Comment Response Document
Regarding the Total Maximum Daily Loads of Nitrogen and Phosphorus for Mattawoman Creek, Charles County and Prince George's County, MD

Introduction

The Maryland Department of the Environment (MDE) has conducted a public review of the proposed Total Maximum Daily Loads (TMDLs) of nitrogen and phosphorus for Mattawoman Creek. The public comment period was open from November 14, 2003 through December 13, 2003. MDE received six sets of written comments.

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

List of Commentors

Author	Affiliation	Date	Comment Number
Robert Koroncai	Office of Watersheds, U.S. Environmental Protection Agency	December 11, 2003	1 and 2
George B. Wilmot	Citizen	December 11, 2003	3 and 4
Steve T. Magoon	Charles County Department of Planning and Growth Management	December 11, 2003	5 through 20
William Bullard	Navy/DoD Regional Environmental Coordination Office	December 13, 2003	21 through 31
Beth McGee	Chesapeake Bay Foundation	December 12, 2003	32 through 36
George B. Wilmot	Citizen	December 12, 2003	37 through 39

Comments and Responses

1. The commentor requests that the electronic WASP5.1 input files for the Mattawoman Creek Eutrophication Model (MCEM) be forwarded to EPA.

   Response: The input files were forwarded to Susan Sciarratta on October 29, 2003. The files were resent on December 12, 2003.

2. The commentor offers additional actions that are underway that provide more information for the reasonable assurance section with regard to air deposition reductions. These actions include:

- To date, EPA has promulgated approximately 100 New Source Performance Standards under Section 111 of the Clean Air Act (CAA), of which about ten directly control nitrogen oxide (NOx) emissions;
- Because NOx is a precursor to ozone, Maryland and other states must apply similar requirements to major stationary sources of NOx emissions, including application of reasonably available control technology;
- The CAA Acid Rain Program specifies a two-part strategy to reduce NOx emissions from coal-fired electric power plants. EPA estimates that this program has resulted in 40% reductions in NOx emission rates from large utility boilers, and additional controls are expected over the next several years;
- In 1994, Maryland and other states signed a Memorandum of Understanding to achieve regional emission reductions of NOx (a.k.a. "OTC NOx Budget Program"). The agreement calls for the adoption of regulations to reduce NOx emissions in 1999 and further reduce emissions in 2003;
- In 1998, EPA issued the "NOx SIP Call" which assigns a cap on summertime NOx emissions to be achieved by 2007;
- In 1999, EPA announced new limits for tailpipe emissions of NOx. These standards would require a 77% emissions reduction in cars over the next ten years;
- The proposed Clear Skies Act of 2003, aimed at power plants, estimates to reduce NOx emissions from Maryland sources by 70% by 2020, and 77% reductions in total NOx emissions in Maryland from 2000 levels. The estimated NOx deposition to the Chesapeake Bay watershed would be reduced up to 20%;
- Maryland and the other Chesapeake Bay states have agreed to incorporate nitrogen reductions resulting from the Clear Skies legislation as part of the overall plan to reduce nutrient loadings to the Bay.

References:
1. "Nitrogen: Multiple and Regional Impacts," EPA-430-R-01-06
2. www.epa.gov/air/clearskies
3. 61 FR 67111-67164 (or www.epa.gov/airmarkt/arp/nox/phase2.html)

Response: Thanks. The additional information will be added.

3. The commentor appreciates receiving a copy of the TMDL document and states that the Mattawoman Creek is an especially valuable resource. The commentor is pleased that MDE has reviewed the water quality data on the creek to produce TMDLs for nitrogen and phosphorus. The commentor states that most of the nutrient loads come from nonpoint sources and that runoff from the urban areas is a major source. The commentor goes on to state that MDE should support and encourage the use of biological nitrogen removal stormwater management facilities for both new developments and for retrofits in existing developed areas.

   Response: MDE thanks the commentor for his support of the development of TMDLs. Through the NPDES stormwater permitting process, MDE will continue to encourage permittees to implement state of the art structural BMP facilities to achieve the nutrient reduction goals.

4. The commentor notes the following errors in the text of the document:
   - Page iii, last paragraph, 3rd sentence: 116,699 lbs/month should be 116,699 lbs/year
   - Page 1: "The length of Mattawoman Creek is 13.5 miles", the actual length is more than 20 miles (23.5 miles?)
   - In some of the figures, e.g. Figure 8, the labels are incomplete, e.g., Mat007
   - Page 14, 4.2, 3rd paragraph, last sentence: Figure 7 not Figure 8 shows the model segmentation

   Response: Thanks. The corrections have been made. The second bullet concerning the length of Mattawoman Creek: the length of the creek that is included in the modeling domain is 13 miles. A clarification has been made in the document.

5. The commentor states that Lackey High School is in the process of being connected to the Mattawoman Wastewater Treatment Plant (WWTP) and will no longer be contributing 684 lbs. of nitrogen or 164 lbs. of phosphorus per year to this watershed. The commentor questions if this load will be reallocated and if so, to what category (point or nonpoint). The commentor requests MDE to explain the justification.

   Response: The calculation of a TMDL is tailored to how individual pollutant sources contribute to the system such as their location and the timing of their discharges, the special circumstances of the pollutant sources, and the resulting effects on water quality. These factors were considered in the determination of the TMDL allocations and outlined through a series of stakeholder meetings. The State reserves the right to reallocate the loads at any time in the future through a process that will continue to involve all interested stakeholders. The commentor's concerns can therefore be addressed in such future reallocation processes.

   Since the connection between Lackey High School and Mattawoman WWTP is still in the planning stage and will not materialize before the finalization of the Mattawoman TMDL, the nutrient loads allocated to the Lackey High School will remain with that permit. MDE may reallocate the nutrient loads from Lackey High in the future to either point or nonpoint sources in the watershed.

6. The commentor states that Figure 8 on page 11 of the draft TMDL shows chlorophyll and dissolved oxygen (DO) meeting the State's water quality criteria for Dec. 1999 through mid-2001 (the end of the data shown with the exception of an event in Aug. 2000). The commentor asks if there is an explanation of why the sampling seems to show improvement in the latter years and further questions if the trend is expected to continue.

   Response: The trend of improved water quality improvement could be partially due to the change of weather pattern, which will affect the physical and chemical processes in the stream. Thus without any change of nutrient sources, a "cyclic" pattern of water quality might be observed at the same monitoring station over a long period of time. For instance, the chlorophyll levels in MAT 0016 (Figure 8, page 11) were below the 50 μg/l between 1992 and the middle of 1994 before reaching up to 110 μg/l in the following 4 years. Through the model simulation process in TMDL, MDE will ensure that the water quality will

always meet State criteria. It is possible that better management practices from local governments, farmers, and major nonpoint sources such as NSWC may have contributed to some improvement.

7. The commentor asks that additional data through 2002 can be added for a complete timeline for Figure 8 on page 11, which depicts data through mid-2001.

   Response: The additional data has been added.

8. The commentor notes that Figure 10 on page 12 shows two days over a 13 month period where DO did not meet the State's water quality criteria. The commentor questions if it is possible that these poor samples were related to one-time events that are controllable.

   Response: During six samplings in 2001 and 2002 summer periods, two samples (33%) indicated water quality impairments (these events were one year apart at different locations). These evidences suggested the impairments were not merely one-time events.

9. The commentor states that in the draft TMDL document on page 16, the nonpoint source load for average annual flow was determined from Maryland Department of Planning (MDP) 2000 land use data and EPA Chesapeake Bay Program Phase IV watershed model. The commentor questions the rationale for using observed concentrations for the low flow and modeling annual flow. The commentor questions if the Phase IV watershed model data used is the same as the Phase 4.3 model used to develop the Tributary Strategies and will the Phase 5.0 watershed model (when released in 2005) affect the Mattawoman TMDL.

   Response: The Phase IV model referenced in the document is the same as the Phase 4.3 model used to develop the Tributary Strategies. A clarification has been made in the document. The observed concentrations for the low flow are site specific at the critical time period. The average annual flow incorporates all seasons. As new information or new analytical tools, such as the Bay Program's Phase 5.0 watershed model, become available, the TMDL may be revised.

10. The commentor refers to page 17 of the draft TMDL, "NPS (nonpoint source) source loads in the MCEM also include the non-contact cooling water" from the Indian Head Naval Surface Warfare Center. The commentor requests an explanation of the nutrient loads used for the non-contact cooling water.

    Response: The nutrient load from the Indian Head Naval Surface Warfare Center (NWSC) is a combination of the non-contact cooling water (withdrawn from the Potomac River) and stormwater from the facility. As a conservative estimation, the nutrient levels observed in the upper portion of the watershed during the water quality survey in 2001 were used to represent the "background" nutrient concentrations (from stations above Harrison Cut to avoid the interference of a major point source, Town of Indian Head WWTP). The load from the NSWC was then estimated by multiplying the combined flows (from both cooling water and stormwater) with these nutrient concentrations. Additionally, the overall load from NWSC is calculated through a combination of loads from cooling water and loads from stormwater (based on drainage area and nutrient loading coefficients).

11. The commentor refers to page 24 of the draft TMDL, "Charles County NPDES permit allocation for Nitrogen from urban stormwater is 46,618 lbs/year, which reflects a 54% reduction in current loads." The commentor requests an explanation of how the current load estimate was developed and whether the current load included existing BMPs. The commentor also asks if existing BMPs act as credit toward the current load and an achieved reduction. The commentor further questions if there has been a feasibility review to ensure that 54% is a realistic reduction.

    Response: The estimated reduction in the annual loading that is necessary to meet the TMDL goal was based on the 2000 Maryland Department of Planning (MDP) land use, and EPA's Chesapeake Bay Program Watershed Model (Phase 4.3) loading coefficients. The purpose of the TMDL analysis is to determine the maximum allowable load from all sources. Estimating the current load, and the reduction needed to meet the TMDL, is not a requirement of the TMDL analysis. Maryland provides the initial estimate of the necessary nonpoint source reduction as a good faith effort toward future implementation. MDE acknowledges that some progress toward meeting the nonpoint source reduction goal might have occurred already. Similarly, it is conceivable that some nonpoint source loads have increased. Improving the estimate of "current" loads will be one of the on-going challenges associated with implementing TMDLs.

    The current annual urban stormwater load was calculated based on the urban land use area (from MDP 2000 land use data) and the nutrient loading coefficient assigned by EPA's Chesapeake Bay Program Watershed Model (Phase 4.3). This load estimation has accounted for the existing BMPs. Additional reductions will be required to meet the nutrient allocation. These reductions are crucial to protect the water quality of Mattawoman Creek year round. According to EPA's publication (EPA-821-99-012), some currently available BMPs (such as infiltration basins or vegetated filter strips can achieve up to 80% reduction removals on both nitrogen and phosphorus. In addition to current BMPs, MDE recommends additional measures to be taken by the County to reduce the amount of pollutants to be produced. For instance, for an existing structure BMP can only remove 40% of the nutrient, a 40% reduction of original nutrient loads entering this BMP will yield a final reduction of 64%. The source load reduction can be achieved through activities such as public education or better design for new infrastructures.

    Although formal implementation planning is currently beyond the scope of the TMDL development process, Maryland is committed to enforcing applicable laws and supporting voluntary initiatives necessary to implement this and other TMDLs. Maryland has several well-developed programs to draw upon as part of future implementation efforts. These include the State Water Quality Improvement Act of 1998 (WQIA), the federal Clean Water Action Plan framework, and Maryland's Tributary Strategies Program.

12. The commentor states that the Charles County NPDES stormwater permit does not cover the entire Mattawoman Watershed, since the permit is for the Development District only and portions of the Mattawoman Watershed are outside the Development District. The commentor asks if the stormwater loads for the portions of the Mattawoman Watershed

outside the NPDES permit limits is included in the 46,618 lbs of nitrogen per year. The commentor requests an explanation of whether an additional allocation is provided for parts of the watershed not covered under a NPDES stormwater permit.

Response: The urban stormwater nutrient allocations designated for Charles County in the Mattawoman Creek TMDL cover all of the County's urban lands in the watershed including both NPDES-regulated and unregulated stormwater discharges. These allocations are calculated based on the acreages of urban land use area (based on 2000 MDP data) in the Charles County portion of the Mattawoman Creek Watershed (minus the area that belongs to the NSWC) and runoff nutrient loading coefficients assigned by the Chesapeake Bay Program. For implementation purposes, Charles County can make appropriate adjustments in the given allocation to the "Development District" based on its portion within the overall urban land use area in the watershed. The detailed mechanisms can be addressed in a subsequent renewal of Maryland's NPDES municipal separated stormwater (MS-4) permit for Charles County.

13. The commentor suggests that totals be provided for Tables 2 and 3 on page 24 and for tables 1 and 2 on the technical memorandum for nutrient point sources.

    Response: Thanks. The suggested modification to the table has been made

14. The commentor refers to page 25 where a 2% estimated annual growth is referenced based on projections from Maryland Department of Planning (MDP) for this region, but Prince George's County is not counted as part of the Southern Maryland Region in the Census information posted on MDP's website. The commentor requests a further explanation of how the growth rate was determined and the definition of "this region".

    Response: The 2% estimated annual growth is referenced based upon projections from MDP for this region. As a conservative approach, even though the MDP projected growth rate is different for both counties, the growth rate for the Prince Georges' County portion of the watershed was assumed to be the same as the higher rate in the Charles County portion due to its location (near Waldorf) adjacent to the "Development District" of Charles County. Thus, the growth projection for both the Charles County and Prince George's County portion of the watershed were assumed identical.

15. The commentor requests an explanation of the methodology used to determine that the 15% was sufficient for the urban stormwater future allocation (i.e., was it based on the projected population, number of housing units and commercial units expected and a nutrient load multiplier for each unit). The commentor further asks how the Development District was accounted for when determining the future allocation, given that 75% of the Development District is in the Mattawoman Creek Watershed.

    Response: The future allocation for Mattawoman Creek TMDL is allocated as 5% of overall nonpoint source allocations, this value is approximately 15% of the stormwater allocation. The following methodology was used to examine whether the future allocation given to the Mattawoman Creek TMDL is sufficient to address the future development activities. Land

use data from the available 1994 and 2000 MDP land use coverage for the Mattawoman Creek watershed was used to estimate loads for these years in the same way that the baseline average annual loads were estimated (please refer to more detailed description in Appendix A). The changes in land uses and loads for urban, forest and agricultural land uses between 1994 and 2000 were then calculated. By subtracting the nutrient load loss from the disappearance of forest and agriculture land use from the gain of load through urban land increase, it was assumed that the result is the load increase due to urban growth activity. This final load was averaged over a six-year period (1994 – 2000) to get an average annual nutrient load increase resulting from urban growth and development. For the Mattawoman Creek Watershed, the net annual nutrient input increases, due to development, are estimated as Nitrogen and Phosphorus are 303 lbs/yr and 113 lbs/yr. Comparing to those loads assigned in the average annual future allocations (9,689 lbs/yr for Nitrogen and 673 lbs/yr for phosphorus), it is concluded that the future allocation will be adequate with the acknowledgement that future adjustments of the loadings may be necessary to allow for changes in land use.

16. The commentor states that in Section 5 of the draft TMDL (page 28) it is unclear regarding the implementation timeline. The commentor asks if the timeline parallels the Tributary Strategies' timeline of approximately ten to twenty years.

    Response: Neither the Clean Water Act nor current EPA regulations direct states to develop a detailed implementation plan as part of the TMDL development and approval process. Implementation measures, including a timeline, therefore, are beyond the scope of this process. Although formal implementation planning is currently beyond the scope of the TMDL development process, Maryland is committed to enforcing applicable laws and supporting voluntary initiatives necessary to implement this and other TMDLs. Maryland has several well-developed programs to draw upon as part of future implementation efforts. These include the State Water Quality Improvement Act of 1998, the federal Clean Water Action Plan framework, and the Tributary Strategies Program.

17. The commentor requests a further explanation and examples for the statement on page 28 in the second paragraph, "The NPDES municipal separate stormwater permits (MS4) for Charles County and Prince George's County will ensure the adoption of best available technologies and best management practices to provide the assurance of implementation." The commentor questions if this statement is referring to the *2000 Maryland Stormwater Design Manual* as the best available technologies or is the statement referring to adoption of other or upcoming best management practices.

    Response: Yes, primarily. It does refer to the manual for new development runoff control. However, a broader perspective applies to the overall NPDES stormwater program. MDE assumes this will be a "presumptive compliance" approach. For instance, if the permittee implements the BMPs estimated to meet the loading goals, it is assumed that their waste load allocation will be met.

18. The commentor asks if the draft Mattawoman TMDL will regulate discharges from industrial stormwater permits to meet the TMDL stormwater allocations, and, if this is true, how will it

be accomplished. The commentor further questions if all NPDES industrial stormwater discharges in the Mattawoman Watershed would be subject to this, or only those that fall within or outside the limits of the County's NPDES MS4 permit.

Response: This TMDL applies to all stormwater runoff within the Mattawoman Creek watershed, both industrial and non-industrial sources, and therefore may go beyond the boundaries of the County's NPDES MS-4 permit, which addresses the Development District. At the same time, some areas within the boundaries of the MS-4 permit lie outside of the Mattawoman Creek Watershed, and therefore are not affected by this TMDL. In this TMDL it is anticipated that any required nutrient controls for non-NPDES industrial stormwater from businesses or other commercial properties within the urban areas will also be the appropriate controls for any NPDES industrial stormwater discharges. Therefore, the WLA does not distinguish between industrial NPDES and non-industrial urban sources. If additional implementation mechanisms are determined by the County to be appropriate to industrial NPDES sites, this could be addressed in a subsequent renewal of Maryland's NPDES general permit for stormwater associated with industrial activities.

19. The commentor states that implementation of the TMDL appears to necessitate intense coordination and support between the State and local governments to achieve the proposed reductions.

    Response: Yes, implementation would require intense coordination and support during these times of fiscal and staff constraints. MDE anticipates that implementation of the TMDL will be a cooperative effort separate from the TMDL using existing programs. However, neither the Clean Water Act nor EPA regulations require states to develop a detailed implementation plan as part of the TMDL development and approval process. Maryland's rationale for not including a detailed implementation plan within the TMDL documentation is to allow flexibility for those other government programs and stakeholders currently developing mechanisms to reduce nutrient loads to Mattawoman Creek and other waters of the state. See also response to Comment 16.

20. The commentor notes that both Technical Memorandums regarding nutrient sources refer to Maryland Department of Planning as the Office of Planning.

    Response: Thanks. The change has been made.

21. The commentor notes that in the Executive Summary, paragraph 4, average annual flow condition: the nonpoint sources are allocated as 116, 699 lbs/year versus 116, 900 lbs/month.

    Response: MDE believes the commentor meant that the units on the allocation were wrong. The correction has been made to the Executive Summary from 116,699 lbs/month to 116,699 lbs/year.

22. The commentor notes references, in the body of the document and in Appendix A, to the NSWC IH non-contact cooling water as being drawn from Mattawoman Creek. The

commentor states that this is incorrect, and that the water is drawn from the Potomac River, and is discharged to Mattawoman Creek.

Response: Thanks. The correction has been made.

23. The commentor states that it is difficult to review water quality data compared to the actual location of the monitoring stations by river mile. The commentor requests that MDE add a river mile location to Table 1 or include notations of the figures.

    Response: Thanks. Additional information has been added to Table 1.

24. The commentor states that the legend for Figure 11A should read "Distance from Mouth of the Creek (mile)".

    Response: Thanks. The legend on Figure 11A has been modified to be consistent with the other figures.

25. The commentor states that on pages 25 and 26, the text appears to refer to urban stormwater as both point and nonpoint sources. The commentor further states that urban stormwater is normally collected and discharged through pipes or other conveyances and is therefore a point source.

    Response: Urban stormwater has been considered a point source in Mattawoman Creek TMDL (please refer to Technical Memorandum for "Major Point Sources in the Mattawoman Creek TMDL").

26. The commentor refers to page 25, stating that population growth would increase flows to the WWTPs, but that there is no discussion on the effect of these increases on future allocations in the TMDL.

    Response: Currently most of the urban populations in the Mattawoman Creek Watershed (particularly the middle to upper watershed) are served by Mattawoman WWTP, which discharges into the Potomac River. For the Town of Indian Head WWTP (the major point source discharging into Mattawoman Creek) an upgrade to more advanced Biological Nutrient Removal (BNR) process will be necessary to meet the nutrient limits set by the Mattawoman TMDL. Once the upgrade is completed, the nutrient output from this facility will be significantly reduced. As a result, the difference between the 10 mg/l nitrogen limit set by the TMDL to meet water quality criteria and performance of a BNR equipped facility (average total nitrogen is around 4 mg/l) will provide "cushions" for future community growth.

27. The commentor states that the data indicate that the water quality has improved since 1998 and that the data suggest that Mattawoman Creek is marginally impaired, if at all. The commentor requests a consideration of a tiered or iterative approach to allocations, with periodic reviews to determine the appropriate level of nutrient source reductions.

Response: The TMDL process is designed to be iterative. Section 303(d) of the Clean Water Act ensures a review of the State's surface water quality every two years. MDE's Five-Year Watershed Cycling Strategy for monitoring ensures the follow-up monitoring will occur. Water quality monitoring in this region is scheduled by MDE in 2006. 2002 represents the end of the cycle for MDE's Five-Year Watershed Cycling Strategy for monitoring. The monitoring cycle began on the Lower Eastern Shore in 1998 and the Lower Potomac watershed was first intensively sampled in 2001, thus monitoring in 2006 on the Lower Potomac Region represents the first repeated monitoring of this basin under MDE's Watershed Cycling Strategy. We encourage others to coordinate their monitoring efforts with MDE's Technical and Regulatory Services Administration during the next year to enhance the utility of the available monitoring resources for future purposes. Finally, NPDES permits are updated as a TMDL in the watershed is finalized and approved. As new information or new analytical tools become available, the TMDL may be revised.

28. The commentor refers to Section 2.2, paragraph 2; the text states that the tidal and nontidal boundary is located between Harrison Cut and Route 225. The commentor requests that the location of Harrison Cut be shown on Figure 1.

    Response: Thanks; a notation has been added to the graph.

29. The commentor refers to Appendix A freshwater flows; the text states that five USGS gaging stations were used in calculating the freshwater flows. The commentor requests that these locations be shown on one of the figures.

    Response: Thanks; Figure 54A has been added to Appendix A to illustrate the locations of these gaging stations.

30. The commentor requests that in Figure 8 all 2001 and 2002 data be shown.

    Response: Additional data has been added.

31. The commentor refers to Appendix A and suggests changing NO_{23} to $NO_{2,3}$ when referring to both nitrate and nitrite nitrogen.

    Response: As explained in the list of abbreviations and to be consistent with all the TMDLs prepared by MDE, the symbol NO_{23} represents nitrate and nitrite nitrogen.

32. The commentor states that their organization strongly objects to the TMDL for Mattawoman Creek. The commentor believes that the Indian Head WWTP, the major point source in the watershed, should be given a nitrogen allocation associated with the available technology limits (Nutrient Reduction Technology (NRT) or Biological Nutrient Removal (BNR)).

    Response: The TMDL is based on local water quality conditions. The TMDL establishes the maximum amount of a pollutant a waterbody can assimilate without violating water quality standards. At this time, based on the best readily available data, the TMDL is appropriate for the Mattawoman Creek. The calculation of a TMDL is tailored to how individual pollutant

sources contribute to the system such as their location and the timing of their discharges, the special circumstances of the pollutant sources, and the resulting effects on water quality. These factors were considered in the determination of the TMDL allocations and outlined through a series of stakeholder meetings. The State reserves the right to reallocate the loads at any time in the future through a process that will continue to involve all interested stakeholders. The commentor's concerns can therefore be addressed in such future reallocation processes.

33. The commentor states that the Indian Head WWTP is a "significant" discharger with a maximum permitted flow of 0.5MGD currently with an average annual concentration of total nitrogen of approximately 15mg/l. The commentor notes that the proposed TMDL nitrogen concentrations would be controlled during the low flow period to 10mg/l and would remain at the current concentrations under the average annual flow scenario. The commentor states that these concentrations are well above what is achievable with NRT/BNR (4mg/l).

    Response: The nitrogen limits for the Town of Indian Head WWTP in the Mattawoman Creek TMDL are determined by water quality modeling scenario results as appropriate to improve the localized water body impairment and meet State water quality criteria. In order to meet the summer limit for nitrogen (10mg/l), it will be necessary for the Town of Indian Head WWTP to upgrade its current treatment technologies to the more advanced Biological Nutrient Removal process. Once the upgrade is completed, the nutrient output from this facility will be significantly reduced. Furthermore, Maryland has an Interim Nutrient Cap Strategy to prevent new or increasing nutrient discharges from exacerbating the impairment of the Bay and its tributaries. Under the Interim Nutrient Cap Strategy, nutrient load goals for individual wastewater treatment plants, including Town of Indian Head WWTP, have been drafted by MDE. Based on the Strategy, the nitrogen load goal for 8,293 lbs/yr, which will translate into an effluent concentration of 5.4 mg/l with its permitted flow (0.5 MGD). To obtain additional reductions in nutrient loads, the Interim Nutrient Cap Strategy is being replaced by revised Tributary Strategies for Nutrient Control that will incorporate an Enhanced Nutrient Reduction (ENR) program for point sources. MDE expects that participation from the Town of Indian Head WWTP in this program will allow the plant to meet even lower nutrient loading goals.

34. The commentor notes that the TMDL does not require reductions in annual loads for point sources in the Mattawoman watershed. The commentor asserts that the TMDL would allow for an increase in nitrogen from point sources of approximately 36% compared to current loads. The commentor states that a similar analysis for phosphorus indicates that the TMDL would allow a 4% increase above the current point source estimates. The commentor further stipulates that the TMDL has allocated the necessary load reductions to nonpoint sources instead of point sources. The commentor believes that from an implementation perspective, this will result in a delay in nutrient reductions in Mattawoman Creek because nonpoint source controls are difficult to implement and have a longer response time.

    Response: Please refer to response 33.

35. The commentor questions whether there is reasonable assurance exists that these nonpoint source load reductions (40% to meet the TMDL) are achievable and asks the timeframe for implementation.

    Response: See Responses to Comments 16 and 19.

36. The commentor states that MDE must take aggressive action to control all sources of pollution. The commentor states that there are available and affordable technologies that can be used to reduce nitrogen concentrations for WWTPs to approximately 3 mg/l. The commentor further states that in the TMDL process, MDE should require nitrogen limits on major WWTPs that are consistent with the NRT/BNR technologies.

    Response: See responses to Comment 33.

37. The commentor asks if the Potomac River through tidal influxes input significant levels of nutrients to the tidal Mattawoman Creek. The commentor recalls that there is no information on this in the TMDL document.

    Response: The influences of tidal influxes from Potomac River were addressed in MCEM through model calibration for dispersion coefficients, boundary water quality conditions and nutrient fluxes in the segments near the confluence. Please refer to table A3 and A5 for specific conditions set for model segments near the Potomac River.

38. The commentor refers to the DO data from the low flow (figure 10) that shows a somewhat lower DO levels near the mouth of the creek. The commentor also refers to the model results for the low flow (figure 11) that shows a significantly lower DO near the mouth of the creek. The commentor states that it seems that the model does not include inputs from the Potomac River. The commentor asks why the model results show a lower DO concentration near the mouth of the creek.

    Response: Please refer to the response to comment 37 for the input consideration from Potomac River. The MCEM was calibrated through observed water quality data during 2001 survey. The calibrated MCEM suggested that the segment near the mouth of Mattawoman Creek has higher nutrient fluxes and higher oxygen demand from the sediment. These factors are speculated as the causes for low DO observed near the mouth of the Creek.

39. The commentor suggests that MDE review the recent data on nutrient levels on the tidal Potomac River near the mouth of Mattawoman Creek and to determine if the Potomac River makes a significant contribution to the nutrient levels in the tidal section of Mattawoman Creek.

    Response: Please refer to the responses for Comments 37 and 38.