Office of the Registrar of Regulations,
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State of Delaware

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DIVISION OF WATER RESOURCES

Statutory Authority: 7 Delaware Code, Chapter 60 (7 **Del.C**. Ch. 60)
7 **DE Admin. Code** 7410, 7411, 7412, 7413, 7414, 7415, 7429, 7430

FINAL

Secretary's Order No. 2006-W-0053

Approving Regulations Amending and Establishing Total Maximum Daily Loads for Bacteria within the Inland Bays and Chesapeake Bay Drainage Basins in Delaware

Date of Issuance: November 14, 2006
Effective Date: December 11, 2006

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") under 29 **Del.C.** §§8001 et seq., 29 **Del.C.** §§10111 *et seq*. and 7 **Del.C.** §6010 (a), the following findings, reasons and conclusions are entered as an Order of the Secretary in the above-referenced rulemaking proceeding to amend the regulation that established Total Maximum Daily Loads ("TMDLs") for the Delaware portions of the Inland Bays and Chesapeake Bay watersheds. The Department adopted the Chesapeake Bay watershed TMDLs that are being amended by this Order in Secretary's Order No. 2005-W-0050, issued December 15, 2005.

Based on the record, including the public hearing record reviewed in the November 8, 2006, Hearing Officer's Report ("Report"), attached as Appendix A, I find the proposed regulations are well supported and are not arbitrary or capricious. The Report reviews and summarizes the combined public hearing record, including the September 21, 2006, public hearing. The Report recommends approval of the proposed regulations as final regulations without modification. I agree with the Report and adopt it as part of this Order along with its reasons.

The Report discusses the need to amend Department Regulations 7412 (Chester River), 7413 (Choptank River), 7414 (Marsheyhope Creek) and 7415 (Pocomoke River) within the Chesapeake Bay watershed. These changes reflect the elimination of the bacteria TMDLs and reflect a clarification of the interpretation of the Environmental Protection Agency's ("EPA") bacteria water quality standards. EPA administers the federal Clean Water Act, and has delegated to the Department the authority to establish TMDLs in Delaware. The Report also recommends approval of bacteria TMDLs for the Delaware portion of the Inland Bays watershed (Indian River Bay, Rehoboth Bay, and Little Assawoman Bay in Sussex County) and the Delaware portion of the Chesapeake Bay watershed (Chester River, Choptank River, Marshyhope Creek, Nanticoke River, Gum Branch, Gravelly Branch, Deep Creek, and Broad Creek).

The TMDLs are based upon sound scientific evidence, are consistent with state and federal law, and are a reasoned exercise of the Department's authority to issue regulations to improve water quality. The TMDLs will limit the release of harmful levels of bacteria into the waters within each watershed. The regulations identify the level of reduction in bacteria that will enable the waters to improve to meet clean water standards. The TMDLs will allow the Department to establish Pollution Control Strategy for the watersheds, which will enforce compliance with the TMDLs. Thus, these TMDLs are an important part of a multi-step federal and state regulatory process that will improve the waters within these watersheds so that they meet the Clean Water Act's standards.

The Report notes the public comments. The Department welcomes the comments. Some of the comments were instrumental in making some changes to the technical support documents, and minor modification to the proposed TMDLs. The Department published the proposed TMDLs, as revised to reflect the changes the Department considered appropriate based upon the public comments. The Department and the public share the common goal of improving Delaware's water quality.

In conclusion, the following findings and conclusions are entered:

1. The Department, acting through this Order of the Secretary, adopts the proposed regulations as final regulations, as set forth in the Appendix A to the Report, under 29 **Del.C.** §6010 (a);

2. The approval of the proposed regulations as final regulations will protect and improve the water

quality within three watersheds, as defined by elevation maps. The TMDLs as regulations will allow the Department to develop Pollution Control Strategies to control the releases of bacteria, which is a pollutant that is impairing the water quality of the waters within the watersheds;

3. The TMDLs that are approved by this Order were developed consistent with the applicable law and regulatory standards, and are adequately supported by expert technical analysis;

4. The Department provided adequate public notice of the proceeding and the public hearing in a manner required by the law and regulations, held a public hearing in a manner required by the law and regulations, and considered all timely and relevant public comments in making its determination;

5. The Department's proposed regulations, as published in the September 1, 2006, *Delaware Register of Regulations,* and set forth in Appendix A to the Report, are adequately supported, not arbitrary or capricious, are consistent with the applicable laws and regulations, and should be approved as final regulations to go into effect ten days after their publication in the next available issue of the *Delaware Register of Regulations*; and that;

6. The Department shall provide written notice to the persons affected by the Order, as determined by those who participated in this rulemaking at either the public workshop or at the public hearing, including participation through the submission of timely and relevant written comments.

John A. Hughes,
Secretary

7412 Total Maximum Daily Loads (TMDLs) for [~~Nutrients for~~] the Chester River Watershed in Delaware

1.0 Introduction and Background

Water quality monitoring performed by the Department of Natural Resources and Environmental Control (DNREC) has shown that the Chester River is impaired by ~~high levels of bacteria,~~ elevated levels of the nutrients nitrogen and phosphorous, and low dissolved oxygen, and that the designated uses are not fully supported by water quality in the stream.

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 or stressors causing the impairment. 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).

DNREC listed Chester River on several of the State's 303(d) Lists and proposes the following Total Maximum Daily Load regulation for nitrogen~~,~~ and phosphorous~~, and Enterococcus bacteria~~.

2.0 Total Maximum Daily Loads (TMDLs) for the Chester River Watershed in Delaware

Article 1. The nonpoint source nitrogen load in the entire watershed shall be capped at the 2001-2003 baseline level. This shall result in a yearly-average total nitrogen load of 708 pounds per day.

Article 2. The nonpoint source phosphorus load in the entire watershed shall be reduced by 40 percent from the 2001-2003 baseline level. This shall result in reducing the yearly-average total phosphorous load from 54.6 pounds per day to 32.3 pound per day.

~~Article 3. The nonpoint source bacteria load in the entire watershed shall be reduced by 75.6% from the 1997 – 2005 baseline levels. This shall result in reducing a yearly mean bacteria load from 1.9E+11 CFU per day to 4.6E+10 CFU per day.~~

Article ~~4~~ 3. Based upon water quality model runs and assuming implementation of reductions identified by Articles 1 through 3, DNREC has determined that, with an adequate margin of safety, water quality standards will be met in Chester River.

Article ~~5~~ 4. 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 Tributary Action Teams, other stakeholders, and the public.

7413 Total Maximum Daily Loads (TMDLs) for [~~Nutrients for~~] the Choptank River Watershed in Delaware

1.0 Introduction and Background

Water quality monitoring performed by the Department of Natural Resources and Environmental Control (DNREC) has shown that the Choptank River is impaired by ~~high levels of bacteria,~~ elevated levels of the nutrients nitrogen and phosphorous, and low dissolved oxygen, and that the designated uses are not fully supported by water quality in the stream.

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 or stressors causing the impairment. 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).

DNREC listed Choptank River on several of the State's 303(d) Lists and proposes the following Total Maximum Daily Load regulation for nitrogen, and phosphorous. ~~and Enterococcus bacteria.~~

2.0 Total Maximum Daily Loads (TMDLs) for the Choptank River Watershed in Delaware

Article 1. The nonpoint source nitrogen load in the entire watershed shall be capped at the 2001-2003 baseline level. This shall result in a yearly-average total nitrogen load of 1,359 pounds per day.

Article 2. The nonpoint source phosphorus load in the entire watershed shall be reduced by 40 percent from the 2001-2003 baseline level. This shall result in reducing the yearly-average total phosphorous load from 127 pounds per day to 75.9 pound per day.

~~Article 3. The nonpoint source bacteria load shall be reduced by 87.8% from the 1997 – 2005 baseline level. This shall result in reducing a yearly mean bacteria load from 4.3E+11 CFU per day to 4.4E+10 CFU per day.~~

Article ~~4~~ 3. Based upon water quality model runs and assuming implementation of reductions identified by Articles 1 through 3, DNREC has determined that, with an adequate margin of safety, water quality standards will be met in Choptank River.

Article ~~5~~ 4. 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 Tributary Action Teams, other stakeholders, and the public.

9 DE Reg. 1102 (01/01/06)

7414 Total Maximum Daily Loads (TMDLs) for [~~Nutrients for~~] the Marshyhope Creek Watershed in Delaware

1.0 Introduction and Background

Water quality monitoring performed by the Department of Natural Resources and Environmental Control (DNREC) has shown that the Marshyhope Creek is impaired by ~~high levels of bacteria,~~ elevated levels of nutrients nitrogen and phosphorous, and low dissolved oxygen, and that the designated uses are not fully supported by water quality in the stream.

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 or stressors causing the impairment. 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).

DNREC listed Marshyhope Creek on several of the State's 303(d) Lists and proposes the following Total Maximum Daily Load regulation for nitrogen and phosphorous~~, and Enterococcus bacteria~~.

2.0 Total Maximum Daily Loads (TMDLs) for Marshyhope Creek Watershed in Delaware

Article 1. The nonpoint source nitrogen load in the entire watershed shall be reduced by 20 percent from the 2001-2003 baseline level. This shall result in reducing the yearly-average total nitrogen load from 2,687 pounds per day to 2,148 pounds per day.

Article 2. The nonpoint source phosphorus load in the entire watershed shall be reduced by 25 percent from the 2001-2003 baseline level. This shall result in reducing the yearly-average total phosphorous load from 109 pounds per day to 78.1 pound per day.

~~Article 3. The nonpoint source bacteria load shall be reduced by 85.7% from the 1997 – 2005 baseline levels. This shall result in reducing a yearly mean bacteria load from 1.1E+11 CFU per day to 1.6E+10 CFU per day.~~

Article ~~4~~ 3. Based upon water quality model runs and assuming implementation of reductions identified by Articles 1 through 3, DNREC has determined that, with an adequate margin of safety, water quality standards will be met in Marshyhope Creek.

Article ~~5~~ 4. 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 Tributary Action Teams, other stakeholders, and the public.

9 DE Reg. 1102 (01/01/06)

7415 Total Maximum Daily Loads (TMDLs) for [~~Nutrients for~~] the Pocomoke River Watershed in Delaware

1.0 Introduction and Background

Water quality monitoring performed by the Department of Natural Resources and Environmental Control (DNREC) has shown that the Pocomoke River is impaired by ~~high levels of bacteria,~~ elevated levels of the nutrients nitrogen and phosphorous, and low dissolved oxygen, and that the designated uses are not fully supported by water quality in the stream.

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 or stressors causing the impairment. 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).

DNREC listed Pocomoke River on several of the State's 303(d) Lists and proposes the following Total Maximum Daily Load regulation for nitrogen and phosphorous~~, and Enterococcus bacteria~~.

2.0 Total Maximum Daily Loads (TMDLs) for the Pocomoke River Watershed in Delaware

Article 1. The nonpoint source nitrogen load in the entire watershed shall be reduced by 55 percent from the 1997-2003 baseline level. This shall result in reducing the yearly-median total nitrogen load from 226 pounds per day to 102 pounds per day.

Article 2. The nonpoint source phosphorus load in the entire watershed shall be reduced by 55 percent from the 1997-2003 baseline level. This shall result in reducing the yearly-median total phosphorous load from 13.5 pounds per day to 6.1 pound per day.

~~Article 3. The nonpoint source bacteria load shall be reduced by 69.2% from the 1997- 2005 baseline levels. This shall result in reducing a yearly mean bacteria load from 4.2E+11 CFU per day to 1.3E+11CFU per day.~~

Article ~~4~~ 3. Based upon water quality model runs and assuming implementation of reductions identified by Articles 1 through 3, DNREC has determined that, with an adequate margin of safety, water quality standards will be met in Pocomoke River.

Article ~~5~~ 4. 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 Tributary Action Teams, other stakeholders, and the public.

9 DE Reg. 1102 (01/01/06)

7429 Total Maximum Daily Loads (TMDLs) for Bacteria for the Inland Bays Drainage Basin, Delaware (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds)

1.0 Introduction and Background

Water quality monitoring performed by the Department of Natural Resources and Environmental Control

(DNREC) has shown that the waters of the Inland Bays Drainage Basin (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds) are impaired by high levels of bacteria and that the designated uses are not fully supported due to levels of this pollutant in these waters.

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 or stressors causing the impairment. A TMDL sets a limit on the amount of a pollutant that can be discharged into a waterbody and still protect water quality. A TMDL is composed of three components, including a Waste Load Allocation (WLA) for point source discharges, Load Allocation (LA) for nonpoint sources, and a Margin of Safety (MOS).

DNREC listed the Inland Bays Drainage Basin on several of the State's 303(d) Lists and proposes the following Total Maximum Daily Loads regulation for *enterococcus* bacteria.

2.0 Total Maximum Daily Loads (TMDLs) Regulation for Inland Bays Drainage Basin

Article 1. The nonpoint source bacteria load in the fresh water portion of the Inland Bays Drainage Basin (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds) shall be reduced by 40 percent from the 2000-2005 baseline level.

Article 2. The nonpoint source bacteria load in the marine water portion of the Inland Bays Drainage Basin (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds) shall be reduced by 23 percent from the 2000-2005 baseline level.

Article 3. All point source bacteria loading in the Inland Bays Drainage Basin (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds) will be capped at the current, geometric mean concentration level of 35 CFU *enterococcus*/100mL until all point sources are eliminated as required in the 1998 Inland Bays Nutrient TMDL Regulation.

Article 4. Based upon cumulative distribution analyses and assuming implementation of reductions identified by Article 1 through Article 3 above, DNREC has determined that, with an adequate margin of safety, water quality standards will be met in the Inland Bays Drainage Basin (Buntings Branch, Little Assawoman Bay, Assawoman Bay, Indian River Bay, Iron Branch, Indian River, Rehoboth Bay, and Lewes-Rehoboth Canal Watersheds).

Article 5. Implementation of this TMDLs Regulation shall be achieved through the development and implementation of a Pollution Control Strategy. The Strategy will be developed by DNREC in concert with Tributary Action Teams, other stakeholders, and the public.

7430 Total Maximum Daily Loads (TMDLs) for Bacteria for the Chesapeake Bay Drainage Basin, Delaware (Chester River, Choptank River, Marshyhope Creek, Nanticoke River, Gum Branch, Gravelly Branch, Deep Creek, Broad Creek, and Pocomoke River Watersheds)

1.0 Introduction and Background

Water quality monitoring performed by the Department of Natural Resources and Environmental Control (DNREC) has shown that the waters of the Chesapeake Bay Drainage Basin (Chester River, Choptank River, Marshyhope Creek, Nanticoke River, Gum Branch, Gravelly Branch, Deep Creek, Broad Creek, and Pocomoke River Watersheds) are impaired by high levels of bacteria and that the designated uses are not fully supported due to levels of this pollutant in these waters.

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 or stressors causing the impairment. A TMDL sets a limit on the amount of a pollutant that can be discharged into a waterbody and still protect water quality. A TMDL is composed of three components, including a Waste Load Allocation (WLA) for point source discharges, Load Allocation (LA) for nonpoint sources, and a Margin of Safety (MOS).

DNREC listed the Chesapeake Bay Drainage Basin (Chester River, Choptank River, Marshyhope Creek, Nanticoke River, Gum Branch, Gravelly Branch, Deep Creek, Broad Creek, and Pocomoke River Watersheds) on

several of the State's 303(d) Lists and proposes the following Total Maximum Daily Loads regulation for *enterococcus* bacteria.

2.0 Total Maximum Daily Loads (TMDLs) Regulation for the Chesapeake Bay Drainage Basin

Article 1. The nonpoint source bacteria load in the entire Chester River Watershed shall be reduced by 37 percent from the 1997-2004 baseline level.

Article 2. The nonpoint source bacteria load in the entire Choptank River watershed shall be reduced by 29 percent from the 1997-2005 baseline level.

Article 3. The nonpoint source bacteria load in the entire Marshyhope Creek watershed shall be reduced by 21 percent from the 1997-2005 baseline level.

Article 4. The nonpoint source bacteria load in the entire Pocomoke River watershed shall be reduced by 30 percent from the 1997-2004 baseline level.

Article 5. The nonpoint source bacteria load in the entire Nanticoke River, Gum Branch, Gravelly Branch, Deep Creek, and Broad Creek Watersheds shall be reduced by 3% percent from the 2000-2005 baseline level.

Article 6. All point source bacteria loading in the entire Chesapeake Bay Drainage Basin (Chester River, Choptank River, Marshyhope Creek, Nanticoke River, Gum Branch, Gravelly Branch, Deep Creek, Broad Creek, and Pocomoke River Watersheds) shall be capped at the current, geometric mean concentration level of 100 CFU *enterococcus*/100mL.

Article 7. Based upon cumulative distribution analyses and assuming implementation of reductions identified by Article 1 through Article 6 above, DNREC has determined that, with an adequate margin of safety, water quality standards will be met in the Chesapeake Bay Drainage Basin (Chester River, Choptank River, Marshyhope Creek, Nanticoke River, Gum Branch, Gravelly Branch, Deep Creek, Broad Creek, and Pocomoke River Watersheds).

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