Comment Response Document
Regarding the Total Maximum Daily Load of Polychlorinated Biphenyls in Lake Roland of Jones Falls Watershed in Baltimore County and Baltimore City, Maryland

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Load (TMDL) of Polychlorinated Biphenyls (PCBs) in Lake Roland of Jones Falls Watershed. The public comment period was open from August 19, 2013 through September 17, 2013. MDE received four sets of written comments.

Below is a list of commentors, their affiliation, the date comments were submitted, and the number referenced to the comments submitted. In the pages that follow, comments are summarized and listed with MDE's response.

Author	Affiliation	Date	Comment Number
Mr. David Flores	**Baltimore Harbor WATERKEEPER/Blue Water Baltimore**	**9/16/2013**	**1 - 2**
Mr. Stuart Stainman	**Patapsco/Back Tributary Team Chair**	**9/16/2013**	**3 - 5**
Mr. Larry Zeafla & Ms. Elise Butler	**Robert E. Lee Park Nature Council**	**9/17/2013**	**6 - 9**
Mr. Robert Shreeve	**MD State Highway Admin.**	**9/17/2013**	**10 - 15**

Comments and Responses

1. The Commentor states that a lack of wet-weather, and overall limited, tributary and water column data leads to likely underestimation of PCB baseline concentrations in TMDL modeling.

   The Commentor states that quarterly sampling (4 sampling events total) for PCB did not produce wet-weather associated PCB data for sampling stations in Lake Roland and its contributing tributaries.[1] This apparent lack of wet-weather data leads to likely underestimation of baseline PCB concentration in Lake Roland water column and tributary streams for the its largest sources, "Non-regulated Watershed Runoff" (47.77% of Total Baseline Load) and "NPDES Regulated Stormwater" (41.3% of Total Baseline Load).[2] The TMDL asserts without citation to relevant scientific literature that "…acute exposure to temporary fluctuations in PCB water column concentrations during storm events is not a

[1] Leonard Schugam, MDE. Sept. 10, 2013. Pers. Comm. at Information Briefing for "TMDL of Polychlorinated Biphenyls in Lake Roland of Jones Falls Watershed in Baltimore County and Baltimore City, Maryland."

[2] MDE. 2013. "TMDL of Polychlorinated Biphenyls in Lake Roland of Jones Falls Watershed in Baltimore County and Baltimore City, Maryland." 31.

significant pathway for uptake of PCBs."[3] However, assuming that storm fluctuations in water column concentrations of PCB do not result in significant, immediate PCB uptake by finfish, stormwater runoff from non-point and point sources is still the primary pathway for loading of PCB-contaminated sediments to the Lake Roland embayment. MDE's decision to neither measure nor account for PCB resuspension and diffusion from these deposited sediments further compounds the underestimation of PCB loading to the Lake Roland system, resulting in inaccurate and underestimated baseline load allocations for contributing non-point and point sources.

Response

MDE samples non-tidal stations quarterly for PCB analysis to characterize levels during high and low flow as hydrologic conditions change seasonally. The intention of this collection is to capture conditions throughout the entire flow regime. In Appendix C (Method used to estimate watershed tPCB load) a flow frequency curve is presented which demonstrates that samples were collected under mid to high flow conditions. While samples were not collected during storm events, they are still representative of the high flow regime and will therefore not underestimate the baseline watershed load. In addition, as these samples were not taken during low flow, an average of these concentrations results in a load estimation that is considered conservative. A margin of safety (MOS) is also applied in this TMDL to take into account uncertainties within the model resulting in additional reductions to watershed loadings to account for potential underestimation. Federal guidance also stipulates that TMDLs are to be developed using the best readily available data and analytical tools (40CFR130.7).

MDE does account for PCB resuspension and diffusion from deposited sediments. The water quality model simulates exchanges between the water column and sediment from resuspension, diffusion, and settling. The water quality model simulates conditions within the water column and sediment as a single system therefore exchanges between the sediment and water column are defined as an internal loading. Only external sources to the system are assigned baseline loads and allocations within a TMDL. Please refer to Appendix D (Numerical Model Description) for an explanation of these modeling parameters. The sediment has a significant influence on levels of PCBs within the water column due to diffusion and resuspension as demonstrated in the model time series (see Figure 10 on page 26). The water column TMDL endpoint is only achieved when levels in the sediment are reduced to a concentration of 10.5 ng/g. The model predicts that this will occur within 19 years following full implementation of load reductions. This demonstrates that PCBs within sediments will be reduced slowly over time as freshly deposited sediments with lower levels of PCBs bury sediments with greater contamination. As these sediments are buried within deeper layers they are no

[3] MDE. 2013. "TMDL of Polychlorinated Biphenyls in Lake Roland of Jones Falls Watershed in Baltimore County and Baltimore City, Maryland." 27.

longer available for exchanges with the water column through resuspension and diffusion. Therefore, over time, as the concentrations in surficial sediments decline, so will the concentrations in the water column, eventually resulting in achievement of the water column TMDL endpoint. While the loadings from the sediment are not assigned a baseline load or allocation within the TMDL as they are not directly controllable they are still an integral part of the modeling framework and significantly influence conditions required to meet the TMDL. The water quality model simulates conditions within the water column and sediment as a single system therefore exchanges between the sediment and water column are defined as an internal loading. Only external sources to the system are assigned baseline loads and allocations within a TMDL.

2. The Commentor states that impervious cover restoration requirements under the Municipal Separate Storm Sewer System (MS4) permits are not a satisfactory proxy for PCB source tracking and contaminated site remediation as suggested by the Draft TMDL.

The Commentor states that restoration of impervious cover under the MS4 permits does not address PCB contamination without first determining the source and location of PCB-contaminated soils. The proposed TMDL fails to cite any relevant research suggesting that the sediment removal efficiencies for impervious cover restoration BMPs are positively correlated to PCB source elimination. In fact, it is as likely that impervious cover removals or excavations associated with implementation of bioretention retrofits could uncover previously-undetected PCB-contaminated soils, which had been previously contained by the impervious cover or upper soil layers. Therefore, any approval of alternative BMP water quality based effluent limits must be predicated on fact-based demonstration that "numeric effluent limitations are infeasible," because defensible BMPs and monitoring (e.g., PCB source tracking and elimination) are technically infeasible.[4] Approval of BMPs for impervious cover restoration to meet PCB effluent limits may be warranted but only if predicated upon enforceable schedules for source tracking and positive identification of contaminated sites to justify that the proposed BMP will result in a reduction of PCB.

Response:

Neither the Clean Water Act (CWA) nor current U.S. Environmental Protection Agency (EPA) regulations obligate states to develop detailed implementation plans as part of the TMDL development or approval process. Instead, the goal of a TMDL is to determine the maximum amount of a given pollutant that a waterbody

[4] "(iii) Any request for this waiver must be submitted when applying for a re-issued permit or modification of a re-issued permit. The request must demonstrate through sampling or other technical information, including information generated during an earlier permit term that the pollutant is not present in the discharge or is present only at background levels from intake water and without any increase in the pollutant due to activities of the discharger." Code of Federal Regulations. 2013. 40 CFR 122.44(k) http://www.gpo.gov/fdsys/pkg/CFR-2011-title40-vol22/pdf/CFR-2011-title40-vol22-sec122-44.pdf (Accessed September, 2013).

can assimilate and still attain its designated uses. Therefore, specific remediation plans are beyond the scope of this TMDL.

In addition, this TMDL does not suggest that impervious cover restoration under MS4 permits would replace the need for PCB source tracking and contaminated site remediation. The Assurance of Implementation section suggests that there is the potential for impervious cover restoration currently required under the Phase I MS4 permit to reduce PCBs associated with sediment loadings. It is common knowledge that PCBs are hydrophobic and adsorb to the organic carbon fraction of suspended sediments. While no scientific studies have been referenced within this TMDL regarding the reduction of PCBs associated with sediment removal efficiencies, there is still the potential for PCBs to be removed through these restoration practices contributing to watershed load reductions of PCBs. The TMDL does not suggest that PCB implementation plans required under MS4 permits will incorporate BMPs for impervious cover restoration to meet PCB effluent limits. PCB source tracking should be an integral component of any MS4 PCB implementation plan in order to identify and eliminate sources of PCB contamination within the NPDES stormwater regulated portion of the watershed.

3. The Commentor states that MDE can increase samples of sediment and fish tissue in streams flowing into Lake Roland by coordinating with the DNR MBSS staff who periodically take samples in these streams.

Response:

MDE thanks the Commentor for the suggestion of coordinating with the Department of Natural Resources (DNR) MBSS Program to increase PCB sediment sampling. However, DNR MBSS staff does not collect sediment samples for laboratory analysis of organic compounds. The purpose of sediment sample collection by the MBSS program is for identification of benthic organisms. MDE sampling protocols for PCB analysis require clean collection techniques defined in Standard Operating Procedures (SOPs) to ensure samples are taken properly without introducing contamination. As the DNR MBSS staff do not apply these collection protocols in the field it would be infeasible for them to collect samples for MDE. Fish tissue samples are collected by MDE from impoundments, 5th order streams or greater and tidal waters to support listing assessment, fish consumption advisories, and PCB TMDL support. DNR staff only collects fish in 1st order through 4th order streams to support MBSS surveys. Coordination between MDE and DNR for the collection of fish or sediment samples would not be beneficial for TMDL development.

4. The Commentor states that the Jackman Army Reserve Armory located on Greenspring Avenue is in the Jones Falls watershed flowing into Lake Roland and may be a source of PCBs that should be investigated.

Response:

MDE identifies all contaminated sites with the potential to transport PCBs within the Lake Roland watershed based on information gathered from EPA's Superfund database and MDE's Land Restoration Program Geospatial Database. The Jackman Army Reserve Armory was not identified within these databases as a potential source of PCBs and therefore no baseline load or allocation was assigned. If in the future, this site is identified as a potential source of PCBs through source tracking or review of historical records indicating the potential for contamination, the facility will be accounted for under the TMDL implementation plan.

5. The Commentor states that if not already provided, signs should be posted advising Lake Roland fishermen of fish consumption limits due to a number of toxic substances in the water.

Response:

MDE did post signs for fish consumption advisories in the past but found them to be ineffective as they were typically vandalized or stolen. Also it is infeasible to post signs for all waterbodies with fish consumption advisories within the State of Maryland due to limited resources. Signs were only posted in the Baltimore Harbor and Anacostia River where fish tissue concentrations of PCBs were the highest in the State and subsistence fishing was most prevalent. A list of all the fish consumption advisories can be found on MDE's web site:

http://www.mde.state.md.us/programs/marylander/citizensinfocenterhome/pages/citizensinfocenter/fishandshellfish/index.aspx

6. The Commentor states that transport characteristics and storage capabilities of PCBs in sediments were not addressed in the Public Notice Draft.

The Commentor states that Public Notice Draft assumes that transport of PCBs between sediments and the water column is a steady state process with no net effect on the PCB concentration in the water column. A number of transport mechanisms can be hypothesized including conventional diffusion mechanisms and pore water transport. What is completely unclear and neither quantified nor justified is the effectiveness of these transport mechanisms. Highly efficient mechanisms with deep sediment penetration can be used to equate PCBs in the sediment with PCBs in the water column. Conversely, extremely shallow or inefficient transport mechanisms result in PCBs being locked in the sediments and not directly impacting the PCB levels in the water column.

We are aware that multiple scientific papers have been published that analyze PCB transport mechanism. An extremely cursory review would indicate that actual transport mechanisms are more complex and are composed of several interacting processes.

Functionally related to transport mechanisms are the rates of PCB decomposition in sediment and the PCB concentration profile with respect to sediment depth. With very inefficient transport mechanisms, the concentration in deeper levels is dependent upon earlier sedimentation concentrations and decomposition rates.

A further contributing factor is the total volume of contaminated lake sediments which provide a measure of the amount of PCBs potentially available for future suspension. We are aware that other states have used dredging to remove PCB contaminated sediments. The dredging of the Hudson River for PCB remediation is a well-known example. Based on the fact dredging is required in the Hudson, we can deduce that PCB transport in sediment is inefficient and therefore that surface PCB concentrations are a poor predictor of buried concentrations.

Response:

MDE accounts for PCB resuspension and diffusion from deposited sediments and the model does not assume that transport of PCBs between sediments and the water column is a steady state process with no net effect on the PCB concentrations in the water column. Please refer to the response to comment 1 for additional information.

PCB levels in sediments of the Hudson River were several orders of magnitude greater than levels found within the Lake Roland impoundment. Therefore, they are not representative of conditions within Lake Roland. GE capacitor manufacturing plants located on the Hudson River historically released over 500,000 lbs of PCBs directly into the river resulting in significant levels of PCB contamination within the sediment. Dredging of the Hudson River was conducted under the Superfund program in order to restore water quality as natural attenuation alone would not have been sufficient to reduce PCB concentrations to levels supportive of fish consumption. The TMDL for Lake Roland establishes that the implementation of load reductions and natural attenuation within the sediment over a 19 year period will result in water quality supportive of the “fishing” designated use. MDE will consider all options for PCB remediation including dredging when developing the TMDL implementation plan. If sediments were dredged within the Lake Roland impoundment, load reductions would still be required under the TMDL though water quality supportive of the “fishing” designated use would be achieved in a much shorter time frame. When considering dredging as an option, the risk versus benefit must be weighed as the removal of contaminated sediment may potentially damage the habitat and health of the existing benthic community.

7. The Commentor states that the Public Notice Draft assumes stable sediment conditions and does not address the impact of dynamic changes in sedimentation.

The Commentor states that it is well known that the sediment in Lake Roland is subject to at least three different dynamic mechanisms.

- The volume of sediment in Lake Roland has been steadily accumulating. In fact the Lake has lost nearly half its surface area in the past several decades with the remainder of the lake becoming dramatically shallower. This demonstrates that for particulate matter, the sedimentation/resuspension process is far from steady state equilibrium. This ongoing silting is expected to continue.

- Much of the water from the tributaries feeding Lake Roland is from urbanized land with impervious surfaces leading to the rapid and dramatic increase in volume during a rain event. These dynamic changes in flow potentially result in downcutting and other significant reworking of Lake Bottom topography with the associated abrupt resuspension of sediments, some of which may have been undisturbed for many years.

- Unlike most watersheds, the vast majority of sediments are contained behind a single dam. As such, there is the potential for a catastrophic failure resulting in the abrupt resuspension of massive qualities of older sediments. Maryland contains a significant percentage of dams that are considered hazardous, although the list of which dams are considered hazardous is now a government secret only available to qualified government agencies. It is known that Lake Roland was considered highly hazardous before major repairs and improvements were made in 1994. While it is true that flooding from a dam breach would result in a major disaster for Baltimore, the report should consider if or how released PCBs would affect the TMDL.

The Commentor states that it is critical to understand the effects of the dynamic sedimentation/resuspension mechanisms in order to understand the PCB sediment concentration profiles and associated transport mechanisms. Based on the Hudson River implications, we are concerned that the very limited number of sediment surface samples evaluated were collected from very new sediments and are not representative of the typical conditions. We recommend that several sediment cores be evaluated for deep sediment PCB concentrations. Based on both the continuing sediment deposition and the obvious potential for down cutting and scouring, we recommend the use of a state hydrologist to evaluate sedimentation and future flow patterns in order to select the optimum locations for core samples.

The Commentor also recommends the use of dam safety data to determine if PCB resuspension from a dam breach should be considered. Non-public data on the hazard potential for Lake Roland Dam should be available from the MDE Dam Safety Program. We are aware that the USGS has updated estimates of seismic probabilities which should be incorporated into the dam safety evaluation.

The Commentor notes that section 4.1 “Nonpoint Sources” of the Public Notice Draft states that the load from re-suspension and diffusion from bottom sediments is not “presented as a baseline load or allocation within the TMDL.” We believe that this is only true for steady state conditions with certain ranges of transport efficiencies. We know that sedimentation is not at steady state and we have doubts about the sediment transport rate for PCBs. While it may be true that sedimentation/resuspension is not a controllable process, it appears to be a non-zero input to the overall concentration of PCBs in the water column.

Response:

Sediment samples were collected in two locations within the center of the Lake Roland impoundment, where sediments should be relatively stable and representative of conditions throughout the impoundment. These locations are not influenced by downcutting and scouring that would occur in shallower waters where inflowing streams and watershed runoff enter the waterbody. Sediment core samples are unnecessary for development of this TMDL as the surficial sediment samples are representative of the sediment depth at which resuspension and diffusion occurs. Core sampling could be useful in the future under the implementation plan to determine if dredging is an acceptable option for remediating PCBs within the sediment, depending on the depth of contamination and associated cost of removal.

The potential for a dam breach and its impact on PCB resuspension is speculative and falls outside the scope of the TMDL. A TMDL can only be developed based on existing conditions within the impoundment. A scenario involving dam failure would result in the release of all impounded water and completely alter the hydrologic conditions within the impoundment. The PCB TMDL would no longer be applicable under these conditions and resuspended sediments would transport downstream. This scenario would not be applicable for TMDL development.

The TMDL does not assume that transport of PCBs between sediments and the water column is a steady state process with a non-zero input to the overall concentrations of PCBs in the water column. The model predicts under baseline conditions a net tPCB transport of 207.6 g/year from the sediment to the water column through resuspension and diffusion processes (see section 4.1). Please refer to the response to Comment 6 for more additional information.

8. The Commentor states that the Public Notice Draft should contain a brief section to help add context to the PCB conditions of the Lake Roland watershed.

During the public meeting, the Commentor states that the comparison to PCBs in other watersheds very useful to them in understanding the magnitude of the problem. While it is well known that PCBs are a problem, context really helps in being able to understand the seriousness of the Lake Roland problem. Comparisons with the Baltimore Harbor and Delaware River help to show that in both size and severity, the Lake Roland watershed has a relatively minor PCB problem.

Response:

The primary function of a TMDL is to establish the assimilative capacity of a waterbody for a specific pollutant. The TMDL is defined as the Total Maximum Daily Load of a contaminant that may enter a waterbody without violating water quality standards. Within the context of a TMDL it is not necessary to present load

reductions with respect to other TMDLs to provide perspective on the extent and severity of contamination. However, the document does state that a 91.5% reduction is required within the Jones Falls watershed in order to achieve water quality within the Baltimore Harbor, which is much greater than the 29% reduction necessary to achieve water quality alone within the Lake Roland impoundment.

9. The Commentor states that the Public Notice Draft should contain a brief section addressing future actions.

The Commentor understands that the Public Notice Draft uses certain data to create a baseline PCB TMDL for Lake Roland. In addition, it establishes load reductions for atmospheric deposition and non-regulated water runoff. However, loads from re-suspension and diffusion from bottom sediments are not assigned an allocation or a required reduction. It would seem prudent in the future to conduct testing of sediments and to assess options for remediation.

To that end the Commentor recommends that the Public Notice Draft address the potential for partial or complete dredging of Lake Roland. The effects of lake dredging have been discussed including its effects on turbidity, chlordane levels, and recreation. The release of PCBs during dredging has not been a major consideration, even though dredging has continued to be an option. The possibility of dredging is specifically mentioned in the Baltimore County Land Preservation, Parks and Recreation Plan (the LPPRP). (See LPPRP Appendix C). Dredging cost was estimated at $12 million in the LPPRP. This report appears to be the obvious vehicle for commenting on the potential benefits and detriments of PCB levels related to sediment disturbance if dredging would be undertaken.

The Commentor states that a section on future actions also provides the logical place to mention other ways of making improvements. An example from the presentation is the use of passive sampling techniques that both lower the sampling cost and provide a measurement of concentration levels integrated over several weeks.

Response:

Loadings due to resuspension and diffusion from bottom sediments are not assigned an allocation as they are not a directly controllable load. (Refer to the response to Comment 6 for additional information.) Even if the allocation was presented, it would not provide guidance in support of dredging as a management practice for reducing PCBs in sediment. This allocation would simply define a net loading from the sediment to the water column at which time the water column TMDL endpoint is achieved. The water quality model does predict the PCB sediment concentration at which the TMDL is achieved based on the required load reduction therefore if the sediment was dredged to a depth at or below this concentration the waterbody would be supportive of the “fishing” designated use. MDE will consider all options for PCB remediation including dredging when developing the TMDL implementation plan. Please refer to the second paragraph in the response to Comment 6 for additional information.

MDE does agree that it would be beneficial in the future to conduct additional monitoring of sediments and to assess options for remediation though this will be addressed through the development of a PCB implementation plan as it falls outside the scope of the TMDL. The TMDL already includes a section for Assurance of Implementation, which provides preliminary guidance on implementing this TMDL in the future. Specific details on future actions will be established within the framework of an implementation plan and not the TMDL. The primary function of a TMDL is to present load reductions necessary to achieve water quality standards supportive of the designated use within a waterbody.

The potential benefits and disadvantage of dredging the Lake Roland impoundment will be addressed under the PCB TMDL implementation plan as it will require additional research and investigation which falls outside the scope of this TMDL. In addition, the option to apply passive sampling as a source tracking method will also be addressed within the implementation plan.

10. The Commentor quotes from the draft TMDL: "PCBs are still being released to the environment via accidental fires, leaks, or spills from older PCB-containing equipment; potential leaks from hazardous waste sites that contain PCBs; illegal or improper dumping; and disposal of PCB containing products (e.g., transformers, old fluorescent lighting fixtures, electrical devices, or appliances containing PCB capacitors, old microscope oil, and old hydraulic oil) into landfills that are not designed to handle hazardous waste." The Commentor states that accidental or illegal disposal or spills of PCBs from old storage facilities or hazardous waste sites or leakage from transformers represent significant potential point sources of PCBs. The loading from these sources tends to be episodic and sporadic and therefore difficult to detect with routine sampling and monitoring. It is conceivable that the loading of PCBs from a single spill or other incident could equal or exceed the total annual PCB loading to Lake Roland due to stormwater runoff, and this potential loading source should be given more consideration.

Response:

The sources identified within this document responsible for the release of PCBs in the environment occur primarily through the transport of PCB contaminated soils from soil loss during wet weather events. Groundwater and atmospheric deposition are also additional pathways for the release of PCBs. While loadings from these sources are episodic in nature, as they occur primarily during storm events, routine monitoring under this TMDL captures levels of PCBs following storm events under high flow conditions, as well as during baseflow, due to groundwater discharge of PCBs. The average watershed load is estimated based on an average of the water quality data representative of all hydrologic conditions. (Please refer to the response to Comment 1 for additional information.) PCB contaminated soils will also slowly erode over time following each storm event until all contamination is removed. The only conceivable scenario in which a single spill or incident could equal or exceed the total annual PCB loading is if a release occurred directly into a

stream or stormwater conveyance. This scenario is unlikely as releases typically occur over soil and not impervious surfaces. It would also be infeasible to account for such a source within the modeling framework, as the watershed load can only be estimated based on PCB concentration data from in-stream monitoring locations. The TMDL implementation plan will address all sources of PCBs through source tracking to identify and eliminate PCB contaminated soils, as well as identify and remove equipment in use prior to accidental releases.

11. The Commentor states that according to the EPA's *Polychlorinated Biphenyl (PCB) Total Maximum Daily Load (TMDL) Handbook*, PCBs rank sixth as a national cause of water quality impairment. The handbook states, "A PCB TMDL can more quickly guide cleanup if a localized source or sources are determined to be affecting the waterbody (e.g., Superfund site, illegal discharge), and in turn, remediation tools and/or legal authorities are available to control the source(s)." Appendix Tables 1 and 2 in the handbook identify common sources of PCBs (e.g., storage facilities, landfills, transformers, etc.) and list databases containing information on PCB sources. These tables represent a valuable resource that could be used to assist in identifying PCB sources in the Lake Roland watershed.

SHA would like to request that a higher priority be placed on identifying the actual point sources of PCBs in the Lake Roland watershed. Attempting to reduce the extremely low concentrations of PCBs in stormwater runoff from non-point sources by implementing various BMPs across the entire watershed is not a very effective strategy. It makes more sense to focus efforts on identifying the actual sources of PCBs in the Lake Roland watershed and implementing clean-up and remediation efforts on the identified sites.

Response:

MDE agrees that in order to address PCBs in stormwater runoff it will be necessary to conduct source tracking to identify and eliminate sources of PCB contamination within the watershed. This strategy is discussed in the Assurance of Implementation section of the TMDL document. The document does state that impervious surface restoration required under existing NPDES MS4 permits may provide a secondary benefit in removing PCBs associated with sediments though this does not suggest that BMP implementation will be selected as the primary strategy for addressing sources of PCBs under the implementation plan. Reduction of PCB concentrations within stormwater runoff through BMP implementation is not deemed by MDE to be an effective strategy for removal of PCBs in the environment.

12. The Commentor states that an aggregate concentration-based WLA was developed for the draft TMDL. The PCB loads to Lake Roland from NPDES regulated stormwater were estimated based on urban land use classification within the watershed. The Lake Roland watershed was divided into four subwatersheds for the purposes of the draft TMDL. The water column PCB concentrations in tributaries to Lake Roland were measured and the mean PCB water column concentration was multiplied by flow in order to calculate the

PCB loads from the subwatersheds.

Only four water column samples were taken in three of the subwatersheds and none were taken in the fourth subwatershed. The 12 samples were taken over a 10-month period from January to October 2010. This is a relatively small number of samples on which to base an aggregate WLA for all the NPDES permit holders within the Lake Roland watershed. The measured PCB concentrations in the samples were also highly variable with values for one of the subwatersheds ranging over nearly 14 degrees of magnitude from 0.16 ng/L to 2.23 ng/L.

The high degree of variability in the measured PCB concentrations in the tributaries to Lake Roland illustrates the difficulty in accurately calculating a WLA for regulated stormwater with any degree of certainty. In summary, the Commentor states that SHA would like to request that additional sampling take place over a longer time period in order to more accurately determine the PCB sources and loads to Lake Roland from the watershed.

Response:

Please refer to the response to Comment 1 to address this question. MDE designed the PCB monitoring plan to characterize seasonal conditions representative of all flow regimes in order to accurately estimate loads from the watershed therefore additional sampling over a longer time period is not necessary for development of the TMDL.

13. The Commentor states that the numerical model used in the draft TMDL predicts a net PCB transport of 207.6 g/year from the bottom sediment of Lake Roland to the water column under baseline conditions. The total PCB load to Lake Roland from all other sources is 60.5 g/year. By not including the PCB load from the contaminated bottom sediments in the baseline loads to Lake Roland, the draft TMDL does not consider the largest source of PCBs for Lake Roland.

The Commentor quotes from the draft TMDL: "this source (bottom sediments) is not considered to be directly controllable and is not considered for reductions under the scope of this TMDL." This statement neglects to consider dredging as an alternative approach that could be implemented to remove the contaminated sediment from Lake Roland. SHA acknowledges that dredging can raise other concerns including the possibility of resuspending contaminated sediments but dredging is a feasible option that should remain under consideration when addressing PCB levels in a lake with contaminated bottom sediments.

Response:

Please refer to the response to Comment 9 to address this question.

14. The Commentor states that according to EPA's *Polychlorinated Biphenyl (PCB) Total*

Maximum Daily Load (TMDL) Handbook states, "Desorption of sediment-bound PCBs may contribute significantly to the concentrations detected in water." The handbook further states, "PCB uptake by biota from sediment is well documented in the scientific literature." This indicates that PCB contaminated bottom sediments are a significant source of PCBs in the water column and in fish tissue and should be considered when developing a PCB TMDL.

Furthermore, if reductions in PCB loads are achieved as a result of approving and implementing the draft TMDL, the water column concentrations would also decrease. However, this would lead to a higher concentration gradient between PCB levels in the bottom sediment, and pore water within the sediment, and the water column. This could lead to higher resuspension rates of PCBs from the sediment to the water column due to the higher concentration gradient and subsequent higher rates of diffusion. The draft TMDL states, "assuming a future decrease in watershed loads, resuspension and diffusion from bottom sediments could be a significant source of PCBs to the impoundment in the future."

The Commentor quotes the draft TMDL: "The tPCB levels in Lake Roland are expected to decline over time due to natural attenuation, such as the burial of contaminated sediments with newer, cleaner materials and through biodegradation." Relying solely on natural attenuation to decrease PCB levels in the bottom sediments without explicitly accounting for the ongoing PCB loading to Lake Roland from the contaminated sediments in the draft TMDL is not scientifically defensible. For these reasons, SHA (the Commentor) would like to request that the PCB loads from the bottom sediments, and options to address these loads, be included in the draft TMDL.

Response:

Loadings due to resuspension and diffusion from bottom sediments are not assigned an allocation, as they are not a directly controllable load. Options to address these loads will not be included, as this falls outside the scope of the TMDL analysis. (Refer to the response to Comment 6 for additional information.)

15. The Commentor states that SHA performs monitoring and testing for environmental compliance on its facilities including the Brooklandville Shop, which is located within the Lake Roland watershed. There has never been any evidence of PCB contamination at the Brooklandville Shop location as a result of these tests. This monitoring data is available to substantiate that SHA has not identified PCB sources on SHA property within this watershed.

Response:

All facilities with general stormwater permits fall under the aggregate WLA for NPDES Regulated Stormwater, including the SHA Brooklandville Shop. If existing monitoring data establishes that PCB contamination is not present within the facility and there is no potential for PCB transport within stormwater discharge, remediation will not be required under the TMDL implementation plan.