

Permit Fact Sheet
Groton Wastewater Treatment Plant
SPDES Permit No. NY0025585
March 2009

Purpose:

This fact sheet has been prepared by the New York State Department of Environmental Conservation to brief the public on modifications to the Village of Groton Wastewater Treatment Plant permit which authorizes discharge to the Owasco Inlet.

Background:

New York State Department of Environmental Conservation (DEC) is authorized by the United States Environmental Protection Agency (EPA) to issue State Pollutant Discharge Elimination System (SPDES) permits. The Village of Groton Wastewater Treatment Plant (WWTP) was originally placed into service in 1963 and significantly upgraded in 1977. The Village of Groton WWTP is designed to treat 0.35 million gallons per day and discharges to the Owasco Inlet approximately 15 miles upstream from Owasco Lake.

Plant Description:

Currently, incoming sewage passes through a grit chamber, a flow measuring flume, a comminutor, a manually cleaned bar rack and then passes to the wet well in the control building. Centrifugal pumps transfer the sewage from the wet well to an aeration tank. Flow continues to the secondary clarifiers where solids settle and are then pumped to the active aeration tank. Effluent from the settling tanks goes to a chlorine contact tank for disinfection where a chlorine residual analyzer controls the chlorine rate. Plant effluent is dechlorinated before it is discharged to the Owasco Inlet. Excess sludge is wasted to the Imhoff tank for stabilization before being transferred to the sludge drying beds. The sludge is hauled to a landfill for disposal. The control building contains a laboratory for performance testing to provide control to the treatment process. A diesel-powered generator provides power during electric outages.

History:

In October 1999, a fish farm, Fingerlakes Aquaculture, Inc (FA Inc), began operation and became the Village's only Significant Industrial User (SIU) of its wastewater treatment plant. Production gradually increased to the point where the fish farm's daily water use was 120,000 gallons per day. By 2004, the WWTP was violating flow and several other parameters of their permit almost every month. To address these violations, the village signed a legal agreement with DEC in 2006 which required further upgrades to treat increased flow and higher organic loads. At that time, there was no phosphorus limit in the Village of Groton permit. Recognizing new information and public concern, DEC required a phosphorus removal pilot study as part of this legal agreement. Since early 2006, phosphorus discharges from the plant have significantly decreased.

The New Permit:

The new permit contains a compliance schedule for design and construction of WWTP upgrades. The permit has also been modified to allow an increase in flow from 0.35 MGD to 0.5 MGD, impose a limit for effluent phosphorus and to add a requirement for industrial wastewater pretreatment. The table below provides a summary of the former and new permit limits for the Groton WWTP.

Engineered plans and specifications for upgrades to the Village of Groton wastewater treatment plant are to be submitted for DEC review by March 27, 2009 and the start of construction is planned to be on or before June 30, 2009. Modifications to the WWTP will allow for treatment of at least 0.5 MGD. These modification include replacing current treatment processes with three new sequencing batch reactors.

A phosphorus effluent limit of 0.5 milligrams per liter (mg/l) is proposed for the new Groton WWTP. DEC performed sampling of the Owasco Inlet in 2006 which indicated a decline in water quality downstream of the Groton WWTP discharge. This effluent limit will be protective of both the Owasco Inlet and Owasco Lake while supporting the preliminary findings of area-wide water quality studies and pending the development of a phosphorus maximum daily load for Owasco Lake.

The permit also sets forth an interim phosphorus effluent limit of 1.0 mg/l, which will be in place from the effective date of the permit until the WWTP upgrades are operational. The time frame associated with these upgrades is approximately 14 months. After that a limit of 0.75 mg/l phosphorus concentration will be in effect for one year after which the limit will be lowered to 0.5 mg/l which equates to approximately 2.1 pounds per day.

To address increased loadings from the fish farm, the Village of Groton is required to set limits on the discharge from Fingerlakes Aquaculture Inc. These limits will reduce the nutrients and flow to the Groton WWTP to a level which can be effectively treated by the new facility before discharge to the Inlet.

In addition to the above proposed modifications, DEC performed a technical water quality review which led to the following permit limit changes for the Groton WWTP at the increased flow rate:

- Ultimate Oxygen Demand (UOD): A limit of 40 mg/l is required for the June-October period. This equates to 170 lb./day at 0.5 MGD. This limit is reduced from 51.4 mg/l and will result in more oxygen available for aquatic life.
- Total Residual Chlorine (TRC): If chlorine continues to be used for disinfection, detection limit of 0.1 mg/l as the limit for the period disinfection is practiced. While the current permit limit is 0.013 mg/l, this concentrations can not be detected in an analytical laboratory because of equipment limitations. A limit of 0.1 mg/l is used on a statewide basis for TRC. If ultraviolet light is used for disinfection, then there will be no need for a TRC limit.
- Nitrogen, Ammonia (NH₃): Ammonia limits of 2.7 mg/l (June - October) and 9.6 mg/l (November - May) due to the limited assimilative capacity of Owasco Inlet. Currently, the permit has a limit of 4.0 mg/l from June through October and no limit at other times of the year.

- Phosphorus (P): An interim phosphorus limit during construction plus two months will be 1.0 mg/l with a corresponding mass limit of 4.0 pounds per day. After construction plus two months a phosphorus limit of 0.75 mg/l is required with a corresponding mass limit of 3.1 pounds per day. One year after that date, a final phosphorus limit of 0.5 mg/l with a corresponding mass limit of 2.1 pounds per day is required.

Summary of the Former and New Permit Limits

Parameter	Former Nov. 1 - May 31	Former June 1 - Oct. 31	New Nov. 1 - May 31	New June 1 - Oct. 31
Flow	0.35 MGD	0.35 MGD	0.50 MGD	0.50 MGD
BOD ₅	Monthly Avg. 30 mg/l	Monthly avg. Monitor	Monthly avg. 30 mg/l	Monthly avg. Monitor
BOD ₅	7 day average 45 mg/l	7 day average Monitor	7 day average 45 mg/l	7 day average Monitor
UOD	N/A	51.4 mg/l	N/A	40 mg/l
Solids, Suspended	Monthly Avg. 30 mg/l	Monthly Avg. 30 mg/l	Monthly Avg. 30 mg/l	Monthly Avg. 30 mg/l
Solids, Suspended	7 day average 45 mg/l	7 day average 45 mg/l	7 day average 45 mg/l	7 day average 45 mg/l
Solids, Settleable	0.3 mg/l	0.3 mg/l	0.3 mg/l	0.3 mg/l
pH	6 - 9 SU	6 - 9 SU	6 - 9 SU	6 - 9 SU
Nitrogen, NH ₃	N/A	4.0 mg/l	9.6 mg/l	2.7 mg/l
Phosphorus, Total, (as P)	Monitor	Monitor	0.5 mg/l ¹	0.5 mg/l ¹
Temperature	Monitor	Monitor	Monitor	Monitor
Coliform, Fecal 30 day mean	N/A	200	N/A	200
Coliform, Fecal 7 day mean	N/A	400	N/A	400
Chlorine, Total Residual	N/A	0.1 mg/l	N/A	0.1 mg/l ²

Footnotes

1. Interim phosphorus limits are 1 mg/l from the effective date of permit modification to end of construction plus 2 months and 0.75 mg/l from one year after end of construction plus two months plus one year is 0.75 mg/l.
2. TRC - per TOGS 1.3.1E, Attachment 1, if chlorine continues to be used for disinfection, the calculated water quality based effluent limit is 0.011 mg/l. However, a 0.1 mg/l total residual chlorine limit should be applied for the period of disinfection. This limit represents the accepted detection level for TRC.