DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: Town of Winchester

PERMIT, ADDRESS, AND FACILITY DATA

PERMIT #: CT0101222 **APPLICATION #:** 201002318 **FACILITY ID.** 162-001

Mailing Address:	Location Address:
Street: 338 Main Street	Street: 470 North Main Street (Route 8 North)
City: Winsted ST: CT Zip: 06098	City: Winsted ST: CT Zip: 06098
Contact Name: Richard Kemp	Contact Name: Richard Kemp
Phone No.: (860) 379-4905	Phone No.: (860) 379-4905
	DMR Contact email address: winstedwpcf@sbcglobal.net

PERMIT INFORMATION

DURATION 5 YEAR _X_ 10 YEAR ___ 30 YEAR ___

TYPE New _ Reissuance _X_ Modification ___

CATEGORIZATION POINT (X) NON-POINT ( ) GIS #

NPDES (X) PRETREAT () GROUND WATER (UIC) ( ) GROUND WATER (OTHER) ( )

NPDES MAJOR **(MA)** X
NPDES SIGNIFICANT MINOR or PRETREAT SIU **(SI)** ___
NPDES or PRETREATMENT MINOR **(MI)** ____

COMPLIANCE SCHEDULE YES X_____NO____
POLLUTION PREVENTION ___ TREATMENT REQUIREMENT__
WATER QUALITY REQUIREMENT __ OTHER ____

OWNERSHIP CODE
Private __ Federal __ State __ Municipal (town only) X___ Other public___

DEEP STAFF ENGINEER Ivonne Hall **DATE DRAFTED:** 7/28/15

PERMIT FEES

Discharge Code	DSN Number	Annual Fee
111000d	001-1	$2,367.50

FOR NPDES DISCHARGES
Drainage Basin Code: 4303 Water Quality Classification Goal: B
Segment: Still River - 03

NATURE OF BUSINESS GENERATING DISCHARGE
Municipal Sanitary Sewage Treatment

PROCESS AND TREATMENT DESCRIPTION (by DSN)
Secondary Biological Treatment (activated sludge) with Nitrification and Seasonal Chlorination/Dechlorination Disinfection

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RESOURCES USED TO DRAFT PERMIT

X Federal Effluent Limitation Guideline 40CFR 133 Secondary Treatment Category

__ Performance Standards

__ Federal Development Document
name of category

X Department File Information

X Connecticut Water Quality Standards

X Anti-degradation Policy

__ Coastal Management Consistency Review Form

__ Other - Explain

BASIS FOR LIMITATIONS, STANDARDS OR CONDITIONS

X Secondary Treatment (Section 22a-430-4(r) of the Regulations of Connecticut State Agencies)

X Case-by-Case Determination (See Other Comments)

X In order to meet in-stream water quality (See General Comments)

__ Anti-degradation policy

GENERAL COMMENTS

The Town of Winchester ("the Town") operates a municipal water pollution control facility ("the facility") located on at 470 North Main Street, Winsted (Route 8 North). The facility is designed to treat and discharge up to 3.5 million gallons a day of effluent into the Still River, which eventually discharges to the Farmington River. The facility currently uses secondary treatment with nitrification and chlorine disinfection (and dechlorination) to treat effluent before being discharged. Pursuant to Conn. Gen. Stat. § 22a-430, the Department of Energy and Environmental Protection has issued the Town a permit for the discharge from this facility. The Town has submitted an application to renew its permit. The Department has made a tentative determination to approve The Town's application and has prepared a draft permit consistent with that determination.

The most significant changes from the current permit are the inclusion of a monthly zinc limit, revised bacteria monitoring requirements (e.g. e. coli), aluminum monitoring to be consistent with the most recent CT Water Quality Standards and iron monitoring to be consistent with EPA's National Recommended Water Quality Criteria.

SPECIFIC REQUIREMENTS OR REVISIONS

The Department reviewed the application for consistency with Connecticut's Water Quality Standards and determined that with the limits in the draft permit, including those discussed below, that the draft permit is consistent with maintenance and protection of water quality in accordance with the Tier I Anti-degradation Evaluation and Implementation Review provisions of such Standards.

Water quality based discharge limitations were included in this permit for consistency with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Each parameter was evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility where appropriate. The statistical procedures outlined in the EPA Technical Support Document for Water Quality based Toxics Control (EPA/505/2 90 001) were employed to calculate the limits. The most restrictive of the water quality limitations, aquatic life acute, aquatic life chronic, and human health, was compared with limitations developed according to State and Federal Best Available Technology (BAT). Where the water quality based limitations were more restrictive than BAT, the water quality based limitation was included in the permit as a mass limit in addition to the BAT concentration limit. Monthly copper and seasonal ammonia limits continue in this permit, consistent with previous permits. A monthly zinc limit is added back to the permit. There has not been acute or chronic toxicity reported at this Facility.

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A compliance schedule is included for the reduction of phosphorus in the effluent.

<u>Phosphorus Permitting Approach</u>

Phosphorus is a naturally occurring element that is essential to support plant growth. When present in excessive amounts, phosphorus can impair both aquatic life and recreational use of Connecticut's water resources. Excess nutrient enrichment is a serious threat to water quality in Connecticut. Excessive loading of phosphorus to surface waters as a result of discharges from wastewater treatment plants or non point sources such as runoff from urban and agricultural lands, can lead to algal blooms, including blooms of noxious blue green algae, reduction in water clarity, and in extreme cases depletion of oxygen, fish kills, and other impairments to aquatic life. Currently, 21 water body segments have been identified on Connecticut's List of Waters Not Meeting Water Quality Standards where nutrient enrichment is a contributing cause of the impairment.

The Connecticut Water Quality Standards (WQS) do not include numeric criteria for nutrients but rather incorporate narrative standards and criteria for nutrients. These narrative policy statements direct the Connecticut Department of Environmental Protection to impose discharge limitations or other reasonable controls on point and non point sources to support maintenance or attainment of designated uses. In the absence of numeric criteria for phosphorus, the Department has developed an interim nutrient management strategy for freshwater non-tidal streams based on the narrative policy statements in the WQS to meet the pressing need to issue NPDES permits and be protective of the environment. The strategy includes methods that focus on phosphorus because it is the primary limiting nutrient in freshwater systems. These methods were approved by the United States Environmental Protection (EPA) in their letter dated October 26, 2010 as an interim strategy to establish water quality based phosphorus limits in non-tidal freshwater for industrial and municipal water pollution control facilities (WPCFs) national pollutant discharge elimination system (NPDES) permits.

The method in the interim strategy uses best available science to identify phosphorus enrichment levels in waste receiving rivers and streams that adequately support aquatic life uses. The methodology focuses on algal communities as the key aquatic life nutrient response variable and phosphorus enrichment factors that represent significant changes in communities based on data collected statewide. Ongoing work is currently being conducted to refine the approach through additional data collection and by expanding the methodology to include non-waste receiving streams. It is expected that the ongoing work will lead to numeric nutrient criteria for all freshwater rivers and streams in the next WQS review cycle. The current approach provides for a major statewide advancement in the level of phosphorus control that is expected to meet all freshwater designated uses. The adaptive nature of Connecticut's strategy allows for revisions to permit limits in future permit cycles without delaying action that we know needs to be taken today.

The current approach follows a watershed based framework incorporating many of the elements from the U.S. EPA Watershed –Based National Pollutant Discharge Elimination System (NPDES) Permitting Technical Guidance (2007). Consistent with the 2007 Guidance, the approach "explicitly considers the impact of multiple pollutant sources and stressors, including nonpoint source contributions, when developing point source permits". Expected current conditions are based on the probability of excess phosphorus export from land cover and municipal and industrial facilities in the upstream drainage basin. Connecticut's policy for phosphorus management is translated into a numeric expression through geo-spatial and statistical analyses that determines the maximum acceptable seasonal phosphorus mass load per unit area of watershed contributing flow to the point of assessment.

The goal of the interim strategy is to achieve or maintain an enrichment factor (EF) of 8.4 or below throughout a watershed. An EF is representative of the amount of anthropogenic phosphorus loading to river and streams. It is calculated by dividing the current total seasonal phosphorus load by a modeled total phosphorus load under complete forested conditions at a particular point along the river. An enrichment factor is representative of the amount of anthropogenic phosphorus loading to rivers and streams. The goal of an 8.4 enrichment factor represents a threshold at which a significant change is seen in the algal communities indicating highly enriched conditions and impacts to aquatic life uses.

The analysis was conducted using benthic algae collected in rivers and streams throughout CT under varying enrichment conditions. The approach targets the critical 'growing' season (April through October) when phosphorus is more likely to be taken up by sediment and biomass because of low flow and warmer conditions. During winter months aquatic plants are dormant and flows are higher providing constant flushing of phosphorus

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through aquatic systems with a less likely chance that it will settle out into the sediment. Limiting the phosphorus export from industrial and municipal facilities offers a targeted management strategy for achieving aquatic life designated uses within a waterbody. The export of some phosphorus from facilities and other land sources is considered normal use of the land recognizing that humans are part of the environment.

A seasonal load was established by the Department for each facility discharging to non-tidal waters based on the current degree of enrichment of the receiving water body at the point of discharge and the facilities contribution to the total watershed enrichment at the point of discharge.

Winsted WPCF Permit Requirements

A nutrient watershed analysis was conducted for the Farmington River watershed below facilities discharging phosphorus into the river. The facilities discharging to the river include: Winchester (Winsted) WPCF, New Hartford WPCF, Canton WPCF, Farmington WPCF, Simsbury WPFC, Bristol WPCF, Plymouth WPCF, Plainville WPCF. The seasonal (April 1st through October 31st) nutrient loading from each facility discharging to the watershed was reduced to achieve an enrichment factor of 8.4 or lower throughout the river.

The current enrichment factor at the Winsted WPCF discharge is 9.4. The final proposed seasonal load allocation for the Winsted WPCF is 17.16 lbs/day. This load equates to a proposed treatment performance level of 1.49 mg/L multiplied by the average seasonal flow of 1.38 MGD. When this strategy is fully implemented by combining reductions at all facilities located in the same watershed, the NPDES load in the Farmington River will be reduced by 14.33%.

Federal regulations at 40 CFR 122.44(d) indicate that permit issuers are required to determine whether a given point source discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard after consideration of existing controls on point and non-point sources of pollution. If a discharge is found to cause an excursion of a numeric or narrative state water quality criterion, NPDES regulations implementing section 301(b)(1)(C) of the Clean Water Act provide that a permit must contain effluent limits as necessary to achieve state water quality standards. The limit in the permit and the strategy are consistent with the narrative policy statements in the CT WQS and are expected to result in the attainment and maintenance of all designated uses for the water body when the strategy is fully implemented. If the Department develops numeric criteria in the future, or it is found that the current limit under the strategy is not sufficient to achieve designated uses, the goal will be modified and the WPCF will be expected to meet the more stringent water quality goal.

Translating the average performance level of 17.16 lbs/day into enforceable permit limits requires consideration of effluent variability and frequency of monitoring in order to comply with federal permitting regulations. The procedure used is as follows:

1. Consider the proposed treatment performance level (1.49 mg/L) to be equivalent to the Long Term Average (LTA)

2. Calculate the Maximum Daily Limit by multiplying the LTA by the 99th percentile LTA Multiplier appearing in Table 5-2 of the Technical Support Document (page 103 of EPA/505/2-90-001) corresponding to a CV of 0.6% to account for effluent variability:

*Maximum Daily Limit: 1.49 mg/L * 3.11 = 4.63 mg/L*

3. Calculate the Average Monthly Limit by multiplying the LTA by the 95th percentile LTA Multiplier appearing in Table 5-2 of the Technical Support Document corresponding to a CV of 0.6% to account for effluent variability and either n=4 samples/month or n=10 samples/month as appropriate for the facility to account for the precision of estimating the true monthly average based on an average for the days the effluent was sampled:

Average Monthly Limit= 1.49 mg/l X 1.55 = 2.31 mg/l

Summary of Limits for Winsted WPCF:
Average Daily Load = 17.16 lbs/day
Total Seasonal Load = (17.16 lbs/day * 214 Days/Season) = 3,672 lbs
Maximum Daily Limit = 4.63 mg/L

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Average Monthly Limit = 2.31 mg/L **]**

With respect to the foregoing summary of limits, it should be noted that compliance with the Maximum Daily Limit or the Average Monthly Limit during the time the seasonal load limit is calculated will not ensure compliance with the Total Seasonal Load limit. For example, if the Permittee discharged phosphorus at the maximum permitted by either the Maximum Daily Limit or the Average Monthly Limit throughout the time that the seasonal load is calculated, the Permittee would exceed the Total Seasonal Load limit. For this reason, the Permittee must monitor compliance with the Total Seasonal Load limit independent of its compliance with the Maximum Daily Limit and the Average Monthly Limit.

WATER QUALITY LIMIT CALCULATIONS
See attached

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