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

SEP 1 6, 2003

Dr. Richard Eskin, Director
Technical and Regulatory Services Administration
Maryland Department of the Environment 1800
Washington Boulevard, Suite 540 Baltimore,
Maryland 21230-1718

Dear Dr.-Esskin:

The Environmental Protection Agency (EPA) Region III is pleased to approve the Total Maximum Daily Load (TMDL) report for Biochemical Oxygen Demand (BOD) and Phosphorus for the Unnamed Tributary for La Trappe Creek (UTLTC) and the UTLTC In-Stream Pond. The TMDL report was submitted to EPA for review on December 31, 2002. The TMDL was established and submitted in accordance with Section 303(d)(1)(c) and (2) of the Clean Water Act to address impairments of water quality as identified in Maryland's Section 303(d) list. Maryland identified UTLTC and UTLTC In-Stream Pond as failing to attain the dissolved oxygen (DO) criteria as a result of BOD and Phosphorus loads from point and nonpoint sources.

In accordance with Federal regulations at 40 CFR § 130.7, a TMDL must comply with the following requirements: (1) designed to attain and maintain the applicable water quality standards, (2) include a total allowable loading and as appropriate, wasteload allocations (WLAs) for point sources and load allocations for nonpoint sources, (3) consider the impacts of background pollutant contributions, (4) take critical stream conditions into account (the conditions when water quality is most likely to be violated), (5) consider seasonal variations, (6) include a margin of safety (which accounts for uncertainties in the relationship between pollutant loads and instream water quality), (7) consider reasonable assurance that the TMDL can be met, and (8) be subject to public participation. The enclosure to this letter describes how the TMDL for the DO impairment on UTLTC and UTLTC In-Stream Pond satisfies each of these requirements.

Following the approval of this TMDL, Maryland shall incorporate the TMDL into the Water Quality Management Plan pursuant to 40 CFR § 130.7(d)(2). As you know, all new or revised National Pollutant Discharge Elimination System permits must be consistent with the TMDL WLA pursuant to 40 CFR § 122.44 (d)(1)(vii)(B). Please submit all such permits to EPA for review as per EPA's letter dated October 1, 1998.

If you have any questions or comments concerning this letter, please don't hesitate to contact Ms. Susan Sciarratta, at (215) 814-5733.

Sincerely,

Jon M. Capacasa,Director
Water Protection Division

Enclosure

Decision Rationale

Total Maximum Daily Loads for Biochemical Oxygen Demand and Phosphorous for the Unnamed Tributary to La Trappe Creek and the Unnamed Tributary to La Trappe Creek In-Stream Pond, Talbot County, Maryland

I. Introduction

The Clean Water Act (CWA) requires a Total Maximum Daily Load (TMDL) be developed for those water bodies identified as impaired by a state where technology-based and other controls will not provide for attainment of water quality standards. A TMDL is a determination of the amount of a pollutant from point, nonpoint, and natural background sources, including a margin of safety (MOS), that may be discharged to a water quality-limited water body.

This document will set forth the Environmental Protection Agency's (EPA's) rationale for approving the TMDLs for Biochemical Oxygen Demand (BOD) and Phosphorus for Unnamed Tributary of La Trappe Creek (UTLTC) and the Unnamed Tributary for La Trappe Creek In-Stream Pond watershed. EPA's rationale is based on the determination that the TMDLs meet the following eight regulatory conditions pursuant to 40 CFR §130.

1) The TMDLs are designed to implement applicable water quality standards.
2) The TMDLs include a total allowable load as well as individual wasteload allocations (WLA) and load allocations (LA).
3) The TMDLs consider the impacts of background pollutant contributions.
4) The TMDLs consider critical environmental conditions.
5) The TMDLs consider seasonal environmental variations.
6) The TMDLs include a MOS.
7) There is reasonable assurance that the TMDLs can be met.
8) The TMDLs have been subject to public participation.

The UTLTC and the UTLTC In-Stream Pond are located in Talbot County, Maryland in the Atlantic Coastal Plain physiographic province. The UTLTC watershed can broken up into three components the non-tidal UTLTC, the UTLTC In-Stream Pond, and the tidal UTLTC. The TMDL was developed to address the impairments encountered in the upstream segments, the UTLTC and the UTLTC In-Stream Pond. The tidal portion of the UTLTC starts approximately 20 feet downstream of the UTLTC In-Stream Pond.

The non-tidal UTLTC is approximately 650 meters in length with a 252-acre watershed. A large portion of the watershed is devoted to agricultural and urban land-uses. The UTLTC In-Stream Pond is approximately 660 feet long and 260 feet wide at it widest location. The In-Stream Pond has a surface area of 3.93 acres with a maximum depth of 4 feet and an average depth of 2 feet. The In-Stream Pond drains the same 252-acre watershed. The land-use breakdown is provided in Table 1.

Table 1 - UTLTC and UTLTC In-Stream Pond Land-Use

Land-Use	Acres	Percent of Watershed
Agriculture	159.7	63
Urban	53.4	21
Forest	29.7	12
Water	9.5	4

A localized dissolved oxygen (DO) impairment in the UTLTC was identified during the renewal process of the National Pollution Discharge Elimination System (NPDES) permit for the La Trappe Waste Water Treatment Plant (WWTP).[1] During the a sampling event associated with the permit it was discovered that DO concentrations fell below the applicable criteria in the UTLTC. It was believed that elevated BOD was the cause of this impairment. The TMDL for BOD was developed for both carbonaceous biochemical oxygen demand (CBOD) and nitrogenous biochemical oxygen demand (NBOD).

As part of the sampling event mentioned above, Maryland Department of Environment (MDE) discovered elevated Chlorophyll a concentrations downstream of the UTLTC In-Stream Pond. Elevated levels of Chlorophyll a indicate excess algal growth, which leads to lower dissolved oxygen levels when these organisms perish and are consumed by bacterial organisms. They also may create diurnal oxygen sags during the evening hours when the lack of light prohibits photosynthesis and these organisms are forced to consume oxygen. MDE determined that excess that nutrient (nitrogen and phosphorus) loading from the WWTP fueled the excess chlorophyll a concentrations, which exacerbated the DO impairment on the water.

The water quality standard for DO in the UTLTC and UTLTC In-Stream Pond is 5 mg/l at anytime. There is no criteria currently for Chlorophyll a. However, a Chlorophyll a concentration of 25 ug/l was determined to be the appropriate trophic status to manage this water. The physical setting of the UTLTC and In-Stream Pond, low and flat with few natural lakes, favors eutrophy due to the broad heavily agricultural watershed that drains into this manmade lake. The goal in maintaining the trophic status at eutrophic is to achieve a condition that will attain applicable water quality standards and support a healthy aquatic life assemblage.

In order to alleviate the impairments to the UTLTC and the UTLTC In-Stream Pond, TMDLs were developed for to control CBOD, NBOD, and phosphorus loads. The CBOD and

[1]Maryland Department of Environment. 2002. Total Maximum Daily Loads of Carbonaceous Biochemical Oxygen Demand (CBOD) Nitrogenous Biochemical Oxygen Demand (NBOD), and Total Phosphorus (TP) for an Unnamed Tributary of La Trappe Creek into which the Town of Trappe Waste Water Treatment Plant Discharges Talbot County, Maryland.

NBOD models for the UTLTC were developed through the Input Program (INPRG) model.[2] The INPRG model is a steady state model, developed within MDE for the impact assessment of point and nonpoint source load discharges of material which exert oxygen demand in free-flowing streams.[3]The model runs required an input of CBOD and NBOD to incorporate the total BOD loads.[4]

In order to determine the CBOD discharge the five-day BOD was multiplied by 1.5. To determine the NBOD the Total Kjedahl Nitrogen (TKN) concentration was multiplied by 4.6. The model is able to calculate the daily average DO concentration in stream by considering the oxidation of CBOD and NBOD for re-aeration only and predicts the CBOD, NBOD, and DO concentration for selected stream input conditions. The model is based on the Streeter-Phelps equation. The UTLTC TMDL was modeled for three conditions. The first scenario was for stream flow during 7Q10 flow conditions with current point source loading. The second scenario was for nonpoint sources under average flow conditions with point sources under current conditions. The third and final scenario analyzes water quality under an expanded WWTP flow under 7Q10 flow conditions. Under 7Q10 flow conditions there are no land based source loads.

The INPRG model was calibrated to data collected in August of 1998 and validated to data from September of the same year. Calibration for CBOD, NBOD, and DO was achieved through the adjustment of the carbonaceous and nitrogenous deoxygenating rates parameter. In the validation run these rates were held constant to determine if the model accurately reflected the system. Temperature has a significant affect on oxygen solubility, CBOD and NBOD, therefore, it is important for the model to take temperature into consideration. The model was run using the 90th percentile stream temperature data from USGS gage 01492000 which is located on a similar Creek.

According to the INPRG model water quality criteria was attained during all of the scenarios. Therefore, the TMDL was developed for the condition that allowed for the greatest CBOD and NBOD loads while still allowing for the attainment of water quality criteria. Scenario 3 was therefore adopted as the TMDL. There are no nonpoint source loads in this scenario and the entire loading was granted to the WWTP. However, MDE expressly reserves the right to allocate the TMDLs among different sources in any manner that is reasonably calculated to achieve water quality standards.[5] Table 2 illustrates the TMDL load for CBOD and NBOD.

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[2]Maryland Department of the Environment, “INPRG Program Manual, June 1987".

[3]Ibid 2

[4]Ibid 1

[5]Ibid 1

Table 2 - TMDL load for CBOD and NBOD all values provided in lbs/ month

Pollutant	LA	WLA	FA	MOS	TMDL
CBOD	0	540	210	70	820
NBOD	0	497	193	86	776

A separate TMDL was developed for phosphorus loading to the In-Stream Pond. It was determined that phosphorus would be the limiting nutrient for phytoplankton growth once the WWTP upgrades are put in place. Based on the trophic status index, it was determined that chlorophyll a concentration of 25 ug/L was appropriate for the In-Stream Pond. A Vollenweider Analysis was run to determine the phosphorus load that would dictate the desired chlorophyll a concentration. The total phosphorus load was determined under current conditions with and without the WWTP. The concentration was determined by a simple mathematical equation which can be found in Appendix B of the report.

The equation determined the concentration of phosphorus in the runoff by dividing the expected total phosphorus land based load (121,600 g/year), as determined via the Chesapeake Bay Program, Phase IV Areal Loading Rates, by the annual runoff volume (410,500 cubic meters/year). The concentration of phosphorus in the runoff was 0.296 g/cubic meter. The total phosphorus concentration in the runoff and plant effluent was 1.196 g/cubic meter. The total phosphorus concentration in the stream was 45.7 g/cubic meter. This was determined by dividing the sum of the total land based loading to the stream (121,600 g/ year) and effluent loading (606,500 g/year) by the area of the In-Stream Pond (15,920 square meters). The normalized phosphorus loading was determined by dividing the total in-stream phosphorus concentration by the residence time (time the water is retained in the Pond 5.8 days) and the ratio between depth to residence time. The appropriate phosphorus loading was determined to be 384 lbs/year (174,160 g/year). Table 3 allocates the total allowable load into the four components of the TMDL.

Table 3 - TMDL for Phosphorus for the In-Stream Pond all values provided in lbs/year

LA	WLA	FA	MOS	TMDL
163	132	51	38	384

A copy of these TMDLs was provided to the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The USFWS and NMFS responded to EPA on December 21, 2002 and July 29, 2003, respectively, that there were no expected endangered species impacts associated with these TMDLs and the Services therefore provided concurrence on these TMDLs.

III. Discussion of Regulatory Conditions

EPA finds that MDE has provided sufficient information to meet all of the eight basic requirements for establishing CBOD, NBOD, and phosphorus TMDLs for UTLTC and UTLTC In-Stream Pond. EPA therefore approves these TMDLs for UTLTC and UTLTC In-Stream Pond. This approval is outlined below according to the eight regulatory requirements.

1) The TMDLs are designed to implement applicable water quality standards.

Water Quality Standards consist of three components: designated and existing uses; narrative and/or numerical water quality criteria necessary to support those uses; and an anti-degradation statement. Maryland does not currently have numeric water quality criteria for nutrients (nitrogen or phosphorus), CBOD, or NBOD. Maryland has a numerical criterion for DO. According to the criterion, DO concentrations may not be less than 5.0 milligrams per liter (mg/L) unless resulting from naturally occurring conditions. In lake environments, low concentrations of DO are expected in bottom waters even under optimal natural conditions. However, achievement of the 5.0 mg/L criterion is expected in well-mixed surface waters. The violation of the criteria in UTLTC and UTLTC In-Stream Pond indicates nutrient enrichment in the pond. The overall objective of the TMDLs is to reduce phosphorus, CBOD, and NBOD loads in order to meet water quality criteria that support the Use I designation.

The CBOD and NBOD models for the UTLTC were developed through the Input Program (INPRG) model. The INPRG model is a steady state model, developed within MDE for the impact assessment of point and nonpoint source load discharges of material which exert oxygen demand in free-flowing streams. The model runs required an input of CBOD and NBOD to incorporate the total BOD loads.

The model is able to calculate the daily average DO concentration in stream by considering the oxidation of CBOD and NBOD for re-aeration only and predicts the CBOD, NBOD, and DO concentration for selected stream input conditions. The model is based on the Streeter-Phelps equation. The UTLTC TMDL was modeled for three conditions. The first scenario was for stream flow during 7Q10 flow conditions with current point source loading. The second scenario was for nonpoint sources under average flow conditions with point sources under current conditions. The third and final scenario analyzes water quality under an expanded WWTP flow under 7Q10 flow conditions. Under 7Q10 flow conditions there are no land based source loads.

The INPRG model was calibrated to data collected in August of 1998 and validated to data from September of the same year. Calibration for CBOD, NBOD, and DO was achieved through the adjustment of the carbonaceous and nitrogenous deoxygenating rates parameter. In the validation run these rates were held constant to determine if the model accurately reflected the season. Temperature has a significant affect on oxygen solubility and CBOD and NBOD, therefore, it is important for the model to take temperature into

consideration. The model was run using the 90th percentile stream temperature data from USGS gage 01492000 which is located on a similar Creek.

According to the INPRG model water quality criteria was attained during all of the scenarios. Therefore, the TMDL was developed for the condition that allowed for the greatest CBOD and NBOD loads while still allowing for the attainment of water quality criteria. Scenario 3 was therefore adopted as the TMDL load. There are no nonpoint source loads in this scenario and the entire loading was granted to the WWTP.

A separate TMDL was developed for phosphorus loading to the In-Stream Pond. It was determined that phosphorus would be the limiting nutrient for phytoplankton growth once the WWTP upgrades are put in place. Based on the trophic status index, it was determined that chlorophyll a concentration of 25 ug/L was appropriate for the In-Stream Pond. A Vollenweider Analysis was run to determine the phosphorus load that would dictate the desired chlorophyll a concentration. The Vollenweider relationship predicts the degree of a lake's eutrophication as a function of areal phosphorus loading. Vollenweider's work was updated by Jones and Lee. They developed a linear relationship between the log of the normalized phosphorus loading and the log of the chlorophyll a concentration. The relationship is based on the study of 300 lakes in North America. The total phosphorus load was determined under current conditions with and without the WWTP. The concentration was determined by a simple mathematical equation which can be found in Appendix B of the report.

The equation determined the concentration of phosphorus in the runoff by dividing the expected total phosphorus land based load (121,600 g/year), as determined via the Chesapeake Bay Program, Phase IV Areal Loading Rates, by the annual runoff volume (410,500 cubic meters/year). The concentration of phosphorus in the runoff was 0.296 g/cubic meter. The total phosphorus concentration in the runoff and plant effluent was 1.196 g/cubic meter. The total phosphorus concentration in the stream was 45.7 g/cubic meter. This was determined by dividing the sum of the total land based loading to the stream (121,600 g/ year) and effluent loading (606,500 g/year) by the area of the In-Stream Pond (15,920 square meters). The normalized phosphorus loading was determined by dividing the total in-stream phosphorus concentration by the residence time (time the water is retained in the Pond 5.8 days) and the ratio between depth to residence time. EPA believes that the methodology used by MDE will insure that the water quality criteria are attained.

2) *The TMDLs include a total allowable load as well as individual waste load allocations and load allocation*s.

Total Allowable Load

As mentioned above, the endpoint used is a maximum Chlorophyll a concentration of 25 ug/L, since a relationship exists between the level of Chlorophyll a concentration and

phosphorus loading.

MDE determined that the limiting nutrient is phosphorus. Therefore, a TMDL for nitrogen was not necessary. Separate TMDLs have been calculated for phosphorus, CBOD, and NBOD. The allocations are presented as yearly loads. Expressing TMDLs as yearly loads is consistent with Federal regulations at 40 CFR 130.2(i), which state that TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure.

EPA regulations [40 CFR 130.2.(i)] state that the total allowable load shall be the sum of individual waste load allocations for point sources, load allocations for nonpoint sources and natural background concentrations. The TMDLs for phosphorus, CBOD, and NBOD for UTLTC and UTLTC In-Stream Pond are consistent with 40 CFR 130.2 (i) because the total loads provided by MDE equal the sum of the individual WLAs for point sources and the land-based load allocations for nonpoint sources set forth in the Technical Memorandum provided with the TMDL document. Pursuant to 40 CFR 130.6 and 130.7(d)(2), these TMDLs and the Technical Memorandum and supporting documentation should be incorporated into Maryland's current water quality management plan. See Tables 2 and 3 for a summary of the allowable loads.

Waste Load Allocations

There is one NPDES Permitted facility within the UTLTC and UTLTC In-Stream Pond watershed. That facility is the Le Trappe WWTP. The facility is a source of phosphorus, CBOD, and NBOD to the watershed. Therefore, a WLA was provided for this facility for all of the pollutants of concern. The WLA granted to this facility can be seen on Tables 2 and 3 of this document.

EPA regulations require that an approvable TMDL include individual WLAs for each point source. According to 40 CFR 122.44(d)(1)(vii)(B), "Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA pursuant to 40 CFR 130.7." Furthermore, EPA has authority to object to the issuance of any National Pollutant Discharge Elimination System (NPDES) permit that is inconsistent with the WLAs established for that point source.

Load Allocations

Maryland provided adequate land use and loading data in the TMDL report, but did not distribute the total load allocation to specific land use categories in the TMDL report for phosphorus. There was no load allocation provided in the CBOD or NBOD TMDLs because in the modeled scenario that forms the basis of the TMDL, the point source effluent comprises the total stream flow. Maryland included a gross load allocation for the

phosphorus TMDL. The gross load allocation is presented in Table 3. Nonpoint source loading rates represent a cumulative impact from all sources, including naturally occurring and human-induced sources. The loading estimates for phosphorus are based on the total annual load calculated using Chesapeake Bay loading data.

According to Federal regulations at 40 CFR 130.2(g), load allocations are best estimates of the loading, which may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading; wherever possible natural and nonpoint source loads should be distinguished. MDE uses the Chesapeake Bay Program Phase IV Model loading coefficients which are land use specific and include natural background contributions, atmospheric deposition (to land and/or water) and baseflow contributions.

EPA regulations and program guidance provide for effluent trading. Federal regulations at 40 CFR 130.2 (I) state: "If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then WLAs may be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs." The state may trade between point sources and nonpoint sources identified in this TMDL as long as three general conditions are met; 1) the total allowable load to the waterbody is not exceeded, 2) the trading of loads from one source to another continues to properly implement the applicable water quality standards and embraces the assumptions and methodology of these TMDLs and Technical Memorandum, and 3) the trading results in enforceable controls for each source. Final control plans and loads should be identified in publicly available planning document, such as the state's water quality management plan (see 40 CFR 130.6 and 130.7(d)(2)). These final plans must be consistent with the goals of the approved TMDLs.

Based on the foregoing, EPA has determined that the TMDLs and the Technical Memorandum are consistent with the regulations and requirements of 40 CFR Section 130. Pursuant to 40 CFR 130.6 and 130.7(d)(2), these TMDLs and the supporting documentation, including the Technical Memorandum, should be incorporated into Maryland's current water quality management plan.

3) The TMDLs consider the impacts of background pollutant contributions.

In terms of the TMDL analysis, Chesapeake Bay Phase IV Model loading coefficients were used which effectively consider natural background, loads from septic tanks, as well as baseflow contributions. In regards to the CBOD and NBOD TMDLs the model was developed based on in-stream data which would have included background loads.

4) The TMDLs consider critical environmental conditions.

EPA regulations in 40 CFR 130.7(c)(1) require TMDLs to account for critical conditions for stream flow, loading, and water quality parameters. The intent of the

regulations is to ensure that (1) the TMDLs are protective of human health and (2) the water quality of the waterbodies is protected during the times when they are most vulnerable.

Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards.[6] In specifying critical conditions in the waterbody, an attempt is made to use a reasonable "worst case" scenario condition. For example, stream analysis often uses a low flow design condition as critical because the ability of the waterbody to assimilate pollutants without exhibiting adverse impacts is at a minimum.

Critical conditions were assessed in both TMDLs. In the CBOD and NBOD TMDLs the model was run using the 90th percentile temperature value, at higher water temperatures, oxygen is less soluble. Therefore, the lowest DO values would be expected under these conditions. These TMDLs were also developed under 7Q10 flow conditions when the streams buffering capacity is at its lowest for the effluent discharge. The phosphorus TMDL was developed for a chlorophyll a concentration of 25 ug/L which would represent the critical condition.

5) The TMDLs consider seasonal environmental variations.

Seasonal variations involve changes in streamflow as a result of hydrologic and climatological patterns. In the continental United States, seasonally high flow normally occurs in early spring from a combination of snowmelt and spring rain, while seasonally low flow typically occurs during the warmer summer and early fall drought periods[7].

The TMDL for CBOD and NBOD was developed for low flow and average flow conditions when the impacts from point source loading are at their greatest. Since the TMDL was developed for the summer months only, this is appropriate. The phosphorus TMDL factored in the total annual loading of phosphorus to the stream and therefore evaluated the seasonal loading factors of the pollutant.

6) The TMDL includes a margin of safety.

The requirement for a MOS is intended to add a level of conservatism to the modeling process in order to account for uncertainty. Based on EPA guidance, the MOS can be

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[6]EPA Memorandum regarding EPA Actions to Support High Quality TMDLs from Robert H. Wayland III, Director, Office of Wetlands, Oceans, and Watersheds to the Regional Water Management Division Directors, August 09, 1999.

[7]U.S. EPA. Technical Guidance Manual for Developing Total Maximum Daily Loads, Book 2, Part 1, Section 2.3.3. USEPA 823-B-97-002. 1997

achieved through two approaches. The first approach is to reserve a portion of the loading capacity as a separate term. The second approach is to incorporate the MOS as part of the TMDL design conditions.

MDE adopted an explicit MOS for the phosphorus, CBOD, and NBOD TMDLs in accordance with the first approach. The MOS for the CBOD and NBOD was set equal to the difference between the weekly and monthly effluent limits at the WWTP. The MOS for the phosphorus TMDL was set at 10% of the total phosphorus loading the In-Stream Pond.

7) There is reasonable assurance that the TMDLs can be met.

EPA requires that there be a reasonable assurance that the TMDLs can be implemented. WLAs will be implemented through the NPDES permit process. According to 40 CFR 122.44(d)(1)(vii)(B), the effluent limitations for an NPDES permit must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA. Furthermore, EPA has authority to object to issuance of an NPDES permit that is inconsistent with WLA established for that point source.

Nonpoint source controls to achieve load allocations can be implemented through a number of existing programs, including EPA's Clean Water Action Plan and Maryland's Water Quality Improvement Act of 1998, and the state's Chesapeake Bay Agreement's Tributaries Strategies for Nutrient Reduction.

Nonpoint source nutrient reductions will depend heavily on implementation of agricultural best management practices (BMP). The TMDL document lists the following as BMPs: a Soil Conservation and Water Quality Plan, treatment of highly erodible land, conservation tillage, and Nutrient Management Plans.

In addition, there will be follow-up monitoring within five years as part of Maryland's Watershed Cycling Strategy. This follow-up monitoring will allow Maryland and EPA to determine whether these TMDLs have been implemented successfully.

8) The TMDL has been subject to public participation.

MDE provided an opportunity for public review and comment on the TMDLs for UTLTC and UTLTC In-Stream Pond. The public review and comment period extended from November 27, 2002 through December 26, 2002. Two sets of written comments were received by MDE. These comments and responses were provided with the TMDL document and MDE adequately responded to the public comments.

EPA initiated informal consultation with the USFWS and NMFS pursuant to Section 7(c) of the Endangered Species Act, regarding certain Federal agency actions by EPA Region III regarding Maryland TMDLs. The Region forwarded a Biological Evaluation to

the Services regarding our proposed action on Maryland TMDLs. On December 21, 2002, EPA received concurrence from the USFWS and on July 29, 2003 EPA received concurrence from the NMFS that our action is not likely to adversely affect endangered species and their critical habitat.