



# NPDES Permitting Approach for Discharges of Nutrients in the Chesapeake Bay Watershed

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## I. PURPOSE

In accordance with the requirements of the Clean Water Act (CWA) and the goals of the *Chesapeake 2000* agreement, this paper describes an approach that the US Environmental Protection Agency Regions II and III (EPA) and Chesapeake Bay partner jurisdictions will take to develop and issue appropriate National Pollutant Discharge Elimination System (NPDES) permits for significant point source discharges of nutrients to the Chesapeake Bay watershed. EPA's Bay partner jurisdictions consist of the States of New York (NY), Pennsylvania (PA), Maryland (MD), Delaware (DE), Virginia (VA) and West Virginia (WV), and the District of Columbia (DC).

## II. PROBLEM

Excessive nutrient loading is the most critical problem affecting the Chesapeake Bay. Excess nutrients cause water quality conditions that are harmful to aquatic living resources. While there has been substantial progress in reducing the annual loads of nutrients to the Bay and tidal waters from both point and nonpoint sources in the past twenty years, an additional annual load reduction of 6.7 million pounds of phosphorus and 103 million pounds of nitrogen is needed to achieve the water quality goals of the Chesapeake Bay and its tidal tributaries.

## III. BACKGROUND

- All states with Bay and tidal tributary waters are currently in the process of modifying current water quality standards (WQS) by proposing refined aquatic life uses and water quality criteria applicable to the Chesapeake Bay and its tidal tributaries as recommended by recent EPA guidance.<sup>1,2</sup> DE has adopted revised Chesapeake Bay uses and criteria which EPA has this month approved. MD and DC are scheduled to finalize modifications by the spring of 2005 and VA is scheduled to complete its process by the fall of 2005.
- EPA and its state partners, under the cooperative Chesapeake Bay Program (CBP), agreed to cap annual nutrient loads (nutrient cap load allocations) for each major tributary basin and jurisdiction sufficient to achieve the recommended Bay aquatic life uses and criteria. While achieving those tributary basin nutrient cap load allocations will result in water quality improvements throughout the Chesapeake Bay watershed, the basin nutrient cap load allocations are generally driven by the load reductions necessary to achieve the recommended Bay dissolved oxygen criteria for the MD portion of the Chesapeake Bay.<sup>3</sup>
- For the James and York Rivers, the basin nutrient cap load allocations and the tributary strategies for these rivers are largely based on preventing low dissolved oxygen levels, impaired living resources, and excessive algal populations within those local, tidal waters.<sup>3</sup>
- The Bay watershed jurisdictions are developing and carrying out tributary strategies to achieve the reductions from point and nonpoint sources necessary to meet the CBP tributary basin nutrient cap load allocations. These tributary strategies identify the nutrient load reduction actions that are designed to achieve discharge reductions as stringent as necessary to meet the recommended Bay water quality criteria and attain the revised state WQS, thereby satisfying the requirements of the CWA.

- The term “significant point sources” discussed in this paper means a subset of all municipal and industrial point sources located in the Chesapeake Bay watershed (from MD, VA, DE, WV, PA, NY, and DC) that have been identified by EPA and its partner jurisdictions as either discharging significant amounts of nitrogen (N) and phosphorus (P), or listed as potentially significant sources contributing N and P pending development of appropriate data.<sup>4,5</sup>
- Under EPA regulations and the CWA, permits must be written to achieve applicable WQS.

#### IV. APPROACH

**A. When the revised Maryland WQS are effective,** EPA and the state NPDES permitting authorities agree to issue NPDES permits for all new point sources and begin to reissue NPDES permits for existing significant point sources consistent with the applicable state tributary strategy. Where the tributary strategies provide a mechanism to accommodate loadings from new discharges of nutrients, the NPDES permit(s) will be written consistent with that tributary strategy. Where the tributary strategies do not identify a reserve for future growth, these new loads need to be offset through additional reductions in loads from other sources in the same basin. This offset will be identified in the permit but may be tracked and enforced through other means such as state trading programs. If the offset is made through non-point source best management practices (BMPs), the state should ensure that the basin nutrient cap load is maintained.

*Exception: For the York and the James Rivers, the nutrient allocations assigned to these rivers are largely based on preventing low dissolved oxygen levels, reduced living resources, and/or excessive algal populations in these tidal rivers. In 2005, Virginia is scheduled to adopt revised numeric standards for these rivers addressing dissolved oxygen, living resources, water clarity and chlorophyll ‘a’ (James River). Therefore, when the revised WQS for these rivers are effective, EPA and Virginia agree to place nutrient-based controls in NPDES permits for existing significant and all new discharges consistent with the tributary strategies.*

**B. When issuing permits with nutrient-based requirements, EPA and the state NPDES permitting authorities also agree to:**

- Place total N and P monitoring requirements in all permits for significant point sources;
- Place total N and P load limits in the NPDES permits and/or watershed permits consistent with the applicable tributary strategy;
- Consider expressing permit limits for N and P, intended to protect the Chesapeake Bay and its tidal tributaries and meet applicable WQS, as annual load limits, instead of expressing the limits as monthly, weekly, or daily limits.<sup>6</sup> This does not preclude any state from including additional requirements consistent with their regulations;
- Incorporate compliance schedules, as needed and appropriate, into permits or other enforceable mechanisms, consistent with the state tributary strategies, where the state WQS and CWA NPDES requirements allow for such compliance schedules. Generally, these compliance schedules should require the facility to come into compliance with the nutrient-based requirements of the permit or order as soon as possible in keeping with the 2010 timeline and objective of the *Chesapeake 2000* agreement;<sup>7</sup>
- Incorporate a Bay specific re-opener clause in permits for significant point sources, if the existing re-opener clause is insufficient;
- Consider the use of watershed permits to regulate nutrient discharges from sources of nitrogen and phosphorus in the most cost effective fashion. Further, an interstate watershed permit approach will be explored among the Bay jurisdictions and EPA to take full advantage of the economies inherent in watershed permits and trading; and,
- Explore opportunities for trading of nutrient reductions. Any watershed permitting/trading will need to ensure protection of applicable state WQS, and should be consistent with EPA’s Water Quality Trading Policy.<sup>8</sup>

### C. EPA Oversight of NPDES Program in States

To monitor states' progress in placing appropriate limits in permits, EPA will closely review the nutrient reduction requirements in those permits submitted to EPA. Furthermore, after the revised Maryland WQS become effective, EPA will review NPDES permits for significant point sources as identified by the CBP as contributing nutrients to the Chesapeake Bay and its tidal tributaries. Through those permit reviews, EPA and the Chesapeake Bay Program partners will track and report on the number of permits in the Bay watershed that have incorporated nutrient-based requirements consistent with the tributary strategies.

### D. Re-evaluation of Permitting Approach

This permitting approach presumes and is reliant on timely revisions to the state WQS and timely development of tributary strategies for the Chesapeake Bay and its tidal tributaries. If any delay occurs in the ongoing revision of state WQS or finalization of the tributary strategies that creates obstacles and/or interferes with issuance of permits or installation of point source controls for nutrients, EPA and the State Permitting Authorities agree to reassess this permitting approach. As part of the planned 2007 Chesapeake Bay reevaluation, EPA and the states may reevaluate the NPDES permitting practices for nutrients in the Bay watershed. During that 2007 reevaluation period, EPA may also reassess the current schedule for the development of total maximum daily loads for the Chesapeake Bay.

## V. REFERENCES

1. US EPA. 2003. *Ambient Water Quality Criteria for Dissolved Oxygen, Water Clarity and Chlorophyll a for the Chesapeake Bay and its Tidal Tributaries*. EPA 903-R-03-002. Chesapeake Bay Program Office, Annapolis, Maryland.
2. US EPA. 2003. *Technical Support Document for Identification of Chesapeake Bay Designated Uses and Attainability*. EPA 903-R-03-004. Chesapeake Bay Program Office, Annapolis, Maryland.
3. US EPA. 2003. *Setting and Allocating the Chesapeake Bay Basin Nutrient and Sediment Loads*, EPA 903-R-03-007. Chesapeake Bay Program Office, Annapolis, Maryland.
4. Chesapeake Bay Program Nutrient Reduction Technology Cost Task Force. November 2002. *Nutrient Reduction Technology Cost Estimations for Point Sources in the Chesapeake Bay Watershed*. Chesapeake Bay Program Office, Annapolis, Maryland.
5. Chesapeake Bay Program Nutrient Point Source Database.  
[http://www.chesapeakebay.net/data/query1.cfm?DB=CBP\\_PSDB](http://www.chesapeakebay.net/data/query1.cfm?DB=CBP_PSDB)
6. Memo from J. Hanlon to J. Capacasa. *Annual Permit Limits for Nitrogen and Phosphorus for Permits Designed to Protect Chesapeake Bay and its tidal tributaries from Excess Nutrient Loading under the National Pollutant Discharge Elimination System*. March 3, 2004.
7. Chesapeake Executive Council. 2000. *Chesapeake 2000*, June 28, 2000.
8. US EPA. 2003. *Water Quality Trading Policy*. Office of Water, Washington, DC.

*This document describes how the states and EPA intend to implement the requirements of the Clean Water Act and applicable regulations when they propose NPDES permits for control of nutrient discharges in the Chesapeake Bay watershed. This document describes those legally binding requirements of the Clean Water Act and applicable regulations but does not substitute for those provisions and/or regulations. The recommendations in this paper are not binding; there may be other approaches that would be appropriate in particular situations. Each permitting decision will be made on a case-by-case basis and will be guided by the applicable requirements of the Clean Water Act and applicable regulations taking into account comments and information presented at that time by interested persons. This guidance may be changed in the future.*