

Litchfield Water Pollution Control Authority 2018 Report



MAY 2019

**Town of Litchfield Water Pollution Control
Authority**

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Superintendent**



Calendar Year 2018

Overview:

The wastewater treatment plant is located at 29 Stoddard Road and began operating in November of 1971. The wastewater is fully treated before it ultimately discharges into the Bantam River. The collection system consists of 27 miles of sanitary sewer lines and 600 manholes. There are 1,300 connections to the system.

Operation of the Litchfield WPCA is self-funded through usage fees. Major upgrades are bonded by the Town and most of the bonding is subsequently paid off by the Sewer Users.

The WPCA budget for FY 2020 is \$1,100,000 paid for by user fees.

The current user fee is \$408 annually for one Equivalent Dwelling Unit (EDU). The last rate increase of \$12 per EDU was in Sept 2017. Restaurants, laundromats and other higher volume users are billed on the basis of one EDU per 42,500 gallons of metered water flow.

The treatment plant underwent a \$6.3 million dollar upgrade which was completed in 2003. This project enhanced the biological nitrogen removal and increased the plant's capacity to 800,000 gallons per day (GPD), with a peak design flow of 2,310,000 GPD. It also updated the computerized Supervisor Control And Data Acquisition system (SCADA), as well as converted from chlorine to ultraviolet disinfection.

We are continually making upgrades to plant operations and equipment that will improve plant performance and energy efficiency. This work has included updates to our SCADA system, upgraded 11 variable frequency drives (VFD), two new anoxic mixers, a new trailer jetter (a high powered jet pump for clearing sewer line blockages), two new heat pumps; for heating and cooling the main building, and upgraded all

interior lighting to LED for energy efficiency. All of these enhancements are funded through our capital non-recurring fund account.

Inter-Municipal Agreements:

The Litchfield WPCA has several inter-municipal agreements to process sewage with neighboring towns due to our hilly terrain.

One agreement is with the Town of Morris WPCA, the Litchfield Plant processes sewage from a section of Morris, which includes Deer Island and a portion of Bantam Lake Road, CT Rt. 209, which averages about 25,000 gallons per day (GPD).

Similarly, the Thomaston WPCA accepts sewerage from our Northfield area, servicing 165 customers, averaging just over 6,000 GPD. Most of this sewage is pumped through a pressure line from our pump station, located on Knife Shop Road.

Through the Torrington WPCA agreement, The City of Torrington plant accepts sewage from Litchfield. This portion of our collection system includes CT Rt. 202/ Torrington Rd, just south of Fern Avenue, and Hart Drive community; including the Hunter's Chase town house development. These sections serve 203 customers with an average combined flow of 25,000 GPD. We currently reserve 150,000 GPD capacity in Torrington and plan to reduce the reserved amount when we re-negotiate a new inter-municipal agreement with the Torrington WPCA. In addition we plan to stipulate that any new project along the Rt. 8 /Rt. 118 corridor would require the developer to buy extra capacity at the Torrington Plant.

Water Pollution Control Facility:

The plant's performance for the 2018 calendar year was consistent with prior years. Biochemical oxygen (BOD) removal rates averaged 99 % and Total Suspended Solids (TSS) removal rates averaged 98%. Monthly discharges of Nitrates/Total Nitrogen was 22 lbs. /day, which is below the 24 lbs. /day set by the CT DEEP. The seasonal loading of Total Phosphorous was 6.5 lbs. /day also within our permitted discharge level.

Sewage Bypass Events:

This is an event in which raw untreated sewage enters a receiving water or catch basin. This could result due to an equipment failure, a sewer line blockage or a bypass of a one or more parts of the treatment process at the plant. We only reported one sewage bypass (less than 100 gallons) on Jan. 18, 2018, due to a grease blockage that was located at Litchfield High School. We acquired a more powerful trailer jetter and an assortment of jetting nozzles for blockages and preventative maintenance after this event, which allows us to prevent this type of re-occurrence.

Effluent Non-Compliance Events:

This is an event in which we exceed the daily maximum limit for one or more parameters, such as BOD or TSS, which are set in our NPDES permit. These are referred to as plant upsets and are typically the result of an extreme weather event(s) and other factors that can negatively impact the plant process. We reported 6 non-compliant events in 2018 mostly related to high rainfall events which caused us to exceed our daily discharge maximum limit of 50 mg/L of total suspended solids (TSS) and/or biochemical oxygen demand (BOD).

- The events on 03/02/18, 04/16/18 and 05/01/18 were for exceeding the TSS limit caused by high flows and poor settling conditions in our secondary clarifiers.
- We exceeded the daily maximum for E.coli on 06/04/18.
- On 09/12/18 both TSS and E.coli exceeded the daily maximum.
- On 12/21/18 we exceed our daily maximum for TSS.

A chart in Appendix A presents monthly plant data, septage that was received and processed, and total precipitation for 2018.

Sanitary Sewer Collection System:

We have begun a Capacity Management Operation & Maintenance (CMOM) plan that was created by our Plant Superintendent in 2016. The plan, which is required by both

the EPA and CT DEEP, consist of emergency protocols, standard operation procedures, ongoing preventative maintenance jetting, and repair work performed on the sanitary sewer collection system on an ongoing basis. An important focus of the plan is to help identify excessive inflow and infiltration (I & I) of clean water that enters the sanitary sewer collection system. This is often caused by deteriorating pipe joints, aging sewer pipes, leaking manholes, illicit connections, such as a sump pump, and ground water that enters the sewer collection system.

Excessive I & I must be identified to preserve the plant's design capacity, currently at 800,000 GPD, and to minimize high volume plant upsets that can potentially violate our NPDES permit. The plant's design capacity can be further stressed during prolonged wet periods or after significant weather events, and from seasonal winter/spring melt runoff.

In early 2019 we completed our third flow monitoring study over the previous two years. This field work will give us a good part of the data to then focus on I & I in specific areas of concern. In addition the WPCA purchased a push camera, as we are now able to visually inspect our sewer lines in the most cost effective manner. This CCTV (closed circuit television) field work will enable the WPCA, the Public Works Director, and the Plant Superintendent to decide on the appropriate technology and public outreach needed to repair and/or replace portions of our collection system as well as mitigate issues discovered through this ongoing field work.

In the spring of 2019 we began the project of GIS mapping of the entire sanitary sewer system and building the digital data base of the collection system infrastructure, which will then become part of the Town's Geographic Information System. We will then be able to enter all the data previously collected from the past I & I studies, rehabilitation projects, engineering surveys, and data collected at the treatment plant.

Projects for 2019:

Here is a brief outline of what has already begun for this current year.

- The purchase and installation of a channel grinder for the headworks.

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- Updating the plant's water heating system to a more energy efficient unit, which will occur in late May of 2019.
 - Utilizing CCTV field work to perform internal pipe inspections.
 - The purchase of three new nitrate return pumps.
 - An aggressive preventative maintenance program with our new trailer jetter.
 - Joe Carey, from Public Works; who started on April 15th is to replace Bob Capell. Bob is retiring in July after 30 years of service to the Town.

Summary:

We plan to implement a new Inter-municipal agreement with the Torrington WPCA. Continue to focus on the I & I entering of our sewer collection system, which will include extensive CCTV inspection and jetting field work, and find any issues that need to be addressed. We hope to propose a plan to implement some engineered options by the late fall. We will also begin utilizing GIS technology to digitize the entire collection system. We also plan on reviewing the most cost effective UV option for future disinfection of our final effluent.

The WPCA will continue to strive for solid and transparent financial performance, which will include developing a capital expenditure plan and an asset management plan. We will move forward with the necessary upgrades to plant equipment, to improve plant performance, and continue field work on the collection system. These combined efforts will enable the WPCA to ensure the best return on investment for our rate payers, control future costs, continue to support economic growth, and ensure financial sustainability.