



Connecticut Department of Energy and Environmental Protection

Daniel C. Esty, Commissioner

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Meriden WPCF

Report of the Nitrogen Credit Advisory Board for Calendar Year 2011 To the Joint Standing Environment Committee of the General Assembly

September 30, 2012

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**REPORT OF THE NITROGEN CREDIT ADVISORY BOARD
FOR CALENDAR YEAR 2011**

**TO THE JOINT STANDING ENVIRONMENT COMMITTEE
OF THE GENERAL ASSEMBLY**

Concerning the

NITROGEN CREDIT EXCHANGE PROGRAM

**As required by
Section 22a-523(c) of the
Connecticut General Statutes**

September 30, 2012

This report has been prepared by the Nitrogen Credit Advisory Board and is respectfully submitted to the Joint Standing Environment Committee of the General Assembly pursuant to the requirement of Connecticut General Statutes (CGS) Section 22a-523(c). Such section requires that the Nitrogen Credit Advisory Board submit to the Joint Standing Environment Committee of the General Assembly a report that addresses issues associated with the implementation of the Nitrogen Credit Exchange Program. This report covers the period from January 1, 2011 to December 31, 2011.

This report provides a summary of the technical progress and financial requirements that the Nitrogen Credit Advisory Board deems necessary to achieve progress in this important program in reducing nitrogen loads to Long Island Sound. The continued success of this program is only possible if adequate funding is provided through the Clean Water Fund each year to construct new projects and through the development and application of innovative approaches and management techniques to meet nutrient reduction goals for Long Island Sound.

Executive Summary

In accordance with CGS Sec. 22a-523(c) the Nitrogen Credit Advisory Board (NCAB) submits this Report of the Nitrogen Credit Advisory Board for calendar year 2011 on the progress of the Nitrogen Credit Exchange Program.

The NCAB highlights these key findings and concerns regarding the continuing success of the program:

- Nitrogen removal projects in Danbury, Groton Town, Southington, Meriden and New Hartford were completed in 2010 and therefore became project facilities for 2011. A project facility is defined as any facility with a fully operational nitrogen removal system on January 1 of the trading year.
- Glastonbury and Stafford completed construction in 2011 and will become project facilities for the 2012 trading year.
- Project implementation depends on continued bonding authorization for the Clean Water Fund (CWF) to avoid backlogging projects and to ensure the 2014 nitrogen reduction goal is met.
- The Clean Water Fund Project Priority List for fiscal years 2012 and 2013 was issued in final form on April 17, 2012 and provides \$182.6M in general obligation bonds, \$360M in state revenue bonds and \$34.3M in Federal capitalization grants. This level of funding provides only partial funding for Combined Sewer Overflows (CSO) control in Bridgeport, Greater New Haven Water Pollution Control Authority (WPCA) and Metropolitan District Commission (MDC); and partial funding of Water Pollution Control Facilities (WPCFs) upgrades for MDC and Norwich.

Major accomplishments and activities relative to the 2011 program operations include:

- In 2011 the equalized average load of equalized lbs Nitrogen/day was 11,024 equalized pounds of nitrogen per day (eq. lbs N/day), which exceeds the 2011 aggregate permit limit by about 1000 eq. lbs N/day. The 2014 Total Maximum Daily Load (TMDL) target and Nitrogen General Permit final limit is 9,141 eq. lbs N/day.
- The intense storms, wet weather and cold periods periodically affected nitrogen removal capability at municipal facilities in 2011.
- The Nitrogen Credit Advisory Board recommended a value of \$5.42 per equalized pound of nitrogen in 2011 based on capital and operational costs and nitrogen removal at project facilities.
- Twenty-eight facilities received payments this year totaling \$2,435,958 and fifty-two facilities purchased credits totaling \$4,398,929.
- The twelve month moving average in 2012 continued its downward trend with a value of 9,248 eq. lbs N/day, which is approaching the TMDL allocation and final NGP limit.

- By 2013, it is expected that nitrogen removal projects in Stafford, Glastonbury, South Windsor, Ansonia, West Haven, New Milford, and Hartford (phase 2) will be completed. The estimated nitrogen load reduction from those projects is by 1,413 eq. lbs N/day.
- With the above reductions, the state aggregate nitrogen load for 2013 is estimated to be 9,330 eq. lbs N/day, which is very close to the 2014 TMDL limit of 9,141eq. lbs N/day.
- The revision of the Long Island Sound TMDL originally, planned for 2010, has been delayed. Under the revision, dissolved oxygen criteria attainment may require additional nitrogen reductions from sources throughout the watershed. The revised TMDL will include five states – Massachusetts, New Hampshire and Vermont in addition to Connecticut and New York – to ensure a watershed-wide commitment to the assessment and planned reductions in nitrogen.

I. Introduction

Background

Long Island Sound's (LIS) most pressing water quality problem is caused by over enrichment of nutrients, specifically nitrogen, which leads to greatly reduced levels of dissolved oxygen in the bottom waters of western LIS. The overload of nitrogen fuels excessive growth of algae, which eventually dies, sinks to the bottom and decays. During decay, oxygen is consumed and the dissolved oxygen in the water falls to levels well below those allowable in State Water Quality Standards. Low oxygen levels, or "hypoxia" typically occur during the July through September period. These conditions are inadequate to support healthy populations of fish and shellfish because they create an ecosystem imbalance by disrupting the feeding, growth and reproduction of nearly all forms of aquatic life. Primary sources of nitrogen include municipal WPCFs discharges, atmospheric deposition and runoff from urban, suburban and agricultural areas.

The federal Clean Water Act requires that the State establish Total Maximum Daily Loads (TMDLs) for all water bodies that do not meet minimum State Water Quality Standards, such as Long Island Sound. Once the State establishes a TMDL, federal law requires that it be reviewed and approved by the federal Environmental Protection Agency (EPA). In April 2001, EPA approved Connecticut's and New York's jointly submitted TMDL to address the impairment to Long Island Sound water quality that results from excessive nitrogen loading. The TMDL established the maximum loading for nitrogen that Long Island Sound can assimilate without causing impaired water quality, apportioned that maximum loading among sources, and laid out a plan to achieve the loading reductions necessary to meet Water Quality Standards.

In the TMDL, discharges from WPCFs, stormwater runoff and atmospheric deposition, the primary sources of nitrogen enrichment in LIS, are targeted for control. The TMDL requires the two states, by 2014 to achieve a 58.5% collective reduction of nitrogen loading from point discharges and urban and agricultural runoff sources to LIS from an established baseline. A 64% reduction goal was set for WPCFs through a wasteload allocation (WLA) process.

Nitrogen "trading" was identified as a mechanism for cost-effectively attaining the aggregate goal for Connecticut WPCFs. Public Act 01-180, codified in the Connecticut General Statutes in Sections 22a-521 through 527, established a Nitrogen Credit Exchange (NCE) overseen by a Nitrogen Credit Advisory Board (NCAB – Attachment A), and authorized issuance of a Nitrogen General Permit (NGP). Collectively, the NGP, the NCE and the NCAB form the foundation for the nitrogen-trading program instituted by Connecticut in 2002, which has now completed 10 years of successful operation.

Condition of Long Island Sound

Nitrogen trading has led to measurable reductions in Connecticut's nitrogen load to LIS. Signs of improvement in hypoxia are evident, but more reductions are needed to meet management goals to attain a healthy LIS. Added attention must be directed towards point sources from outside of Connecticut, including atmospheric sources, and stormwater and nonpoint source runoff.

The area affected by hypoxia in LIS, which is monitored each summer by DEEP staff with funding from the federal EPA Long Island Sound Study (LISS), provides a good indicator of overall condition, and the long term trend (Figure 1). Although annual variation is large, subject to changing weather conditions that affect the severity of hypoxia each year, the underlying trend in hypoxic area is downward, although slight. That change is best illustrated by the direction of the 5-year moving average (Figure 1) and although there have been periods of increase and decrease, the current 5 year period is showing a

decreasing trend. Since 1987, the affected area has averaged about 178 square miles and during the last 10 years, only the 2003 event was significantly higher than the long term average. Taking into consideration that several of the warmest years on record, which exacerbates hypoxia, have occurred in the last 10 years, the areal indicator appears to be benefitting from nitrogen management. Also, no areas below 1.0 mg/L of dissolved oxygen, severe hypoxia or anoxia, have been observed since 2008 (Figure 1).

Wet weather can deliver a surplus of nitrogen to the Sound which can lead to algal blooms which in turn can lead to a larger area of hypoxia. May and June of 2011 had significantly higher than average rainfall with July of 2011 exhibited typical, stable summer weather that can increase the impact of hypoxia. August had record rainfall totals even before tropical storm Irene hit at the end of August. The area of hypoxia remained below the average in 2011 although it was larger than 2010 (Figure 1).

Trend of Hypoxia at the Long Island Sound, 1987 – 2011

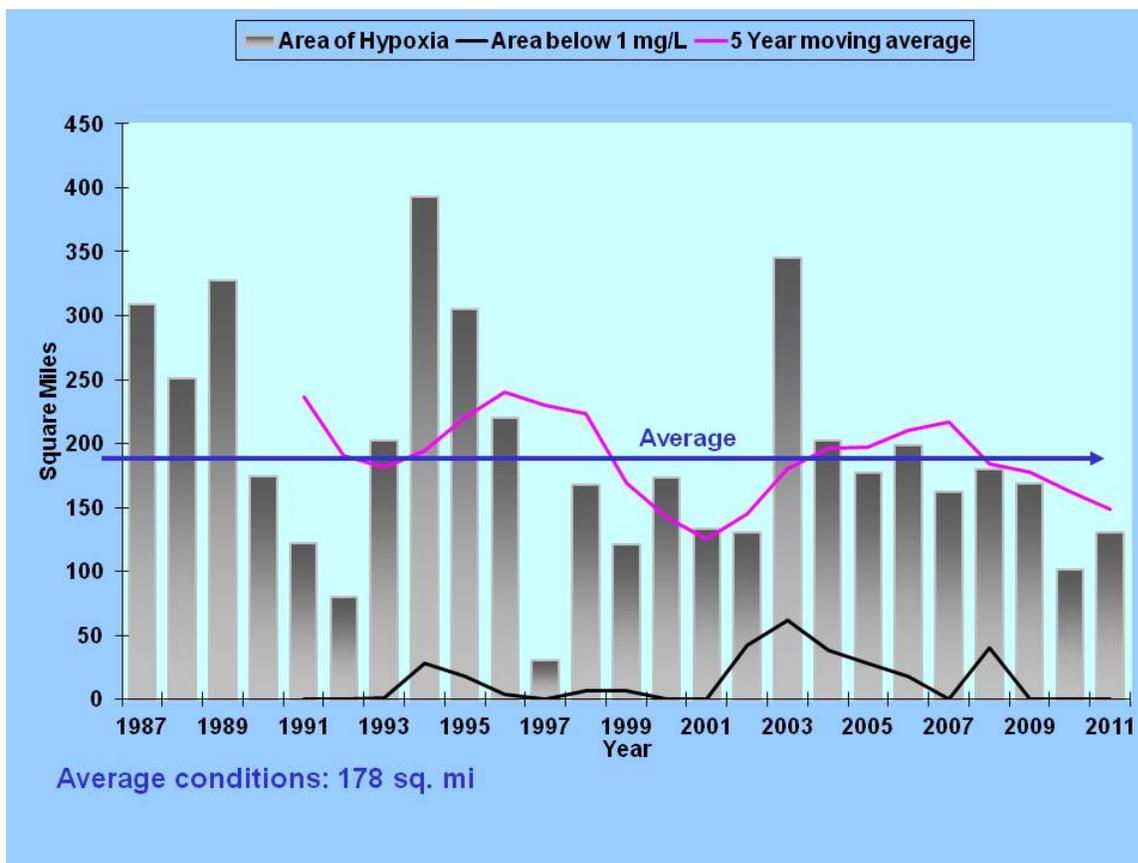


Figure 1. Area and trend of hypoxia in Long Island Sound, 1987-2011.

The weather of 2011 created favorable conditions for a severe hypoxia event. However, the areal extent of hypoxia covered only about 130 sq. mi., well below the overall average. Hypoxia reached its maximum extent by mid August, but thanks in large part to tropical storm Irene the September survey observed no hypoxia and only 4 stations with oxygen levels below 4.8 mg/L. Storms like Irene can provide enough energy to mix the oxygen rich surface waters with the oxygen depleted bottom waters often reducing or eliminating the area of hypoxia.

2011 Performance of the Nitrogen Credit Exchange

In 2011 the nitrogen load from WPCFs to LIS averaged 11,024 eq. lbs N/day. Just as weather can affect the severity of hypoxia in LIS, as noted above, it can also affect performance of WPCFs in the NCE. In particular, cold temperatures and extreme rainfall events may exceed the capacity of WPCFs to effectively remove nitrogen.

According to the National Weather Service, 2011 was the third wettest year on record, with about 15 inches more rain and melted precipitation than Connecticut usually receives. Despite some heavy precipitation events, the WPCFs largely avoided major damage, and nitrogen removal performance was good under those circumstances (Attachment B), in fact achieving the lowest monthly end-of-pipe load in the history of the NCE of 7,423 eq. lbs N/day in July (Attachment C). In March of 2011, on the heels of a severe winter storm that deluged western Connecticut, the highest aggregate monthly nitrogen load of the year was recorded (17,093 eq. lbs N/day), much higher than the 2011 aggregate permit limit of 10,031 eq. lbs N/day (Figure 2).

The second highest month for aggregate nitrogen load during 2011 was April at 12,463 eq. lbs N/day but, despite high rainfall in May and June, the remnants of Hurricane Irene in September and even the Halloween snowstorm, performance in the aftermath of those storms was around the aggregate permit limit (Figure 2). In July of 2011, the best aggregate monthly performance of the year dipped to 7,423 eq. lbs N/day, close to the record performance recorded in 2010 of 7,075 eq. lbs N/day (Figure 3).

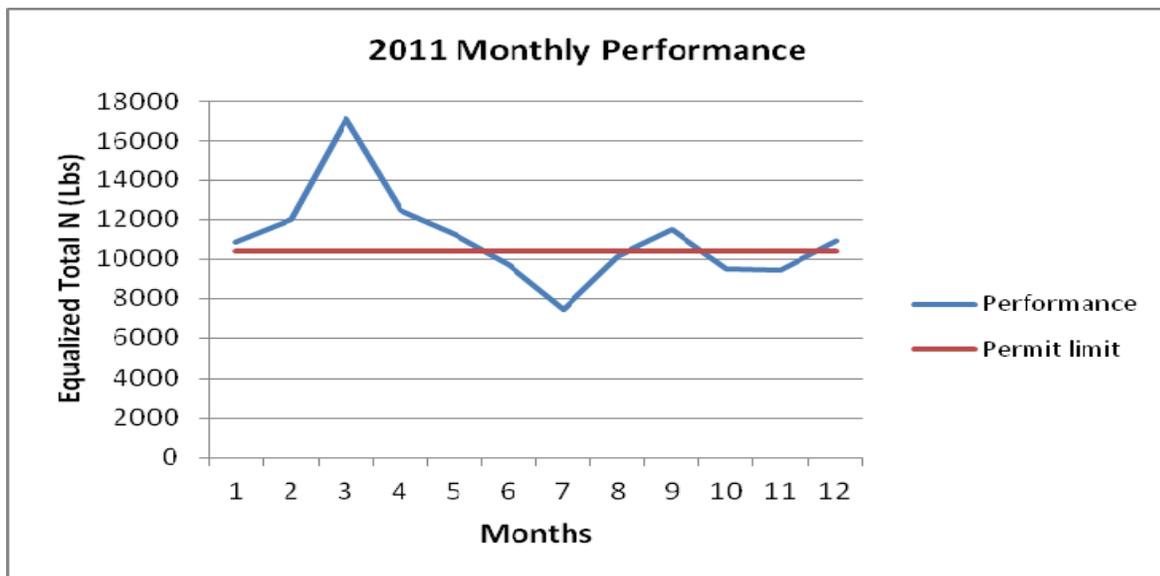


Figure 2. Monthly aggregate performance of 80 facilities during 2011.

II. The 2011 Nitrogen Credit Exchange

Credit Price

The Nitrogen Credit Advisory Board proposes an annual value for equalized nitrogen credits to the Commissioner of Department of Energy and Environmental Protection. The Board is directed to derive this value by dividing the total annual project cost by the reduction in equalized pounds of nitrogen. The

statute identifies the total project cost as: 1) capital expenditures for construction of nitrogen removal facilities and 2) ongoing operation and maintenance costs for nitrogen removal treatment.

Cost of an equalized credit is derived by the following formula:

The value of an equalized credit = Capital Costs + Operational Costs / Total amount of equalized nitrogen reduced from project facilities

"Nitrogen Removal Project" is defined as any alteration of the physical structure of a wastewater treatment facility specifically constructed to remove nitrogen that was financed by Connecticut's Clean Water Fund (CWF). A "Project Facility" is further defined as any facility with a fully operational nitrogen removal system of any scale on January 1 of the trading year. Under this definition, five projects that finished construction in 2010 became Project Facilities in 2011. The projects facilities added in 2011 were Danbury WPCF, Groton Town WPCF, Southington WPCF, Meriden WPCF and New Hartford WPCF. (Attachments D, E, F and G). These facilities increased the number of project facilities from 41 in 2010 to 46 in 2011.

"Capital Costs" were established by the Board as the annual CWF repayment amount associated with construction of nitrogen treatment facilities as set forth in the loan agreement between the municipality and DEEP. Financing derived from grants to municipalities is not considered to be a capital cost for purposes of setting credit prices. Using this procedure, the Board established the annual capital cost for nitrogen treatment in 2011 at \$10,036,251 (Attachment F). This figure represents the annual interest and repayment of principal on the 2% loans for nitrogen removal processes.

"Operation and maintenance costs" were estimated by means of a survey sent to all Project Facilities. Department staff reviewed all survey data for consistency and reasonableness and an estimate of \$15,807,408 was adopted by the Board as the annual operation and maintenance cost for nitrogen removal in 2011. Combining capital and operation and maintenance costs yielded a total cost for nitrogen removal in 2011 of \$25,843,659 (Attachment F).

The reduction in equalized pounds of nitrogen was calculated by subtracting the actual end-of-pipe pounds of nitrogen discharged by each of the Project Facilities from the "baseline" loading established for the facility in the TMDL for Long Island Sound. The baseline loading represents the loading of nitrogen each facility would have discharged if no nitrogen treatment were provided. Load reductions for each facility were multiplied by the equalization factor for the facility (converting the pounds reduced to equalized pounds reduced) and the statewide reduction calculated by summing the equalized pounds reduced for all Project Facilities. Using this procedure, a total of 13,062 eq. lbs N/day of nitrogen was reduced by the 46 project facilities that were on line in 2011 (Attachment E). Based on these analyses, the cost was determined by dividing the Total Project Cost of \$25,843,659 by 13,062 pounds per day of equalized nitrogen removed during the year times 365 days in the year.

The Board formally submitted a recommendation to the DEEP Commissioner that he establish the value of an equalized nitrogen credit at \$5.42 for trading in 2011. The Deputy Commissioner, on behalf of Commissioner Esty, accepted this recommendation and issued a draft ruling pursuant to CGS Section 22a-527 (Attachment H). No municipality petitioned for a review of the Commissioner's draft ruling during the statutory 15-day review period and the draft ruling became final establishing the value of an equalized nitrogen credit at \$5.42 for 2011.

Numbers of Credits Traded and Final Balances

In 2011, fifty-two facilities were required to purchase credits in order to remain in compliance with the Nitrogen General Permit (Attachment D). Municipalities purchased 811,610 equalized credits at a total cost of \$4,398,929 and the value of those sold was \$2,435,958 from the sale of 449,438 equalized nitrogen credits (Attachment D).

Fluctuations above and below the aggregate limits are expected and acceptable in the trading program provided the conditions of the TMDL are met. The goal is a “balanced budget”, where credits sold are adequate to cover those purchased. This year’s credit price represents nearly a one dollar rise in cost from 2010. Credit prices have risen from \$1.65 to \$5.42 over the ten years of operation of the NCE. The price of a credit had risen slowly between 2007 (\$4.36) and 2010 (\$4.59) because of a combination of fewer projects coming on line and good performance results. The jump between 2010 and 2011 is reflective of some higher cost projects coming on line, along with project locations in areas of lower trading ratios, which serves to drive trading economics, but can diminish the number of equalized credits.

III. Progress towards TMDL goal

Nitrogen Loading Trend and Scheduled Projects

Despite the effect of intense storms, wet weather, and cold snaps that impair nitrogen removal capability at municipal facilities in 2011, steady progress has been made towards achieving the 2014 TMDL allocation of 9,141 eq. lbs N/day (Attachment C). This trend has continued into 2012 (Figure 3) when, except for January, aggregate performance has stayed below the final permit limit for 2014. Aggregate treatment plant performance for 2011 was 11,024 eq. lbs N/day.

The twelve month moving nitrogen load average through December 2011 was 11,024 eq. lbs N/day (yellow line in Figure 3). Because the effects of warm and dry weather enhanced nitrogen removal in 2012, the twelve month moving average in 2012 continued its downward trend through June with a value of 9,248, which is close to the TMDL allocation and final aggregate permit limit of 9,141 eq. lbs N/day.

Five facilities – Danbury WPCF, Groton Town WPCF, Meriden WPCF, New Hartford WPCF and Southington WPCF – completed construction for nitrogen removal in 2010; therefore, they were considered project facilities in 2011. These five project facilities removed 946 eq. lbs N/day in 2011. Good performance was observed for the Meriden project facility in 2011. The Meriden WPCF removed almost half of (479 eq. lbs N/day) the total amount removed of the facilities that became project facilities in 2011. The other four new project facilities had some difficulty removing nitrogen in 2011 since they were still optimizing the nitrogen removal process of the plant during the storms. Improved performance of all five facilities has been observed in 2012. By June 2012 the four project facilities (excluding Meriden) were removing 605 eq. lbs N/day below their baseline, and Meriden’s performance had improved to 542 eq. lbs N/day below its baseline. Glastonbury and Stafford finished construction in 2011; therefore, they will become project facilities in 2012.

Meeting the 2014 Wasteload Allocation and Permit Limits.

A linear extrapolation of nitrogen removal progress predicts that by the end of 2012 the plants will collectively reduce the nitrogen load by 60% of the baseline if project upgrades continue at the same funding pace. By 2013 the reduction will be 64%, which is very close to the TMDL WLA for 2014.

The Department continues to refine its projections to determine whether the 2014 TMDL target nitrogen load allocation will be attained. Assumptions include project upgrades completed in South Windsor,

Ansonia, Windham, West Haven, New Milford, and Hartford (phase 2) by the end of 2012. With completion of those projects, it is estimated that during 2012 nitrogen loads will be reduced by an additional 1,413 eq. lbs N/day from baseline conditions.

In 2009 the NCAB approved a funding program for dissolved oxygen and nitrogen sampling equipment purchases by municipal treatment plants. The equipment has been installed twenty one plants have requested money for reimbursement. The plants that have installed the equipment have improved nitrogen removal capabilities beyond their current performance through computerized controls and helped to optimize the denitrification process. By constantly monitoring dissolved oxygen and nitrate levels facilities have been better able to control the amount of dissolved oxygen entering the anoxic zones and optimize nitrate recycles and supplemental carbon.

Clearly, additional projects will need to become operational, and nitrogen removal will need to be optimized at existing project facilities by 2014 if the permit limit is to be successfully met each year. The annual reduction in limits reflects the statewide projection of nitrogen reduction generated by newly constructed treatment facilities.

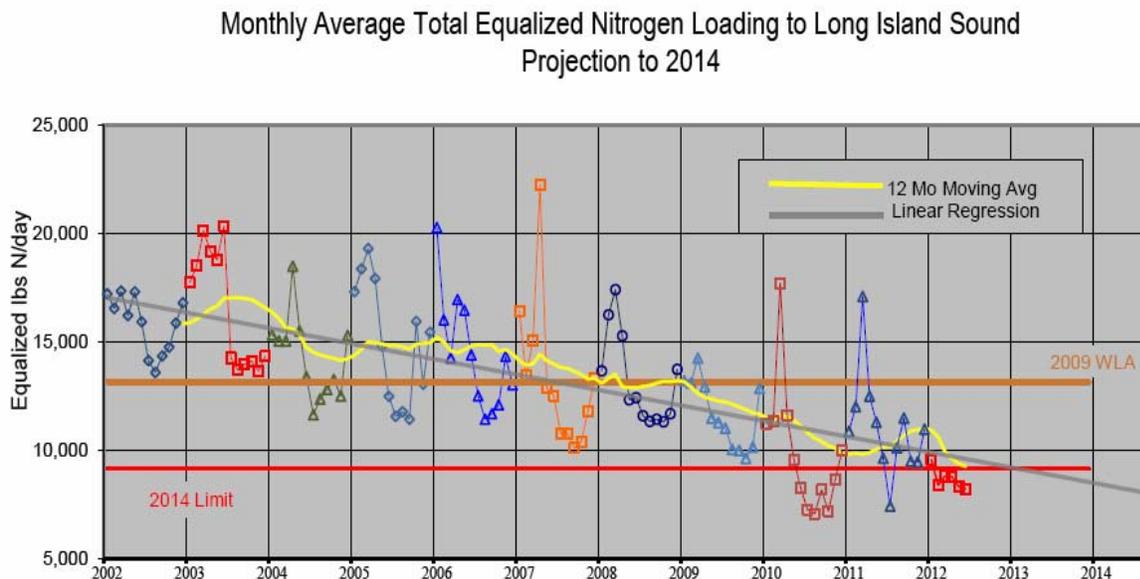


Figure 3. Monthly average total nitrogen loading to Long Island Sound, 2002-2012

Proposed Revisions to the Program

The Department and Nitrogen Credit Advisory Board members will continue to work with municipalities that plan to host projects to ensure their projects are implemented. If warranted, the DEEP and NCAB members will evaluate the potential benefits of adjusting the price of the nitrogen credit and other actions that will help maintain progress towards the goal. Strategies including either incentive or enforcement may be needed to encourage municipalities with key projects to initiate and complete improvements to their facilities in a timely manner.

The Nitrogen General Permit (NGP) was reissued on December 29, 2010 (Attachment I). The reissued general permit for Nitrogen Discharges covers the 5-year period January 2011-2015. The limits derived

are consistent with the methodology used to set limits in the prior permits. With the final permit limit set for 2014, and the TMDL requirement that that limit not be exceeded in aggregate thereafter, the NCAB will be reviewing the future of the program and how to maintain a very successful NCE that has accelerated progress toward that goal, and saved substantial costs to the State's municipalities.

The key issue is whether the annual aggregate average can be kept below the 2014 limit, and the consequences for not meeting that limit each year. Prior to that final limit step-down in 2014, the NCE had flexibility to range above and below the annual limits in the permit, provided performance was below the 2009 step-down required by the TMDL, a target that was easily met because of the more aggressive pace of ramping down Nitrogen General Permit limits. In 2014 the TMDL step-down and the aggregate permit limits become one and the same 9,141 eq. lbs N/day, and the "buffer" between permit limits and the TMDL step down disappears. It is also clear that if the permit limit is met each year, the NCE will, on balance, be a purchaser of credits each year, providing an incentive for continued good performance, but also beyond the requirements of the permit.

The NCAB will evaluate the potential benefit of continuing and perhaps improving nitrogen removal performance, and whether trading should be modified to achieve a net zero balance for purchases and sales each year.

IV. Finances

The Clean Water Fund

The principal factor affecting the rate of progress in reducing nitrogen loads is the availability of financing through the Clean Water Fund to complete nitrogen removal upgrades to municipal sewage treatment facilities.

The Clean Water Fund Project Priority List for fiscal years 2012 and 2013 was issued in final form on April 17, 2012 and provides \$182.6M in general obligation bonds, \$360M in state revenue bonds and \$34.3M in Federal capitalization grants. Two nitrogen removal projects (Manchester and Mattabassett) were funded in FY12 and the Department expects to fund two additional nitrogen removal projects (MDC and Greater New Haven WPCA) in FY13.

Investment in Projects on Line

The five projects completed in 2010 that became project facilities for the 2011 trading year – Danbury, Groton Town, Southington, Meriden and New Hartford – had a total upgrade investment of about \$87 million with the denitrification portion at \$56 million. The complete list of nitrogen removal projects that have been completed or are currently approved for funding by the Clean Water Fund is provided as Attachment G.

Through 2011, Connecticut and its municipalities have spent or committed to more than \$775 million in financing upgrade projects at facilities involved in the NCE. More than \$250 million of that investment has gone towards nitrogen control. Funded projects not yet completed have total project cost estimates in excess of \$250 million, with the nitrogen portions of at least \$50 million, without including major projects at Mattabasset and Greater New Haven WPCA (Attachment G). Thus, it is estimated that total upgrade costs to meet the nitrogen control target will easily exceed \$1 billion, with more than \$300 million of that relevant to nitrogen control upgrades. However, the trading of nitrogen credits with its economic efficiencies is estimated to save in the range of \$300 - \$400 million compared to a traditional individual permit program where every facility would be required to meet its individual limit.

Use of Nitrogen Credit Exchange Funds

Since the program started in 2002 four times more credits have been sold by the NCE than were purchased from the NCE. According to CGS Sec. 22a-524(b)(11) , the Commissioner, in consultation with the NCAB, shall: "Establish accounts of funds created from the purchase and sale of equivalent nitrogen credits to be used for administration of the nitrogen credit exchange program and which may be used for nitrogen removal projects, habitat restoration projects and research". Further, in CGS, Sec. 22a-524(b)(12), the Commissioner, in consultation with the NCAB, shall: "Establish any other policies or procedures the commissioner may deem necessary to carry out the nitrogen credit exchange program; and CGS, Sec. 22a-524(b)(13) provides abilities to "establish a technical assistance program" to educate and assist municipalities in implementing the nitrogen credit exchange program".

Over the past few years, the NCAB recommended that funds be used for:

- Training and providing technical assistance, to which \$240,000 was assigned in 2007. New England Interstate Water Pollution Control Commission (NEIWPCC) was retained to work with DEEP and selected municipalities to train operators on the topics of nitrogen removal, the Biological Nitrogen Removal process, and better management of wet weather/cold weather conditions that have an adverse impact on nitrogen removal. This has helped ensure that the maximum benefit from existing upgrades is attained.
- Providing supplemental funding to the USGS for enhanced Connecticut River monitoring. Because the Connecticut River is tidal, the loads along the river from Thompsonville to Long Island Sound are poorly understood. On November 2007, \$180,000 was allocated to monitor the river and on December 2010 the Board allocated an additional \$90,000 for fiscal year 2011-2012 to continue monitoring. USGS monitored nitrogen loads during different seasons and during the storms in 2011. The report will be submitted this year to the DEEP.
- The NCAB funded enhanced nutrient monitoring statewide by partnering with the USGS. In 2008, \$240,000 was provided for monitoring to be conducted on rivers throughout the state to better determine nitrogen loads from within and outside of Connecticut. An additional \$323,500 was allocated to keep monitoring in federal fiscal year 2011 (\$45,000) and 2012 (\$45,000). Using those data along with their existing database, USGS will comprehensively analyze and report on nitrogen loads and trends to Long Island Sound. The report will be submitted to the DEEP this year.
- The NCAB has previously set aside \$100,000 in 2007 for a study of combined sewer overflows (CSO), sanitary sewer overflows (SSO) and stormwater separation effects on nitrogen loads and other urban stormwater and sewage pollutants. In 2008, total project funding of \$741,854 was recommended by the Board and approved by the Commissioner. DEEP has partnered with the University of Connecticut center for Environmental Science and Engineering (CESE) to evaluate the relative benefits and impacts of sewer separation and delivery of nitrogen to the receiving water via the POTW and direct storm sewer discharge. The project is ongoing.
- The Advisory Board has also recommended a seventh year's membership (2011-2012) in the Water Environment Research Foundation (WERF) at a cost of \$10,250 per year. WERF keeps members informed on the latest technology, technical discussion groups, seminars, and workshops relevant to treatment plant operations and nitrogen removal. WERF is also embarking on a nitrogen research initiative that will be very useful to nitrogen management in Connecticut and plans to use the NCE's data and experiences in their evaluations.

- The NCAB has recommended \$1,966,500 to be used for funding for the purchase of on-line (automated) or portable analyzers for dissolved oxygen (DO) and nitrogen analyzer equipment for those WPCFs that don't currently have equipment, or adequate equipment. WPCFs will be reimbursed 75% of the purchase price, which is estimated to be \$40,000 for two on-line analyzers and \$3,000 for portable analyzers. Twenty-one plants have requested money for reimbursement. The plants that have installed the equipment have improved nitrogen removal capabilities beyond their current performance through computerized controls. The project is ongoing.

The Advisory Board continues to explore ideas for the use of the funds for training and improvements in treatment plants to enhance nitrogen removal and to ensure that the program achieves the TMDL limit.

V. Revisions to the TMDL/Upper Connecticut River

The Total Maximum Daily Load (TMDL) for nitrogen, adopted in 2001, was scheduled for revision in 2003 to include changes related to anticipated changes in Connecticut and New York water quality standards, a new System-wide Eutrophication Model (SWEM) being developed for Long Island Sound, and to include more specific nitrogen reduction targets for Upper Connecticut River sources in Massachusetts, New Hampshire and Vermont and for atmospheric deposition. Lengthy delays in the completion of and scenario testing with the SWEM model, as well as implementation of studies of nitrogen loading and delivery in the Upper Connecticut River have put off the TMDL revision.

However, Commissioners from the five states that are in the Long Island Sound watershed recently agreed to collaborate on a five-state TMDL process. While this will delay completion of the revised TMDL, it provides all states (Connecticut, New York, Massachusetts, New Hampshire and Vermont) with a better opportunity to contribute to the revision of the TMDL, and a legal commitment to implementing the TMDL.

With coordination by NEIWPC, the watershed states have been meeting regularly and evaluating the data being generated by the studies of the Upper Connecticut River to develop an equitable and reasonable nitrogen management plan. In particular, a new watershed model has been developed that allows managers to identify nitrogen loads from all point and nonpoint sources, the delivery efficiency of that nitrogen to Long Island Sound, and the costs and feasibility of reductions. These tools, and continued meeting and engagement of all five states will help maintain a commitment to revising the TMDL.

VI. Recommendations for Statutory Change

Until there is further assessment of the program, and a TMDL revision, there were no recommendations to make any statutory changes raised by the Board during 2011. However, during the next year, the NCAB will be considering options for continuing the NCE post meeting the 2014 aggregate permit limit and TMDL wasteload allocation.

VIII. Attachments

- A. Nitrogen Credit Advisory Board Members 2011
- B. Total nitrogen Balance Sheet - Monthly Averages by plant 2011
- C. Total nitrogen Balance Sheet 2002 - 2011
- D. Nitrogen Exchange Balance Sheet 2011
- E. Equalized lbs reduced by project facilities 2011

- F. Total Annual Project Costs 2011
- G. Nitrogen Removal Projects Financed by the CWF through 2011
- H. Notice of Proposed Value of an Equivalent Nitrogen Credit for 2011
- I. General Permit for Nitrogen Discharges -
- J. Nitrogen Credit Advisory Board 2013 Meeting Schedule

IV. Acknowledgements

DEEP thanks Paul E. Stacey, Research Coordinator for the Great Bay National Estuarine Research Reserve and the members of Nitrogen Board for their contributions to this document.

LIST OF APPOINTEES 2011

	Name	Current Appointing Authority	Term	Term Expires*
1.	Vacant	Martin M. Looney Senate Majority Leader	3 years	
2.	Under Secretary Office of Police Management	Secretary Office of Policy and Management	No specific Term	
3.	Vacant	Donald E. Williams, Jr. Senate President Pro Tem (Sullivan appointee)	3 years	November 2005 *
4.	Betsey Wingfield Bureau Chief DEEP 79 Elm St Hartford, CT 06016 Phone: (860) 424-3704	Amev Marrella Commissioner Environmental Protection	No specific term	
5.	Sharon Dixon Peay Office of the Treasurer 55 Elm Street Hartford, CT 06106 Phone: (860) 702-3134	Denise Nappier Secretary Office of the Treasurer	No specific Term	
6	Astrid T. Hanzalek 31 Abraham Terrace Suffield, CT 06078 Phone: (860) 668-2739	Lawrence F. Cafero, Jr. House Minority Leader (Ward Appointee)	3 years	September 2010

7.	Brian Armet Executive Director Mattabassett District 245 Main Street Cromwell, CT 06416 Phone: (860) 635-5550	Denise Merrill House Majority Leader (Pudlin Appointee)	3 years	June 2008 *
8.	Richard Cellar 83 Lawrence Road Fairfield, CT 06824-3039 Phone: (203) 255-5017	John McKinney Senate Minority Leader (DeLuca Appointee)	3 years	November 2005 *
9.	Carl Almquist Town of Groton WPCA 134 Groton Long Point Road Groton, CT 06340 - 4873 Phone: (860) 448-4083	M. Jodi Rell Governor	3 years	November 2007*
10.	Vacant	Denise Merrill House Majority Leader (Donovan Appointee)	3 years	November 2009
11.	William Norton, Director City of West Haven WPCA 355 Main Street West Haven, CT06516 (203) 937-3706	Christopher G. Donovan Speaker of the House (Amann Appointee)	3 years	February 2008*
12.	Vacant	Martin M. Looney Senate Majority Leader	3 years	

* Appointees remain active until removed by their appointees authority

Total Nitrogen Balance Sheet - Monthly Averages by Plant 2011

Plant	Limit	Avg	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Zone 1														
GROTON CITY WPCF	109	99	88	111	115	99	98	90	91	84	118	94	102	97
GROTON TOWN WPCF	168	260	252	392	487	440	204	186	169	133	175	168	207	310
JEWETT CITY WPCF	17	6	9	10	6	5	4	4	3	2	3	3	6	12
KILLINGLY WPCF	144	247	233	261	371	538	458	261	127	151	151	127	106	177
LEDYARD WPCF	8	6	6	6	7	5	5	4	3	5	8	9	7	11
MONTVILLE WPCF	130	115	74	154	150	186	132	186	98	126	81	87	70	41
NEW LONDON WPCF	424	304	418	327	350	245	182	215	281	264	384	264	302	421
NORWICH WPCF	221	470	468	476	459	387	389	381	354	384	516	524	666	633
PLAINFIELD NORTH WPCF	38	65	72	89	84	79	68	54	43	48	53	54	59	71
PLAINFIELD VILLAGE WPCF	26	31	38	35	40	29	25	19	12	21	53	21	35	41
PUTNAM WPCF	58	147	177	221	224	174	130	79	81	64	143	166	152	152
SPRAGUE WPCF	8	16	15	19	31	16	10	19	10	12	19	16	14	15
STAFFORD SPRINGS WPCF	66	191	238	225	271	212	198	121	155	153	171	146	175	221
STONINGTON BOROUGH WPCF	15	8	6	9	9	7	11	7	7	9	8	8	7	8
STONINGTON MYSTIC WPCF	30	28	18	22	26	29	23	31	35	41	35	31	25	22
STONINGTON PAWCATUCK WPCF	26	32	29	34	43	47	44	35	30	22	22	27	27	24
THOMPSON WPCF	11	29	17	25	34	30	57	44	20	22	26	17	18	32
UCONN WPCF	48	55	59	55	67	66	47	29	17	103	77	39	52	53
WINDHAM WPCF	138	289	371	388	390	440	466	260	141	168	240	226	160	215

Zone 2

BRISTOL WPCF	437	632	597	542	935	679	679	596	554	447	710	655	637	555
CANTON WPCF	26	103	113	112	109	109	105	96	80	89	106	103	103	116
EAST HAMPTON WPCF	59	127	147	176	210	198	123	90	93	80	60	132	104	106
EAST HARTFORD WPCF	321	505	581	712	519	552	525	532	274	373	482	627	524	358
EAST WINDSOR WPCF	65	31	17	17	56	42	29	23	18	32	40	37	35	29
ENFIELD WPCF	306	324	317	271	474	334	358	326	248	291	299	363	341	266
FARMINGTON WPCF	195	340	250	246	488	568	518	280	132	201	441	326	246	379
GLASTONBURY WPCF	107	101	88	117	152	112	72	89	68	77	135	85	101	110
HARTFORD WPCF	2611	5090	6902	7347	5800	5870	5979	4824	3102	3266	4579	4144	4434	4832
MANCHESTER WPCF	343	1069	870	1128	1413	1207	1360	1189	991	882	918	877	990	1000
MATTABASSETT WPCF	916	1377	1372	1375	2137	1537	1507	1350	1139	1257	1362	1097	1130	1258
MIDDLETOWN WPCF	244	567	416	545	741	792	480	605	377	441	798	461	538	604
NEW HARTFORD WPCF	5	3	2	1	2	4	2	4	4	3	6	4	4	3
PLAINVILLE WPCF	111	129	82	69	165	111	109	115	65	104	151	128	158	287
PLYMOUTH WPCF	46	100	89	82	113	67	85	75	96	134	130	103	143	142

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Total Nitrogen Balance Sheet - Monthly Averages by Plant 2011

Plant	Limit	Avg	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PORTLAND WPCF	34	39	22	31	65	44	44	34	31	27	47	34	46	48
ROCKY HILL WPCF	316	542	344	494	646	493	335	591	350	583	499	514	518	541
SIMSBURY WPCF	117	84	54	43	152	81	79	53	66	63	91	120	103	105
SOUTH WINDSOR WPCF	116	276	314	286	420	287	293	323	259	193	308	210	197	227
SUFFIELD WPCF	49	35	38	11	48	86	32	21	9	30	57	30	23	37
VERNON WPCF	202	520	455	339	883	509	563	450	508	490	502	464	568	503
WINDSOR LOCKS WPCF	72	89	53	62	167	142	80	73	50	66	105	78	115	71
WINDSOR POQUONOCK WPCF	107	500	462	471	512	585	512	548	379	424	524	536	508	537
WINSTED WPCF	70	70	52	51	77	87	107	56	45	40	85	78	86	81

Zone 3

BRANFORD WPCF	211	102	78	77	104	111	112	112	100	65	134	102	110	114
CHESHIRE WPCF	113	74	60	40	115	63	185	59	35	52	100	46	65	72
MERIDEN WPCF	493	253	155	168	877	208	310	211	92	91	185	118	144	472
NEW HAVEN EAST WPCF	1722	1993	1576	2213	3051	2295	2252	2344	992	2129	1913	1915	1635	1602
NORTH HAVEN WPCF	174	199	144	196	245	147	162	205	153	224	242	216	225	228
SOUTHINGTON WPCF	223	262	206	771	342	301	289	213	128	167	230	156	135	201
WALLINGFORD WPCF	296	517	432	558	988	837	577	437	338	350	498	350	366	475
WEST HAVEN WPCF	388	673	877	1131	1043	861	900	399	332	578	677	418	442	417

Zone 4

ANSONIA WPCF	126	76	65	87	132	93	82	67	41	131	56	40	49	69
BEACON FALLS WPCF	13	52	70	58	64	47	55	48	40	45	55	51	40	48
DANBURY WPCF	486	576	626	585	853	668	656	572	355	457	658	537	483	461
DERBY WPCF	78	82	58	90	112	85	59	71	76	116	80	79	72	86
LITCHFIELD WPCF	26	39	34	49	63	59	40	31	10	17	52	41	33	39
MILFORD BEAVER BROOK WPCF	103	127	69	144	242	265	184	131	78	88	78	82	74	90
MILFORD HOUSATONIC WPCF	338	598	243	628	1320	950	729	344	282	1075	577	379	336	312
NAUGATUCK TREATMENT Co.	271	320	243	292	916	282	222	188	215	291	380	310	217	288
NEW MILFORD WPCF	28	117	199	205	130	110	113	99	101	102	117	128	51	48
NEWTOWN WPCF	18	20	30	36	32	11	12	6	4	11	22	30	28	22
NORFOLK WPCF	12	30	18	15	34	45	28	27	22	15	36	38	33	45
NORTH CANAAN WPCF	14	26	23	28	30	31	24	28	18	20	36	28	22	21
SALISBURY WPCF	23	35	24	24	31	36	45	37	32	26	50	47	32	32
SEYMOUR WPCF	67	89	99	152	168	157	126	55	38	58	65	47	50	57
SHELTON WPCF	116	121	109	172	272	180	113	106	51	64	81	91	127	85
SOUTHBURY TR. SCHOOL WPCF	16	9	13	17	14	8	4	4	1	8	9	7	10	10

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Total Nitrogen Balance Sheet - Monthly Averages by Plant 2011

Plant	Limit	Avg	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
STRATFORD WPCF	391	259	292	307	503	231	245	402	164	161	241	174	157	232
THOMASTON WPCF	46	27	23	20	58	20	28	26	22	15	42	23	22	23
TORRINGTON WPCF	273	298	380	267	445	339	316	245	210	250	330	261	247	283
WATERBURY WPCF	1109	914	511	747	1073	740	902	1023	821	1161	1410	895	706	982

Zone 5

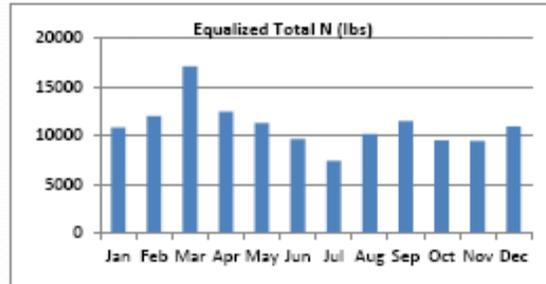
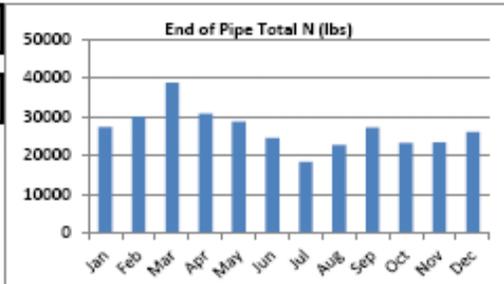
BRIDGEPORT EAST WPCF	397	376	419	258	417	430	456	371	269	210	348	391	452	489
BRIDGEPORT WEST WPCF	1144	1017	1696	625	1120	1268	549	472	652	827	1159	825	1131	1874
FAIRFIELD WPCF	446	388	248	278	1210	342	374	229	267	386	358	351	298	314
WESTFORT WPCF	95	35	30	43	81	35	30	28	20	38	28	27	27	37

Zone 6

GREENWICH WPCF	526	572	483	536	781	583	627	490	557	733	608	500	449	520
NEW CANAAN WPCF	70	39	30	38	101	46	21	22	23	37	39	34	33	43
NORWALK WPCF	789	742	797	1086	893	718	668	662	617	749	670	705	676	663
RIDGEFIELD SOUTH ST. WPCF	32	39	33	34	50	39	46	37	24	27	45	49	43	44
STAMFORD WPCF	1017	592	486	662	1352	561	394	375	322	540	829	468	532	586

End of Pipe Total			27304	30024	38710	30732	28662	24544	18317	22719	27156	23192	23363	26105
Equalized Total			10869	12003	17093	12463	11274	9666	7423	10147	11488	9491	9448	10924

End of Pipe Permit = 20,250
End of Pipe Avg = 26,736
Equalized Permit = 10,031
Equalized Avg = 11,024



Attachment C

Total Nitrogen Balance Sheet - Monthly Averages lbs/day by Plant, 2002 - 2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	<u>Average 2009- 2011</u>
ZONE:1											
GROTON CITY WPCF	210	161	179	132	118	129	110	114	107	99	107
GROTON TOWN WPCF	566	465	447	444	470	421	451	353	278	260	297
JEWETT CITY WPCF	36	40	39	13	10	13	13	8	9	6	8
KILLINGLY WPCF	162	147	159	177	152	158	191	126	170	247	181
LEDYARD WPC	5	3	4	5	7	5	7	5	5	6	5
MONTVILLE WPCF	187	153	222	92	98	69	82	91	82	115	96
NEW LONDON WPCF	449	405	332	434	423	414	377	391	335	304	343
NORWICH WPCF	758	986	769	748	828	684	673	612	481	470	521
PLAINFIELD NORTH WPCF	50	87	78	90	119	108	105	88	95	65	83
PLAINFIELD VILLAGE WPCF	32	44	41	49	54	42	42	43	51	31	42
PUTNAM WPCF	163	170	174	193	205	206	206	157	140	147	148
SPRAGUE WPCF	15	7	10	13	22	14	15	21	21	16	19
STAFFORD SPRINGS WPCF	135	131	121	131	114	120	160	162	129	191	161
STONINGTON BOROUGH WPCF	55	55	42	47	37	22	19	13	11	8	11
STONINGTON MYSTIC WPCF	36	43	49	48	51	31	30	25	32	28	28
STONINGTON PAWCATUCK	46	34	46	30	25	18	19	25	33	32	30
THOMPSON WPCF	21	35	29	33	28	28	21	18	30	29	26
UCONN WPCF	78	70	107	65	94	67	103	83	65	55	68
WINDHAM WPCF	265	243	216	165	167	174	258	364	340	289	331
End of Pipe Total	3269	3279	3064	2909	3022	2723	2882	2699	2414	2398	2504
ZONE:2											
BRISTOL WPCF	949	1121	793	567	575	532	511	452	560	632	548
CANTON WPCF	70	87	101	106	113	92	99	100	121	103	108
EAST HAMPTON WPCF	86	119	96	85	140	110	136	121	117	127	122
EAST HARTFORD WPCF	755	749	812	803	902	391	417	418	366	505	430
EAST WINDSOR WPCF	20	34	31	45	32	32	27	26	20	31	26
ENFIELD WPCF	914	839	275	535	331	218	272	282	248	324	285
FARMINGTON WPCF	386	354	401	398	440	433	309	269	250	340	286
GLASTONBURY WPCF	263	307	340	214	290	295	364	223	118	101	147
HARTFORD WPCF	5978	5900	6529	6831	7408	5839	5326	4217	3841	5090	4383
MANCHESTER WPCF	822	762	755	772	785	715	705	851	866	1069	929
MATTABASSETT WPCF	2120	1795	1453	1408	1202	1129	1053	1123	497	1377	999
MIDDLETOWN WPCF	392	385	424	486	440	397	446	490	497	567	518
PLAINVILLE WPCF	252	304	311	285	301	280	315	135	97	129	120
PLYMOUTH WPCF	73	69	68	76	80	71	87	85	68	100	84
PORTLAND WPCF	24	28	36	33	34	26	33	33	28	39	33
ROCKY HILL WPCF	631	767	780	919	787	610	484	526	498	542	522
SIMSBURY WPCF	344	316	323	368	206	84	70	84	43	84	70
SOUTH WINDSOR WPCF	298	324	317	340	298	322	323	326	342	276	315
SUFFIELD WPCF	34	37	38	72	88	74	88	47	25	35	36
VERNON WPCF	483	663	538	488	580	469	426	361	386	520	422
WINDSOR LOCKS WPCF	131	116	100	143	98	94	110	113	96	89	99
WINDSOR POQUONOCK	427	422	441	467	432	419	457	450	494	500	481
WINSTED WPCF	250	187	201	206	223	120	82	66	64	70	67
End of Pipe Total	15701	15683	15163	15647	15785	12752	12140	10798	9642	12650	11030

BRANFORD WPCF	142	79	129	135	103	111	105	94	110	102	102
CHESHIRE WPCF	468	492	536	480	171	74	75	63	38	74	58
MERIDEN WPCF	860	917	882	781	827	810	1008	1051	696	253	667
NEW HAVEN EAST WPCF	1400	1630	1408	1703	2271	2201	1650	1592	1494	1993	1693
NORTH HAVEN WPCF	534	502	489	424	226	214	249	191	164	199	185
SOUTHINGTON WPCF	819	798	768	754	761	868	911	725	194	262	394
WALLINGFORD WPCF	549	601	627	657	522	340	381	429	456	517	467
WEST HAVEN WPCF	796	668	511	601	546	498	779	549	612	673	611
End of Pipe Total	5568	5687	5349	5535	5427	5116	5158	4694	3764	4073	4177
ZONE:4											
ANSONIA WPCF	273	307	260	287	289	237	260	270	178	76	175
BEACON FALLS WPCF	41	45	38	42	44	50	57	58	60	52	57
DANBURY WPCF	1866	1875	1825	1766	2072	1778	1885	1974	644	576	1065
DERBY WPCF	53	64	58	59	65	63	64	64	63	82	70
LITCHFIELD WPCF	67	54	35	49	39	38	45	43	35	39	39
MILFORD BEAVER BROOK	130	180	120	127	130	132	121	137	101	127	122
MILFORD HOUSATONIC	439	429	431	479	574	662	742	324	238	598	387
NAUGATUCK TREATMENT	479	440	234	279	263	250	344	345	248	320	304
NEW MILFORD WPCF	76	52	56	91	86	88	103	109	135	117	120
NEWTOWN WPCF	34	50	32	24	36	26	19	18	21	20	20
NORFOLK WPCF	9	13	12	20	29	32	29	26	23	30	26
NORTH CANAAN WPCF	18	22	21	31	23	25	24	25	26	26	26
SALISBURY WPCF	27	27	23	28	29	28	34	32	34	35	34
SEYMOUR WPCF	55	56	61	69	66	62	58	69	62	89	73
SHELTON WPCF	452	545	509	501	480	413	219	219	113	121	151
SOUTHBURY TR. SCHOOL	17	18	16	14	10	7	8	4	7	9	7
STRATFORD WPCF	535	646	431	539	537	616	1425	605	245	259	370
THOMASTON WPCF	35	51	45	45	44	32	42	40	25	27	31
TORRINGTON WPCF	283	299	287	254	265	247	275	226	242	298	255
WATERBURY WPCF	778	1335	913	965	1001	1034	869	857	802	914	858
End of Pipe Total	5667	6508	5407	5669	6082	5820	6623	5445	3302	3815	4187
ZONE:5											
BRIDGEPORT EAST WPCF	568	615	459	470	468	271	253	301	412	376	363
BRIDGEPORT WEST WPCF	2305	2306	1158	1564	1145	1146	1262	1019	1211	1017	1082
FAIRFIELD WPCF	735	453	417	383	530	408	488	431	325	388	381
WESTPORT WPCF	140	133	152	148	153	70	44	38	41	35	38
End of Pipe Total	3748	3508	2186	2565	2296	1895	2047	1789	1989	1816	1865
ZONE:6											
GREENWICH WPCF	410	459	443	556	520	697	479	461	458	572	497
NEW CANAAN WPCF	21	24	20	30	30	38	29	30	29	39	33
NORWALK WPCF	605	888	784	818	755	1043	766	881	600	742	741
RIDGEFIELD SOUTH ST.	23	27	28	35	28	32	34	38	42	39	40
STAMFORD WPCF	1652	1645	1523	1418	1029	726	550	510	497	592	533
End of Pipe Total	2711	3044	2798	2857	2362	2536	1858	1920	1626	1984	1843
State End of Pipe Total	36664	37708	33966	33182	34974	30842	30702	27345	27345	26736	24326

LIS Total Nitrogen Credit Exchange Final Balance - 2011

SELLING Credits		BUYING Credits	
Facility Name		Facility Name	
STAMFORD WPCF	\$840,778.00	HARTFORD WPCF	\$980,841.00
MERIDEN WPCF	\$232,648.00	MILFORD HOUSATONIC WPCF	\$344,620.00
WATERBURY WPCF	\$231,461.00	WEST HAVEN WPCF	\$338,289.00
BRIDGEPORT WEST WPCF	\$213,557.00	NEW HAVEN EAST WPCF	\$321,672.00
STRATFORD WPCF	\$174,961.00	MANCHESTER WPCF	\$272,887.00
BRANFORD WPCF	\$129,381.00	WALLINGFORD WPCF	\$262,323.00
WESTPORT WPCF	\$100,893.00	MATTABASSETT WPCF	\$182,399.00
FAIRFIELD WPCF	\$97,530.00	WINDSOR POQUONOCK WPCF	\$147,720.00
NORWALK WPCF	\$92,980.00	MIDDLETOWN WPCF	\$127,798.00
ANSONIA WPCF	\$66,273.00	VERNON WPCF	\$119,529.00
NEW CANAAN WPCF	\$61,327.00	GREENWICH WPCF	\$91,002.00
NEW LONDON WPCF	\$42,731.00	ROCKY HILL WPCF	\$89,419.00
CHESHIRE WPCF	\$37,805.00	NORWICH WPCF	\$88,667.00
BRIDGEPORT EAST WPCF	\$35,313.00	DANBURY WPCF	\$81,902.00
THOMASTON WPCF	\$22,553.00	NEW MILFORD WPCF	\$80,992.00
EAST WINDSOR WPCF	\$12,780.00	BRISTOL WPCF	\$69,438.00
SIMSBURY WPCF	\$11,751.00	EAST HARTFORD WPCF	\$69,161.00
SOUTHBURY TR. SCHOOL WPCF	\$6,370.00	SOUTH WINDSOR WPCF	\$60,140.00
MONTVILLE WPCF	\$5,341.00	NAUGATUCK TREATMENT Co.	\$58,162.00
SUFFIELD WPCF	\$5,262.00	BEACON FALLS WPCF	\$51,693.00
JEWETT CITY WPCF	\$3,699.00	FARMINGTON WPCF	\$51,634.00
GROTON CITY WPCF	\$3,561.00	WINDHAM WPCF	\$44,808.00
STONINGTON BOROUGH WPCF	\$2,493.00	SOUTHINGTON WPCF	\$37,805.00
GLASTONBURY WPCF	\$2,374.00	STAFFORD SPRINGS WPCF	\$37,093.00
LEDYARD WPCF	\$712.00	GROTON TOWN WPCF	\$32,761.00
NEW HARTFORD WPCF	\$712.00	MILFORD BEAVER BROOK WPCF	\$31,811.00
STONINGTON MYSTIC WPCF	\$712.00	NORTH HAVEN WPCF	\$29,675.00
WINSTED WPCF	\$0.00	TORRINGTON WPCF	\$29,675.00
		SEYMOUR WPCF	\$29,160.00
		KILLINGLY WPCF	\$28,527.00
		CANTON WPCF	\$27,419.00
		EAST HAMPTON WPCF	\$26,905.00
		PUTNAM WPCF	\$24,650.00
		PLYMOUTH WPCF	\$19,229.00
		RIDGEFIELD SOUTH ST. WPCF	\$13,848.00
		NORFOLK WPCF	\$12,463.00
		LITCHFIELD WPCF	\$9,001.00
		NORTH CANAAN WPCF	\$8,309.00
		SALISBURY WPCF	\$8,309.00
		PLAINFIELD NORTH WPCF	\$7,478.00
		ENFIELD WPCF	\$6,766.00
		SHELTON WPCF	\$6,627.00
		PLAINVILLE WPCF	\$6,410.00
		THOMPSON WPCF	\$6,410.00
		WINDSOR LOCKS WPCF	\$6,390.00
		DERBY WPCF	\$5,302.00
		SPRAGUE WPCF	\$2,532.00
		UCONN WPCF	\$2,077.00
		STONINGTON PAWCATUCK WPCF	\$2,018.00
		PORTLAND WPCF	\$1,978.00
		NEWTOWN WPCF	\$1,820.00
		PLAINFIELD VILLAGE WPCF	\$1,385.00
TOTAL	\$2,435,958	TOTAL	\$4,398,929

Difference: Selling - Buying = (\$1,962,971)

BOLD = Clean Water Fund Nitrogen Project Facility

The final balance (annual dollar amount) for each facility was calculated by subtracting the facility's 2011 TN loading as reported to DEP, from the facility's General Permit 2011 limit; The difference was then multiplied by the E-factor for that facility to determine the number of credits available to sell or needed to purchase. Credits were then multiplied by the value of a credit (\$5.42) to calculate the annual balance shown above.

Equalized lbs reduced by project facilities 2011

Project Facilities	Baseload	Average TN	EOP Reduced	E Factor	E Pounds Reduced
BRANFORD WPCF	526	102	424	0.6	254.4
BRIDGEPORT EAST WPCF	991	376	615	0.85	522.75
BRIDGEPORT WEST WPCF	2852	1017	1835	0.85	1559.75
BRISTOL WPCF	1091	632	459	0.18	82.62
CHESHIRE WPCF	281	74	207	0.49	101.43
DANBURY WPCF	1211	576	635	0.46	292.1
DERBY WPCF	195	82	113	0.67	75.71
EAST HAMPTON WPCF	148	127	21	0.2	4.2
EAST HARTFORD WPCF	801	505	296	0.19	56.24
EAST WINDSOR WPCF	163	31	132	0.19	25.08
ENFIELD WPCF	763	324	439	0.19	83.41
FAIRFIELD WPCF	1113	388	725	0.85	616.25
GREENWICH WPCF	1313	572	741	1	741
GROTON TOWN WPCF	420	260	160	0.18	28.8
HARTFORD WPCF	6512	5090	1422	0.2	284.4
JEWETT CITY WPCF	42	6	36	0.17	6.12
LEDYARD WPCF	20	6	14	0.18	2.52
LITCHFIELD WPCF	64	39	25	0.35	8.75
MERIDEN WPCF	1230	253	977	0.49	478.73
MILFORD BEAVER BROOK WPCF	258	127	131	0.67	87.77
MILFORD HOUSATONIC WPCF	844	598	246	0.67	164.82
NEW CANAAN WPCF	175	39	136	1	136
NEW HARTFORD WPCF	12	3	9	0.18	1.62
NEW HAVEN EAST WPCF	4294	1993	2301	0.6	1380.6
NEW LONDON WPCF	1057	304	753	0.18	135.54
NEWTOWN WPCF	45	20	25	0.46	11.5
NORTH HAVEN WPCF	433	199	234	0.6	140.4
NORWALK WPCF	1967	742	1225	1	1225
PLAINVILLE WPCF	277	129	148	0.18	26.64
PORTLAND WPCF	86	39	47	0.2	9.4
RIDGEFIELD SOUTH ST. WPCF	80	39	41	1	41
SEYMOUR WPCF	167	89	78	0.67	52.26
SHELTON WPCF	290	121	169	0.67	113.23
SIMSBURY WPCF	293	84	209	0.18	37.62
SOUTHINGTON WPCF	557	262	295	0.49	144.55
STAMFORD WPCF	2536	592	1944	1	1944
STRATFORD WPCF	974	259	715	0.67	479.05
SUFFIELD WPCF	122	35	87	0.19	16.53
THOMASTON WPCF	114	27	87	0.6	52.2
UCONN WPCF	120	55	65	0.15	9.75
WALLINGFORD WPCF	737	517	220	0.6	132
WATERBURY WPCF	2766	914	1852	0.6	1111.2
WEST HAVEN WPCF	967	673	294	0.6	176.4
WESTPORT WPCF	238	35	203	0.85	172.55
WINDSOR LOCKS WPCF	180	89	91	0.19	17.29
WINSTED WPCF	175	70	105	0.18	18.9
Total					13062.08
Project Cost					\$ 25,843,659.00
Credit Cost:					\$ 5.42

Total Annual Project Cost 2011

Project Facilities	Total Annual Capital Cost	Total Annual O&M Cost	Total Annual Project Cost
BRANFORD WPCF	\$168,661	\$526,392	\$695,053
BRIDGEPORT EAST WPCF	\$51,755	\$691,625	\$743,380
BRIDGEPORT WEST WPCF	\$155,266	\$1,310,006	\$1,465,272
BRISTOL WPCF	\$28,759	\$113,509	\$142,268
CHESHIRE WPCF	\$317,316	\$242,582	\$559,898
DANBURY WPCF	\$46,466	\$422,437	\$468,903
DERBY WPCF	\$31,785	\$72,508	\$104,293
EAST HAMPTON WPCF	\$30,144	\$262,703	\$292,847
EAST HARTFORD WPCF	\$82,707	\$179,521	\$262,228
EAST WINDSOR WPCF	\$61,136	\$70,390	\$131,526
ENFIELD WPCF	\$0	\$395,060	\$395,060
FAIRFIELD WPCF	\$514,885	\$549,429	\$1,064,314
GREENWICH WPCF	\$0	\$170,819	\$170,819
GROTON TOWN WPCF	\$242,100	\$142,980	\$385,080
HARTFORD WPCF	\$107,555	\$132,695	\$240,250
JEWETT CITY WPCF	\$65,659	\$95,693	\$161,352
LEDYARD WPCF	\$18,062	\$27,090	\$45,152
LITCHFIELD WPCF	\$45,829	\$23,352	\$69,181
MERIDEN WPCF	\$492,418	\$906,599	\$1,399,017
MILFORD BEAVER BROOK WPCF	\$143,806	\$187,614	\$331,420
MILFORD HOUSATONIC WPCF	\$399,082	\$120,116	\$519,198
NEW CANAAN WPCF	\$56,656	\$131,137	\$187,793
NEW HARTFORD WPCF	\$0	\$84,120	\$84,120
NEW HAVEN EAST WPCF	\$151,122	\$558,068	\$709,190
NEW LONDON WPCF	\$54,978	\$321,652	\$376,630
NEWTOWN WPCF	\$72,954	\$107,996	\$180,950
NORTH HAVEN WPCF	\$54,418	\$122,086	\$176,504
NORWALK WPCF	\$276,853	\$765,616	\$1,042,469
PLAINVILLE WPCF	\$253,448	\$461,015	\$714,463
PORTLAND WPCF	\$44,740	\$133,447	\$178,187
RIDGEFIELD SOUTH ST. WPCF	\$0	\$62,443	\$62,443
SEYMOUR WPCF	\$14,654	\$99,290	\$113,944
SIMSBURY WPCF	\$211,063	\$37,352	\$248,415
SHELTON WPCF	\$21,642	\$763,276	\$784,918
SOUTHINGTON WPCF	\$201,085	\$675,033	\$876,118
STAMFORD WPCF	\$2,238,236	\$1,179,244	\$3,417,480
STRATFORD WPCF	\$648,477	\$558,922	\$1,207,399
SUFFIELD WPCF	\$0	\$79,813	\$79,813
THOMASTON WPCF	\$56,408	\$161,596	\$218,004
UCONN WPCF	\$0	\$49,648	\$49,648
WALLINGFORD WPCF	\$122,125	\$272,033	\$394,158
WATERBURY WPCF	\$737,935	\$1,668,431	\$2,406,366
WEST HAVEN WPCF	\$0	\$626,415	\$626,415
WESTPORT WPCF	\$1,688,193	\$57,852	\$1,746,045
WINDSOR LOCKS WPCF	\$84,200	\$137,733	\$221,933
WINSTED WPCF	\$43,673	\$50,070	\$93,743
TOTAL	\$10,036,251	\$15,807,408	\$25,843,659

BOLD = New Project Plant for Year 2011

Nitrogen Removal Projects Financed by the CWF through 2010

City or Town	Total Project Cost (\$)	Nitrogen Cost Portion (\$)	Year project Completed	Baseline lbs/day	2010 lbs/day
Seymour	9,800,000	250,000	1993	167	62
East Windsor	10,000,000	1,000,000	1996	163	20
Fairfield Phase 1	4,700,000	4,700,000	1996	1113	325
Greenwich	500,000	500,000	1996	1313	458
Milford BB Phase 1	1,000,000	1,000,000	1996	258	101
Milford H Phase 1	650,000	650,000	1996	844	238
Norwalk Phase 1	1,100,000	1,100,000	1996	1967	600
Ridgefield	200,000	200,000	1996	80	42
Stratford Phase 1	800,000	800,000	1996	974	245
Univ. of Conn	12,000,000	1,058,000	1996	120	65
West Haven Phase 1	750,000	750,000	1996	967	612
Westport Phase 1	400,000	400,000	1996	238	41
Ledyard	3,500,000	3,500,000	1997	20	5
New Haven Phase 1	8,200,000	8,200,000	1997	4294	1494
Newtown	12,000,000	1,058,000	1997	45	21
Stamford Phase 1	3,500,000	3,500,000	1997	2536	497
Derby	2,763,000	2,763,000	2000	195	63
New Canaan	14,000,000	1,235,000	2000	175	29
Norwalk Phase 2	56,000,000	5,538,000	2000	1967	600
Waterbury	120,000,000	17,359,000	2000	2766	802
East Hampton	690,000	690,000	2001	148	117
Thomaston	9,313,000	1,164,000	2001	114	25
New London	3,069,000	2,889,000	2002	1057	335
Portland	5,200,000	1,047,000	2002	86	28

City or Town	Total Project Cost (\$)	Nitrogen Cost Portion (\$)	Year project Completed	Baseline lbs/day	2010 lbs/day
Branford	21,542,000	3,158,000	2003	526	110
Fairfield Phase 2	40,551,000	12,046,000	2003	1113	325
Windsor Locks	2,349,000	1,841,000	2003	180	96
Bridgeport E Phase 1	2,090,000	2,090,000	2004	991	412
Bridgeport W Phase 1	2,375,000	2,375,000	2004	2852	1211
Bristol Phase 1	584,000	584,000	2004	1091	560
Enfield	2,390,000	2,390,000	2004	763	248
Litchfield	4,000,000	1,000,000	2004	64	35
Jewett City	10,000,000	1,500,000	2005	42	6
Stamford Phase 2	97,223,000	59,500,000	2006	2536	497
North Haven	1,000,000	1,000,000	2006	433	164
Wallingford	2,276,000	2,276,000	2006	737	456
East Hartford	1,965,000	1,965,000	2007	801	366
Cheshire	5,775,000	5,775,000	2007	281	38
Simsbury Phase 1	21,231,000	4,044,000	2007	293	43
Suffield	4,075,000	3,370,000	2007	122	25
Winsted	1,100,000	1,100,000	2007	175	64
Westport Phase 2	37,131,000	8,253,000	2008	238	41
Shelton	21,642,000	4,293,000	2008	290	113
Hartford Interim Project	6,900,000	6,900,000	2008	6512	3841
Plainville	22,931,076	4,815,525	2008	277	97
Milford BB Phase 2	11,700,000	1,613,000	2009	258	101
Milford H Phase 2	34,900,000	10,038,000	2009	844	238
Stratford Phase 2	54,000,000	10,116,000	2009	974	245
Danbury	5,000,000	5,000,000	2010	1211	644
Groton Town	16,551,000	4,842,000	2010	420	278
Southington Interim Project	13,000,000	13,000,000	2010	433	194

City or Town	Total Project Cost (\$)	Nitrogen Cost Portion (\$)	Year project Completed	Baseline lbs/day	2010 lbs/day
Meriden	42,455,000	32,517,000	2010	1230	696
New Hartford	10,000,000	1,000,000	2010	12	7
Stafford	12,100,000	1,581,000	2011	164	129
Glastonbury	30,611,000	6,671,854	2011	268	118
Hartford	33,589,000	To be Determine	2012	6512	3841
South Windsor	36,000,000	7,300,000	2012	289	342
Windham	22,917,000	1,638,583	2012	344	340
New Milford	29,900,000	6,080,545	2012	66	135
West Haven	55,000,000	13,200,000	2012	967	612
Ansonia	41,731,000	10,015,000	2012	314	178



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

Notice of Proposed Value of an Equivalent Nitrogen Credit for 2011

To: Connecticut Municipalities with Sewage Treatment Facilities

From: Macky McCleary, Deputy Commissioner Department of Energy and Environmental Protection
Betsey Wingfield, Chair, Nitrogen Credit Advisory Board

Date: February, 17, 2012

The Connecticut Department of Energy and Environmental Protection, working with the Nitrogen Credit Advisory Board, has established a Nitrogen Credit Exchange Program and General Permit to comply with Sections 22a-521 through 22a-527 of the General Statutes of Connecticut (The Nitrogen Reduction Program in Connecticut for Long Island Sound). The General Permit requirements for your sewage treatment facility became effective on January 1, 2002 and were revised with the permit reissuance on January 29, 2010. Attach is the permit renewal of the General Permit for Nitrogen Discharges period 2011 – 2015.

Under the exchange program, the cost of a credit is calculated on an annual basis. Accordingly, pursuant to Section 22a-527(b), the Nitrogen Credit Advisory Board hereby gives notice that it proposes an annual value for an equivalent nitrogen credit of \$5.42 for calendar year 2011. This value was derived, as specified in Section 22a-527(b), by dividing the total annual project cost for nitrogen removal projects at Connecticut sewage treatment facilities by the reduction in equivalent pounds of nitrogen achieved.

The Commissioner of the Department of Environmental Protection hereby issues a draft ruling accepting the Board's proposal of a value of \$5.42 for an equivalent nitrogen credit in calendar year 2011. You have until March 9, 2012 to review the data. Please look over the data for your facility and if you have any questions or objections please contact Iliana Raffa at the number listed below.

Pursuant to Section 22a-527(c), the Commissioner's draft ruling shall become final if no municipality or group of municipalities petition for a review of the proposed value of an equivalent nitrogen credit within 15 business days after the issuance date of the Commissioner's draft ruling.

Enclosed with this notice is a table that lists the facilities that will be buying and selling nitrogen credits under this program for the year 2011. Should you have any questions please contact Ms. Iliana Raffa of the Department's Water Protection and Land Reuse Bureau at 860-424-3758 or email Ms. Ayala at iliana.raffa@ct.gov

Sincerely,

Betsey Wingfield
Chairman, Nitrogen Credit Advisory Board

Sincerely,

Macky McCleary
Deputy Commissioner

Carl Almquist, Groton
Brian Armet, Mattabassett District
Richard Cellar, Fairfield
Astrid T. Hanzalek, Suffield
William Norton, West Haven
Sharon Dixon-Peay, Connecticut Office of the Treasurer

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**STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



General Permit for Nitrogen Discharges

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General Permit for Nitrogen Discharges

Section 1. Authority

This general permit is issued under the authority of *Sections 22a-521 through 527 and Chapter 446k* of the Connecticut General Statutes.

Section 2. Definitions

As used in this general permit, and as defined or modified from *Section 22a-521 of the Connecticut General Statutes*:

"Annual mass loading of total nitrogen" (expressed in pounds per day) means the sum of monthly mass loading of total nitrogen for each month from January through December divided by 12 and rounded to the nearest whole number.

"Authorized activity" means any activity authorized by this general permit.

"CFR" means Code of Federal Regulations.

"Commissioner" means Commissioner as defined by *Section 22a-2(b)* of the General Statutes.

"Daily composite" means a composite sample taken over a full operating day consisting of grab samples collected at equal intervals of no more than sixty (60) minutes and combined proportionally to flow; or, a composite sample continuously collected over a full operating day proportional to flow.

"Daily mass loading of total nitrogen" (expressed in pounds per day) means the total nitrogen concentration (expressed in mg/L to the nearest 0.1 mg/L) multiplied by the daily flow volume (expressed as MGD, to the nearest 0.1 MGD for facilities with a design capacity of 1.0 MGD or greater and to the nearest 0.01 MGD for facilities with a design capacity of less than 1.0 MGD) multiplied by 8.34 and rounded to the nearest whole number to convert to pounds per day units.

"Department" means the Department of Environmental Protection.

"Discharge Monitoring Report" or *"DMR"* means a report form provided or approved by the Commissioner for use by a permittee to submit discharge monitoring data to the Department relating to compliance with limits and conditions established in the individual permit for a facility.

"Equivalency factor" means a ratio of the unit response of dissolved oxygen to nitrogen in Long Island Sound for each POTW based on the geographic location of the specific POTW's discharge point divided by the unit response of the geographic area with the highest impact.

"Equivalent nitrogen credit" means a nitrogen credit multiplied by the equivalency factor.

"Individual permit" means a permit issued to a named permittee under Section 22a-430-4 of the Regulations of Connecticut State Agencies.

"Monthly mass loading of total nitrogen" (expressed in pounds per day) means the sum of the daily mass loading of total nitrogen for each monitored day during the month divided by the number of monitoring days during the month and rounded to the nearest whole number.

"Monthly Operating Report" or *"MOR"* means a report form provided or approved by the Commissioner for use by a permittee in submitting data to the Department related to the operation of a facility.

"Municipality" means municipality as defined by Section 22a-423 of the Connecticut General Statutes.

"Nitrogen Analysis Report" or *"NAR"* means a report form provided or approved by the Commissioner for use by a permittee in submitting monitoring data to the Department related to the discharge of nitrogen from a facility.

"Nitrogen credit" means the difference between the annual mass loading of total nitrogen specified for a POTW in the general permit for treated nitrogen discharges and the monitored annual mass loading of total nitrogen discharged by that POTW expressed as pounds of nitrogen per day.

"Nitrogen credit exchange program" means the program within the Department established pursuant to *Section 22a-524 of the Connecticut General Statutes*.

"Nitrogen Wasteload Allocation" means a total load of nitrogen assigned to a discharger expressed in pounds per day of total nitrogen discharged.

"Permittee" means a municipality or person discharging nitrogen as authorized by the general permit.

"Person" means person as defined by Section 22a-423 of the Connecticut General Statutes.

"Publicly Owned Treatment Works" or *"POTW"* means a system used for the collection, treatment or disposal of sewage from one or more parcels of land and that discharges to the waters of the state and is owned by a municipality of the state.

"TMDL" means the Total Maximum Daily Load analysis to achieve water quality standards for dissolved oxygen in Long Island Sound as established by the Department and as approved by the United States Environmental Protection Agency on April 3, 2001.

"Total nitrogen" means the total of the concentrations of ammonia nitrogen, organic nitrogen, nitrite nitrogen, and nitrate nitrogen expressed as milligrams of nitrogen per liter.

Section 3. Authorization Under This General Permit

(a) *Eligible Activities or Discharges*

This general permit authorizes the discharge of total nitrogen from the POTWs listed in Appendix 1, provided the activities are conducted in accordance with this general permit.

This general permit does not authorize any discharge of water, substance or material into the waters of the state other than the one specified in this section. Any person or municipality which initiates, creates, originates or maintains such a discharge must first apply for and obtain authorization under Section 22a-430 of the General Statutes.

(b) *Geographic Area*

This general permit applies throughout the State of Connecticut.

(c) *Effective Date and Expiration Date of this General Permit*

This general permit is effective on *January 1, 2011, and expires on December 31, 2015.*

(d) *Effective Date of Authorization*

An activity is authorized by this general permit on the date the general permit is issued.

Section 4. Conditions of this General Permit

A permittee shall conduct activities authorized by this general permit in accordance with the following conditions:

(a) *Discharge Limits*

- (1) Annual discharge limits applicable to each POTW are set forth in Appendix 1, which is incorporated herein in its entirety, as part of this general permit.
- (2) Each permittee shall limit the discharge of nitrogen to the annual discharge limits set forth in Appendix 1, except as set forth in paragraph (b)(1)(b) of this Section.

(b) *Compliance During Term of Permit*

- (1) A permittee shall be in compliance with its annual discharge limits of this general permit if:
 - (a) the POTW's annual mass loading of total nitrogen is less than or equal to the discharge limit set forth in Appendix 1; or,

- (b) the permittee has secured state-owned equivalent nitrogen credits equal to the amount the POTW exceeded the annual discharge limit set forth in Appendix 1 in accordance with the Nitrogen Credit Exchange Program and Sections 22a-521 through 527 of the Connecticut General Statutes.
- (2) A permittee shall be out of compliance with the annual discharge limits of the general permit and subject to the enforcement provisions of chapter 446k of the Connecticut General Statutes if:
- (a) the POTW's annual mass loading of total nitrogen is greater than the discharge limit set forth in Appendix 1; and
 - (b) the permittee fails to secure sufficient state-owned equivalent nitrogen credits in a timely manner in accordance with the Nitrogen Credit Exchange Program and Sections 22a-521 through 527 of the Connecticut General Statutes.
- (c) *Operation of Nitrogen Removal Process Equipment*

The permittee shall not bypass or fail to operate any of the approved nitrogen removal equipment or processes without the written approval of the Commissioner. The permittee shall operate all necessary equipment to optimize nitrogen removal so as to reduce nitrogen discharges to the maximum extent practicable. This includes but is not limited to all recycle pumping systems, aeration equipment, aeration tank cycling, mixing equipment, anoxic basins, chemical feed systems or any other process equipment necessary for the optimal removal of nitrogen.

(d) *Monitoring Requirements*

- (1) Effective upon issuance of this general permit, the permittee shall monitor total nitrogen in the final effluent in accordance with the following frequency:
- (a) POTWs with a design flow rate specified in the individual permit for the facility of less than 10,000,000 gallons per day shall monitor the final effluent at a minimum frequency of weekly.
 - (b) POTWs with a design flow rate specified in the individual permit for the facility equal to or greater than 10,000,000 gallons per day shall monitor the final effluent at a minimum frequency of twice per week.
- (2) Monitoring requirements shall commence on *January 1, 2011*.
- (3) Final effluent and monitoring location shall be identical to that used to determine compliance with final effluent limitations and

monitoring conditions established in the individual permit for the facility.

- (4) All samples analyzed to determine compliance with limits on total nitrogen shall be daily composite samples unless otherwise approved in writing by the Commissioner.
- (5) Chemical analyses to determine compliance with effluent limits and conditions established in this general permit shall be performed using the methods approved in or pursuant to 40 CFR 136 unless an alternative method has been approved in writing pursuant to 40 CFR 136.4.
- (6) The permittee shall measure average daily volume of flow of wastewater received by the facility at the main flow meter as set forth in the individual permit for the facility.
- (7) In the event of a flow meter malfunction on a day when a sample for total nitrogen analysis is collected, the permittee shall utilize the arithmetic average of the 7 highest daily flows measured during the previous 30-day period to calculate the total daily nitrogen loading unless an alternative procedure has been agreed to by the Commissioner.

(e) *Reporting Requirements*

The results of chemical analyses for the total nitrogen in all samples collected during the month and the average daily flow volume of effluent for each day during the month shall be entered on the Monthly Operating Reports (MOR) and Nitrogen Analysis Reports (NAR) and reported to the Department. Results must also be entered in Discharge Monitoring Reports (DMR) as a calculated monthly mass loading of total nitrogen. The MOR, NAR and DMR must be received at the following address by the 15th day of the month following the month samples are collected.

ATTN: Municipal Wastewater Monitoring Coordinator
Connecticut Department of Environmental Protection
Bureau of Water Management, Planning and Standards Division
79 Elm Street
Hartford, CT 06106-5127

(f) *Record Keeping Requirements*

The permittee shall retain copies of all reports required by this general permit, and records of all data used to compile these reports for a period of at least five years from the date of the report submission to the Department.

(g) *Duty to Correct and Report Violations*

Upon learning of a violation of a condition of this general permit, including any failure of flow monitoring equipment, the permittee shall immediately take all reasonable action to determine the cause of such violation, correct such violation and mitigate its results, prevent further such violation, and report in writing such violation and such corrective action to the Commissioner within five (5) days of the permittee learning of such violation. Such report shall be certified in accordance with subsection 4(i) of this general permit.

(h) *Duty to Provide Information*

If the Commissioner requests any information pertinent to the authorized activity or to compliance with this general permit, the permittee shall provide such information in writing within thirty (30) days of such request. Such information shall be certified in accordance with subsection 4(i) of this general permit.

(i) *Certification of Documents*

Any document, including but not limited to any notice, which is submitted to the Commissioner under this general permit shall be signed by, as applicable, the permittee in accordance with Section 22a-430-3(b)(2) of the Regulations of Connecticut State Agencies, and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the General Statutes, pursuant to Section 53a-157b of the General Statutes, and in accordance with any other applicable statute."

(j) *Date of Filing*

For purposes of this general permit, the date of filing with the Commissioner of any document is the date such document is received by the Commissioner. The word "day" as used in this general permit means the calendar day; if any date specified in the general permit falls on a Saturday, Sunday, or legal holiday, such deadline shall be the next business day thereafter.

(k) *False Statements*

Any false statement in any information submitted pursuant to this general permit may be punishable as a criminal offense, in accordance with Section 22a-6, under Section 53a-157b of the General Statutes.

(l) *Correction of Inaccuracies*

Within fifteen days after the date a permittee becomes aware of a change in any information in any material submitted pursuant to this general permit, or becomes aware that any such information is inaccurate or misleading or that any relevant information has been omitted, such permittee shall correct the inaccurate or misleading information or supply the omitted information in writing to the Commissioner. Such information shall be certified in accordance with subsection 4(i) of this general permit.

(m) *Other Applicable Law*

Nothing in this general permit shall relieve the permittee of the obligation to comply with any applicable federal, state and local law, including but not limited to the obligation to obtain and comply with any authorizations required by such law. In the event a POTW is subject to a more stringent nitrogen limitation than set forth in this general permit, the Permittee shall comply with that more stringent limitation and may not purchase or transfer nitrogen credits to comply with that additional limitation.

(n) *Other Rights*

This general permit is subject to and does not derogate any present or future rights or powers of the State of Connecticut and conveys no rights in real or personal property nor any exclusive privileges, and is subject to all public and private rights and to any federal, state, and local laws pertinent to the property or activity affected by such general permit. In conducting any discharge authorized hereunder, the permittee may not cause pollution, impairment, or destruction of the air, water, or other natural resources of this state

Section 5. Commissioner's Powers

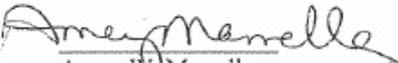
(a) *Abatement of Violations*

The Commissioner may take any action provided by law to abate a violation of this general permit, including the commencement of proceedings to collect penalties for such violation. The Commissioner may, by summary proceedings or otherwise and for any reason provided by law, including violation of this general permit, revoke a permittee's authorization hereunder in accordance with Sections 22a-3a-2 through 22a-3a-6, inclusive, of the Regulations of Connecticut State Agencies. Nothing herein shall be construed to affect any remedy available to the Commissioner by law.

(b) *General Permit Revocation, Suspension, or Modification*

The Commissioner may, for any reason provided by law, by summary proceedings or otherwise, revoke or suspend this general permit or modify it to establish any appropriate conditions, schedules of compliance, or other provisions which may be necessary to protect human health or the environment or to implement the 15 year TMDL.

Issued: 12/29/10


Amey W. Marrella
Commissioner

APPENDIX 1

ANNUAL DISCHARGE LIMITS FOR TOTAL NITROGEN

Zone	Publicly Owned Treatment Works	Equivalency Factor	TOTAL NITROGEN (POUNDS/DAY)				
			2011	2012	2013	2014	2015
1	JEWETT CITY WPCF	0.17	17	16	16	15	15
1	GROTON CITY WPCF	0.18	109	104	102	99	99
1	GROTON TOWN WPCF	0.18	168	161	157	153	153
1	KILLINGLY WPCF	0.14	144	137	134	131	131
1	LEDYARD WPC	0.18	8	8	7	7	7
1	MONTVILLE WPCF	0.18	130	124	121	118	118
1	NEW LONDON WPCF	0.18	424	404	395	386	386
1	NORWICH WPCF	0.18	221	210	205	201	201
1	STONINGTON PAWCATUCK WPCF	0.17	26	25	25	24	24
1	PLAINFIELD NORTH WPCF	0.14	38	36	35	34	34
1	PLAINFIELD VILLAGE WPCF	0.14	26	25	24	24	24
1	PUTNAM WPCF	0.14	58	55	54	53	53
1	SPRAGUE WPCF	0.16	8	8	7	7	7
1	STAFFORD SPRINGS WPCF	0.15	66	63	61	60	60
1	STONINGTON BOROUGH WPCF	0.18	15	14	14	14	14
1	STONINGTON MYSTIC WPCF	0.18	30	28	28	27	27
1	THOMPSON WPCF	0.14	11	11	10	10	10
1	UCONN WPCF	0.15	48	46	45	44	44
1	WINDHAM WPCF	0.15	138	132	128	125	125
2	BRISTOL WPCF	0.18	437	417	407	398	398
2	CANTON WPCF	0.18	26	25	25	24	24
2	EAST HAMPTON WPCF	0.20	59	57	55	54	54
2	EAST HARTFORD WPCF	0.19	321	306	299	292	292
2	EAST WINDSOR WPCF	0.19	65	62	61	59	59
2	ENFIELD WPCF	0.19	306	292	285	278	278
2	FARMINGTON WPCF	0.18	195	186	181	178	178
2	GLASTONBURY WPCF	0.20	107	103	100	98	98
2	HARTFORD WPCF	0.20	2611	2491	2431	2377	2377
2	MANCHESTER WPCF	0.19	343	327	319	312	312
2	MATTABASSET WPCF	0.20	916	874	853	834	834
2	MIDDLETOWN WPCF	0.20	244	233	227	222	222
2	NEW HARTFORD	0.18	5	5	5	3	3
2	PLAINVILLE WPCF	0.18	111	106	103	101	101
2	PLYMOUTH WPCF	0.18	46	44	43	42	42
2	WINDSOR POQUONOCK WPCF	0.19	107	103	100	98	98
2	PORTLAND WPCF	0.20	34	33	32	31	31
2	ROCKY HILL WPCF	0.20	316	302	295	288	288
2	SIMSBURY WPCF	0.18	117	112	109	107	107

Zone	Publicly Owned Treatment Works	Equivalency Factor	TOTAL NITROGEN (POUNDS/DAY)				
			2011	2012	2013	2014	2015
2	SOUTH WINDSOR WPCF	0.19	116	111	108	106	106
2	SUFFIELD WPCF	0.19	49	47	46	45	45
2	VERNON WPCF	0.19	202	193	188	184	184
2	WINDSOR LOCKS WPCF	0.19	72	69	67	66	66
2	WINSTED WPCF	0.18	70	67	65	64	64
3	BRANFORD WPCF	0.60	211	201	196	192	192
3	CHESHIRE WPCF	0.49	113	107	105	103	103
3	MERIDEN WPCF	0.49	493	471	459	449	449
3	NEW HAVEN EAST WPCF	0.60	1722	1643	1603	1568	1568
3	NORTH HAVEN WPCF	0.60	174	166	162	158	158
3	SOUTHINGTON WPCF	0.49	223	213	208	204	204
3	WALLINGFORD WPCF	0.60	296	282	275	269	269
3	WEST HAVEN WPCF	0.60	388	370	361	353	353
4	ANSONIA WPCF	0.67	126	120	117	115	115
4	BEACON FALLS WPCF	0.67	13	13	12	12	12
4	DANBURY WPCF	0.46	486	463	452	442	442
4	DERBY WPCF	0.67	78	75	73	71	71
4	LITCHFIELD WPCF	0.35	26	24	24	24	24
4	MILFORD BEAVER BROOK WPCF	0.67	103	99	96	94	94
4	MILFORD HOUSATONIC WPCF	0.67	338	323	315	307	307
4	NAUGATUCK TREATMENT Co.	0.60	271	258	252	246	246
4	NEW MILFORD WPCF	0.46	28	28	28	28	28
4	NEWTOWN WPCF	0.46	18	17	17	42	42
4	NORFOLK WPCF	0.35	12	11	11	11	11
4	NORTH CANAAN WPCF	0.35	14	14	13	13	13
4	SALISBURY WPCF	0.35	23	22	22	21	21
4	SEYMOUR WPCF	0.67	67	64	62	61	61
4	SHELTON WPCF	0.67	116	111	108	106	106
4	SOUTHBURY TR. SCHOOL WPCF	0.46	16	16	15	15	15
4	STRATFORD WPCF	0.67	391	373	364	356	356
4	THOMASTON WPCF	0.60	46	44	43	42	42
4	TORRINGTON WPCF	0.60	273	260	254	248	248
4	WATERBURY WPCF	0.60	1109	1058	1049	1049	1049
5	BRIDGEPORT EAST WPCF	0.85	397	379	370	362	362
5	BRIDGEPORT WEST WPCF	0.85	1144	1091	1065	1041	1041
5	FAIRFIELD WPCF	0.85	446	428	416	406	406
5	WESTPORT WPCF	0.85	95	91	89	87	87
6	GREENWICH WPCF	1.00	526	502	490	479	479
6	NEW CANAAN WPCF	1.00	70	67	65	64	64
6	NORWALK WPCF	1.00	789	752	734	718	718
6	RIDGEFIELD SOUTH ST. WPCF	1.00	32	31	30	29	29
6	STAMFORD WPCF	1.00	1017	970	947	926	926

Attachment J

Nitrogen Credit Advisory Board 2013 Meeting Schedule

All meetings are scheduled for 10:00 am in at 79 Elm Street, Hartford

January 23, 2013

March 20, 2013

June 19, 2013

October 16, 2013