Pennsylvania's Chesapeake Bay Tributary Strategy
Implementation Plan for NPDES Permitting

The strategy outlined in this guidance document is intended to supplement existing requirements. Nothing in the strategy shall affect regulatory requirements. The information herein is not an adjudication or a regulation. There is no intent on the part of the Department to give the strategy described in this document that weight or deference. This document establishes the framework, within which the Department will exercise its administrative discretion in the future. The Department reserves the discretion to deviate from this strategy if circumstances warrant.

Background

DEP released Pennsylvania's current Chesapeake Bay Tributary Strategy (CBTS) in January of 2005. The purpose of the CBTS was to address Pennsylvania's commitment for nutrient and sediment reductions in the Chesapeake Bay Watershed, under the Chesapeake 2000 Agreement. The goal of the Chesapeake 2000 Agreement is to remove the Chesapeake Bay from the federal Clean Water Act's list of impaired waters prior to 2011 when the United States Environmental Protection Agency (EPA) would establish a bay-wide Total Maximum Daily Load resulting in mandatory directives from EPA. The CBTS consists of various initiatives to meet these nutrient and sediment reduction obligations in a cost effective manner. The CBTS also focuses Pennsylvania efforts to meet legal requirements associated with impairment of the Bay, including new water quality standards enacted by Maryland.

In January 2006, DEP refocused and expanded the standing DEP Chesapeake Bay Steering Committee, composed of representatives from various impacted stakeholder organizations, to continue to discuss the wide variety of issues about the CBTS and to consider possible new approaches to meet the water quality obligations based on the new Maryland standards. The Steering Committee formed several workgroups to allow for more focused discussion on specific aspects of the CBTS and to provide feedback to the Steering Committee on issues they identified. The Point Source Work Group (PSWG) was formed to address concerns arising over implementation of nutrient reduction requirements for point source sewage dischargers.

The PSWG presented a preliminary version of an alternative proposal to the Steering Committee for consideration and review on April 13, 2006. The workgroup focused on individual discharger cap loads, anticipated cost, availability of treatment technology and implementation timeframe. In late June, the results of those discussions were presented to the Steering Committee with a recommendation that they be distributed to the affected "significant" dischargers for review and comment. The Steering Committee agreed.

The alternate proposal for point source compliance detailed a rationale for having sewage facilities treat to 6.0 mg/l TN and 0.8 mg/l TP at design flow, rather than 8.0 mg/l TN and 1.0 mg/l TP at their 2010 projected flow. The alternate proposal was available for comment to the affected dischargers for six weeks in 2006 from mid-July through the end of August. Eighty sets of comments were received, constituting a representative sample of the 183 significant dischargers. A significant majority of the commentators opted to send comments in favor of the alternative allocation proposal under consideration. Only a few of the comments received were opposed to the alternate allocation proposal.

Based on the Department's evaluation, and the positive response from the majority of the comments received (92 percent), the Department decided that the alternate allocation method would be implemented.

New Department Guidelines

The strategy of the Department with regard to permitting for wastewater treatment facilities in the Chesapeake Bay Watershed is as follows:

I. Sewage Discharges – Permitting for existing sewage discharges will be implemented by revoking and reissuing permits using a phased approach, initially imposing TN and TP cap loads for significant sewage dischargers, based in part on their respective delivered loads to the Bay. Appendix A, under July 12, 2006 on the DEP Chesapeake Bay web page, shows permits for each specific phase. The phased approach will not prevent any facilities from opting for an earlier implementation schedule if they so choose. The implementation schedule is as follows:

A. Phase 1 – cap loads will be placed in permits and become effective on 10/01/2010. Draft permits are to be issued as soon as possible. Dischargers will be notified of their proposed cap loads based on concentrations of 6.0 mg/l TN and 0.8 mg/l TP at design annual average daily flow.

B. Phase 2 – cap loads will be placed in permits and become effective on 10/01/2012, and final permits with cap loads will be issued no later than 9/30/2009. Dischargers will be allocated a cap load based on concentrations of 6.0 mg/l TN and 0.8 mg/l TP at design annual average daily flow. This may be done through the issuance of a watershed permit.

C. Phase 3 – cap loads will be placed in permits and become effective on 10/01/2013, and final permits with cap loads will be issued no later than 9/30/2010. Dischargers will be allocated a cap load based on concentrations of 6.0 mg/l TN and 0.8 mg/l TP at design annual average daily flow. This may be done through the issuance of a watershed permit.

D. Phase 4 – non-significant point source sewage dischargers (design annual average daily flow on August 29, 2005, greater than or equal to 0.2 mgd but less than 0.4 mgd):

1. These facilities will begin monitoring and reporting for TN and TP. These monitoring requirements will be placed in NPDES permits as they come up for renewal. These data will provide a basis for future cap load limitations as part of a Phase 4. Monitoring for TN and TP will be required for a period of two years, beginning on the effective date of the new permit.

2. Implementation of Phase 4 cap loads will start after phases one through three are completed. Phase 4 permits will be revoked and reissued to establish annual mass load limits for TN and TP based upon the lesser of existing performance levels at design annual average daily flow on August 29, 2005, or, loads equivalent to 6 mg/l TN and 0.8 mg/l TP at 0.4 mgd (7306 lbs. TN and 974 lbs. TP). This may be done through the issuance of a watershed permit.

3. Any facility in this phase that undergoes an expansion prior to phase 4 implementation will be immediately subject to the requirements shown for phase 4, i.e. no net increase in loading, based on design annual average flow on August 29, 2005 and existing nutrient concentrations, but in no case shall this load exceed 7306 pounds of TN and 974 pounds of TP, annually.

E. Phase 5 – smaller dischargers (design annual average daily flow on August 29, 2005 less than 0.2 mgd and greater than 0.002 mgd):

1. These facilities will be given the choice to monitor levels of TN and TP in their discharge for two years when their permit is up for renewal or in a subsequent permit renewal, for the purpose of data collection and possibly assigning cap loads under Phase 5, occurring after the implementation of Phases 1 through 4.

2. Any facility in this phase that undergoes an expansion prior to phase 5 implementation will be immediately subject to the requirements shown for phase 5, i.e. no net increase in loading, based on design annual average flow on August 29, 2005, and existing nutrient concentrations[1], but in no case will this load exceed 7306 pounds of TN and 974 pounds of TP, annually.

3. Implementation dates will be determined after completion of the first 4 phases.

F. Any sewage dischargers that have already accepted NPDES permit renewals based on achieving 8.0 mg/l TN and 1.0 mg/l TP at 2010 projected flows, voluntarily, will not be required to achieve lower cap loads based on the alternate approach.

G. Any sewage discharger will be able to meet its cap load by achieving an annual loading equivalent to other TN and TP concentrations at design annual average daily flow, but will be required to purchase nutrient credits or generate an offset to achieve its allocated cap load. For example, a discharger may elect to install treatment technology designed to achieve a concentration limit of 12 mg/l TN and

[1] Where data for existing concentrations do not exist, default values for the type of technology in place may be used.

1 mg/l TP and purchase the remaining load reduction in credits to meet their cap load.

H. All dischargers proposing to expand the capacity of their facilities beyond design annual average daily flows on August 29, 2005, will be held to the effluent cap load limits calculated using the design annual average daily flows on August 29, 2005, and the requirements of the phase in which that flow places the facility. The design annual average daily flows for all sewage facilities will include those design annual average daily flows approved as part of any final Act 537 official sewage facilities plan approval on or before August 29, 2005.

II. Industrial Waste Discharges – Reserved for future revisions.

III. Compliance Schedules – Permittees in phase 1 will be submitting plans for compliance with the new cap loads prior to the end of June of 2007, in response to notice sent under the requirements of 25 Pa. Code §92.8a. Where a permittee's plan indicates, and the Department agrees, that compliance with the new cap loads cannot be achieved prior to these new limits becoming effective, a compliance schedule will be placed in the new permit. In accordance with federal regulations, this compliance schedule will contain milestones designed to document progress toward compliance in intervals of no less than one year. The final end point of the schedule will be compliance with a water quality-based cap load (an allocation of the larger water quality-based cap load assigned to Pennsylvania by EPA).

IV. Trading for nutrient reduction credits will be encouraged as a cost-effective method of achieving cap loads.

V. DEP will continue development of the Watershed NPDES Permit approach in order to facilitate implementation of the Chesapeake Bay Tributary Strategy.

VI. Permitted CSOs under an approved Long Term Control Plan (LTCP), will be excluded from contributions to the nutrient cap at that particular facility.

Procedure

After adoption of the revised Maryland water quality standards on August 29, 2005, it became necessary for the Department to incorporate permit limits for TN and TP for the significant point source facilities. As a first step in the process of incorporating cap loads into individual permits, the Department required that all significant sewage dischargers monitor and report TN (and its specific species) and TP on their monthly Discharge Monitoring Report (DMR). Notice of this major permit amendment requiring monitoring and reporting was published in the Pennsylvania Bulletin on August 6, 2005. The thirty-day comment period on this proposed amendment ended on September 5, 2005. After compiling comments and responding, the Department began to incorporate the monitoring requirements in permit amendments in October of 2005.

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Implementation

I. Phase 1 Sewage Facilities – Immediate Priority

A. On December 20, 2006, all phase 1 sewage facilities were sent a letter under the requirements of 25 Pa. Code §92.8a, notifying the permittees of the new water quality standards in Maryland, and the need to submit a plan and schedule for complying with the new cap loads.

B. All phase 1 sewage permits will be revoked and reissued in draft as soon as reasonably possible.

1. All phase 1 sewage permits with renewal applications in house were to be issued in draft, and published in the PA Bulletin in January of 2007.

2. Those phase1 sewage permits without applications currently submitted are to submit a new application, per 40 CFR §§ 122.62, 122.64 and 124.5(c), which are incorporated by reference into DEP regulations, and 25 Pa. Code §§ 92.21 and 92.51. This was included in the notification letter sent under 25 Pa. Code §92.8a, as described above in Section I.A. These draft permits will then be issued, and published in the *PA Bulletin*.

3. When phase 1 sewage permits are written, annual mass load limits for TN and TP will be based upon allocation formula described in the §92.8a letter, using the design annual average daily flow on August 29, 2005, and performance levels of 6.0 mg/l TN and 0.8 TP mg/l. (Note the exception for those facilities that elected to receive their permits prior to 12/15/06, which were based on the 2010 flow and concentrations of 8 mg/l TN and 1 mg/l TP).

4. Significant industrial sources that are connected to POTWs should be addressed the same as the significant IWs (see below) with a direct stream discharge. The POTW will have to have an approved pre-treatment program, and request that the Department consider this alternative.

5. These annual mass loads are to be placed in individual draft NPDES permits as enforceable limits in Part A, in permits.

6. Cap loads for Phase 1 sewage facilities will become effective on 10/01/2010.

7. Once established, cap loads can only be increased as the result of application of offsets. For example, when two facilities combine to form a single discharge, the combined load limits of the two original facilities becomes the ultimate cap load limit of the final single discharging facility.

8. Cap loads may be achieved by any combination of capital upgrade, effluent trading, land application of effluent with appropriate agronomic nutrient uptake, recycle and reuse, offsets for replacement of existing sources or installation of BMPs.

II. Phase 1 Industrial Waste (IW) Facilities – Additional work remains to be completed on the allocation of cap loads to individual IW dischargers. These facilities will be addressed as part of phase 1, but not immediately.

III. Facilities in Phases 2 and 3 – Note that these are all sewage facilities

A. These facilities will receive their notification containing the requirement of 25 Pa. Code §92.8a, notifying the permittees of the new water quality criteria, and the requirement to submit a plan and schedule for complying with the new cap loads prior to December 31, 2008.

B. All phase 2 and 3 permits will be administratively extended, provided that the requirements for administrative extensions have been met, unless the permittee requests that their permit be issued, with the understanding that reissuance of the permit will contain cap loads.

C. Phase 2 – cap loads will become effective on 10/01/2012, and final permits with cap loads will be issued no later than 9/30/2009.

D. Phase 3 – cap loads will become effective on 10/01/2013, and final permits with cap loads will be issued no later than 9/30/2010.

E. As with Phase 1 facilities, once established, cap loads can only be increased as the result of application of offsets. For example, when two facilities combine to form a single discharge, the combined load limits of the two original facilities becomes the ultimate cap load limit of the final single discharging facility.

F. Cap loads may be achieved by any combination of capital upgrade, effluent trading, land application of effluent with appropriate agronomic nutrient uptake, recycle and reuse, or offsets for replacement of existing sources or installation of BMPs.

IV. Facilities in Phases 4 and 5

A. Phase 4 facilities are those with an annual average daily design flow equal to or greater than 0.2 mdg and less than 0.4 mgd. Between now and 12/31/2011, existing permits are to be amended as they come in for renewal to include monitoring requirements for TN and TP. Monitoring requirements should be established for a two-year period, beginning on the effective date of the new permit.

1. When phase 4 is reached (after 1/1/2011), permits will be revoked and reissued to establish annual mass load limits for TN and TP based upon the design annual average daily flow on August 29, 2005, an existing performance levels; or, loads equivalent to 6.0 mg/l TN and 0.8 mg/l TP at 0.4 mgd, whichever is more restrictive. These mass load limits will be placed in individual draft NPDES permits as enforceable limits. These cap loads may be implemented through a watershed permit.

2. Any facility in this category that undergoes an expansion prior to phase 4 implementation is immediately subject to the cap load requirements for phase 4.

3. A compliance date for Phase 4 will be established at some point in the future.

4. As with Phase 1 facilities, once established, cap loads can only be increased as the result of application of offsets. For example, when two facilities combine to form a single discharge, the combined load limits of the two original facilities becomes the ultimate cap load limit of the final single discharging facility.

5. Cap loads may be achieved by any combination of capital upgrade, effluent trading, land application of effluent with appropriate agronomic nutrient uptake, recycle and reuse, offsets for replacement of existing sources or installation of BMPs.

B. Phase 5 facilities are those with an annual average daily design flow of less than 0.2 mgd and greater than 0.002 mgd as of 8/29/05). When and if phase 5 is reached (not before 1/1/2013), existing smaller dischargers (less than 0.2 mgd) would be required, at permit renewal, to monitor and report on levels of TN and TP in their discharge for a minimum of two years[2]. These discharges should be given the option to monitor for two years upon issuance of their next permit. The purpose of data collection for these facilities is to establish existing performance for TN and TP effluent quality. This existing performance data may be used to establish cap loads at some point in the future. These cap loads would be computed based on their existing monitored performance (concentrations) and their design flow as of 8/29/05. In the interim, any expansion would have to result in no net increase in loading, based on current annual average design flow and current average effluent nutrient concentrations. Implementation dates will be determined after completion of first 4 phases.

[2] Note that if two years of monitoring data already exist for the facility, no additional monitoring needs to be done.

V. Consideration of Localized Water Quality Nutrient Impairments

A. Where facilities have a discharge that is, or has the potential to be contributing to a localized nutrient impairment the allowable loading in these permits shall be the more stringent of the load that meets near field standards (TMDL, may be based on maintaining a specific concentration as opposed to being strictly load based) or the load that meets far field standards (CBTS). Discharges to streams identified as impaired or "susceptible to impairment" due to excess nutrient loading may not have effluent limits less stringent than that specified in Chap 96.

B. Permittees should be aware that they may discharge to an impaired waterway and this could result in more stringent limits than is required to meet the annual maximum loads designed to meet the Maryland water quality standards.

VI. New Industrial Discharges

An allocation will have to be established as an annual mass load limits for TN and TP based upon the allocation of a fair portion of the growth reserve. The Bureau of Water Standards and Facility Regulation should be contacted to assist.

VII. New or Expanded Sewage (design flow > 0.002 MGD)

The CBTS allocates all of the available TN and TP loading to the existing sources. Therefore, zero net increase for total nitrogen (TN) or total phosphorus (TP) loads are available for new facilities or new land development resulting in a discharge of treated sewage effluent to surface waters of the Commonwealth that are tributary to the Chesapeake Bay. In some cases, existing treatment facilities may be able to accommodate new land development, provided that the facilities will not exceed their nutrient cap loads by taking on the new development. In many cases though, these new loads must be offset from other sources, point or non-point, including the purchase of nutrient reduction credits through the Department's trading program.

For new land development, offsetting may be achieved through various options, alone or in combination. Offsetting can be achieved by providing treatment followed by proper land application. Denitrification must be achieved by attenuation in the soil and crop uptake of TN (including crop removal), and winter storage is required, so that no appreciable TN load reaches the groundwater. In such a treatment scheme, TP is expected to be held in the soil profile.

If a new facility or an expansion of an existing facility results in the retirement of existing septic systems (considered as non-point source loads), the equivalent loads from those systems can be transferred from the non-point source load to offset the increased point source load. Other offsets may be available by retiring existing non-point source loads from the developed parcel or the adjacent area.

Nutrient credits may also be purchased through the Department's trading program. Recycle and reuse or advanced treatment can also be used to reduce the nutrient load that must be offset. Any combination of these options may be proposed providing that the result is no net increase in nutrient loadings to the watershed.

After approval by the Department of the Act 537 sewage facilities planning for the project, the Regional Permit Section will accept an NPDES permit application, and subsequently a WQM permit application. At a minimum, a letter of intent to purchase nutrient reduction credits needed for the project to achieve the net zero nutrient discharge standard must be included with the NPDES permit application.

If the point of discharge is not on a nutrient impaired stream, the applicant will select the minimum level of treatment required in the design of the new treatment facility. Documentation of a binding commitment for purchase of approved credits must be provided to the Department prior to issuance of the permit. Neither the NPDES nor the WQM permit can be issued without assurance that the permit requirements can be met.

If the watershed is impaired for nutrients and/or TMDL limits are established, TN and TP limits shall be established per the TMDL, or at the allocated cap load, whichever is more stringent. Discharges to streams identified as impaired or "susceptible to impairment" due to excess nutrient loading may not have effluent limits less stringent than that specified in Chapter 96. In addition credits/offsets would need to be obtained for any load not covered by the treatment facility.

Monitoring requirements for TN and TP will be placed in the permit in accordance with the appropriate sample types and monitoring frequencies as listed in the NPDES Permit Writers' Manual.

For expanded point source discharges, the allocated cap loads in the existing permit will not change, unless the expansion results in offsets to additional loads. In that case, those offset cap loads could be added to the cap load for the expanded facility. This must be addressed in planning, and adequately documented prior to any permitting action.