

Attachment B
Chesapeake Bay Program
Principals' Staff Committee Meeting
October 23, 2009

Briefing Paper on the Chesapeake Bay TMDL

Issue: To start the watershed implementation planning process of the states and to move the Chesapeake Bay TMDL development forward, at the October 23 meeting the Principals' Staff Committee will need to decide on the:

- 1) basinwide target load for nitrogen and phosphorus
- 2) working target loads for nitrogen and phosphorus for the basin- jurisdictions within the Chesapeake Bay watershed, and
- 3) schedule of major milestones and completion of the Bay TMDL.

Background: The Water Quality Goal Implementation Team (WQGIT) has held numerous conference calls and a 2 day meeting to interpret the bay modeling results and other information to arrive at several significant recommendations to the PSC. The recommendations for the basinwide target load and the working target loads for the basin-jurisdictions represent unanimous recommendations. However, the recommended schedule more represents EPA's position since EPA is committed to completing the TMDL by December 2010 and many of the states preferred an extension of the TMDL until May, 2011.

It must be remembered that the basinwide target load and the working target loads to the basin jurisdictions should be considered preliminary but adequate to start the watershed implementation planning process. These loadings do not represent a draft Total Maximum Daily Load, and these targets will undergo several revisions based on further technical analysis, additional debate among the states and EPA, and at least 2 major opportunities for public input.

Issue 1: basinwide target load for nitrogen and phosphorus

At the July PSC meeting, the WQGIT recommended a basinwide target load of 175 million pounds per year (mpy) of nitrogen and 14.1 mpy of phosphorus. At the time, the PSC was advised that this number was very preliminary and subject to change for a wide variety of planned analysis and model updates.

This basinwide loading was based on critical conditions (mostly rainfall and stream flow) that existed from 1996-1998. These three years represented the highest modeled dissolved oxygen standards violation for a 3 year period in the 10 year modeling period being used (1991-2000) for the development of the TMDL. Since the PSC meeting, Malcolm Pirnie, Inc. on behalf of Aqualaw, conducted an analysis that concluded that 'the critical condition being planned for the Chesapeake Basin TMDL appears to be significantly more infrequent than is normally used for TMDL development.'

Subsequent to the Malcolm Pirnie, Inc. analysis, EPA's contractor further assessed the issue. Based on this analysis and considerable discussion among the WQGIT, the WQGIT agreed (with consensus) that the critical period of 1996-1998 consisted of river flows that were extreme and more infrequent than is typically considered when developing TMDLs (occurs about once in 20 years). The WQGIT further agreed (with consensus) that an alternate critical period of 1993-1995 was more appropriate to be used as the basis for the Bay TMDL and is more consistent with critical periods used in developing TMDLs (occurs about once in 10 years).

A revised basinwide target load analysis was conducted using the new critical period of 1993-1995. Being that this critical period represents a lesser rainfall period than the previous critical period of 1996-1998, it was anticipated that the basinwide target loadings would go up. Based on the modeling results using the updated critical period of 1993-1995, the WQGIT consensus recommendation is a revised basinwide target load of 200 mpy for nitrogen and 15 mpy for phosphorus. This loading has been confirmed in subsequent model run as being adequate to achieve water quality standards.

It must be noted that it is likely that this target load will likely be changed several times leading up to a draft TMDL and final TMDL. The primary issues under consideration that will likely change these loadings include:

- **the upgraded watershed model (Phase 5.2 to 5.3)**
- **filter feeder inclusion in the WQ model**
- **SAV/clarity target load analysis**
- **atmospheric deposition allocation and impact on ocean load**
- **trade-offs between N and P**
- **loading reductions needed to meet local Bay segments**

In spite of likely future changes to the basinwide target load, the WQGIT unanimously recommends the revised target loads of 200 mpy nitrogen and 15 mpy phosphorus as adequate for the purpose of distributing these loads to the basin-jurisdictions to initiate the state watershed implementation planning process.

DECISION REQUESTED: PSC agreement with the WQGIT recommendation to use the basinwide target loading of 200 mpy nitrogen and 15 mpy phosphorus for the purpose of distributing these loadings to the basin-jurisdictions as initial working target loadings to initiate the watershed implementation planning process.

Issue 2: Working target loads for nitrogen and phosphorus for the basin-jurisdictions within the Chesapeake Bay watershed

The PSC made it clear that the states could not start the watershed implementation planning process without target loadings for each of the basins within a state.

Independent of the critical period, the WQGIT also discussed the base year that should be used in determining the equitable distribution of the basinwide target load to the basin-jurisdictions. The base year has 2 key components to it. They are:

- 1) What year should be used as a basis of land use in determining the target loads for the basin-jurisdictions? The WQGIT assessed 1985, 2002, and 2010 as the base years for land use.
- 2) What year should be used as a basis of WWTP flow in determining the target loads for the basin-jurisdictions? The WQGIT assessed 1985, 2002, and design flow.

In polling the Bay states' TMDL staff, it was learned that the predominant practice for determining base year in developing TMDLs is the current year for land use and design flow for WWTPs. Also, the 2003 bay allocations were determined using 2010 as the base year and design flow for the WWTPs. For these reasons, all bay states with the exception of New York agreed with continuing to use 2010 land use and design flow for WWTP for the purpose of determining the distribution of the basinwide target load to the basin-jurisdictions.

For about a year, the WQGIT has been assessing variations to an approach for distributing the allowable loadings to the basin-jurisdictions that is based on the principle that those basin-jurisdictions that contribute most to the degradation of the Bay (on a per-pound basis) must do the most to resolve the problem (reduce loadings). The PSC agreed with this approach as the primary basis for distributing the basinwide loading target to the basin-jurisdictions. Since the PSC meeting in July, the WQGIT has assessed numerous variations of this approach including separating the analysis between WWTPs and other sources, varying the load reductions of the WWTP part of the target loads and varying the target load difference between those basins most impacting the bay and those basins least impacting the bay (slope of the line).

Based on numerous conference calls, a survey of state preferences on the approach options, and extensive discussions at the recent WQGIT meeting, the WQGIT unanimously recommends to the PSC, two options for distributing the basinwide target loading to the basin-jurisdictions.

The recommended options are labeled option 'a' and option 'b' and are summarized below:

Option a- WWTP 4.5-8 mg/l N, .22-.53 mg/l P, straight line, 20% slope of line

Option b- WWTP 4.5-8 mg/l N, .22-.53 mg/l P, hockey stick, 20% slope of line

These options yield the following working target loads for the states:

Nitrogen

| State | Tributary Strategy | Option a | Option b |
|-------|--------------------|---------------|---------------|
| DC | 2.12 | 2.82 | 2.37 |
| DE | 6.43 | 5.12 | 5.25 |
| MD | 42.14 | 41.52 | 41.04 |
| NY | 8.68 | 10.54 | 10.54 |
| PA | 73.17 | 72.72 | 73.64 |
| VA | 59.30 | 60.38 | 59.22 |
| WV | 5.69 | 5.65 | 5.71 |
| Total | 197.53 | 198.77 | 197.76 |

Phosphorus

| State | Tributary Strategy | Option a | Option b |
|-------|--------------------|--------------|--------------|
| DC | 0.10 | 0.18 | 0.13 |
| DE | 0.25 | 0.26 | 0.28 |
| MD | 2.56 | 3.03 | 3.04 |
| NY | 0.56 | 0.56 | 0.56 |
| PA | 3.10 | 3.17 | 3.16 |
| VA | 7.92 | 6.98 | 7.05 |
| WV | 0.45 | 0.60 | 0.62 |
| Total | 14.93 | 14.77 | 14.84 |

These target loads are further divided among the major basins within each state. Those detailed basin-jurisdiction loadings have been provided in other documents. It must be noted that the WQGIT determined that it is acceptable for a state to ‘exchange’ target loadings within the state from one basin to another to create an alternate target loads as long as the ‘exchange’ does not result in violations of water quality standards.

DECISION REQUESTED: PSC agreement on a set of nitrogen and phosphorus working target loads to each of the basin-jurisdictions for the purpose of initiating the watershed implementation planning process.

Issue 3: Schedule of major milestones and completion of the Bay TMDL

The PSC agreed to complete the Chesapeake Bay TMDL by December 2010. In spite of those best efforts, the important steps of determining the basinwide loading target and initial working basin-jurisdiction loading targets has been delayed by 7 months. This delay has caused a commensurate delay in the states efforts to develop the Watershed Implementation Plans. These plans are important not only to guide state and local efforts but also much of the loading targets in the WIPs will be incorporated into the draft and final TMDL. All state representatives on the WQGIT support more time in the previously scheduled date of March 2010 to develop draft watershed implementation plans and most state representatives on the WQGIT prefer that the completion date of the TMDL be moved back to May, 2011.

Although many states have indicated an interest in delaying the establishment of the Bay TMDL, EPA is committed to establishing the Chesapeake Bay TMDL by December, 2010. While this leaves less time for states to complete the watershed implementation plans, EPA believes that the adaptive management approach that EPA has build into the planning process enables the states to make necessary adjustments in how they are to achieve the needed loading reductions, after the TMDL is established. EPA does however suggest that the public participation part of the previous schedule and the time allotted for EPA and the states to respond to public comments may be shortened to allow for more time for the states to develop their watershed implementation plans.

With the considerations above, the following schedule modifications are suggested:

- **Reduce the public review** period to 60 days
- **Push back** the date for submission of preliminary watershed implementation plans to August 1st
- **Shorten time** for turning around responses to public comments

With these modifications, the major milestones of the recommended schedule are described below:

- October 23, 2009: PSC agreement on initial basinwide and basin/ jurisdiction ‘working’ target loads
- June 1, 2010: States, DC submit initial draft watershed implementation plans to EPA
- July 15, 2010: PSC reviews initial draft Bay TMDL package; provides specific directions to WQGIT on requested changes
- Aug 1-Sept 30, 2010: Bay TMDL public review and 2nd round of public meetings
- Nov 1, 2010: Final Watershed Implementation Plans to EPA
- Nov 15, 2010: PSC reviews/provides specific comments and direction to EPA, partners on the draft final Bay TMDL package—allocations, watershed plans, underlying documentation
- Dec 31, 2010: EPA publication of final Bay TMDL

DECISION REQUESTED: PSC approval of the proposed October 2009- December 2010 Bay TMDL schedule. In addition, agreement to immediately move forward to engage local governments, local partners on development of the watershed implementation plans and local-level/source sector target loads.