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MEMORANDUM

TO: Linda MacGregor

FROM: Elizabeth A. Booth, PE, PhD

RE: Strategy for Addressing Phosphorus in NPDES Permitting

Clean water is important to Georgia's environmental and economic vitality. Our citizens, our industries (including the tourism industry), and our aquatic life depend on clean water. Controlling nutrients, particularly phosphorus is a critical part of protecting our water resources.

Phosphorus is the primary pollutant associated with the eutrophication of Georgia's surface waters. Excess phosphorus can cause nuisance algal blooms and reduced transparency which may make waters unsuitable for swimming or other recreational activities. Algal blooms can also cause taste and odor problems in drinking water. Excess algae can also affect the dissolved oxygen resources in a waterbody and impair biology.

Phosphorus comes from both point and nonpoint sources. Point sources consist mainly of municipal and industrial wastewater treatment plant discharges. Nonpoint sources include runoff from agricultural fields, feedlots, urban areas, urban construction sites and on-site sewage treatment systems. With respect to non-point phosphorus loads entering State waters, EPD will work with the Georgia Department of Agriculture, the Cooperative Extension Service, the Urban Agriculture Council and the Georgia Soil and Water Conservation Commission to develop ideas for managing phosphorus from agricultural lands and urban landscapes and with the Georgia Forestry Commission to develop ideas to manage phosphorus from forested areas.

Since 2005 the Watershed Protection Branch has been implementing an unofficial strategy for addressing phosphorus loadings in State Waters. We believe that this strategy is within our permitting authority and a proactive step causing cost-effective wastewater treatment plant expansions rather than costly retrofits. Georgia EPD has committed to adopt nutrient standards as outlined in "Georgia's Plan for the Adoption of Water Quality Standards for Nutrients."

The strategy has two key elements – 1) monitoring of effluent phosphorus at all facilities upon permit renewal or issuance, and 2) effluent phosphorus limits for facilities that are

new or expanding (indicating that a capital investment is being made). Most permittees have understood the upcoming changes and have appreciated the advance notice to prepare for these changes. In advance of adopted nutrient standards, permit applicants can opt out of the permit limit recognizing that they will be expected to meet eventual nutrient limits very quickly, and should not expect to be placed on an extended schedule to come into compliance.

This strategy is intended to define a framework for permitted point sources by outlining permit limits and monitoring requirements. Be advised that once nutrient standards are adopted by the Ga DNR Board, then even facilities opting out initially will be subject to nutrient limits. It is important to apply many decisions to new or expanding wastewater treatment plant situations, as it is usually more economical to include phosphorus control in the design of new facilities rather than retrofitting.

The implementation of this strategy will be associated with the permitting cycle and with basin/watershed management approaches. With respect to the permitting cycle, decisions on phosphorus limits, phosphorus management planning, monitoring, etc. will be made as permittees request new or expanded treatment plant discharges, and for those not expanding, decisions will be made when permits come up for reissuance. Another major decision point for applying phosphorus treatment requirements will occur following the identification of a nutrient problem in a specific waterbody or watershed. In this case monitoring and/or limits may be established for discharges contributing to the problem prior to permit reissuance or future planned expansions.

The strategy includes the following:

- General Strategy for All Waters
- Strategy for Discharges to Waters in Close Proximity to Lakes and/or Estuaries
- Strategy for Tributaries to Waters Entering Lakes with Specific Water Quality Standards
- Strategy for Waters on the Georgia 303(d) List

EPD will issue wasteload allocations including a phosphorus limit in accordance with this strategy and with an explanation of the following flexibility. The flexibility will be repeated in the cover letter that transmits the wasteload allocation to the permit applicant.

"The nutrient permit limits in this wasteload allocation are in accordance with EPD's proactive Strategy for Addressing Phosphorus in NPDES Permitting. In advance of adopted nutrient standards, permit applicants can opt out of the permit limit recognizing that they will be expected to meet eventual nutrient limits very quickly, and should not expect to be placed on an extended schedule to come into compliance. In order to opt out and not be subject to the phosphorus limit, the permit applicant must advise EPD of this decision prior to or concurrent with submitting the Design Development Report to EPD."

General Strategy for All Waters

- Industrial and major municipal NPDES wastewater dischargers will provide phosphorus data or design information as a part of the routine permit reissuance process. EPD may assign or increase monitoring requirements for phosphorus upon reissuance of a permit to evaluate phosphorus loadings if a reasonable potential for phosphorus in the discharge is present.
- All new or expanding NPDES treated wastewater discharges upstream from reservoirs, lakes, impoundments, and/or estuaries may be given monitoring requirements for ortho phosphate if a reasonable potential for the presence of phosphorus in the discharge is present.
- New or expanding major municipal (greater than or equal to 1 MGD) and industrial NPDES treated wastewater dischargers will be permitted at 1.0 mg/L total phosphorus or less to protect downstream waters if a reasonable potential for the presence of phosphorus in the discharge is present.
- New or expanding minor municipal (less than 1 MGD) and industrial NPDES treated wastewater dischargers will be permitted at 8.34 lbs/day total phosphorus or less to protect downstream waters if a reasonable potential for the presence of phosphorus in the discharge is present.
- Watershed Assessment and Protection Plans should include an analysis and discussion of potential non-point source phosphorus in the watershed.
- Special consideration will be given to waters designated as Outstanding Natural Resource Waters (ONRW), Wild River, Scenic River, trout stream, waters generally supporting shellfishing and other nutrient sensitive waters.

Strategy for Discharges to Waters in Close Proximity to Lakes and/or Estuaries

- All new or expanding NPDES industrial and municipal wastewater treatment plants discharging to or in close proximity to reservoirs, lakes, impoundments, and/or estuaries will be permitted at 0.5 mg/L total phosphorus or less to protect these waters providing a reasonable potential for the presence of phosphorus in the discharge is present.

Strategy for Tributaries to Waters Entering Lakes with Specific Water Quality Standards

Six lakes, West Point, Walter F. George, Jackson, Lanier, Allatoona, and Carter's, have site-specific nutrient criteria. Each lake has site-specific criteria for nutrients including a total phosphorus lake loading given in pounds per acre-foot volume per year. Major lake tributaries have annual total phosphorus loadings that were established to maintain the phosphorus loads into each lake. This strategy, in part, is intended to ensure these loads are not exceeded and the water quality is protected.

- The total permitted phosphorus loading from wastewater treatment facilities upstream from a major lake tributary compliance point shall not exceed the total phosphorus loading allocated to point sources in the watershed used in developing the total phosphorus loading criteria for the major lake tributaries in order to help ensure compliance with the annual total phosphorus loading provided for in the Georgia Rules and Regulations for Water Quality Control.

- The total permitted phosphorus loading from wastewater treatment facilities discharging directly to the lakes shall not exceed the total phosphorus loading allocated to point sources directly to the lake used in developing the annual total phosphorus lake loading in order to help ensure compliance with the total phosphorus lake loading provided for in the Georgia Rules and Regulations for Water Quality Control.
- EPD will carefully evaluate requests for new discharges where the phosphorus load is small on a case-by-case basis in order to minimize the proliferation of septic systems.
- Treated wastewater discharge expansion will be considered on the basis of maintaining or reducing total permitted phosphorus loading.

Strategy for Waters on the Georgia 303(d) List

- For waters on the Georgia 303(d) list for parameters associated with nutrients, TMDLs will be developed, point and nonpoint source allocations will be calculated and reductions implemented as appropriate through TMDL implementation plans.
- Until TMDLs are developed, treated wastewater discharge expansions will be considered on the basis of maintaining or reducing total permitted phosphorus loading.
- EPD will carefully evaluate requests for new discharges where the phosphorus load is small on a case-by-case basis in order to minimize the proliferation of septic systems.
- Local governments in these watersheds are expected, as a part of their Watershed Assessments, to assess waters on the Georgia 303(d) List, develop Protection Plans and implement best management practices to minimize nonpoint source pollution in existing urban areas and in newly developing areas.

This strategy is subject to update over time. Information and knowledge about nutrient management issues and nutrient criteria is expected to change over time and this strategy will be updated as appropriate.

Table 1

Strategy for Addressing Phosphorus in NPDES Permitting

Point Source Situation	Strategy
Routine permit reissuance without expansion or other situation listed below	Phosphorus monitoring
New or expanding discharges upstream from reservoirs, lakes, impoundments, and/or estuaries	Monitoring requirements for ortho phosphate
New or expanding major (greater than or equal to 1 MGD) discharges	Permitted at 1.0 mg/L total phosphorus or less to protect downstream waters
New or expanding minor (less than 1 MGD) discharges	Permitted at 8.34 lbs/day total phosphorus or less
All new or expanding plants discharging to or in close proximity to reservoirs, lakes, impoundments, and/or estuaries	Permitted at 0.5 mg/L total phosphorus or less
Tributaries to Lakes with Specific Water Quality Standards (West Point, Walter F. George, Jackson, Lanier, Allatoona, and Carter's)	The total permitted phosphorus loading from wastewater treatment facilities upstream from a major lake tributary compliance point shall not exceed the total phosphorus loading allocated to point sources in the watershed used in developing the annual total phosphorus loading criteria for the major lake tributaries
Discharges directly to Lakes with Specific Water Quality Standards (West Point, Walter F. George, Jackson, Lanier, Allatoona, and Carter's)	The total permitted phosphorus loading from wastewater treatment facilitiesdischarging directly to the lakes shall not exceed the total phosphorus loading allocated to point source directly to the lake used in developing the annual total phosphorus lake.
New discharges to Lakes (directly or to tributaries) with Specific Water Quality Standards (West Point, Walter F. Georgia, Jackson, Lanier, Allatoona, and Carter's)	EPD will carefully evaluate requests for new discharges where the phosphorus load is small on a case-by-case basis in order to minimize the proliferation of septic systems
Expansion of discharges to Lakes (directly or to tributaries) with Specific Water Quality Standards (West Point, Walter F. Georgia, Jackson, Lanier, Allatoona, and Carter's)	Considered on the basis of maintaining or reducing total permitted phosphorus loading.
For waters on the Georgia 303(d) list for parameters associated with nutrients	TMDLs will be developed, point and nonpoint source allocations will be calculated and reductions implemented as appropriate through TMDL implementation plans.
For expansions of discharges to waters on the Georgia 303(d) list for parameters associated with nutrients, prior to TMDLs being developed	Considered on the basis of maintaining or reducing total permitted phosphorus loading.
New discharges to waters on the Georgia 303(d) list for parameters associated with nutrients, prior to TMDLs being developed	EPD will carefully evaluate requests for new discharges where the phosphorus load is small on a case-by-case basis in order to minimize the proliferation of septic systems.