration for PCBs for the District of Columbia (D.C.), Maryland, and Virginia. The data show that D.C. and Maryland both used the same fish to establish target PCB concentrations. However, Maryland's target PCB concentration is more than four times larger than D.C.'s. While this is not explicitly addressed, the TMDL implies this is due to selection of different cancer risk factors and impairment thresholds for PCBs. Fish and water in the river do not stop at jurisdictional boundaries. The proposed TMDL would allow a fish with an acceptable level of PCB in Maryland to be unacceptable in the District. Consequently, the inescapable conclusion is that if adopted as proposed, the TMDL will result either in fish tissue concentrations that are unsafe for human consumption or that is more stringent than necessary to protect those consuming fish taken from the tidal Potomac and Anacostia rivers. Either way, it would be inconsistent with EPA's regulations and arbitrary to adopt the TMDL as proposed. The proposed TMDL should be withdrawn and a new TMDL should be developed around one set of criteria, factors and assumptions for all three jurisdictions. |	Fish Selected	Fish Tissue PCB Impair-ment Threshold	PCB Water Quality Std (ng/L)	BAF- based Target PCB Water Conc. (ng/L) | |---|---|---|---|---| | DC | Channel catfish | 20ng/g tissue | 0.064 | 0.059 | | MD | Channel catfish | 88 ng/g tissue | 0.64 | 0.26 | | VA | Gizzard Shad | 54 ng/g tissue | 1.70 | 0.064 |	

#	Comment	Response
#62	**"Target Values" are Inappropriate** The District of Columbia Water Quality Standards (WQS) require that in-stream PCB concentrations to be 0.064 ng/L for PCB. The TMDL concluded that a concentration of PCBs lower than the water quality standard was required to protect human health from fish consumption. The TMDL then adopted a "target value" for DC waters of 0.059 ng/L. TMDL loads were established based on the Target Value, not the value in the water quality standards. In effect, the TMDL is attempting to change the water quality standards without the process required by federal and District of Columbia law. The TMDL must be based on existing water quality standards and cannot be used as a back door way to change the standards. By adopting target values in lieu of the water quality standards, the allocated PCB loads to Blue Plains and the CSO system are lower than would otherwise by required.	This comment is addressed by Theme C Response.
#63	**Use of D.C. Highest 30-Day Average Concentration is Incorrect** For Maryland and Virginia waters, the TMDL indicates the PCB concentration was established such that the annual median water concentration was at or below the water target concentration. In contrast, the TMDL indicates that D.C. regulations require the highest 30 day average water concentration not to exceed the water target and that this value was used to establish the TMDL in the District. Under the D.C. water quality standards, the design flow basis for the numeric standards is the harmonic mean flow, not the highest 30 day average water concentration. Therefore, the TMDL should be revised to establish allowable PCB concentrations based on the harmonic mean flow. The approach used in the TMDL results in allocated PCB loads to Blue Plains and the CSO system that are lower than would otherwise be required.	See Response to Comment #22
#64	**Consider all PCB data for Blue Plains** Five samples of Blue Plains complete	The sample collected on 4/26/2007 was provided to the TMDL development team on June 26, 2007, after the model had been calibrated and too late to be included in the analysis.

<table>
<tr><th>#</th><th>Comment</th><th>Response</th></tr>
<tr><td></td><td>treatment effluent (Outfall 002) were analyzed for PCBs and the resulting data was made available to DOE. These analyses are summarized below. The TMDLs indicates that each wastewater treatment plant was assigned a constant PCB concentration based on he mean of all samples collected. For Blue Plains, we understand the mean was developed based on samples #1 through #4 in the table below. Sample #5 was not used. By not considering Sample #5, and incorrect existing PCB load has been used for Blue Plains. The TMDL should be revised to consider all data available for Blue Plains.

<table>
<tr><th>Sample No.</th><th>Sample Date</th><th>PCB total Concentration (ng/L)</th><th>Comments</th></tr>
<tr><td>1</td><td>6/1/2006</td><td>2.770</td><td></td></tr>
<tr><td>2</td><td>7/14/2006</td><td>1.318</td><td></td></tr>
<tr><td>3</td><td>7/27/2006</td><td>1.223</td><td></td></tr>
<tr><td>4</td><td>10/18/2006</td><td>1.387</td><td></td></tr>
<tr><td>5</td><td>4/26/2007</td><td>0.347</td><td>Not consid-ered in TMDL</td></tr>
<tr><td></td><td>Median</td><td>1.35</td><td></td></tr>
</table>

Further, given the paucity of PCB data for Blue Plains, its large range, and high levels of PCBs directed in laboratory blanks, median values are more appropriate than arithmetic averages to characterize PCB concentrations.</td><td>The WLA assigned to Blue Plains is based on the water target value, not on the average of samples collected, so this sample result has no bearing on the WLA. The model runs that determined the TMDL load allocations showed an effluent concentration of 0.059 ng/l at Blue Plains is necessary to meet the water quality target. This concentration is far below any of the sample results from 2006 or Spring 2007.</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>#65</td><td>Credit Pass-Through PCBs

Presentations made by the Interstate Commission on the Potomac River Basin (ICPRB) indicate total PCB concentration in the River upstream of D.C. to be in the range of 1 to 3 ng/L. Finished potable water sample collected by the Fairfax County Water Authority and Washington Aqueduct indicate PCB concentrations in the range of 0.3 to 1.3 ng/L (see table below). The median of total PCB samples collected at Blue Plains effluent was 1.35 ng/L. This data demonstrates that a significant portion of the PCBs in the Blue Plains effluent is a pass-through from the Potomac River. This portion of the PCB load should be credited since the source of the</td><td>This comment is addressed by Theme E Response.</td></tr>
</table>

<table>
<tr><th>#</th><th>Comment</th><th>Response</th></tr>
<tr><td></td><td>impairment is the receiving water itself and not the collection system.

<table><tr><td>Plant</td><td>Water Source</td><td>PCB total Concentration</td></tr><tr><td>Fairfax Water - Corbalis</td><td>Potomac</td><td>0.552</td></tr><tr><td>Fairfax Water - Griffith</td><td>Occoquon</td><td>0.798</td></tr><tr><td>Fairfax City</td><td>Goose Creek</td><td>1.227</td></tr><tr><td>Washington Aqueduct</td><td>Potomac</td><td>0.442</td></tr><tr><td>Washington Aqueduct</td><td>Potomac</td><td>0.349</td></tr></table></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>#66</td><td>Direct PCB Control to its Source

The TMDL indicates that point sources comprise only 2% of the load source of PCB, while upstream sources comprise 44%. As indicated in our comments above, a significant portion of the PCBs in point sources is “pass-through” from water withdrawals from the Potomac River. As a result placing controls on point sources such as wastewater treatment plants will not be an effective strategy for removing PCBs. The TMDL set the effluent PCBs for all wastewater treatment plants at the target concentration for PCBs for the associated receiving water, regardless of effectiveness. However, the proposed TMDL appears to recognize that plant effluent PCB concentrations will decline over time due to reduced PCB concentrations in intake water if the upstream sources of PCBs can be controlled sufficiently to meet the standard at the intake point. The foregoing provides more than ample support for revising the implementation provisions of the TMDL to make clear that PCB controls will be directed at upstream sources rather than the wastewater treatment plants. In summary, the TMDL implementation provisions should be revised to require load reduction where it will have a real impact - nonpoint source and upstream loads.</td><td>As described in the response to Comment #19, model runs that had PCB inputs only from wastewater treatment plants showed that these point sources will, at design flow and 2005 PCB effluent concentration, consume all or a significant fraction of the PCB assimilative capacity in some impaired water bodies. In certain cases, PCB load reductions from point sources achieved by source tracking and elimination may be necessary. Ultimately, more information is needed to draw conclusions on the issues of pass-through and source reduction. This information will be compiled through additional effluent testing as well as source water testing.</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>#67</td><td>At most, TMDL Implementation for the</td><td>The Steering Committee agrees with the implementation</td></tr>
</table>

#	Comment	Response
	Plants Should be Limited to Non-numeric, BMP-based WQBELs. In the event the agencies are unwilling to defer all TMDL implementation provisions for wastewater treatment plants as proposed above, we request that, at the very least, the TMDL make clear that it will be implemented for point sources through narrative effluent limitations expressed as BMPs rather than numeric effluent limitations. There is ample precedent for such an approach to PCB TMDL implementation. In December 2006, EPA approved a TMDL for PCBs for Zone 6 of the Delaware River. The Delaware TMDL recognized the complexity of addressing PCBs, the limited data available, the time restrictions imposed by consent decree requirements to develop the TMDL, and the benefits that could be provide by staging the TMDLs. The staged approach allows for additional monitoring and modeling during stage 1 in order to define appropriate PCB controls and wasteload allocations. The TMDL found that water quality-based effluent limits (WQBELs) should include non-numeric best management practices (BMPs) as the most appropriate way to identify and control PCB in the environment. This approach is also applicable to PCBs in the Potomac River. In the Potomac, the sources of PCBs are unclear, accurate information on PCB concentrations for the many sources is not available, the availability and effectiveness of controls are not well established and the movement of PCBs through the various components of the environment (e.g. river to potable water to wastewater) is not well established.	approach noted by the commenter. Section VII(2) of the TMDL report clearly establishes use of non-numeric water quality-based effluent limits as the intended approach for implementing the WLAs established in the TMDL. One significant difference between the Delaware River PCB TMDL and that for the tidal Potomac River is the staged approach adopted in the Delaware River Basin versus an adaptive implementation approach for this TMDL. This adaptive approach is described in Section VII of the TMDL report.
#68	It would be much more equitable to put a cap on any PCB sources that do not require reductions. Significant reductions are being required of some sources, while other sources are being given considerable latitudes.	Load allocations, either WLA or LA, are assigned to all PCB sources whether or not these allocations imply reductions from current levels.
#69	There is concern that the two States and the District of Columbia have different standards and targets based on different assessments of the risk posed by PCBs.	This comment is addressed by Theme F Response.
#70	Atmospheric and drinking water sources must	EPA has approved several PCB TMDLs over the past seven

#	Comment	Response
	also be addressed. A Total Maximum Daily Load is designed to identify and reduce ongoing sources of pollution. New production of PCBs was banned in 1979. The TMDL process is not an appropriate vehicle for addressing PCB pollution and cannot address it alone.	years including the Shenandoah River PCB TMDL, the Delaware River Estuary PCB TMDL, and others. The TMDL process is an appropriate vehicle for addressing PCB contamination in water bodies as it attempts to address all contributing sources within a watershed, while other programs address only site or media specific (waste, air, water) influences. The TMDL process is the most comprehensive vehicle available to address these matters. However, it is agreed the Potomac Estuary PCB TMDL process cannot address PCB pollution alone. The TMDL is designed to address the necessary goals for PCB reductions in order to remove fish consumption advisories throughout the estuary and delist these waters from the 303(d) impaired waters list. Other programs – current (superfund, state hazardous site programs, etc.) and those yet to be established - will be responsible for TMDL implementation. Cross-program coordination to address all sources of PCBs in the Potomac River watershed is critical for successful implementation. Please see the TMDL Section VII. (TMDL Implementation and Reasonable Assurance) for references on TMDL implementation. Please see the response to Theme A Response regarding your comment on atmospheric deposition and Theme E Response for drinking water.
#71	It is strongly felt that because the PCBs are a legacy pollutants from which local governments have had limited interactions with, it is the Commonwealth's responsibility to institute and provide for monitoring efforts. Representatives from the Virginia Department of Conservation and Recreation have commented in a number of public forums that they expect to "request" local government "assistance" for PCB sampling by those jurisdictions with waste load allocations.	The Commonwealth of Virginia intends to continue monitoring of the PCB impaired Water Quality Limited Segments. The monitoring will be implemented in accordance with existing DEQ monitoring programs and guidance and will be dependent upon available resources. DEQ envisions working with stakeholders to develop and implement these monitoring programs. With respect to requests or requirements for low-detection level PCB monitoring of stormwater, in Virginia it is anticipated that stormwater sources regulated under the NPDES program will focus efforts on tracking potential PCB sources. This tracking will first entail review of historical activities and land use identifying potential high-risk areas. Water, sediment and soil testing are options that can be employed for source tracking. However, the primary mechanism for identifying potential PCB sources is through historical land use and records review. Section VII(6) of the final report discusses this general approach in more detail.
#72	The TMDL should identify and distinguish between "controllable" and "uncontrollable" sources of PCBs for municipal separate storm	The concept of a staged approach for TMDL implementation has been widely applied throughout the Commonwealth of Virginia. The staged approach is implemented through an

#	Comment	Response
	sewer systems (MS4s) and other sources. The Four Mile Run bacteria TMDL used this approach to set realistic expectations on what is achievable to reduce bacteria loadings in the watershed. This TMDL articulated a phased approach for implementation, with the first phase to focus on the "controllable" loads – an interim target for implementation with a reasonable likelihood of success. Under this first phase, "all controllable sources [will] be reduced to the maximum extent practicable using a staged approach." A similar approach should be articulated in the PTC TMDL so that all parties have a common understanding of what can be achieved through available control technologies.	iterative process targeting sources with the largest impact on water quality. This staged approach has many benefits, including: 1. It enables tracking of water quality improvements following BMP implementation through follow-up stream monitoring; 2. It provides a measure of quality control, given the uncertainties inherent in computer simulation modeling; 3. It provides a mechanism for developing public support through periodic updates on BMP implementation and water quality improvements; 4. It helps ensure that the most cost effective practices are implemented first; and 5. It allows for the evaluation of the adequacy of the TMDL in achieving water quality standards. It is important to note that this approach often adopts interim goals, such as achieving an exceedance rate of a conventional water quality parameter, that would allow for an impaired Water Quality Limited Segment to be removed from the §303(d) impaired waters list. In the case of a PCB fish tissue impairment, these types of interim milestone goals are not as clearly established. There is not yet precedence in Virginia for implementation of this type of TMDL study. Additionally, specific implementation measures for application in the lower Potomac River Basin have not yet been explored. There are TMDL projects in other regions of the country, such as the Delaware River, where there have been clear successes in identifying and tracking of PCB sources. Development of a TMDL Implementation Plan will provide the mechanism for establishing the details of implementation, which would likely include a staged approach for TMDL implementation developed with local stakeholder input. Until the Implementation Plan is developed, the NPDES permitting program will be the primary vehicle for establishing implementation measures for the tidal Potomac River PCB TMDL.
#73	The TMDL sediment modeling effort relied heavily upon the United States Environmental Protection Agency's Chesapeake Bay Model. This component of the model has been acknowledged by Chesapeake Bay staff members to be extremely weak with respect to sediment/substrate interactions and fate and transport; thereby raising questions as to the modeling of the PCBs through the estuary.	The PCB TMDL model does not represent transport and fate of sediments or suspended solids. The sorbent dynamics component of the model represents particulate organic carbon in two forms, biotic (algal) carbon and particulate detrital carbon. The sum of these two particulate forms represents total particulate organic carbon. Part of the sorbent dynamics model relied on the Phase 5 Watershed Model (WM5) developed by the U.S. EPA Chesapeake Bay Program. Specifically, the WM5 was used to develop watershed loadings of particulate organic carbon. As noted in the response to Comment #14, particulate organic

#	Comment	Response
		carbon loads from the watershed during the model calibration period (2002-2005) were only 3.8% of the total particulate organic carbon loads to the water column. Most (96.2%) of the particulate organic carbon loads to the water column were from internal primary productivity and did not depend on the WM5 model. Another part of the sorbent dynamics model relied on the second-generation, Chesapeake 2000 (C2K) Bay Water Quality Model. Specifically, results from the C2K model were used to specify internal loading of biotic (algal) carbon to the water column from primary productivity. The C2K model was judged acceptable by the Model Evaluation Group, an independent panel consisting of scientists and modeling practitioners, and was used to develop the baywide caps on nutrient and solids loadings in the Chesapeake 2000 Agreement. The PCB TMDL model itself was successfully calibrated to available field data for biotic (algal) carbon, particulate detrital carbon and PCB3+ in the Potomac and Anacostia Rivers. Upon consideration of the overall weight-of-evidence from a suite of different quantitative metrics, the Steering Committee judged that the model was scientifically credible and acceptable for use in developing the PCB TMDL.
#74	It is our understanding that this TMDL must be delivered to USEPA for its approval and then delivered to the District Court of the District of Columbia by the end of the month of September. There are concerns that such an accelerated time frame will result in a limited technical review of the proposed draft TMDL by USEPA in order to fulfill a court imposed deadline.	The USEPA requested and received an extension until October 31, 2007 for submittal of the TMDL to the Court, in order to allow sufficient time to complete the process. The schedule calls for submission of the TMDL to the USEPA Region 3 office by September 28. This will allow the USEPA thirty days (required by the Clean Water Act) to complete its review prior to submission to the Court at the end of October
#75	Staff members also endorse the Virginia Municipal Stormwater Association's position that the draft TMDL should be changed to acknowledge the true source of the problem, historical contaminations and atmospheric deposition, and that the TMDL specifically note that "the tributary and "Direct Drainage" Load Allocations proposed do not imply any reduction in MS4 loadings other than any reductions that may be possible through (state or federal) remediation of current or historical PCB site issues. This would necessarily include an acknowledgement within the Virginia portion of the TMDL, that any MS4 wasteload allocations implicitly are at levels	This comment is addressed in Theme A and D Responses. See also the response to comment #56, which was submitted by VAMSA.

#	Comment	Response
	that reflect the background source of the PCBs and the inability of MS4 owners to influence such loadings."	
#76	Page xi of the Executive Summary states that the "PCB sources were identified", but this is not an accurate statement. Flow and TSS loads into the estuary were quantified, and PCB loads were estimated based on those quantities using a regression equation. The TMDL fails to identify any sources in the tributaries, including the Potomac at Chain Bridge. These estimated loads are simply assigned reductions without identifying or quantifying point and nonpoint sources within each watershed.	See the response to comment #6.
#77	The first table on page xii of the Executive Summary presents the bioaccumulation factors (BAFs) calculated by each jurisdiction and Appendix D describes how they were derived. While we understand the logic behind the BAFs, the two States and the District of Columbia have established water quality standards that should be used to develop the TMDL. If the existing water quality standards are not protective of fish tissue, each jurisdiction has an established process for changing water quality standards that should not be bypassed.	This comment is addressed in Themes C and F and the response to comment #7
#78	Wastewater plants in general, and specifically the Noman M Cole Jr. Pollution Control Plant, are not responsible for PCB health hazards in the Potomac River. In fact, our data indicates the Cole Plant to be in compliance with Virginia Water Quality Standards for PCBs. Even if wastewater met the proposed waste load allocations, this would not result in removing the PCB health hazards in the Potomac. Based on this information, it is our position that the Cole Plant has been incorrectly included in the PCB TMDL and waste load allocations and target numbers should not be imposed on the Plant.	Please see the response to comment #19. The wastewater treatment plant isolation runs showed that, by itself, the Noman Cole PCP, at design flow and baseline (2005) PCB concentrations will use 99% of the PCB assimilative capacity of the receiving waters. Therefore, a WLA for the Noman Cole facility is both appropriate and necessary.
#79	The TMDL process has been rifled with controversy from the initial stages of using unapproved test methodology with poor quality assurance and only a few data points	The jurisdictions contend that this TMDL has been developed using appropriate methods and the best available data and modeling tools. See Theme B Response regarding the sample test methodology. Appendix A of the TMDL report describes

#	Comment	Response
	for critical data collection and using models which were not developed for this application.	the data that were used and how they were used.
#80	The data manipulation of the PCB cogeners to total PCBs has also come under fire.	See response to comment #25.
#81	Other examples of questionable practices include lack of consideration of drinking water inputs. With limited data, we have seen instances of PCBs in drinking water at levels above wastewater effluent and no consideration has been incorporated for this loading contribution.	This comment is addressed by Theme E Response.
#82	...target values were calculated incorrectly using a bioaccumulation factor (BAF) for an inappropriate fish. Our findings, based on years of monitoring, indicate White Perch to be a more appropriate species for the BAF calculation and this finding has been supported by academics and researchers. Correspondingly, target values are not water quality standards and should not be used to determine waste load allocations just as unapproved analytical methodology should not be used for compliance purposes.	This comment is addressed by Theme C Response and the response to comment #57. With respect to "inappropriate fish", high PCB levels in Gizzard shad are specifically mentioned as a cause of the 303(d) listing in most of the Virginia impairments. The TMDL must calculate load allocations that will remove the cause of an impairment listing.
#83	The list of complications and questionable TMDL inputs and processes is lengthy. For these reasons, we suggest the agencies reconsider moving forward with the proposed TMDL at this time and withdraw Virginia until points of contention can be adequately addressed and made acceptable. A reasonable approach to achieving acceptability has recently been forwarded to David Paylor, Director of Environmental Quality (letter from VAMWA dated August 13, 2007 with copy to you).	The Potomac PCB TMDL is going forward to meet the schedule contained in DC's Consent Decree. This TMDL effort has provided Virginia an opportunity to have a TMDL developed for Virginia's 19 impaired embayments at a very low cost to the Commonwealth. Considering the multiple interstate sources, the complexity of the Potomac TMDL, and the tremendous amount of resources required for this TMDL, it would be very difficult to justify Virginia withdrawing from this effort based on points of contention that the agencies are addressing and hope to resolve.
#84	UOSA would like to emphasize that, as explained in the VAMWA comments, although all wasteload allocations (WLAs) should be withdrawn, it is incorrect to propose WLAs for most POTWs, while leaving UOSA without an individual WLA. Our understanding is that the lower Potomac PCBs TMDL considers the UOSA allocation as	The TMDL study area is the Potomac River estuary. The PCB loadings and the POTPCB model were developed to characterize and represent the dynamics of the estuary. A breakdown of the individual sources, either point sources or nonpoint sources, contained within the tributary loading category is not within the scope of this study. While the calculation for the USOA waste load allocation (WLA) is presented in Table 9 in the TMDL report, it is presented only

#	Comment	Response
	implicit or included within the load allocation of the Occoquan River. The UOSA effluent analysis showed very low total PCBs concentration, however, that fact should not penalize UOSA by providing for no individual WLA. To the extent that the TMDL includes POTW WLAs, the TMDL should be revised to make it clear that UOSA's WLA is based on the design flow and the adopted water quality standard for PCBs.	for reference purposes. It would not be appropriate to include a specific WLA because the complexities of delivery of PCB loadings to the estuary through Bull Run and the Occoquan Reservoir. The assignment of a WLA to UOSA would require an associated reduction in the Occoquan River tributary loading which cannot be accurately computed at this point. It is important to note that Bull Run, the receiving stream for the UOSA discharge, is currently on the §303(d) list of impaired waters for not supporting the fish consumption use due to elevated levels of PCBs in fish tissue. A TMDL to address this impairment is scheduled to be completed by 2014. The Bull Run PCB TMDL will include a specific WLA for the UOSA facility.
#85	We urge DEQ to make decisions based on solid scientific and regulatory principles that will result in true benefits to the water quality of the Potomac River and the citizens of the Commonwealth.	This comment is addressed in Themes B and C. The Steering Committee utilized sound science and complied with applicable regulations during the development of the Potomac River TMDL. Extensive effort was applied to the consistent collection, analysis and interpretation of effluent and ambient water samples. Proper quality assurance was applied and if specific data did not meet the requirements, the data were discarded.
#86	**Use of Target Values:** One goal of developing the TMDL through the Interstate Commission on the Potomac River Basin (ICPRB) was intended to coordinate the effort and prevent public misunderstanding if three approaches using different models and assumptions reached different conclusions. Late in the PCB TMDL development, target values were proposed and used to develop TMDL allocations for wastewater treatment plants. The target values appear arbitrary as they are based on different species of fish depending on the jurisdiction. The Channel catfish was used for District of Columbia and Maryland, and the Gizzard Shad for Virginia. The use of different fish species resulted in a more stringent PCB target value for Virginia to which ASA objects. Further, Channel catfish have a different fish tissue impairment threshold for PCB in DC than in Maryland. The use of different species of fish and using different fish tissue impairment thresholds seems to contradict the ICPRB's originally stated goal of coordinating the effort and in the opinion of ASA serves to undermine the technical basis of the TMDL.	This comment is addressed in Theme F Response. See also the response to comment #82.

#	Comment	Response
#87	**Impact of atmospheric deposition:** The TMDL document states: "With the Urban boundary at Hunting Creek, the median annual estimate of net atmospheric deposition directly to Potomac estuary waters is 3,160 g/yr of total PCBs." In revised Table F-3 ASA's PCB base load is 16.7 g/yr and the TMDL is 4.77 g/yr. The main source of PCBs appears to be air deposition rather than point sources. Reducing the PCB concentration in Alexandria effluent from 0.5% of the atmospheric deposition to 0.15% may not result in a significant improvement to water quality.	This comment is addressed in Theme A Response.
#88	**Pass through of PCBs were not considered in development of the TMDL:** ASA was presented data by the ICPRB that indicate the historical load of PCBs to the Lower Potomac River are accounted for in the upstream Chain Bridge load and the regional atmospheric deposition. When sampled in March 2006, ASA's effluent PCB concentrations were within the range of concentrations measured in the source water. ASA suggests that the presence of PCBs in the source water needs to be a consideration in development of TMDL allocations for wastewater treatment plants.	This comment is addressed in Theme E Response and response to comment #18.
#89	**Unrepresentative effluent sampling:** ASA'S TMDL allocation is based on three samples that were collected with a 2 week period during dry weather. The results do not represent all weather conditions and are not representative of annual conditions as would be appropriate for a TMDL based on an annual loading period. Further, the Woodrow Wilson Bridge ramp construction occurred during monitoring events and it is not known how this may have affected the results.	It is acknowledged that the effluent samples collected and analyzed for PCBs at point sources are not representative of variable weather and flow conditions. Although effluent data are critical in determining the PCB loads from the point sources, these data were not used to set the TMDL allocations. Instead, the Potomac River TMDL Steering Committee utilized a common NPDES Waste Load Allocation approach which entails multiplying the facility design flow by the jurisdictional water target to yield the facility specific TMDL allocation.
#90	**PCB TMDL seems to be based on insufficient data:** In the PCB TMDL, the implementation phase will require PCB monitoring to collect data to fill "key data gaps". If key data gaps exist in the data set used to develop the TMDL, ASA suggests that the accuracy of the results of the evaluation	The TMDL was developed using all data that were available and appropriate. An acknowledgement of key data gaps should not be interpreted as meaning that no useful analysis can be done. Any estimate based on environmental data is subject to some uncertainty. In this case, the difference between the current estimate of loads and the much lower level of loads required to meet water quality targets is so large that the

#	Comment	Response
	based on those data is questionable and the interpretation and use of the results reflect the uncertainty, particularly with respect to numerical TMDL allocations.	Steering Committee is confident that load reductions are necessary. In addition, the Adaptive Management approach to implementation allows for adjustments as new data are collected.
#91	In closing, ASA voices serious concerns regarding the process used to develop the PCB TMDL for the Lower Potomac River.	See response to comment # 85**.**
#92	The TMDL should identify and distinguish between 'controllable' and 'uncontrollable' sources of PCBs for municipal separate storm sewer systems (MS4s) and other sources. The Four Mile Run bacteria TMDL (http://www.novaregion.org/4MileRun/TMDL/4mr_TMDL_5-31-02.pdf) used this approach to set realistic expectations on what is achievable to reduce bacteria loadings in the watershed. This TMDL then articulated a phased approach for implementation, with the first phase to focus on the 'controllable' loads - an interim target for implementation with a reasonable likelihood of success. Under this first phase, "all controllable sources [will] be reduced to the maximum extent practicable using a staged approach." A similar approach should be articulated in the PCB TMDL so that all parties have a common understanding of what can be achieved through available control technologies	See response to comment # 72**.**
#93	In addition, the TMDL should provide more detail on which control technologies actually remove PCBs from stormwater runoff and from other sources. In order for there to be a possibility that the extreme PCB reductions called for in the TMDL can be achieved, there first must be control technologies identified and available that can remove PCBs from point and non-point sources.	It is not the intent of the TMDL to place emphasis on identifying control technologies to reduce or remove PCBs from storm water and other sources. Rather, methods and approaches for PCB track down, removal or implementation of other remedial alternatives will be identified within the required and forthcoming Implementation Plan (Code of Virginia Section 62.1-44.19.7). Also refer to response to comment #70.
#94	CBFO believes that the implementation and attainment of the allocations outlined in the document will result in substantial benefits to Department of the Interior trust resources, specifically migratory birds, endangered species, interjurisdictional anadromous and catadromous fish, and National Wildlife Refuges. CBFO is supportive of the implementation approach that should result in	Comment noted.

#	Comment	Response
	high quality water column discharge data by requiring the use of updated methods. In the past, little value has been obtained through discharge monitoring for PCBs because of insensitive methods. It is hoped that these data will be useful for PCB source tracking and elimination.	
#95	The USFWS CBFO provided twelve editorial comments to clarify text, tables, and figures.	All of these comments were taken into account in writing the final report.

FIGURES SUPPORTING RESPONSE TO COMMENT 19

The eight figures on the following pages show results from two model runs that isolate the impact of wastewater treatment plants (WWTPs) on equilibrium PCB concentrations in the tidal Potomac. For the first model run, all PCB sources except WWTPs were set to zero. The WWTP PCB input loads were determined by baseline (current) PCB concentration and facility design flow. Baseline PCB concentrations were used to show what impact on tidal PCB concentrations there might be if there is no change in PCB levels discharged by WWTPs. Design flows were used because that is the flow condition for point sources that the TMDL is designed for. Following the procedure used for TMDL scenario model runs, the model was run to quasi steady state equilibrium and the final year median PCB concentration (final year high 30 day average in DC) was compared to the water quality targets. Results are plotted in separate charts for the Potomac mainstem, the Anacostia River, Virginia side embayments, and the Maryland side embayments. Also shown on the charts are the names of WWTPs with the model segment number that each one discharges to.

The second model run, results shown in Figures RTC5 – RTC8, differs from the first in that PCB discharge from Blue Plains WWTP was set to zero. This was done so that the impact of other WWTPs on PCB levels in tidal waters could be identified more clearly.

From these charts one can see

a) That Blue Plains at baseline PCB concentration and design flow will cause water quality targets to be exceeded in multiple model segments;
b) That Blue Plains has a strong influence downstream and even into the Anacostia River;
c) That even when Blue Plains PCB discharge is set to zero, other facilities account for an appreciable fraction of the PCB assimilative capacity (defined as PCB concentrations up to the water target limit) in receiving water segments; and
d) That facilities other than Blue Plains have an impact on model segments beyond the segment the facilities discharge into.

From these model runs the Steering Committee concludes that wastewater treatment plant discharges do have an impact on PCB levels in tidal waters and that reductions in PCB levels from selected facilities are a necessary part of the solution to the PCB contamination problem.

An additional WWTP isolation model run was made, with Blue Plains PCB discharge concentration set to the DC water target level. Those results are not shown here because the first two model runs are sufficient to show that PCB discharges from WWTP facilities have an impact on PCB levels in the impaired water bodies.

Figure RTC 1: WWTP Isolation model Run LT_wwtp3

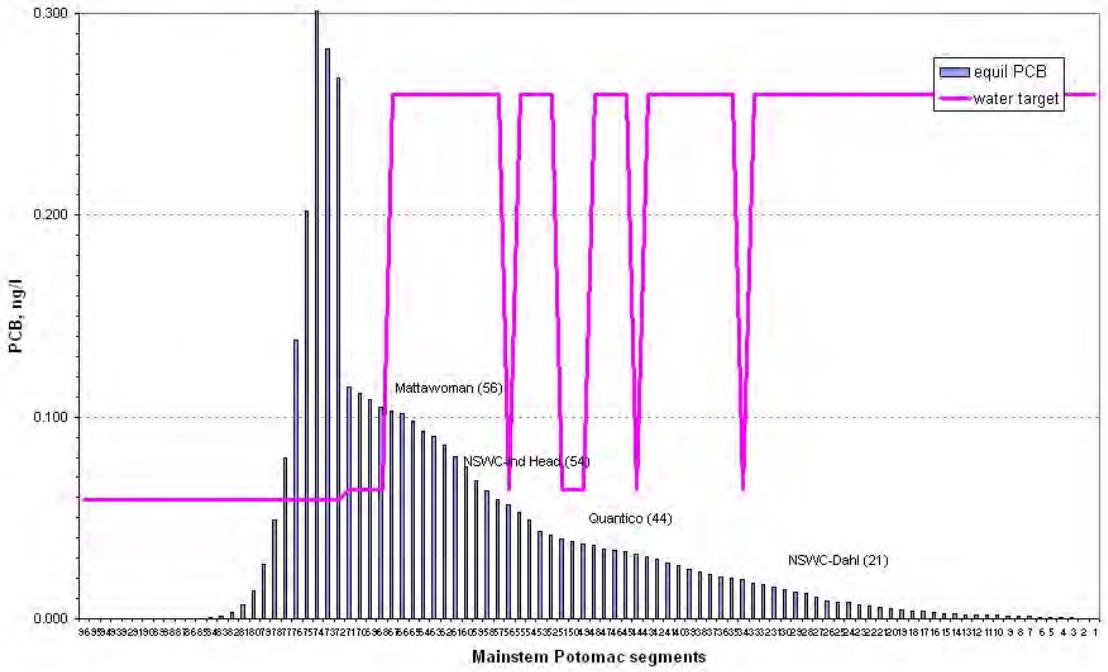

Figure RTC2: WWTP Isolation model Run LT_wwtp3

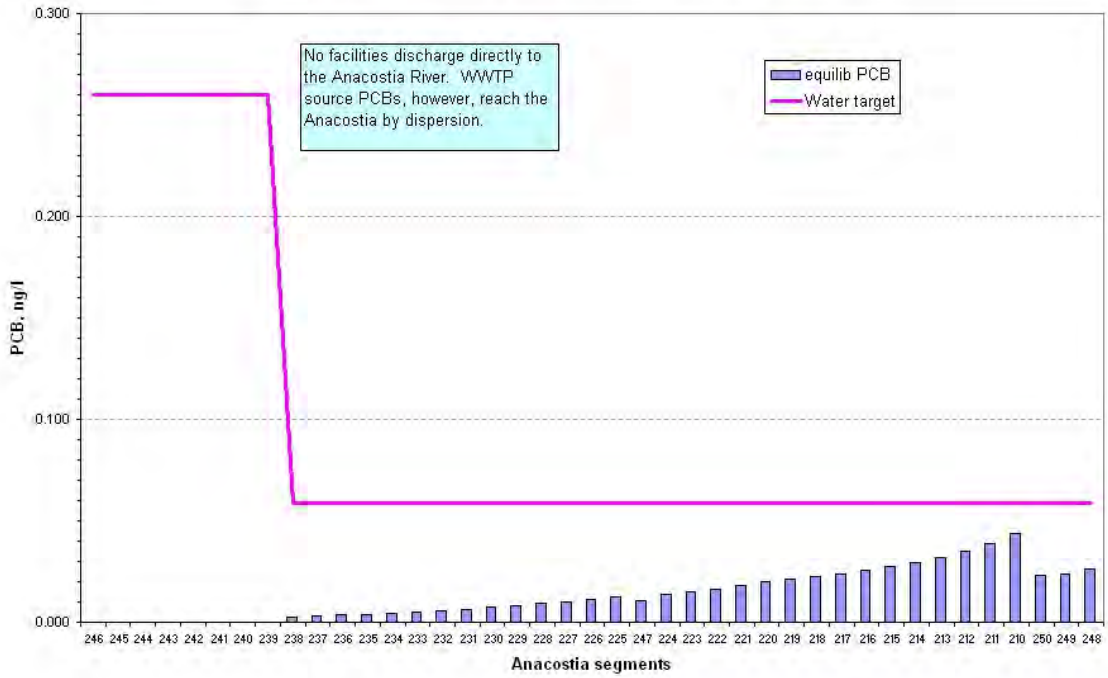

Figure RTC3: WWTP Isolation model Run LT_wwtp3

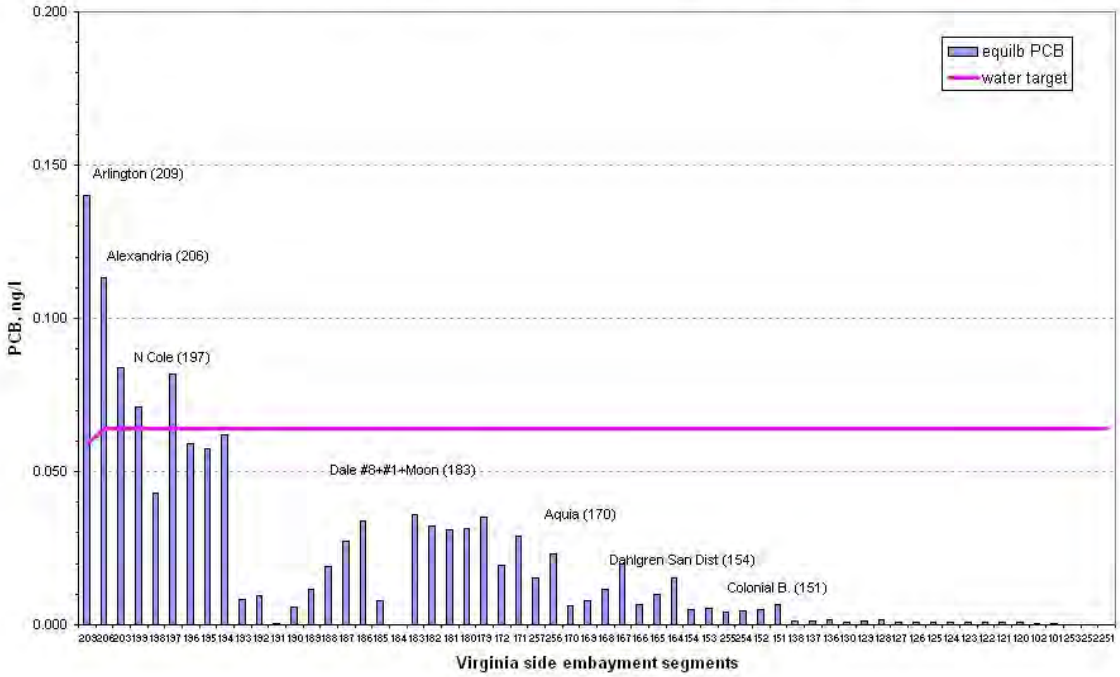

Figure RTC4: WWTP Isolation model Run LT_wwtp3

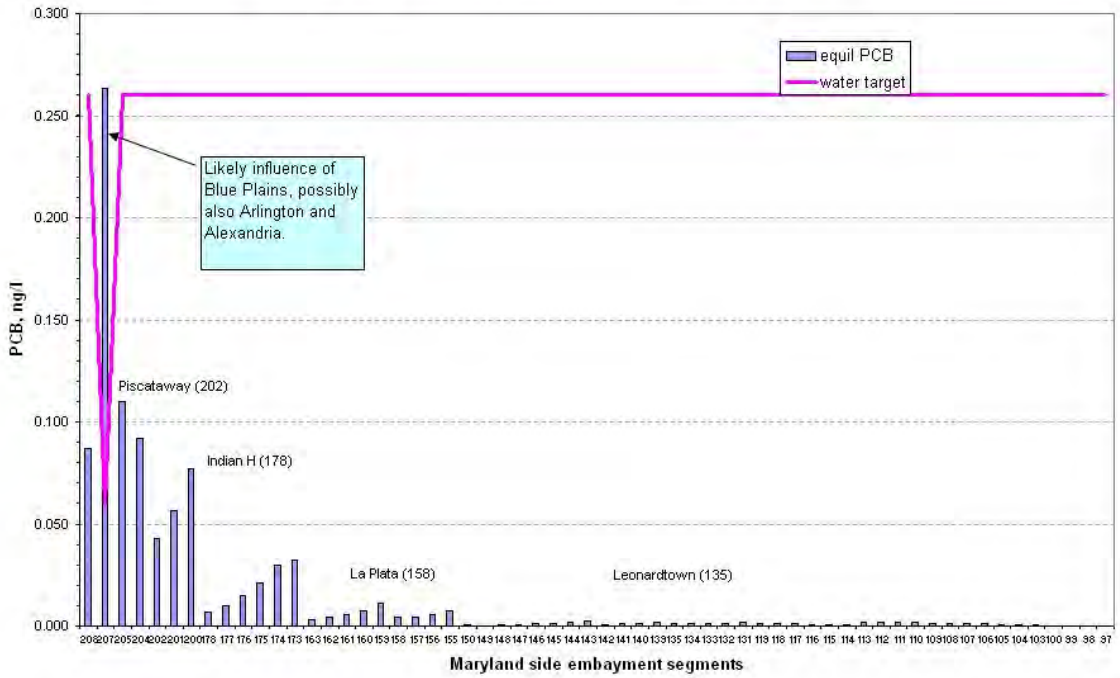

Figure RTC5: WWTP Isolation model Run LT_wtp5

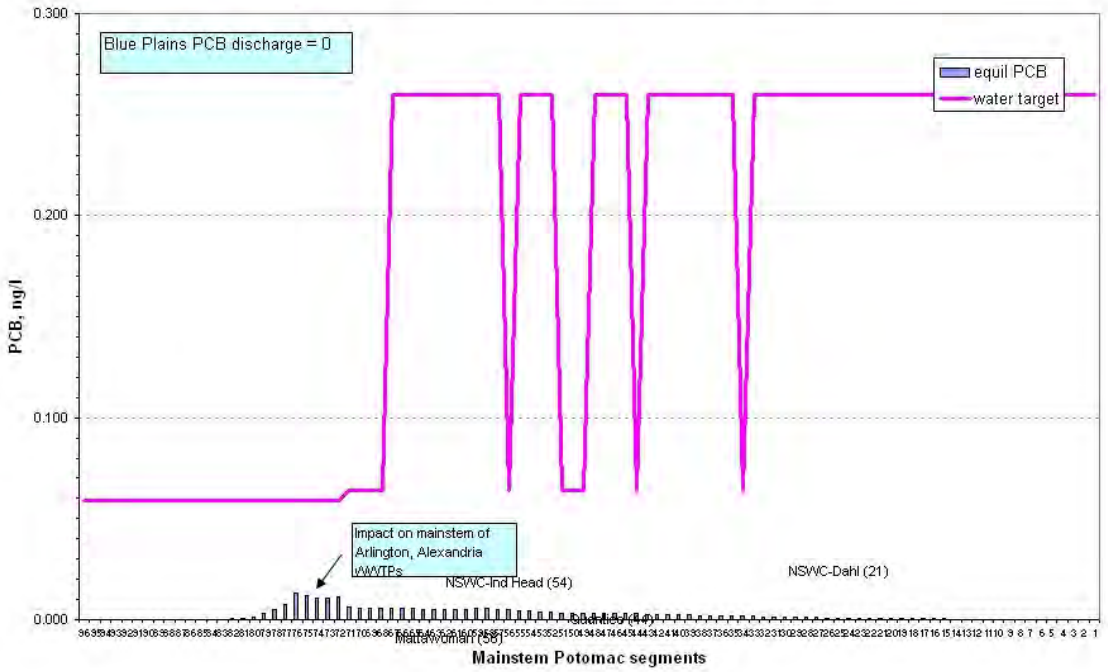

Figure RTC6: WWTP Isolation model Run LT_wtp5

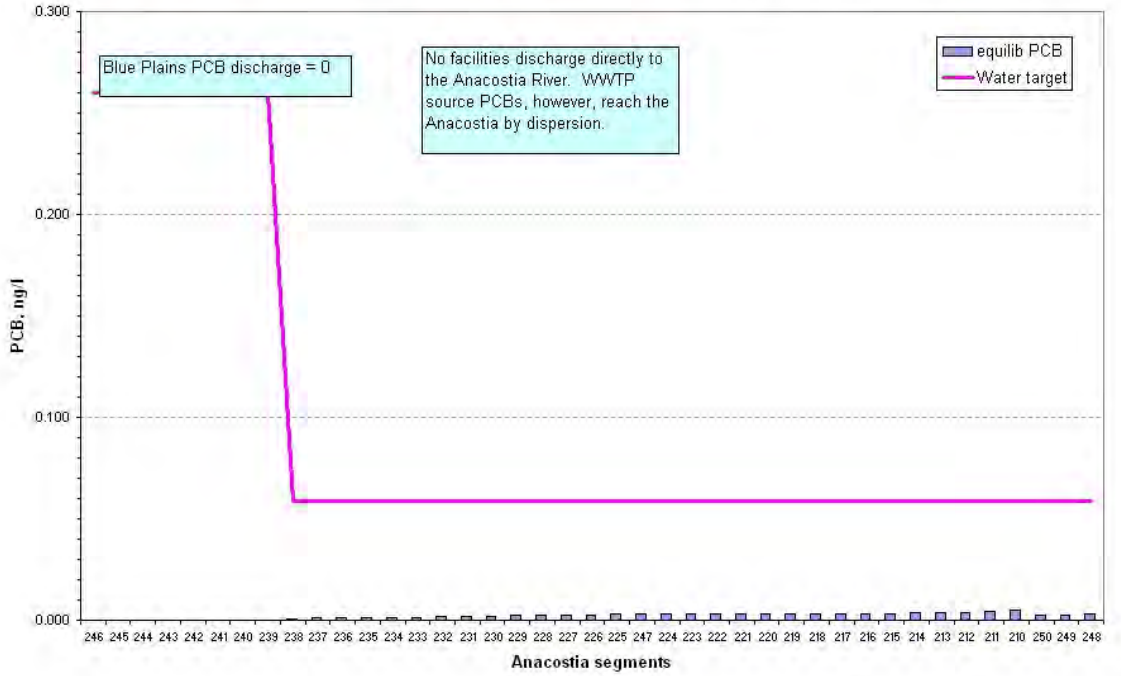

Figure RTC7: WWTP Isolation model Run LT_wwtp5

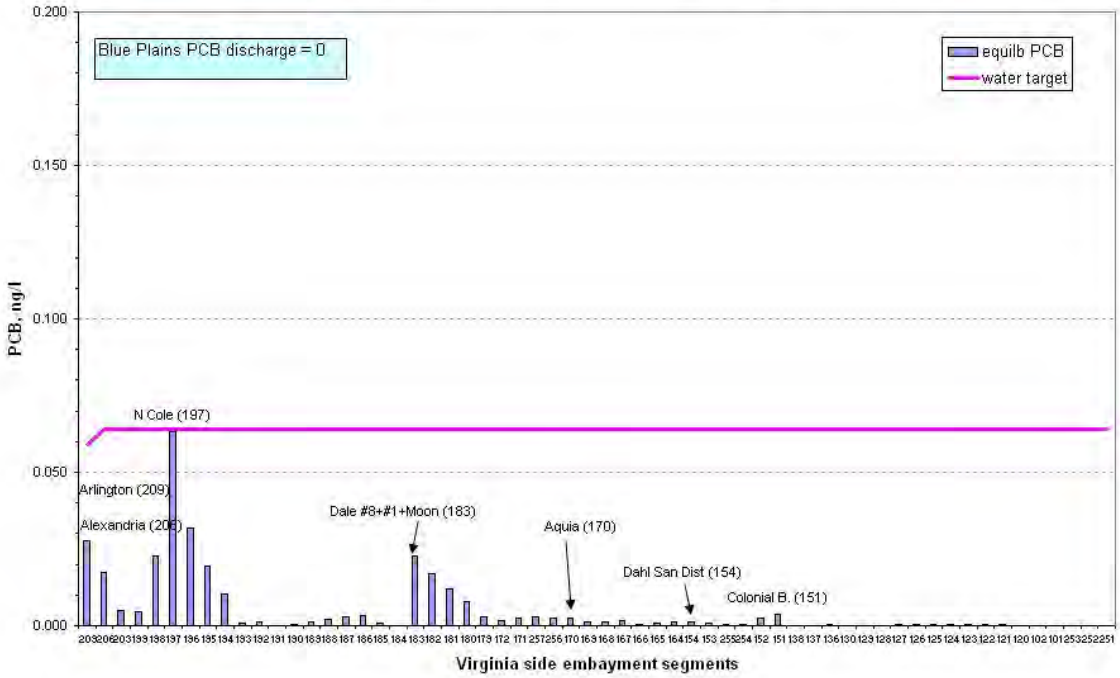

Figure RTC8: WWTP Isolation model Run LT_wwtp5