



Connecticut Department of Energy and Environmental Protection

Katie S. Dykes, Commissioner

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Rocky Hill WPCF

**Report of the Nitrogen Credit Advisory Board
for Calendar Year 2018
To the Joint Standing Environment Committee of the
General Assembly**

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**REPORT OF THE NITROGEN CREDIT ADVISORY BOARD
FOR CALENDAR YEAR 2018**

**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**

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 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, 2018 to December 31, 2018.

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 dependent upon the development and application of innovative approaches and management techniques to meet nutrient reduction goals for Long Island Sound.

Executive Summary

In accordance with the Connecticut General Statutes (CGS) Sec. 22a-523(c), the Nitrogen Credit Advisory Board (NCAB) submits this Report for calendar year 2018 on the progress of the Nitrogen Credit Exchange Program.

Major accomplishments and activities relative to the 2018 program operations include:

- One of the Department of Energy and Environmental Protection's (DEEP) management strategies to reduce nitrogen loading was to implement an innovative nitrogen-trading program among the Water Pollution Control Facilities (WPCFs) located throughout the State which are covered under the 2018 General Permit for Nitrogen Discharges (NGP). The goal was to cost-effectively reduce the nitrogen load from those sources by about 64% by the end of 2014 through:
 - Encouraging denitrification at WPCFs with increased Clean Water Fund (CWF) grants,
 - Spreading nitrogen removal upgrades over thirteen years, thereby reducing the financial impact on the CWF,
 - Providing a fiscal alternative to the immediate expenditure of capital funds.
- The state as a whole didn't comply with the Total Maximum Daily Load (TMDL) allocation for the State of Connecticut at 9,148 equalized pounds of nitrogen per day (eq. lbs. N/day). In 2018, the state as a whole discharged 9,846 eq. lbs. N/day to the Long Island Sound (LIS). The heavy storms from February through May affected the operation of nitrogen removal. Rainfall in 2018 was 20% higher than average. During 2018, Rocky Hill WPCF finished construction and will be a "project facility".
- The NCAB formally submitted recommendations to the DEEP Commissioner to establish the value of an equalized nitrogen credit for buyers at \$7.07 per pound and sellers at \$10.9427 per pound for trading in 2018.
- In 2018, forty-five towns were required to purchase credits equivalent to 2,036 eq. lbs in order to remain in compliance with the NGP. Those payments totaled \$5,255,058 and were shared amongst the thirty-three facilities selling credits equivalent to 1,316 eq. lbs. Heavy rain and cold weather from February 2018 through May in 2018 affected the operation of the plant for nitrogen removal, therefore more facilities had to buy credits in 2018 than in 2017.

The Nitrogen Credit Advisory Board highlights:

- The Clean Water Fund Priority List provided \$67M in general obligation bonds and \$180M in revenue bonds (RB) in Fiscal Year (FY) 2017 and \$158M in RB in FY 2018. A portion of those funds were expended for nitrogen removal projects in Farmington and Rocky Hill. In calendar year 2018, Torrington started construction of their nitrogen removal project.
- Fifty-six (56) WPCFs have become project facilities by completing construction for nitrogen removal through 2016 with an expected total of fifty-eight (58) project facilities completing construction by 2019. The cost to the Clean Water Fund for project facilities to remove 16,381 eq. lbs of N/day is \$452M to date with an expected cost of \$97M for projects in process through 2022. It is estimated that between \$300M to \$400M has been saved by not requiring all WPCFs to upgrade their treatment plants for nitrogen removal to the lowest levels.

I. Introduction

Background

Long Island Sound's (LIS) most pressing water quality problem is caused by the over enrichment of nutrients, specifically nitrogen, which leads to greatly reduced levels of dissolved oxygen (DO) 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, the oxygen is consumed by bacteria and the DO in the water falls to levels well below those allowable in State Water Quality Regulations. Low oxygen levels, or "hypoxia" typically occurs during the months of July through September. These conditions are inadequate to support healthy populations of aquatic life because they create an imbalance in the ecosystem by disrupting the feeding, growth, and reproduction of nearly all forms of aquatic life. Primary sources of nitrogen include municipal WPCF discharges, atmospheric deposition, and storm water 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 the minimum State Water Quality Regulations, such as LIS. Once the State has established a TMDL, federal law requires that it be reviewed and approved by the Federal Environmental Protection Agency (EPA). In April 2001, EPA approved Connecticut and New York's jointly submitted TMDL to address the impairment of LIS water quality that results from excessive nitrogen loading. The TMDL established the maximum loading amount of nitrogen that the LIS can assimilate without causing impaired water quality. It also apportioned the maximum loading amount among various sources, and created a plan to achieve the loading reductions necessary to meet State Water Quality Regulations for each state.

In the TMDL, the primary sources of nitrogen enrichment in the LIS are targeted for control, which include discharges from WPCFs, storm water runoff, and atmospheric deposition. By 2014, the TMDL required both Connecticut and New York to achieve a 58.5% collective reduction of nitrogen loading from point discharges and urban and agricultural runoff sources to the LIS from an established baseline. In Connecticut, a 64% reduction goal was set for WPCFs through a waste load 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 the issuance of the 2016 General Permit for Nitrogen Discharges. Collectively, the 2016 General Permit for Nitrogen Discharges, NCE, and NCAB form the foundation for the nitrogen trading program instituted by Connecticut in 2002, which has successfully completed 16 years of 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 still needed to meet management goals to attain a healthy LIS. Added attention must be directed towards point and non-point sources from outside of Connecticut, atmospheric sources, and storm water and nonpoint source runoff.

The areas affected by hypoxia in LIS are monitored each summer by DEEP staff with funding from the EPA Long Island Sound Study (LISS), providing a good indicator of the overall condition and long term trend (Figure 1). Although annual variation can be large, subject to changing weather conditions that

affect the severity of hypoxia each year, the underlying trend in hypoxic area is downward. That change is illustrated by the direction of the Hypoxic Area trend (Figure 1). Since 1987, the affected area has averaged about 163 square miles and during the last 10 years, only 2012 was significantly higher than the long term average. Taking into consideration that several of the warmest years on record, which can exacerbate hypoxia, have occurred in the last 10 years, the areal indicator still appears to be benefitting from nitrogen management.

According to the Northeast Regional Climate Center weather during the summer of 2018 was warm and wet. The season started out near normal with average rainfall in June but the heat and humidity increased in July. August was the second warmest on record and the rains persisted. September brought more rain with record setting rainfall in Bridgeport CT at 8.59 inches (247% of normal).

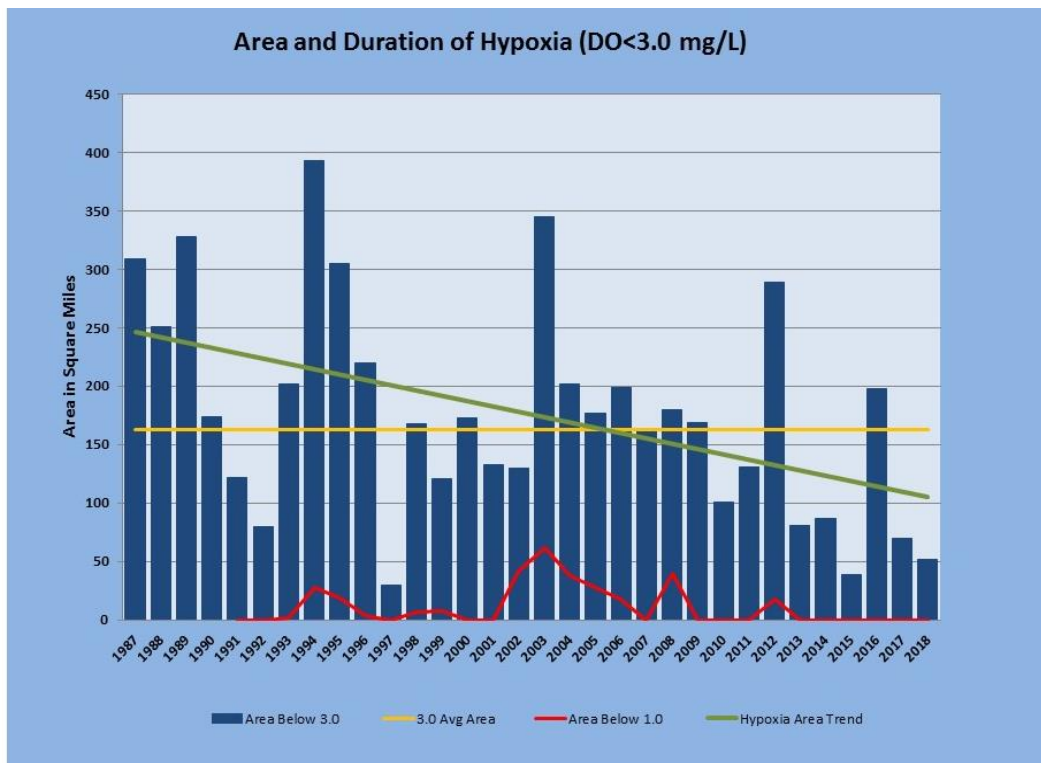


Figure 1. Area and trend of hypoxia in Long Island Sound, 1987-2018.

CT DEEP conducted eight surveys during the summer of 2018 between May 30th and September 12th. Over the course of the season, eight (8) stations exhibited hypoxia. During the summer of 2018 hypoxic conditions were found during three surveys. The maximum area was 51.6 square miles. The estimated duration was 35 days. In 2018 there was again a clear period where concentrations rose above the 3.0 mg/L threshold and remained there for eight days between August 15th and August 22nd before again falling below the threshold. Compared to the average, 2018 was well below average in area and duration.

2018 Performance of the Nitrogen Credit Exchange

In 2018, the State didn't comply with the 2018 TMDL permit limit. The nitrogen loading from WPCFs to LIS averaged 9,846 eq. lbs N/day, which is 698 eq. lbs N/day higher than the 2018 TMDL permit limit of 9,148 eq. lbs N/day (Attachment B). The spring of 2018 had the highest average nitrogen loading of

13,089eq. lbs N/day since the program started, due to the combination of generally wet and cold weather (Figure 2). This affected the State to comply with the TMDL permit limit.

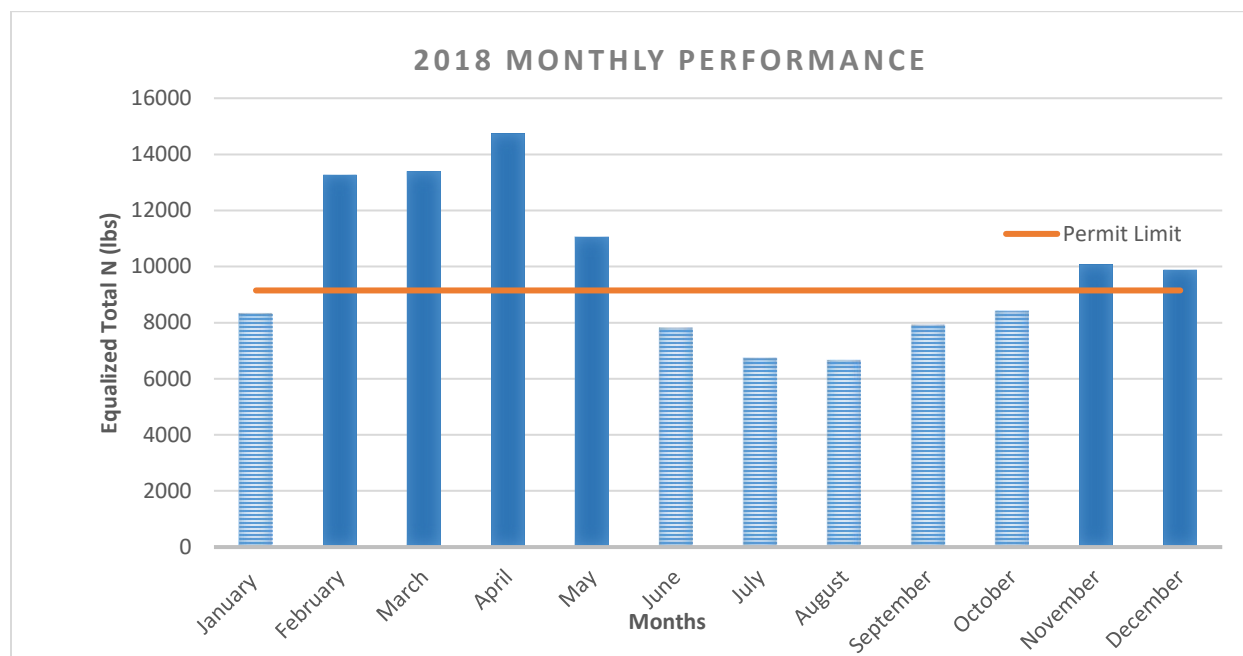


Figure 2. Monthly Aggregate Performance of 79 Facilities during 2018.

II. 2018 Nitrogen Credit Exchange

Credit Price

Annually the NCAB proposes a value for equalized nitrogen credits to the Commissioner of the Department of Energy and Environmental Protection. The NCAB derives this value by dividing the total annual project cost by the reduction of equalized lbs. of nitrogen. The state statute identifies the total annual project cost as: 1) capital expenditures for construction of nitrogen removal facilities and 2) ongoing operation and maintenance costs for nitrogen removal treatment.

The 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 reduction from WPCFs.

- *Capital Costs are from Nitrogen Removal Projects as defined below.*
- *Operational Costs and Total amount of equalized nitrogen reduction from WPCFs are from Project Facilities as defined below.*

"Nitrogen Removal Project" is defined as any alteration of the physical structure of a wastewater treatment facility specifically constructed to remove nitrogen and financed by Connecticut's Clean Water Fund (CWF) program.

"Project Facility" is defined as any facility with a fully operational nitrogen removal system of any scale as of January 1st of the trading year.

No WPCFs became project facilities by completing nitrogen removal upgrades to their treatment plants in 2018.

"Capital Costs" were established by the NCAB using the annual CWF repayment amount associated with the construction of nitrogen treatment facilities as set forth in the loan agreement between the municipalities and DEEP. Financing derived from grants to municipalities is not considered to be part of the capital cost for the purpose of setting credit prices. Using this procedure, the NCAB established the annual capital cost for nitrogen removal in 2018 as \$17,544,965 (Attachment F). This value represents the annual interest and repayment of principal cost on the 2% low-interest rate loans for nitrogen removal processes. In 2018, the annual capital cost for nitrogen removal decreased because the Capital Cost was paid off by four project facilities such as: East Windsor, Ledyard, Newtown and Seymour.

"Operation and maintenance costs" were estimated by means of a survey sent to all project facilities. The Department staff reviewed all survey data for consistency and reasonableness and an estimate of \$20,022,913 was adopted by the NCAB as the annual operation and maintenance cost for nitrogen removal in 2018. Combining capital cost and operation and maintenance costs yielded a total cost of \$37,567,878 (Attachment F).

The reduction in lbs. of nitrogen was calculated by subtracting the actual pounds of nitrogen discharged by each of the project facilities from the "baseline" loading established for that facility in the TMDL for LIS. The baseline loading represents the loading of nitrogen each facility would have discharged if no nitrogen removal was 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 was calculated by summing the equalized pounds reduced for all project facilities. Using this procedure, the cost of a credit in 2018 was determined by dividing the total project cost of \$37,567,878 by 14,565.17 pounds per day of equalized pounds of nitrogen removed during the year multiplied by 365 days in a year equaling \$7.07 for the price of a credit (Attachment E).

The NCAB formally submitted recommendations to the DEEP Commissioner to establish the value of an equalized nitrogen credit for buyers at \$7.07 and for sellers at \$10.9427 for the trading of 2018 credits. The Deputy Commissioner, on behalf of the Commissioner, accepted these recommendations and issued draft rulings pursuant to CGS Section 22a-527. No municipalities petitioned for a review of the Commissioner's draft ruling during the statutory 15-day review period. However, two municipalities requested revisions of their data after the final price was accepted by the board. The errors were not caught by the DEEP, therefore DEEP recommended to the nitrogen board to make revisions of their invoices and the nitrogen board accepted the recommendation (Attachment H).

Numbers of Credits Traded and Final Balances

A total of forty-five (45) facilities were required to purchase credits in the amount of \$5,255,058 (2024.57 eq. lbs) in order to remain in compliance with the 2018 General Permit for Nitrogen Discharges. Those payments were shared amongst thirty- four (34) facilities selling credits equating to 1319.31 eq. lbs at a rate of \$10.9427 (Attachment D). As a whole, facilities were not in compliance with their permit limit in 2018 because of the extreme weather conditions, therefore, less credits were available for sale than were needed by buyers to meet the TMDL (Attachment D).

III. Compliance with TMDL goal

Nitrogen Loading Trend

Looking at the linear trend line (dotted line) as well as the 12 month moving average (yellow line) in Figure 3, the total equalized nitrogen loading to LIS has been consistently decreasing due to the number of WPCFs completing upgrades for nitrogen removal. However, the heavy rain and the cold weather in 2018 inhibited the majority of plants to efficiently remove nitrogen from their discharges.

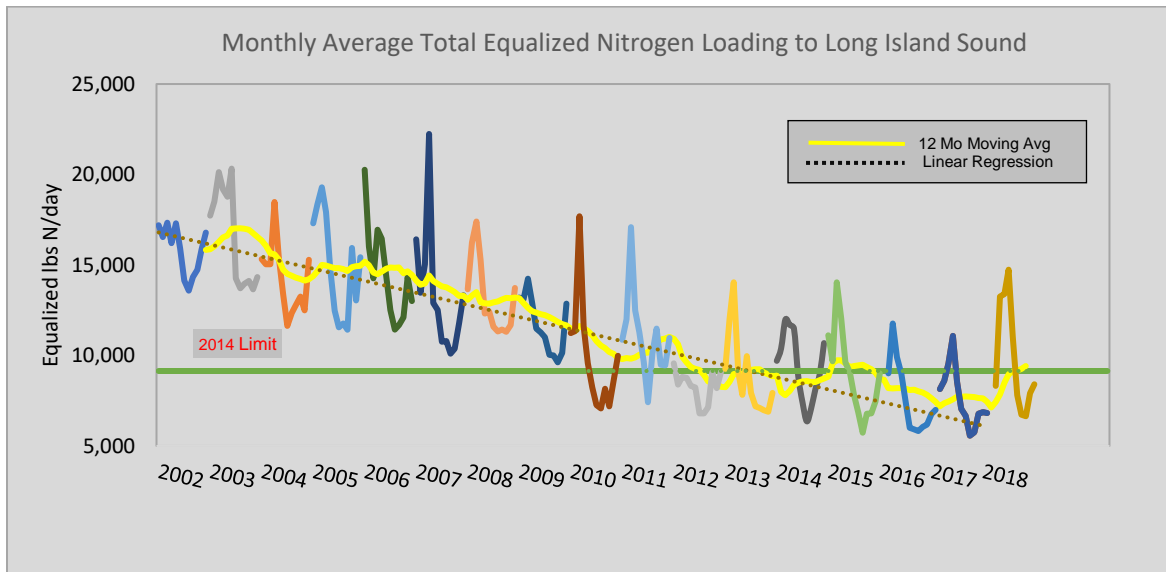


Figure 3. Monthly Average of Total Nitrogen Loading to Long Island Sound

Meeting the Waste load Allocation and Permit Limits.

The nitrogen trading program has been an innovative approach to cost effectively meet the TMDL goal of reducing nitrogen loading to LIS by 64% through:

- Encouraging denitrification at WPCFs by providing Clean Water Fund grants,
- Spreading nitrogen removal WPCF upgrades over fifteen years, thereby allowing WPCFs to purchase credits rather than immediately upgrade their WPCFs to meet the 64% removal requirements,
- Providing a fiscal alternative to the immediate expenditure of capital funds.

DEEP expects that the State will continue to comply with the TMDL in the future. An additional 216 eq. lbs N/day is projected to be reduced as a result of projects reaching completion in Rocky Hill, Farmington, and the abandonment of Middletown WPCF by 2019. This will be aided by the continuation of operators optimizing nitrogen removal at their respective WPCFs. A total of 58 project facilities are anticipated to be on-line by the 2019 trading year (Figure 4).

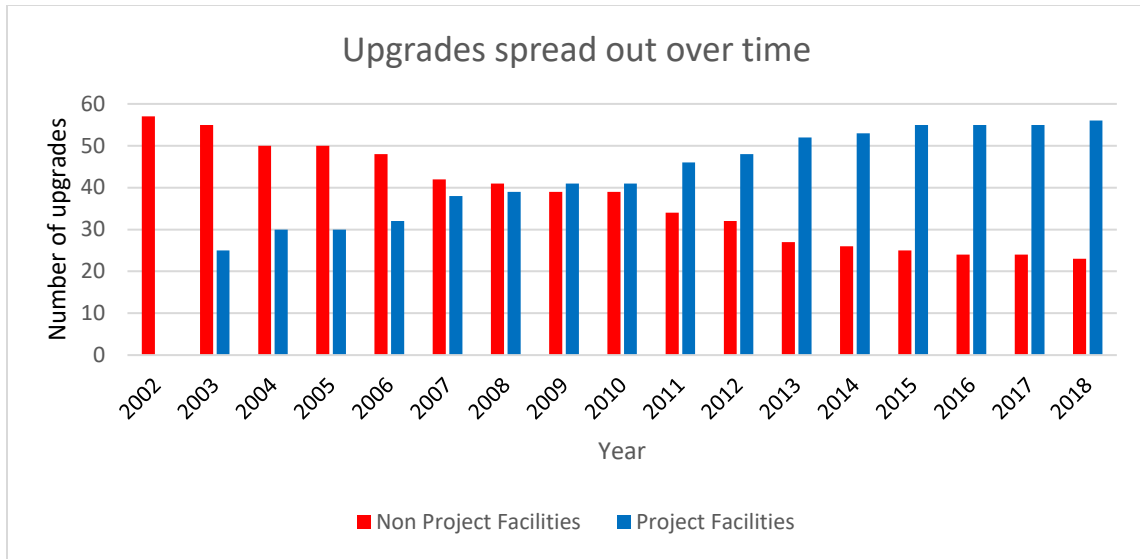


Figure 4. Upgrades of WPCFs 2002-2018

IV. Finances

The Clean Water Fund (CWF)

The CWF Priority List for FY 2017 became effective on June 13, 2016 and the FY 2018 and FY 2019 CWF Priority List became effective on June 11, 2018. The level of State funding for the CWF program is as follows:

FY	General Obligation Bonds	Revenue Bonds	Total Funding
2017	\$67M	\$180M	\$247M
2018	\$ 0M	\$158M	\$158M
2019	\$85M	\$350M	\$435M

Nitrogen removal projects in Rocky Hill were under construction in FY 2017 through FY 2018 and Farmington in 2019. It is expected that in FY 2019, two new nitrogen removal projects will be under construction in East Hartford and in Torrington.

Use of Nitrogen Credit Exchange Funds

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”. Furthermore, 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 in CGS Sec. 22a-524(b)(13), provide abilities to “establish a technical assistance program to educate and assist municipalities in implementing the Nitrogen Credit Exchange Program”.

Projects that are in progress and funded with the nitrogen credit exchange funds include:

- Providing funding to the United States Geological Survey (USGS) since 2007 for enhanced Connecticut River monitoring and also monitoring the Connecticut River at Middle Haddam.

The project is ongoing and the data analysis developed under this project element will help to advance the understanding of the hydrologic and water-quality processes in the tidal environment, as well as advancing both field and analytical methodology.

- Nitrogen load monitoring at different sites which is essential for LIS nitrogen load calculations. The results from these sites allow us to highlight the changes that have taken place at some of the sewage treatment plants outfalls. USGS is using regression models to calculate nitrogen from continuously measured data and a web tool has been built to present the data more frequently.
- Supplemental funding of \$215,000 which was approved during federal fiscal year 2019 to continue monitoring nitrogen loads to the Connecticut River at Middle Haddam and to Long Island Sound.

V. Revisions to the TMDL/Upper Connecticut River

The [Total Maximum Daily Load](#) (TMDL) for nitrogen loading to LIS, adopted in 2001, includes a timeline for regular evaluation of TMDL progress and revisions, as appropriate, in order to provide for a phased implementation approach of the TMDL. Regular evaluations were anticipated in order to account for finalization of the federal dissolved oxygen criteria for coastal waters, anticipated changes in Connecticut and New York water quality regulations, a new System-Wide Eutrophication Model (SWEM) for LIS, more specific nitrogen reduction targets for upper Connecticut River sources throughout Massachusetts, New Hampshire and Vermont and for atmospheric deposition. To date, the federal dissolved oxygen criteria has been finalized, Connecticut and New York's water quality regulations for dissolved oxygen have been adopted, the SWEM model has been adapted for LIS, and several studies related to nitrogen loading and delivery in the upper Connecticut River watershed have been completed.

In 2010, the EPA Regional Administrators (Regions 1 and 2) and the Commissioners from the LIS watershed States agreed to proceed with a five-State TMDL. A TMDL workgroup was formed which held bi-weekly conference calls to work through the necessary tasks relative to TMDL implementation and evaluation. In 2011, the workgroup identified technical issues and held a joint meeting with State water directors and the EPA. The outcome of this meeting was to develop an enhanced implementation plan for the current TMDL, while moving forward with a more comprehensive analysis to support the revision of the TMDL at a later date. In 2013, the five-States and the New England Interstate Water Pollution Control Commission completed an evaluation of current storm water and nonpoint source control efforts to qualitatively assess whether they were adequate for meeting the 2000 TMDL load allocations.

In 2015, EPA released a new [Nitrogen Reduction Strategy](#) for LIS, which is intended to advance implementation of the TMDL and increase the area subject to nitrogen reductions. The approach addresses three watershed groups of LIS: coastal watersheds (embayments), large riverine watersheds (Housatonic River, Connecticut River, and Thames River), and Western LIS. EPA's strategy involves the use of nitrogen thresholds to develop ecologically based targets for each of these groups. EPA initiated the first phase of this process in the fall of 2016. As of October, 2019, this effort includes 23 embayments throughout LIS, the Connecticut, Housatonic, and Thames Rivers, and the eastern and western narrows of LIS. DEEP, along with NYSDEC and select members of the academic and non-profit community serve on the technical stakeholder group for this project. EPA continues to work on Phase 2 of its Nitrogen Reduction Strategy, which includes a peer review of the work completed in Phase 1, additional collaboration with similar efforts, refining the technical approach, and identifying gaps in water quality monitoring data.

Subsequently, DEEP formalized a new nitrogen reduction plan named the [Second Generation Nitrogen Strategy](#) as it follows initial efforts aimed at reducing nitrogen in order to achieve dissolved oxygen concentrations in LIS. The Second Generation Strategy focuses on nitrogen reduction efforts in three main areas: wastewater treatment plants, nonpoint sources and storm water, and embayments. DEEP's strategy included prioritizing watersheds and embayments for additional actions towards nitrogen reductions within the next five years (*Integrated Resources Water Management Report*); as well as a special study to develop nitrogen guidelines for the Niantic River Estuary; and evaluate the nitrogen load from onsite wastewater treatment systems (septic systems). This effort also included a project with UConn's Center for Land Use Education and Research (CLEAR) to communicate coastal nitrogen issues and provide best management options to mitigate nitrogen pollution. The project was completed in September 2017 and CLEAR continues to host an [education and outreach website](#) explaining coastal nitrogen pollution.

In 2010, a project to improve the SWEM model was undertaken and funded by the LISS. The project improved the calibration of SWEM to more accurately reflect actual production and respiration estimates, incorporated an algal production formulation, developed high resolution output in NETCDF format, and developed a website dedicated to making the SWEM model more accessible to the scientific community. This project increased the model's consistency with the scientific communities' understanding of mixing and circulation in estuaries when compared to the previous version. Although the model is now more consistent with observed estimates of primary production and community respiration, the model continues to over predict dissolved oxygen levels observed in the bottom waters of LIS and has been deemed limited for management use. Considering advancements in computer science as well as increased data availability since SWEM was developed, LISS decided to contract with the New York City Department of Environmental Protection (NYCDEP) to develop a more robust water quality model for LIS. During the summer of 2019, NYCDEP released the request for proposals and is currently reviewing options. This project is expected to be under contract by summer of 2020. The model will be developed in stages with science and technical input from modeling experts, as well as advisement from environmental managers. DEEP supports two staff to serve on the modeling management advisory group (MAG). The first meeting of the MAG took place in August, 2019 at which time the group embarked on defining objectives and identifying critical management questions. The MAG will continue to meet throughout the development of the model.

EPA's LISS continues to support the development of a tracking system to quantitatively assess progress relative to the original 2000 TMDL nonpoint source and storm water allocations. The New England Interstate Water Pollution Control Commission (NEIWPCC) obtained grant funding to pursue the development of a tracking tool for the LIS Watershed. This project is now under contract and initial stages towards development of a tracking tool have recently commenced. Additionally, EPA's LISS is also funding a project to create a decision support framework using land use land cover data with an emphasis on the importance of natural systems, such as forests and riparian buffers. Work on this project is expected to be initiated by spring of 2020. DEEP staff will continue to participate throughout the course of these two projects.

VI. Attachments

- A. Nitrogen Credit Advisory Board Members 2018
- B. Total Nitrogen Balance Sheet – 2018 Monthly Averages by Plant
- C. Total Nitrogen Balance Sheet – Monthly Averages by Plant 2002 - 2018
- D. LIS Total Nitrogen Credit Exchange Balance – 2018

- E. Equalized lbs Reduced by Project Facilities 2018
- F. Total Annual Project Cost 2018
- G. Nitrogen Removal Projects Financed by the CWF through 2018
- H. General Permit for Nitrogen Discharges
- I. Nitrogen Credit Advisory Board 2018 Meeting Schedule

VIII. Acknowledgements

DEEP wishes to thank the members of the NCAB for their contributions to this document and their ongoing participation in the NCE Program.

Attachment A

2018 LIST OF APPOINTEES

	<u>Name</u>	<u>Appointed Authority</u>	<u>Term*</u>
1.	Vacant	Senate Majority Leader	3 years
2.	Thomas A. Tyler The Metropolitan District 240 Brainard Road Hartford, CT 06114	Senate President Pro Tempore	3 years
3.	Betsey Wingfield Bureau Chief DEEP 79 Elm St Hartford, CT 06016 Phone: (860) 424-3704	Commissioner Energy & Environmental Protection	No specific term
4.	Marie Moylan Office of the Treasurer 55 Elm Street Hartford, CT 06106 Phone: (860) 702-3000	Secretary Office of the Treasurer	No specific term
5.	Astrid T. Hanzalek 31 Abraham Terrace Suffield, CT 06078 Phone: (860) 668-2739	House Minority Leader	3 years
6.	Vacant	House Majority Leader	3 years
7.	Joseph Michelangelo 1 Fitzgerald Lane Branford, CT 06405	Senate Minority Leader	3 years

8.	Vacant	Governor	3 years
9.	Vacant	Senate Majority Leader	3 years
10.	William Norton, Director City of West Haven WPCA 355 Main Street West Haven, CT06516 (203) 937-3706	Speaker of the House	3 years

* Appointees remain active until removed by their appointees' authority

Attachment B

Total Nitrogen Balance Sheet -2018 Monthly Averages by Plant

Plant	Limit	Avg	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Zone 1														
GROTON CITY WPCF	99	80	107	116	112	77	64	81	49	57	72	55	92	78
GROTON TOWN WPCF	153	211	282	323	370	311	253	178	118	99	106	118	203	172
JEWETT CITY WPCF	15	6	33	4	5	4	3	4	3	3	3	4	4	7
KILLINGLY WPCF	131	223	323	209	110	227	422	371	189	182	228	144	142	134
LEDYARD WPCF	7	7	8	12	11	10	5	3	4	4	9	9	8	3
MONTVILLE WPCF	118	63	55	68	96	85	54	45	66	41	48	42	77	78
NEW LONDON WPCF	386	366	263	485	630	474	411	394	277	250	269	333	370	236
NORWICH WPCF	201	507	314	626	559	539	510	475	424	483	636	578	565	375
PLAINFIELD NORTH WPCF	34	50	88	99	99	61	50	19	14	13	31	37	45	44
PLAINFIELD VILLAGE WPCF	24	29	77	45	46	21	11	6	7	9	31	35	17	38
PUTNAM WPCF	53	36	47	29	20	20	45	30	27	19	31	47	48	65
SPRAGUE WPCF	7	31	32	30	25	22	28	27	34	30	28	24	58	33
STAFFORD SPRINGS WPCF	60	88	81	123	149	112	96	65	54	69	65	67	103	70
STONINGTON BOROUGH WPCF	14	8	8	9	9	6	5	4	27	10	6	4	4	4
STONINGTON MYSTIC WPCF	27	60	50	59	67	96	99	99	103	74	23	30	13	9
STONINGTON PAWCATUCK WPCF	24	20	20	32	31	25	19	20	13	14	15	12	21	20
THOMPSON WPCF	10	48	56	58	51	40	49	55	47	52	43	35	46	39
UCONN WPCF	44	103	114	181	138	175	60	37	48	36	110	117	118	96
WINDHAM WPCF	125	202	131	349	298	329	232	129	133	136	185	170	202	134

Zone 2

BRISTOL WPCF	398	613	499	736	599	723	668	467	434	564	534	645	806	680
CANTON WPCF	24	50	39	50	62	51	43	38	32	43	51	57	68	69
EAST HAMPTON WPCF	54	103	103	106	94	102	111	104	72	92	111	112	121	105
EAST HARTFORD WPCF	292	389	482	372	370	517	491	454	341	351	275	319	366	335
EAST WINDSOR WPCF	59	61	55	58	75	71	57	31	40	58	53	54	108	66
ENFIELD WPCF	278	247	176	234	199	178	209	183	183	195	260	277	515	356
FARMINGTON WPCF	178	382	358	500	421	412	468	396	390	382	330	375	302	248
GLASTONBURY WPCF	98	75	56	96	77	94	37	50	111	63	62	82	91	82
HARTFORD WPCF	2377	3846	3467	5858	4311	5679	4478	3172	2001	2330	2468	2608	4600	5179
MANCHESTER WPCF	312	271	276	301	239	210	238	225	210	146	204	315	453	430
MATTABASSETT WPCF	834	797	759	1600	1876	1883	477	233	305	315	405	623	647	438
MIDDLETOWN WPCF	222	512	365	518	487	517	475	428	487	456	628	522	719	540
NEW HARTFORD WPCF	3	1	2	1	1	1	1	1	1	1	2	1	1	1
PLAINVILLE WPCF	101	134	119	134	144	295	159	95	149	143	91	67	108	101

Total Nitrogen Balance Sheet -2018 Monthly Averages by Plant

Plant	Limit	Avg	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PLYMOUTH WPCF	42	85	85	77	79	90	70	41	39	68	94	130	117	128
PORTLAND WPCF	31	33	28	46	55	47	23	15	17	28	26	32	42	36
ROCKY HILL WPCF	288	376	320	506	463	642	467	194	180	256	254	417	522	293
SIMSBURY WPCF	107	37	46	39	38	38	33	26	29	26	42	30	43	50
SOUTH WINDSOR WPCF	106	96	93	97	99	82	85	80	86	92	99	103	116	120
SUFFIELD WPCF	45	21	34	34	26	16	22	16	18	11	17	11	25	22
VERNON WPCF	184	565	539	628	584	824	729	543	506	463	398	311	570	679
WINDSOR LOCKS WPCF	66	88	76	77	83	80	64	52	57	83	92	89	163	137
WINDSOR POQUONOCK WPCF	98	571	494	637	590	615	566	534	501	572	541	578	636	583
WINSTED WPCF	64	92	101	117	108	105	94	61	62	68	72	82	133	105

Zone 3

BRANFORD WPCF	192	101	99	152	115	207	122	75	64	54	99	58	52	115
CHESHIRE WPCF	103	145	118	134	155	268	235	138	44	58	62	64	228	233
MERIDEN WPCF	449	189	160	222	349	455	122	67	62	74	136	217	206	197
NEW HAVEN EAST WPCF	1568	1696	954	3129	3164	3461	2351	1778	1193	1296	1030	660	696	642
NORTH HAVEN WPCF	158	213	156	271	288	249	185	179	144	133	181	234	287	249
SOUTHINGTON WPCF	204	114	91	145	139	180	148	87	49	51	84	69	147	174
WALLINGFORD WPCF	269	529	517	895	734	690	467	324	284	246	312	448	816	618
WEST HAVEN WPCF	353	257	189	294	307	327	264	178	141	136	353	192	391	317

Zone 4

ANSONIA WPCF	115	61	57	64	73	61	64	43	37	49	44	59	92	88
BEACON FALLS WPCF	12	56	54	59	48	41	48	52	51	60	60	53	69	73
DANBURY WPCF	442	395	356	369	347	353	311	355	377	505	469	413	444	443
DERBY WPCF	71	67	48	69	65	62	57	46	52	59	70	73	106	93
LITCHFIELD WPCF	24	22	14	17	31	16	12	10	10	10	36	36	40	32
MILFORD BEAVER BROOK WPCF	94	113	87	294	169	117	82	67	57	69	76	102	112	122
MILFORD HOUSATONIC WPCF	307	291	337	503	431	375	333	217	121	135	148	196	310	390
NAUGATUCK TREATMENT Co.	246	306	256	353	590	302	353	118	114	163	244	289	334	561
NEW MILFORD WPCF	28	26	32	28	24	28	23	23	22	25	28	23	27	26
NEWTOWN WPCF	42	17	13	20	18	16	12	11	12	16	14	19	24	26
NORFOLK WPCF	11	16	14	22	16	21	14	13	10	14	22	19	18	10
NORTH CANAAN WPCF	13	35	41	38	40	35	27	29	25	27	36	38	43	39
SALISBURY WPCF	21	34	31	28	29	30	23	17	16	13	40	67	61	48
SEYMOUR WPCF	61	85	72	145	142	142	84	65	39	52	42	54	91	88

Total Nitrogen Balance Sheet -2018 Monthly Averages by Plant

Plant	Limit	Avg	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SHELTON WPCF	106	197	83	115	114	252	260	265	245	283	224	179	173	165
STRATFORD WPCF	356	386	200	517	775	720	829	334	270	161	179	170	232	249
THOMASTON WPCF	42	29	25	34	35	24	15	40	39	24	31	31	25	24
TORRINGTON WPCF	248	254	223	247	338	280	253	174	168	193	326	292	310	240
WATERBURY WPCF	1010	907	804	1207	676	1095	923	646	711	664	655	1268	1105	1129

Zone 5

BRIDGEPORT EAST WPCF	362	271	230	380	336	286	281	208	175	133	257	310	307	351
BRIDGEPORT WEST WPCF	1041	1761	1419	1588	2615	3054	2737	1532	1410	1019	1504	1341	1564	1346
FAIRFIELD WPCF	406	381	507	554	320	273	309	267	292	225	504	600	352	368
WESTPORT WPCF	87	39	42	55	42	47	26	23	25	29	28	42	49	57

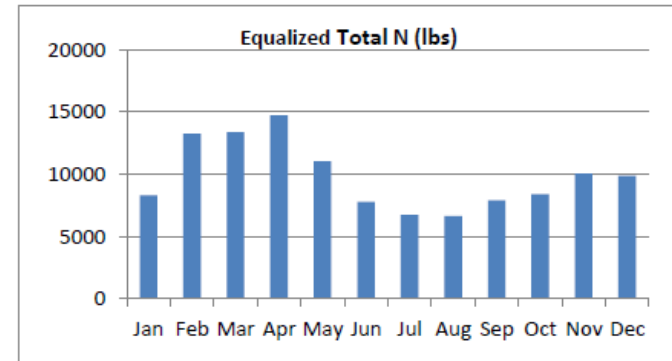
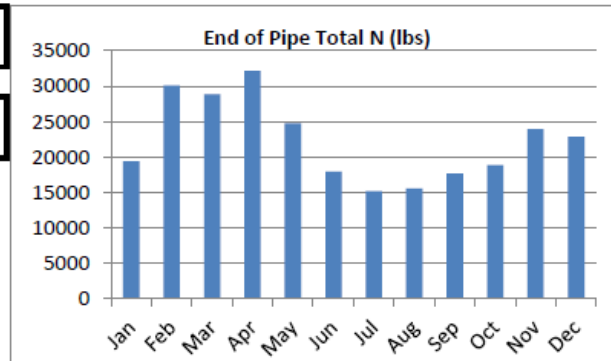
Zone 6

GREENWICH WPCF	479	569	412	965	710	907	481	413	351	400	410	479	569	731
NEW CANAAN WPCF	64	26	18	39	43	24	14	10	10	17	22	29	42	47
NORWALK WPCF	718	752	704	1078	1298	1403	469	416	424	443	537	684	827	738
RIDGEFIELD SOUTH ST. WPCF	29	52	47	64	70	66	53	38	36	36	54	52	55	50
STAMFORD WPCF	926	293	294	331	315	368	249	221	222	278	309	266	309	359

End of Pipe Total			19365	30104	28867	32141	24717	17960	15190	15537	17674	18827	23921	22856
Equalized Total			8313	13256	13395	14739	11047	7799	6729	6643	7906	8408	10058	9860

End of Pipe Permit = 18,450
End of Pipe Avg = 22,263

Equalized Permit = 9,148
Equalized Avg = 9,846



Attachment C

Total Nitrogen Balance Sheet- Monthly Averages lbs/day by plant, 2002 - 2018

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Average 2011 to 2018
ZONE:1																		
GROTON CITY WPCF	210	181	179	132	118	129	110	114	107	99	76	98	98	80	80	83	80	87
GROTON TOWN WPCF	586	485	447	444	470	421	451	353	278	260	246	199	220	240	244	266	211	236
JEWETT CITY WPCF	36	40	39	13	10	13	13	8	9	6	5	11	7	9	7	14	6	8
KILLINGLY WPCF	162	147	159	177	152	158	191	126	170	247	225	277	151	129	102	128	223	185
LEDYARD WPC	5	3	4	5	7	5	7	5	5	6	6	6	7	4	6	6	7	6
MONTVILLE WPCF	187	153	222	92	98	69	82	91	82	115	63	54	62	55	51	45	63	64
NEW LONDON WPCF	440	405	332	434	423	414	377	391	335	304	243	296	281	280	380	373	366	315
NORWICH WPCF	758	986	769	748	828	684	673	612	481	470	457	535	562	452	512	515	507	501
PLAINFIELD NORTH WPCF	50	87	78	90	119	108	105	88	481	65	66	108	88	63	68	46	50	69
PLAINFIELD VILLAGE WPCF	32	44	41	49	54	42	42	43	51	31	28	48	49	56	29	31	29	38
PUTNAM WPCF	183	170	174	193	205	206	206	157	140	147	153	68	42	43	44	35	36	71
SPRAGUE WPCF	15	7	10	13	22	14	15	21	21	16	7	12	12	9	10	24	31	15
STAFFORD SPRINGS WPCF	135	131	121	131	114	120	160	162	129	191	208	164	89	74	63	76	88	119
STONINGTON BOROUGH WPCF	55	55	42	47	37	22	19	13	11	8	7	11	14	4	5	7	8	8
STONINGTON MYSTIC WPCF	36	43	49	48	51	31	30	25	32	28	30	41	30	15	20	41	60	33
STONINGTON PAWCATUCK	46	34	46	30	25	18	19	25	33	32	22	18	16	11	16	19	20	19
THOMPSON WPCF	21	35	29	33	28	28	21	18	30	29	44	31	47	36	41	45	48	40
UCONN WPCF	78	70	107	65	94	67	103	83	65	55	52	60	73	57	104	124	103	79
WINDHAM WPCF	285	243	216	165	167	174	258	364	340	289	146	112	141	92	82	133	202	150
End of Pipe Total	3269	3279	3064	2909	3022	2723	2882	2699	2800	2398	2084	2149	1989	1709	1864	2011	2138	2029
ZONE:2																		
BRISTOL WPCF	949	1121	793	567	575	532	511	452	560	632	416	517	508	427	414	506	613	504
CANTON WPCF	70	87	101	106	113	92	99	100	121	103	90	95	81	59	44	41	50	70
EAST HAMPTON WPCF	86	119	96	85	140	110	136	121	117	127	82	101	83	80	80	92	103	94
EAST HARTFORD WPCF	755	749	812	803	902	391	417	418	366	505	397	525	462	309	346	389	389	415
EAST WINDSOR WPCF	20	34	31	45	32	32	27	26	20	31	32	29	30	28	37	45	61	37
ENFIELD WPCF	914	839	275	535	331	218	272	282	248	324	219	252	253	238	155	203	247	236
FARMINGTON WPCF	386	354	401	398	440	433	309	269	250	340	241	289	311	373	268	315	382	315
GLASTONBURY WPCF	263	307	340	214	290	295	364	223	118	101	77	51	62	49	62	84	75	70
HARTFORD WPCF	5978	5900	6529	6831	7408	5839	5326	4217	3841	5090	3282	3888	3104	4360	3563	3546	3846	3846
MANCHESTER WPCF	822	762	755	772	785	715	705	851	866	1069	1064	946	674	293	174	152	271	580
MATTABASSETT WPCF	2120	1795	1453	1408	1202	1129	1053	1123	1261	1377	1200	1127	1198	822	402	529	797	932
MIDDLETOWN WPCF	392	385	424	486	440	397	446	490	497	567	521	581	544	501	503	467	512	525
NEW HARTFORD WPCF												3	4	1	1	2	1	2
PLAINVILLE WPCF	252	304	311	285	301	280	315	135	97	129	122	104	112	82	67	117	134	108
PLYMOUTH WPCF	73	69	68	76	80	71	87	85	68	100	74	83	67	57	23	57	85	68
PORTLAND WPCF	24	28	36	33	34	26	33	33	28	39	25	23	21	23	29	27	33	28
ROCKY HILL WPCF	631	767	780	919	787	610	484	526	498	542	446	412	420	457	350	293	376	412
SIMSURY WPCF	344	316	323	368	206	84	70	84	43	84	50	48	57	37	36	48	37	50
SOUTH WINDSOR WPCF	298	324	317	340	298	322	323	326	342	276	111	109	103	104	95	90	96	123
SUFFIELD WPCF	34	37	38	72	88	74	88	47	25	35	34	36	27	22	21	28	21	28
VERNON WPCF	483	663	538	488	580	469	426	361	386	520	422	344	427	395	424	529	565	453
WINDSOR LOCKS WPCF	131	116	100	143	98	94	110	113	96	89	58	71	56	51	49	64	88	66
WINDSOR POQUONOCK	427	422	441	467	432	419	457	450	494	500	483	512	525	503	482	534	571	514
WINDSTED WPCF	250	187	201	206	223	120	82	66	64	70	63	79	84	72	60	71	92	74
End of Pipe Total	15701	15683	15163	15647	15785	12752	12140	10798	10406	12650	9509	10225	9303	9343	7685	8227	9445	9549
ZONE:3																		
BRANFORD WPCF	142	79	129	135	103	111	105	94	110	102	94	131	108	92	113	100	101	105
CHESHIRE WPCF	468	492	536	480	171	74	75	63	38	74	48	78	73	60	56	93	145	78
MERIDEN WPCF	860	917	882	781	827	810	1008	1051	696	253	142	164	145	116	159	98	189	158
NEW HAVEN EAST WPCF	1400	1630	1408	1703	2271	2201	1650	1592	1494	1993	1493	1667	2894	3183	1224	648	1696	1850

Total Nitrogen Balance Sheet- Monthly Averages lbs/day by plant, 2002 - 2018

	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>Average 2011 to 2018</u>
	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>Average 2011 to 2017</u>
NORTH HAVEN WPCF	534	502	489	424	226	214	249	191	164	199	172	150	158	138	145	179	213	189
SOUTHINGTON WPCF	819	798	768	754	761	868	911	725	194	262	99	99	198	83	136	180	114	146
WALLINGFORD WPCF	549	601	627	657	522	340	381	429	456	517	356	427	423	463	379	415	529	439
WEST HAVEN WPCF	796	668	511	601	546	498	779	549	612	673	326	249	291	211	196	229	257	304
End of Pipe Total	5568	5687	5349	5535	5427	5116	5158	4694	3764	4073	2730	2965	4290	4346	2408	1942	3244	3250
ZONE:4																		
ANSONIA WPCF	273	307	260	287	289	237	260	270	178	76	63	59	59	52	43	44	61	57
BEACON FALLS WPCF	41	45	38	42	44	50	57	58	60	52	40	42	52	50	48	50	56	49
DANBURY WPCF	1866	1875	1825	1766	2072	1778	1885	1974	644	576	462	401	374	339	346	348	395	405
DERBY WPCF	53	64	58	59	65	63	64	64	63	82	71	54	66	68	81	63	67	69
LITCHFIELD WPCF	67	54	35	49	39	38	45	43	35	39	24	24	21	16	12	18	22	22
MILFORD BEAVER BROOK	130	180	120	127	130	132	121	137	101	127	74	70	55	51	48	70	113	76
MILFORD HOUSATONIC	439	429	431	479	574	662	742	324	238	598	291	343	365	262	206	263	291	327
NAUGATUCK TREATMENT	479	440	234	279	263	250	344	345	248	320	222	251	232	182	162	240	306	239
NEW MILFORD WPCF	76	52	56	91	86	88	103	109	135	117	32	27	25	24	23	38	26	39
NEWTOWN WPCF	34	50	32	24	36	26	19	18	21	20	18	15	13	15	13	13	17	16
NORFOLK WPCF	9	13	12	20	29	32	29	26	23	30	21	17	16	12	14	15	16	18
NORTH CANAAN WPCF	18	22	21	31	23	25	24	25	26	24	28	28	25	27	28	42	35	29
SALISBURY WPCF	27	27	23	28	29	28	34	32	34	35	28	33	28	22	21	28	34	29
SEYMOUR WPCF	55	56	61	69	66	62	58	69	62	89	41	52	63	53	57	58	85	62
SHELTON WPCF	452	545	509	501	480	413	219	219	113	121	69	61	64	87	86	99	197	98
SOUTHURBY TR. SCHOOL	17	18	16	14	10	7	8	4	7	9	3	3						5
STRAFORD WPCF	535	646	431	539	537	616	1425	605	245	259	179	300	352	245	198	305	386	278
THOMASTON WPCF	35	51	45	45	44	32	42	40	25	27	18	31	29	21	20	24	29	25
TORRINGTON WPCF	283	299	287	254	265	247	275	226	242	298	195	266	250	274	227	236	254	250
WATERBURY WPCF	778	1335	913	965	1001	1034	869	857	802	914	582	742	667	571	504	814	907	713
End of Pipe Total	5667	6508	5407	5669	6082	5820	6623	5445	3302	3815	2457	2819	2756	2371	2137	2768	3297	2806
ZONE:5																		
BRIDGEPORT EAST WPCF	568	615	459	470	468	271	253	301	412	376	325	444	400	357	228	213	271	327
BRIDGEPORT WEST WPCF	2305	2306	1158	1564	1145	1146	1262	1019	1211	1017	1006	919	925	1029	1452	1277	1761	1173
FAIRFIELD WPCF	735	453	417	393	530	408	488	431	325	388	338	296	273	296	299	310	381	323
WESTPORT WPCF	140	133	152	148	153	70	44	38	41	35	25	27	28	20	24	29	39	28
End of Pipe Total	3748	3508	2186	2565	2296	1895	2047	1789	1989	1816	1694	1686	1626	1702	2003	1829	2452	1851
ZONE:6																		
GREENWICH WPCF	410	459	443	556	520	697	479	461	458	572	430	443	475	441	443	482	569	482
NEW CANAAN WPCF	21	24	20	30	30	38	29	30	29	39	21	25	26	17	14	16	26	23
NORWALK WPCF	605	888	784	818	755	1043	766	881	600	742	640	702	738	583	625	551	752	667
RIDGEFIELD SOUTH ST.	23	27	28	35	28	32	34	38	42	39	38	47	43	43	45	41	52	44
STAMFORD WPCF	1652	1645	1523	1418	1029	726	550	510	497	592	506	440	408	278	265	261	293	380
End of Pipe Total	2711	3044	2798	2857	2362	2536	1858	1920	1626	1984	1635	1657	1690	1362	1362	1351	1692	1595
State End of Pipe Total	36664	37708	33966	33182	34974	30842	30702	27345	27345	26736	20109	21501	21854	20833	17489	18128	22288	21080

Attachment D

LIS Total Nitrogen Credit Exchange
 FINAL
 Under the Self-Sufficient Program

SELLING Credits			BUYING Credits		
Facility Name	Equalized		Facility Name	Equalized	
	Credits	2018 at \$10.9427		Credits	2018 at \$7.07
STAMFORD WPCF	633.00	\$2,528,256	BRIDGEPORT WEST WPCF	612.00	\$1,579,297
MERIDEN WPCF	127.40	\$508,846	HARTFORD WPCF	293.80	\$758,166
BRIDGEPORT EAST WPCF	77.35	\$308,942	WALLINGFORD WPCF	156.00	\$402,566
WATERBURY WPCF	61.80	\$246,834	GREENWICH WPCF	90.00	\$232,250
WEST HAVEN WPCF	57.60	\$230,059	WINDSOR POQUONOCK WPCF	89.87	\$231,914
BRANFORD WPCF	54.60	\$218,077	NEW HAVEN EAST WPCF	76.80	\$198,186
SOUTHINGTON WPCF	44.10	\$176,139	SHELTON WPCF	60.97	\$157,336
WESTPORT WPCF	40.80	\$162,959	VERNON WPCF	72.39	\$186,806
NEW CANAAN WPCF	38.00	\$151,775	MIDDLETOWN WPCF	58.00	\$149,672
ANSONIA WPCF	36.18	\$144,506	NORWICH WPCF	55.08	\$142,137
DANBURY WPCF	21.62	\$86,352	BRISTOL WPCF	38.70	\$99,867
FAIRFIELD WPCF	21.25	\$84,874	FARMINGTON WPCF	36.72	\$94,758
SIMSBURY WPCF	12.60	\$50,325	NAUGATUCK TREATMENT Co.	36.00	\$92,900
NEWTOWN WPCF	11.50	\$45,932	NORWALK WPCF	34.00	\$87,739
MILFORD HOUSATONIC WPCF	10.72	\$42,817	NORTH HAVEN WPCF	33.00	\$85,158
MONTVILLE WPCF	9.90	\$39,541	BEACON FALLS WPCF	29.48	\$76,075
THOMASTON WPCF	7.80	\$31,154	RIDGEFIELD SOUTH ST. WPCF	23.00	\$59,353
MANCHESTER WPCF	7.79	\$31,114	CHESHIRE WPCF	20.58	\$53,108
MATTABASSETT WPCF	7.40	\$29,556	STRATFORD WPCF	20.10	\$51,869
NEW LONDON WPCF	3.60	\$14,379	EAST HARTFORD WPCF	18.43	\$47,560
ENFIELD WPCF	5.89	\$23,525	ROCKY HILL WPCF	17.60	\$45,418
GLASTONBURY WPCF	4.60	\$18,373	SEYMOUR WPCF	16.08	\$41,495
SUFFIELD WPCF	4.56	\$18,213	KILLINGLY WPCF	12.88	\$33,237
GROTON CITY WPCF	3.42	\$13,660	MILFORD BEAVER BROOK WPCF	12.73	\$32,850
DERBY WPCF	2.68	\$10,704	WINDHAM WPCF	11.55	\$29,805
PUTNAM WPCF	2.38	\$9,506	GROTON TOWN WPCF	10.44	\$26,941
SOUTH WINDSOR WPCF	1.90	\$7,589	EAST HAMPTON WPCF	9.80	\$25,289
JEWETT CITY WPCF	1.53	\$6,111	UConn WPCF	8.85	\$22,838
STONINGTON BOROUGH WPCF	1.08	\$4,314	WINDSOR LOCKS WPCF	4.18	\$10,787
NEW MILFORD WPCF	0.92	\$3,675	PLYMOUTH WPCF	7.74	\$19,973
LITCHFIELD WPCF	0.70	\$2,796	NORTH CANAAN WPCF	7.70	\$19,870
STONINGTON PAWCATUCK WPCF	0.68	\$2,716	THOMPSON WPCF	6.84	\$17,651
NEW HARTFORD WPCF	0.36	\$1,438	PLAINVILLE WPCF	5.94	\$15,328
LEDYARD WPCF	0.00	\$0	STONINGTON MYSTIC WPCF	5.94	\$15,328
			WINSTED WPCF	5.04	\$13,006
			CANTON WPCF	4.68	\$12,077
			SALISBURY WPCF	4.55	\$11,742
			STAFFORD SPRINGS WPCF	4.20	\$10,838
			SPRAGUE WPCF	3.84	\$9,909
			TORRINGTON WPCF	3.60	\$9,290
			PLAINFIELD NORTH WPCF	2.24	\$5,780
			NORFOLK WPCF	1.75	\$4,516
			PLAINFIELD VILLAGE WPCF	0.70	\$1,806
			PORTLAND WPCF	0.40	\$1,032
			EAST WINDSOR WPCF	0.38	\$981
Total Sum	1315.71	\$5,255,058	Total Sum	2036.41	\$5,255,058

Self-Sufficient Program was approved under Public Act 15-38 in 2016. The program consists of the buyers purchasing the credits (2036.41 equalized at \$7.07) they need to meet their General Permit with those payments being shared (\$5,255,058) among the sellers credits (1315.71 equalized at \$10.9427) proportionally. There will be no purchase of excess credits. The 2018 year data is traded in 2019.

Attachment E

Equalized lbs Reduced by Project Facilities and Cost of Credit 2018

Project Facilities	Baseload	Average TN	EOP Reduced	E Factor	E Pounds Reduced
ANSONIA WPCF	314	61	253	0.67	169.51
BRANFORD WPCF	526	101	425	0.6	255
BRIDGEPORT EAST WPCF	991	271	720	0.85	612
BRIDGEPORT WEST WPCF	2852	1761	1091	0.85	927.35
BRISTOL WPCF	1091	613	478	0.18	86.04
CHESHIRE WPCF	281	145	136	0.49	66.64
DANBURY WPCF	1211	395	816	0.46	375.36
DERBY WPCF	195	67	128	0.67	85.76
EAST HAMPTON WPCF	148	103	45	0.2	9
EAST HARTFORD WPCF	801	389	412	0.19	78.28
EAST WINDSOR WPCF	163	61	102	0.19	19.38
ENFIELD WPCF	763	247	516	0.19	98.04
FAIRFIELD WPCF	1113	381	732	0.85	622.2
GLASTONBURY WPCF	268	75	193	0.2	38.6
GREENWICH WPCF	1313	569	744	1	744
GROTON TOWN WPCF	420	211	209	0.18	37.62
HARTFORD WPCF	6512	3846	2666	0.2	533.2
JEWETT CITY WPCF	42	6	36	0.17	6.12
LEDYARD WPCF	20	7	13	0.18	2.34
LITCHFIELD WPCF	64	22	42	0.35	14.7
MANCHESTER WPCF	855	271	584	0.19	110.96
MATTABASEET WPCF	2285	271	2014	0.19	382.66
MERIDEN WPCF	1230	189	1041	0.49	510.09
MILFORD BEAVER BROOK WPCF	258	113	145	0.67	97.15
MILFORD HOUSATONIC WPCF	844	291	553	0.67	370.51
NEW CANAAN WPCF	175	26	149	1	149
NEW HARTFORD WPCF	12	1	11	0.18	1.98
NEW HAVEN EAST WPCF	4294	1696	2598	0.6	1558.8
NEW MILFORD WPCF	66	26	40	0.46	18.4
NEW LONDON WPCF	1057	366	691	0.18	124.38
NEWTOWN WPCF	45	17	28	0.46	12.88
NORTH HAVEN WPCF	433	213	220	0.6	132
NORWALK WPCF	1967	752	1215	1	1215
PLAINVILLE WPCF	277	134	143	0.18	25.74
PLYMOUTH WPCF	114	85	29	0.18	5.22
PORTLAND WPCF	86	33	53	0.2	10.6
PUTNAM WPCF	145	36	109	0.14	15.26
RIDGEFIELD SOUTH ST. WPCF	80	52	28	1	28
SEYMOUR WPCF	167	85	82	0.67	54.94
SHELTON WPCF	290	209	81	0.67	54.27
SIMSBURY WPCF	293	37	256	0.18	46.08
SOUTHINGTON WPCF	557	114	443	0.49	217.07
SOUTH WINDSOR WPCF	289	96	193	0.19	36.67
STAFFORD WPCF	164	88	76	0.15	11.4
STAMFORD WPCF	2536	293	2243	1	2243

Equalized lbs Reduced by Project Facilities and Cost of Credit 2018

Project Facilities	Baseload	Average TN	EOP Reduced	E Factor	E Pounds Reduced
STRATFORD WPCF	974	386	588	0.67	393.96
SUFFIELD WPCF	122	21	101	0.19	19.19
THOMASTON WPCF	114	29	85	0.6	51
UCONN WPCF	120	103	17	0.15	2.55
WALLINGFORD WPCF	737	529	208	0.6	124.8
WATERBURY WPCF	2766	907	1859	0.6	1115.4
WEST HAVEN WPCF	967	257	710	0.6	426
WESTPORT WPCF	238	39	199	0.85	169.15
WINDHAM WPCF	344	202	142	0.15	21.3
WINDSOR LOCKS WPCF	180	108	72	0.19	13.68
WINSTED WPCF	175	92	83	0.18	14.94
Average daily reduction in equalized pounds:					14565.17
Annual reduction in equalized pounds:					53,016,287.05
Credit Cost:				\$	37,567,878.00
BOLD=New Project Plant for Year 2018				\$	7.07

Attachment F

Total Annual Project Cost 2018

Project Facilities	Total Annual Capital Cost from Nitrogen Removal	Total Annual O&M Cost from Project Facilities	Total Annual Project Cost
ANSONIA WPCF	\$465,697	\$273,160	\$738,857
BRANFORD WPCF	\$168,661	\$319,662	\$488,323
BRIDGEPORT EAST WPCF	\$51,755	\$771,372	\$823,127
BRIDGEPORT WEST WPCF	\$155,266	\$990,872	\$1,146,138
BRISTOL WPCF	\$28,759	\$102,100	\$130,859
CHESHIRE WPCF	\$317,316	\$267,262	\$584,578
DANBURY WPCF	\$46,466	\$550,047	\$596,513
DERBY WPCF	\$31,785	\$193,737	\$225,522
EAST HAMPTON WPCF	\$30,144	\$178,659	\$208,803
EAST HARTFORD WPCF	\$82,707	\$207,039	\$289,746
EAST WINDSOR WPCF	\$0	\$107,286	\$107,286
ENFIELD WPCF	\$0	\$396,522	\$396,522
FAIRFIELD WPCF	\$514,885	\$548,205	\$1,063,090
GLASTONBURY WPCF	\$272,568	\$491,295	\$763,863
GREENWICH WPCF	\$0	\$170,503	\$170,503
GROTON TOWN WPCF	\$242,100	\$216,225	\$458,325
HARTFORD WPCF	\$3,804,815	\$288,554	\$4,093,369
JEWETT CITY WPCF	\$65,659	\$190,194	\$255,853
LEDYARD WPCF	\$0	\$32,688	\$32,688
LITCHFIELD WPCF	\$45,829	\$210,832	\$256,661
MANCHESTER WPCF	\$333,911	\$349,781	\$683,692
MATTABASSETT WPCF	\$1,235,054	\$640,630	\$1,875,684
MERIDEN WPCF	\$492,418	\$788,641	\$1,281,059
MILFORD BEAVER BROOK WPCF	\$143,806	\$172,076	\$315,882
MILFORD HOUSATONIC WPCF	\$399,082	\$352,735	\$751,817
NEW CANAAN WPCF	\$56,656	\$139,292	\$195,948
NEW HARTFORD WPCF	\$0	\$62,464	\$62,464
NEW HAVEN EAST WPCF	\$640,070	\$790,363	\$1,430,433
NEW LONDON WPCF	\$54,978	\$406,955	\$461,933
NEW MILFORD WPCF	\$299,782	\$96,698	\$396,480
NEWTOWN WPCF	\$0	\$111,199	\$111,199
NORTH HAVEN WPCF	\$54,418	\$137,316	\$191,734
NORWALK WPCF	\$276,853	\$822,883	\$1,099,736
PLAINVILLE WPCF	\$253,448	\$330,131	\$583,579
PLYMOUTH WPCF	\$59,682	\$98,274	\$157,956
PORTLAND WPCF	\$44,740	\$173,779	\$218,519
PUTNAM WPCF	\$0	\$134,318	\$134,318
RIDGEFIELD SOUTH ST. WPCF	\$0	\$51,605	\$51,605
SEYMOUR WPCF	\$0	\$210,962	\$210,962

Total Annual Project Cost 2018

Project Facilities	Total Annual Capital Cost from Nitrogen Removal	Total Annual O&M Cost from Project Facilities	Total Annual Project Cost
SIMSBURY WPCF	\$211,063	\$188,230	\$399,293
SHELTON WPCF	\$21,642	\$436,212	\$457,854
SOUTHINGTON WPCF	\$201,085	\$749,838	\$950,923
SOUTH WINDSOR WPCF	\$303,783	\$311,201	\$614,984
STAFFORD WPCF	\$0	\$76,959	\$76,959
STAMFORD WPCF	\$2,238,236	\$1,058,466	\$3,296,702
STRATFORD WPCF	\$648,477	\$473,958	\$1,122,435
SUFFIELD WPCF	\$0	\$396,522	\$396,522
THOMASTON WPCF	\$56,408	\$168,734	\$225,142
UCONN WPCF	\$0	\$302,538	\$302,538
WALLINGFORD WPCF	\$122,125	\$300,861	\$422,986
WATERBURY WPCF	\$737,935	\$1,456,874	\$2,194,809
WEST HAVEN WPCF	\$359,358	\$1,125,586	\$1,484,944
WESTPORT WPCF	\$1,688,193	\$75,843	\$1,764,036
WINDHAM WPCF	\$159,477	\$310,483	\$469,960
WINDSOR LOCKS WPCF	\$84,200	\$110,728	\$194,928
WINSTED WPCF	\$43,673	\$103,564	\$147,237
TOTAL	\$17,544,965	\$20,022,913	\$37,567,878

Project Facilities: is defined as any facility with a fully operational nitrogen removal system of any scale as of January 1st of the trading year.

Nitrogen Removal Project : is defined as any alteration of the physical structure of a WPCF specifically constructed to remove nitrogen and financed by Connecticut's Clean Water Fund (CWF) program.

No WPCF's became project facilities in 2018.

Capital Cost Paid off by Nitrogen Removal Projects: East Windsor, Ledyard, Newtown and Seymour.

Projects Facilities financed by other agencies: Enfield, Greenwich, New Hartford, Putnam, Ridgfield, Stafford, Suffield and Uconn.

Attachment G

Nitrogen Removal Projects Financed by the CWF through 2018							
City or Town	Total Project Cost (\$)	Nitrogen Cost Portion (\$)	Year Project Completed	Baseline lbs/day	2016 lbs/day	2017 lbs/day	2018 lbs/day
Seymour	9,800,000	250,000	1993	167	57	58	85
East Windsor	10,000,000	1,000,000	1996	163	37	45	61
Fairfield Phase 1	4,700,000	4,700,000	1996	1113	299	310	381
Greenwich	500,000	500,000	1996	1313	443	482	569
Milford BB Phase 1	1,000,000	1,000,000	1996	258	48	70	113
Milford H Phase 1	650,000	650,000	1996	844	206	263	291
Norwalk Phase 1	1,100,000	1,100,000	1996	1967	625	551	752
Ridgefield	200,000	200,000	1996	80	45	41	52
Stratford Phase 1	800,000	800,000	1996	974	198	305	386
Univ. of Conn	12,000,000	1,058,000	1996	120	104	124	103
West Haven Phase 1	750,000	750,000	1996	967	196	229	257
Westport Phase 1	400,000	400,000	1996	238	24	29	39
Ledyard	3,500,000	350,000	1997	20	6	6	7
New Haven Phase 1	8,200,000	8,200,000	1997	4294	1224	648	1696
Newtown	12,000,000	1,058,000	1997	45	13	13	17
Stamford Phase 1	3,500,000	3,500,000	1997	2536	265	261	293
Derby	2,763,000	677,000	2000	195	81	63	67
New Canaan	14,000,000	1,235,000	2000	175	14	16	26
Norwalk Phase 2	56,000,000	5,538,000	2000	1967	625	551	752
Waterbury	120,000,000	17,359,000	2000	2766	504	814	907
East Hampton	690,000	690,000	2001	148	80	92	103
Thomaston	9,313,000	1,164,000	2001	114	20	24	29
New London	3,069,000	2,669,000	2002	1057	380	373	366
Portland	5,200,000	1,047,000	2002	86	29	27	33
Branford	21,542,000	3,158,000	2003	526	113	100	101
Fairfield Phase 2	40,551,000	12,046,000	2003	1113	299	310	381
Windsor Locks	2,349,000	1,841,000	2003	180	49	64	88
Bridgeport E Phase 1	2,090,000	2,090,000	2004	991	228	213	271
Bridgeport W Phase 1	2,375,000	2,375,000	2004	2852	1452	1277	1761
Bristol	584,000	584,000	2004	1091	414	506	613
Enfield	2,390,000	2,390,000	2004	763	155	203	247
Litchfield	4,000,000	1,000,000	2004	64	12	18	247
Jewett City	10,000,000	1,500,000	2005	42	7	14	6
Stamford Phase 2	97,223,000	59,500,000	2006	2536	265	261	293
North Haven	1,000,000	1,000,000	2006	433	145	179	213

City or Town	Total Project Cost (\$)	Nitrogen Cost Portion (\$)	Year Project Completed	Baseline lbs/day	2016 lbs/day	2017 lbs/day	2018 lbs/day
Wallingford	2,276,000	2,276,000	2006	737	379	415	529
East Hartford	1,965,000	1,965,000	2007	801	346	389	389
Cheshire	5,775,000	5,775,000	2007	281	56	93	145
Simsbury	21,231,000	4,044,000	2007	293	36	48	37
Suffield	4,075,000	3,370,000	2007	122	21	26	21
Winsted	1,100,000	1,100,000	2007	175	60	71	92
Westport Phase 2	37,131,000	8,253,000	2008	238	24	29	39
Shelton	21,642,000	4,293,000	2008	290	86	99	197
Hartford Phase 1	6,900,000	6,900,000	2008	6512	3563	3546	3846
Plainville	22,931,076	4,815,525	2008	277	67	117	134
Milford BB Phase 2	11,700,000	1,613,000	2009	258	48	70	113
Milford H Phase 2	34,900,000	10,038,000	2009	844	206	263	291
Stratford Phase 2	54,000,000	10,116,000	2009	974	198	305	386
Danbury	5,000,000	5,000,000	2010	1211	346	348	395
Groton Town	16,551,000	4,842,000	2010	420	244	266	211
Southington	13,000,000	13,000,000	2010	433	136	180	114
Meriden	42,455,000	32,517,000	2010	1230	159	98	189
New Hartford	10,000,000	1,000,000	2010	12	1	2	1
Stafford	Funded by USDA		2011	164	63	76	88
Glastonbury	23,701,000	272,570	2011	268	62	84	75
South Windsor	36,000,000	7,300,000	2012	289	95	90	96
Windham	22,917,000	1,638,583	2012	344	82	133	202
New Milford	29,900,000	6,080,545	2012	66	23	38	26
West Haven	55,000,000	13,200,000	2012	967	196	229	257
Ansonia	41,731,000	10,015,000	2012	314	43	44	61
Putnam	Funded by USDA		2014	145	44	35	36
Mattabassett	107,864,987	31,084,566	2014	228	402	529	797
Manchester	52,185,765	7,695,619	2015	855	174	152	271
New Haven	61,043,403	11,262,508	2015	4294	1224	648	1696
Plymouth	1,200,499	728,845	2015	114	23	57	85
Rocky Hill	53,236,199	7,373,705	2018	789	350	293	376

Univ. of Conn, Stafford and Putnam were not funded by the CWF program

Attachment H



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Affirmative Action/Equal Opportunity Employer

General Permit for Nitrogen Discharges

Effective Date: January 1, 2019
Expiration Date: December 31, 2023

Bureau of Water Protection and Land Reuse
Water Planning and Management Division
860-424-3704



79 Elm Street • Hartford, CT 06106-5127

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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 (CGS).

Section 2. Definitions

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

“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 of the Department of Energy and Environmental Protection as defined by *Section 22a-2(b)* of the CGS.

“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 Energy and 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 (RCSA).

"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 CGS.

"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 CGS.

"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 CGS.

"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 CGS.

(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, 2019 and expires on December 31, 2023.*

(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 limit 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 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 CGS.
- (2) A permittee shall be out of compliance with the general permit and subject to the enforcement provisions of Chapter 446k of the CGS 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 CGS.
- (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 MGD 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 MGD shall monitor the final effluent at a minimum frequency of twice per week.
- (2) Monitoring requirements shall commence on *January 1st 2019*.

- (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 the total daily 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 total daily flow effluent for each day during the month shall be entered on the MOR and NAR and reported to the Department. Results must also be entered in the 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 Unit
Connecticut Department of Energy and Environmental Protection
Bureau of Water Protection and Land Reuse
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 ensure 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 RCSA, 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 Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut 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*

(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 and under Section 53a-157b of the CGS.

(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 the 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 RCSA. 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 TMDL.

Issued: *October 5, 2018*


Robert E. Kaliszewski
Deputy Commissioner

APPENDIX 1

ANNUAL DISCHARGE LIMITS FOR TOTAL NITROGEN

Zone	Publicly Owned Treatment Works	Equivalency Factor	Total Nitrogen (Pounds/Day) 2019-2023
1	JEWETT CITY WPCF	0.17	15
1	GROTON CITY WPCF	0.18	99
1	GROTON TOWN WPCF	0.18	153
1	KILLINGLY WPCF	0.14	131
1	LEDYARD WPC	0.18	7
1	MONTVILLE WPCF	0.18	118
1	NEW LONDON WPCF	0.18	386
1	NORWICH WPCF	0.18	201
1	STONINGTON PAWCATUCK WPCF	0.17	24
1	PLAINFIELD NORTH WPCF	0.14	34
1	PLAINFIELD VILLAGE WPCF	0.14	24
1	PUTNAM WPCF	0.14	53
1	SPRAGUE WPCF	0.16	7
1	STAFFORD SPRINGS WPCF	0.15	60
1	STONINGTON BOROUGH WPCF	0.18	14
1	STONINGTON MYSTIC WPCF	0.18	27
1	THOMPSON WPCF	0.14	10
1	UCONN WPCF	0.15	44
1	WINDHAM WPCF	0.15	125
2	BRISTOL WPCF	0.18	398
2	CANTON WPCF	0.18	24
2	EAST HAMPTON WPCF	0.20	54
2	EAST HARTFORD WPCF	0.19	292
2	EAST WINDSOR WPCF	0.19	59
2	ENFIELD WPCF	0.19	278
2	FARMINGTON WPCF	0.18	178
2	GLASTONBURY WPCF	0.20	98
2	HARTFORD WPCF	0.20	2377
2	MANCHESTER WPCF	0.19	312
2	MATTABASSET WPCF ⁽¹⁾	0.20	834
2	MIDDLETOWN WPCF ⁽¹⁾	0.20	222
2	NEW HARTFORD	0.18	3
2	PLAINVILLE WPCF	0.18	101
2	PLYMOUTH WPCF	0.18	42
2	WINDSOR POQUONOCK WPCF	0.19	98
2	PORTLAND WPCF	0.20	31

Zone	Publicly Owned Treatment Works	Equivalency Factor	Total Nitrogen (Pounds/Day) 2019-2023
2	ROCKY HILL WPCF	0.20	288
2	SIMSBURY WPCF	0.18	107
2	SOUTH WINDSOR WPCF	0.19	106
2	SUFFIELD WPCF	0.19	45
2	VERNON WPCF	0.19	184
2	WINDSOR LOCKS WPCF	0.19	66
2	WINSTED WPCF	0.18	64
3	BRANFORD WPCF	0.60	192
3	CHESHIRE WPCF	0.49	103
3	MERIDEN WPCF	0.49	449
3	NEW HAVEN EAST WPCF	0.60	1568
3	NORTH HAVEN WPCF	0.60	158
3	SOUTHINGTON WPCF	0.49	204
3	WALLINGFORD WPCF	0.60	269
3	WEST HAVEN WPCF	0.60	353
4	ANSONIA WPCF	0.67	115
4	BEACON FALLS WPCF	0.67	12
4	DANBURY WPCF	0.46	442
4	DERBY WPCF	0.67	71
4	LITCHFIELD WPCF	0.35	24
4	MILFORD BEAVER BROOK WPCF	0.67	94
4	MILFORD HOUSATONIC WPCF	0.67	307
4	NAUGATUCK TREATMENT Co.	0.60	246
4	NEW MILFORD WPCF	0.46	28
4	NEWTOWN WPCF	0.46	42
4	NORFOLK WPCF	0.35	11
4	NORTH CANAAN WPCF	0.35	13
4	SALISBURY WPCF	0.35	21
4	SEYMOUR WPCF	0.67	61
4	SHELTON WPCF	0.67	106
4	STRATFORD WPCF	0.67	356
4	THOMASTON WPCF	0.60	42
4	TORRINGTON WPCF	0.60	248
4	WATERBURY WPCF	0.60	1049
5	BRIDGEPORT EAST WPCF	0.85	362
5	BRIDGEPORT WEST WPCF	0.85	1041
5	FAIRFIELD WPCF	0.85	406

Zone	Publicly Owned Treatment Works	Equivalency Factor	Total Nitrogen (Pounds/Day) 2019-2023
5	WESTPORT WPCF	0.85	87
6	GREENWICH WPCF	1.00	479
6	NEW CANAAN WPCF	1.00	64
6	NORWALK WPCF	1.00	718
6	RIDGEFIELD SOUTH ST. WPCF	1.00	29
6	STAMFORD WPCF	1.00	926

- (1) The annual discharge limit for total nitrogen for the Mattabasset WPCF will be increased from 834 pounds/day to 1056 pounds/day. This increase will occur when the Middletown WPCF is abandoned and all of Middletown's flow is conveyed to the Mattabasset WPCF.

Attachment I

Nitrogen Credit Advisory Board 2018 Meeting Schedule

All meetings are scheduled for 10:00 am at 79 Elm Street, Hartford, CT 06106-5127

February 14, 2018

July 18, 2018

October 17, 2018