

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DIVISION OF WATERSHED STEWARDSHIP

Statutory Authority: 7 Delaware Code, Chapter 60; (7 Del.C., Ch. 60)
7 DE Admin. Code 7408

PROPOSED

REGISTER NOTICE

7408 TMDLs for Nutrients for the Murderkill River Watershed

Brief Synopsis of the Subject, Substance, and Issues

The Department of Natural Resources and Environmental Control (DNREC) plans to conduct a Public Hearing regarding proposed amendments to the Total Maximum Daily Loads (TMDLs) Regulation for nutrients and oxygen consuming materials for the Murderkill River Watershed, which was promulgated in June of 2005. A TMDL sets a limit on the amount of a pollutant that can be discharged into a waterbody and still meet water quality standards. TMDLs are composed of Waste Load Allocations (WLAs) for point source discharges, Load Allocations (LAs) for nonpoint sources, and a Margin of Safety (MOS) to account for uncertainties.

Since promulgation of the 2005 Murderkill River TMDLs, a multi-year monitoring, research, and modeling study of Murderkill River Watershed by DNREC and other cooperating agencies and institutions resulted in proposing scientifically-based, site-specific dissolved oxygen criteria for the tidal Murderkill River. This proposed amendment of the 2005 TMDLs is to comply with this new site-specific dissolved oxygen criteria for the tidal Murderkill River.

Possible Terms of the Agency Action

This proposed action will amend the 2005 Murderkill River TMDLs Regulation. DNREC will work with Kent County Government and other parties to implement the requirements of the amended TMDLs.

Statutory Basis or Legal Authority to Act

The authority to develop a TMDL is provided by Title 7 of the **Delaware Code**, Chapter 60, and Section 303(d) of the Federal Clean Water Act, 33 U.S.C. 1251 *et. seq.*, as amended.

Other Legislation That May be Impacted

None

Notice of Public Hearings and Comment Period

The Public Hearing on proposed amendments to the 2005 Murderkill River Watershed TMDLs Regulation will be held at 5:00 p.m., Tuesday, April 29, 2014, in the DNREC Auditorium, 89 Kings Highway, Dover, Delaware.

Please send written comments to Hassan Mirsajadi, Watershed Assessment and Management Section, Division of Watershed Stewardship, Department of Natural Resources and Environmental Control, 820 Silver Lake Boulevard, Suite 220, Dover, DE 19904-2464, (302) 739-9939, facsimile: (302) 739-6140, email: (Hassan.Mirsajadi@state.de.us). All written comments must be received by May 16, 2014. Electronic submission is preferred.

Copies of the Proposed amendments to the 2005 Murderkill River TMDL Regulation and other related technical support documents are available on the Department's website at <http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessmentTMDLs.aspx> or by contacting Hassan Mirsajadi, Watershed Assessment and Management Section, Division of Watershed Stewardship, Department of Natural Resources and Environmental Control, 820 Silver Lake Boulevard, Suite 220, Dover, DE 19904-2464, (302) 739-9939, facsimile: (302) 739-6140.

Prepared By:

John Schneider, Watershed Assessment and Management Section, (302) 739-9939.

7408 TMDLs for Nutrients for the Murderkill River Watershed

1.0 Introduction and Background

- 1.1 Intensive water quality monitoring performed by Delaware Department of Natural Resources and Environmental Control (DNREC) has shown that the waters of the Murderkill River and several of its tributaries and ponds are impaired as the result of low dissolved oxygen and high nutrients. Low concentrations of dissolved oxygen are harmful to fish, shellfish, and other aquatic life. With regard to nutrients (nitrogen and phosphorus), although they are essential elements for both plants and animals, their presence in excessive

- amounts causes undesirable conditions. Symptoms of nutrient overenrichment include frequent phytoplankton blooms, decreased water clarity, dissolved oxygen deficiency, alteration of composition and diversity of economically important native species of plants and animals, and possible human health effects.
- 1.2 A reduction in the amount of nutrients and oxygen consuming pollutants reaching the waters of the Murderkill River and its tributaries and ponds is necessary to reverse these undesirable impacts. These pollutants and nutrients enter the waters of the Murderkill River from point sources and nonpoint sources. Point sources are end-of-pipe discharges from municipal or industrial wastewater treatment plants. Nonpoint sources include runoff from agricultural and urban areas, septic tank effluent, and ground water discharges.
- 1.3 Section 303(d) of the Federal Clean Water Act (CWA) requires states to develop a list (303(d) List) of waterbodies for which existing pollution control activities are not sufficient to attain applicable water quality criteria and to develop Total Maximum Daily Loads (TMDLs) for pollutants of concern. A TMDL sets a limit on the amount of a pollutant that can be discharged into a waterbody and still protect water quality. TMDLs are composed of three components, including Waste Load Allocations (WLAs) for point source discharges, Load Allocations (LAs) for nonpoint sources, and a Margin of Safety (MOS) to account for uncertainties and future growth.
- 1.4 DNREC listed the Murderkill River and several of its tributaries and ponds on the Delaware's 1996, 1998, and 2000 303(d) Lists and ~~proposes the following developed and promulgated a Total Maximum Daily Load regulation for nitrogen, phosphorous, and 5-day Carbonaceous Biochemical Oxygen Demand (CBOD5) in 2005.~~
- 1.5 ~~Since the promulgation of the 2005 TMDLs, a multi-year monitoring, research, and modeling study of Murderkill River Watershed by DNREC and other cooperating agencies and institutions concluded that new scientifically-based, site-specific dissolved oxygen criteria should be adopted for the tidal Murderkill River. This amendment of the 2005 TMDLs is to comply with this proposed site-specific dissolved oxygen criteria for the tidal Murderkill River.~~

2.0 Total Maximum Daily Loads (TMDLs) Regulation for the Murderkill River Watershed, Delaware

Article 1. The total nitrogen waste load from the Kent County Facility and Canterbury Crossing Mobile Home Park shall be limited to ~~755.3 897~~ pounds per day. ~~The waste load allocation for the Kent County Facility will be 751 pounds per day and for Canterbury Crossing Mobile Home Park will be 4.3 pounds per day. This load shall be expressed as annual average load in the National Pollutant Discharge Elimination System (NPDES) Permit for this facility.~~

Article 2. The total phosphorus waste load from the Kent County Facility and Canterbury Crossing Mobile Home Park shall be limited to ~~62.7 51~~ pounds per day. ~~The waste load allocation for the Kent County Facility will be 62.5 pounds per day and for Canterbury Crossing Mobile Home Park will be 0.2 pounds per day. This load shall be expressed as annual average load in the NPDES Permit for this facility.~~

Article 3. The CBOD5 (5-day Carbonaceous Biochemical Oxygen Demand) waste load from the Kent County Facility and Canterbury Crossing Mobile Home Park shall be limited to ~~4010.6 544~~ pounds per day. ~~The waste load allocation for Kent County Facility will be 1001 pounds per day and for Canterbury Crossing Mobile Home Park will be 9.6 pounds per day.~~

Article 4. ~~Treated wastewater from the City of Harrington wastewater treatment facility shall be used for spray irrigation. However, during the winter season, as well as during wet weather periods, when spray irrigation of treated wastewater is not practical, the effluent may be discharged into Browns Branch. During periods of surface discharge, the maximum discharge flow rate shall not exceed 750,000 gallons per day and daily waste loads shall not exceed 140 pounds per day for total nitrogen, 0.75 pounds per day for total phosphorus, and 37.5 pounds per day for CBOD5. Furthermore, the total annual waste load discharged from the City of Harrington wastewater treatment facility to the surface waters of Browns Branch shall not exceed 9125 pounds per year for total nitrogen, 55 pounds per year for total phosphorus, and 3000 pounds per year for CBOD5.~~

Article 54. The nonpoint source nitrogen load in the entire watershed shall be reduced by 30 percent (from the ~~1997 2007-2008~~ base-line). This shall result in a yearly-average total nitrogen load of ~~560 972.6~~ pounds per day.

Article 65. The nonpoint source phosphorus load in the entire watershed shall be reduced by 50 percent (from the ~~1997 2007-2008~~ base-line). This shall result in a yearly-average total phosphorous load of ~~96 12.1~~ pounds per day.

Article 76. Based upon hydrodynamic and water quality model runs and assuming implementation of reductions identified by Articles 1 through 65, DNREC has determined that, with an adequate margin of safety, water quality standards and nutrient targets will be met in the Murderkill River and its tributaries and ponds.

Article 8. Implementation of this TMDL Regulation shall be achieved through development and implementation of a Pollution Control Strategy. The Strategy will be developed by DNREC in concert with the Murderkill River Tributary Action Team, other stakeholders, and the public.

8 DE Reg. 1722 (06/01/05)

17 DE Reg. 964 (04/01/14) (Prop.)