

**TOWN OF EXETER, NEW HAMPSHIRE
TOTAL NITROGEN CONTROL PLAN ANNUAL REPORT FOR 2013
DUE: JANUARY 31, 2014**

Purpose

This Total Nitrogen Control Plan Annual Report was prepared to comply with the requirements of AOC 13-010, Article IV.E and is due on January 31 of each year. The goals of this report are as outlined below:

- 1) The annual reports are intended to include sufficient information such that the nitrogen loading change to the watershed associated with these activities can be quantified upon development of the non-point source/point stormwater accounting system.
- 2) The annual reports are intended to support the engineering evaluations due in September 2018 and December 2023, including:
 - a. documenting total nitrogen, dissolved oxygen, *chlorophyll a* and macroalgae concentration trends in the Squamscott River and downstream waters;
 - b. documenting non-point source and stormwater point source reduction trends towards allocation targets; and
 - c. documenting that appropriate mechanisms are in place to ensure continued progress.

Total Pounds of Nitrogen Discharged from the WWTF in Previous Calendar Year

The attached table summarizes the total pounds and total tons of nitrogen discharged from the WWTF for the calendar year. The attached table also summarizes the annual average total nitrogen value measured at the Squamscott River “GRBCL” sampling location, located just downstream of Newfields WWTF at Chapman’s Landing.

Operational Changes at the WWTF

No operational changes were made in 2013 which impacts nitrogen discharged from the WWTF.

Development of Total Nitrogen Non-Point Source & Stormwater Point Source Accounting

The Town is actively participating in the Watershed Integration for Squamscott-Exeter (WISE) project along with the Towns of Stratham and Newfields. This project began in September 2013 and is scheduled to be completed in August 2014. This project addresses the Squamscott-Exeter River watershed as a whole and includes watershed assessment, pollutant load assessment (current and projected future), alternatives analysis and community outreach. A task that is currently on-going is to determine the septic system locations in town and to input them into the GIS. One of the deliverables of the WISE project is a GIS-based accounting/tracking tool.

Status of Non-Point Source and Stormwater Point Source Nitrogen Control Plan

In addition to the WISE project, during 2014, the Town will also be conducting a wastewater facilities plan and beginning to develop documentation for the anticipated MS4 General Permit. The three projects play a major role in formulating the key elements of the Nitrogen Control Plan due in September 2018, including technical, managerial, financial, local regulatory, and implementation items.

Description of Activities Conducted for Nitrogen Control Plan

Initiated work on the WISE and Wastewater Facilities Plan projects. Continued work on the MS4 project.

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Description of Water Quality Monitoring Plan

The water quality monitoring plan is actively under development based on discussions with NHDES, UNH and the WISE project team. The Town has allocated \$20,000 for monitoring during 2014. The monitoring plan is expected to be finalized in conjunction with the WISE project team in early 2014 and the field work will begin in 2014.

Description of Activities Conducted which Affect Nitrogen in the Great Bay Estuary

Numerous activities were conducted through the Town's MS4 program, including:

- The Town (Planning Department) applied for and received a Green Infrastructure grant to improve water quality in Brickyard Pond through the construction of rain gardens.
- Continued implementation of Pet Waste Station Program (bags and disposal containers). Pet Waste Stations are located in the "downtown to train station" walking loop as well as other areas of concern such as the Town Forest parking lot, dog walking area adjacent to Squamscott River, Gilman Park adjacent to Exeter River, waterfront park adjacent to Squamscott River, Holland Way adjacent to Dearborn Brook and recent area noted as needing a disposal station adjacent to Wheelwright Creek (Public Works)
- Continued outreach and education through the "Think Blue Exeter" program (Public Works)
- Continued street sweeping and catch basin cleaning programs (Public Works).
- Continued stenciling all catch basins with "Attention...Drains to River" (Public Works).

Additional details of the MS4 program will be included in the Town's NPDES Phase 2 Small MS4 General Permit Annual Report.

Description of Financing & Regulatory Mechanisms to Implement Necessary Reductions

Continued and/or initiated work on the WISE project (Geosyntec/UNH/Rockingham Planning Commission/National Estuarine Research Reserve System/Consensus Building Institute), Wastewater Facilities Plan (Wright-Pierce) and MS4 projects (Verdant Water and Wright-Pierce).

Implementation Schedule

The WISE project is scheduled to be completed in August 2014. The Wastewater Facilities Plan project is scheduled to have a draft report completed in Fall 2014. MS4 project work will be ongoing in accordance with the MS4 General Permit (2003 version now, 2013 version when issued). A more detailed implementation schedule will be prepared as a part of these projects and will be identified in the next Total Nitrogen Control Plan Annual Report.

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EXETER, NH - TOTAL ANNUAL NITROGEN LOAD		WWTF EFFLUENT - TOTAL ANNUAL NITROGEN LOAD												GRBCL	
Month	Jan (lbs/mn)	Feb (lbs/mn)	Mar (lbs/mn)	Apr (lbs/mn)	May (lbs/mn)	Jun (lbs/mn)	Jul (lbs/mn)	Aug (lbs/mn)	Sep (lbs/mn)	Oct (lbs/mn)	Nov (lbs/mn)	Dec (lbs/mn)	Load (lbs/yr)	Load (tons/yr)	Squamscott R. TN Conc. (mg/l)
Days per month	31	28	31	30	31	30	31	31	30	31	30	31			
Past Years															
2003-2008															
2009-2011													85,400	42.69	0.82
2012	10,599	8,426	10,544	7,362	8,664	11,948	7,853	6,769	5,573	5,088	7,531	8,374	98,730	49.36	1.00
2013	9,440	8,327	14,132	8,967	6,592	13,242	11,439	7,017	4,036	5,208	7,625	11,935	107,958	53.98	-
Previous Year (2012)															
Flow (mgd)	1.92	1.69	1.91	1.56	1.84	1.94	1.27	1.30	1.26	1.45	1.38	1.75	-	-	
TN Conc (mg/l)	21.4	21.3	21.3	18.9	18.2	24.6	23.9	20.2	17.7	13.5	21.7	18.4	-	-	
TN Load (lbs/mn)	10,598	8,426	10,543	7,362	8,664	11,948	7,853	6,769	5,573	5,088	7,531	8,374	98,729	49.36	
Current Year (2013)															
Flow (mgd)	1.71	1.67	2.56	1.90	1.40	2.15	1.85	1.23	1.55	1.18	1.20	1.46	-	-	
TN Conc (mg/l)	21.3	21.3	21.3	18.9	18.2	24.6	23.9	22.1	10.4	17.1	25.4	31.6	-	-	
TN Load (lbs/mn)	9,440	8,327	14,132	8,967	6,592	13,242	11,439	7,017	4,036	5,208	7,625	11,935	107,958	53.98	
NOTES:															
	1. Blue font indicates months that concentration data was not available. The value for these months was set equal to the 2013 annual average effluent TN value.														
	2. Per the 2009 DES document, "Numeric Nutrient Criteria for the Great Bay Estuary," the highest TN concentration was utilized for days with multiple samples.														
	3. Sample location is identified as GRBCL, located just downstream of the Newfields Wastewater Treatment Facility.														
	4. 2013 Squamscott River Data is not available at this time.														
	SOURCES:														
	1. UNH. (2012). 2012 Environmental Data Report. Durham: PREP.														
	2. Squamscott River TN Concentration calculations based on:														
	--UNH. TIDAL WATER QUALITY MONITORING PROGRAM ENVIRONMENTAL DATA. UNIVERSITY OF NEW HAMPSHIRE, UNH JACKSON ESTUARINE LABORATORY, DURHAM, NH														