

# City of Thomasville 2014

## Wastewater Annual Report

### A General Overview of Sewer Collection and Treatment Systems

The *Collection* System:

The City of Thomasville's Sanitary Sewer Collection System operates under a National Pollutant Discharge Elimination System (NPDES) Permit (#WQCS00057) issued by the North Carolina Department of Natural Resources Division of Water Resources (NCDENR/DWR). The collection system itself is comprised of a vein-like system of **227.148 miles**, or 1,199,341 linear feet of pipe, and 26 sewage lift stations spread throughout the area from Davidson County Community College eastward into Randolph County, and from north of Hasty School Road to south of NC Highway 64. This system of small pipes leading to larger pipes leading to yet larger pipes eventually ends at the city's Hamby Creek Wastewater Treatment Plant (WWTP) where the wastewater is cleaned for reintroduction to the environment.

The Wastewater *Treatment* Process:

The Hamby Creek WWTP is a 6.0 million gallons per day (MGD) rated capacity Grade 4 wastewater treatment facility, operating under a separate NPDES Permit (#NC0024112), using what is known as the "5-Stage Bardenpho Process" with post aeration to achieve biological nutrient reduction of both phosphorus and nitrogen. Phosphorus and nitrogen are essential nutrients for algae growth so removing them from the water is an important step in preventing algal blooms that can kill fish by robbing the water of oxygen. Headworks equipment, the first step in the treatment process, consists of an automated solids removal bar screen and a grit removal system. Secondary treatment consists of two parallel "trains" of treatment, each consisting of an anaerobic (low oxygen) zone, an anoxic (no oxygen) zone, an oxidation ditch (where a controlled level of oxygen is introduced), a second anoxic zone, and finally reaeration (adding oxygen). Removal of activated sludge (the bodies of the bacteria that literally eat the waste out of the water and incorporate it into their bodies) is accomplished in two circular secondary clarifiers equipped for removal of solids for return to the process (as seed organisms) or wasting to a digestion system. Effluent (the treated water minus the bacteria) from the two circular clarifiers is filtered through 10 micron disk filters (one micron is one millionth of a meter or about 0.000039 inch) and then receives disinfection via an Ultra Violet system prior to post aeration and discharge into Hamby Creek. A proprietary solids reduction process is also in place via a side stream to reduce the amount of solids that must be removed. Waste activated sludge is belt pressed and landfilled or anaerobically digested to standards for class B sludge as defined by EPA in CFR Part 503 then applied to farm land as a beneficial reuse. No land application of biosolids from Thomasville occurred in 2014.

In calendar year 2014 the Hamby Creek WWTP treated **904.6** Million Gallons of wastewater at an average daily flow of 2.48 MGD. The treatment plant was in compliance for all effluent parameters for all 12 months of the year; however 25 sanitary sewer overflows were experienced as summarized later in this report. Eighteen of the twenty-five sanitary sewer overflows were less than one-thousand gallons in volume. The City of Thomasville is committed to reducing the number of overflows as well as reducing the total volume of sewer that is spilled. Several infrastructure capital and maintenance projects, described below the table, have been completed and are planned for the future to address areas where repeated sanitary sewer overflows have been experienced. The Water Sewer Utility Project List, which is a sort of master list of planned improvement projects, can be seen on the City website.

Four things that users of the system (YOU!) can do to help prevent overflows are:

- 1) **NEVER** place **GREASE** or **OIL** into the sanitary sewer system. It may be liquid in your pan, but it becomes as hard as concrete in the sewer system. Instead, either place grease and oil wastes in empty containers and place these into the garbage or, preferably, **BRING YOUR USED COOKING OIL TO THE PUBLIC WORKS FACILITY AT 525 TURNER STREET TO HAVE IT RECYCLED**. The city has contracted with a private vendor to recycle citizen's used cooking oil free of charge. You can help the environment in multiple ways by recycling your used cooking oil and helping to prevent sanitary sewer overflows at the same time. Seven of the sanitary sewer overflows in 2014 were attributable to grease blocking the lines.
- 2) **NEVER** place down the drain **anything that will not biodegrade in a few days**. To put it another way, **if you wouldn't leave it in your front yard and expect it to biodegrade in a few days, then don't put it down the drain**. A short list of items that should never be flushed are: **Tampons, Tampon Applicators, Sanitary Napkins, Condoms, Plastic Wrappers, Wet Wipes, Disinfecting Wipes, Baby Wipes, Diapers, Paper Towels of any kind, Cloth Towels, Toilet Scrubs, Toilet "Fresh Brush Pads," Tee-shirts, Underwear, Plastic Strapping, Metal Objects, Cans, Plastic Bottles of any type, Toys, Tooth Brushes, Medicine Containers, and, of course, Dentures**. Ten of the twenty-five sanitary sewer overflows in 2014 were attributable to debris blocking the lines. That's 40% of the spills due to folks putting the wrong things into the sewer system! Just because a product says that it is FLUSHABLE does not mean that it will biodegrade and not cause problems!!!!

- 3) **Make sure no trees or shrubs grow on or near any sewer lines that may pass through your yard.** Roots will seek out the water being carried in the pipes and penetrate the pipe at the joints, creating a blockage. One of the sanitary sewer overflows in 2014 was attributable to roots blocking the lines. The City of Thomasville **will remove** any trees or vegetation that are found to be in the sanitary sewer easement or right-of-way and may cause a blockage.
- 4) **Make sure no roof or yard drains are hooked into the sanitary sewer system and that cleanout caps are securely in place.** The sanitary sewer system can become overloaded during rainfall events if roof or yard drains are mistakenly or purposefully connected to the sanitary sewer system. Roof and yard drains should be run off into open areas or a rain garden for absorption into the ground and by plants. Cleanouts are the approximately 4” to 5” pipes that you may see sticking up in your yard or along the edge of the road. If these cleanouts are at or below ground level, then not only can rain water enter the sanitary sewer collection system, but they can become buried and lost. If you experience a sanitary sewer backup, then the city will spend up to 30 minutes attempting to locate the cleanout. If the cleanout cannot be located in that time frame and the main sewer line is running clear, then you will have to call in a plumber to locate your lines and clear your blockage.

## Spills in 2014

During 2014 the City of Thomasville experienced 25 sanitary sewer overflows, 17 of these reached surface waters. There were no known environmental impacts from these sanitary sewer overflows. There were 8 spills that did not reach surface waters. These spills are summarized below. The three largest spills occurred as part of the aftermath of the severe ice storm that struck Thomasville on March 7<sup>th</sup> and 8<sup>th</sup> 2014. Backup power generators have since been installed at these locations as part of previously planned projects to help ensure reliability of power and continuity of operation should power from the grid be lost again.

### Sanitary Sewer Overflows by Calendar Year

Year	2009	2010	2011	2012	2013	2014
Number	20	45	32	30	33	25
Total Volume in Gallons	16,337,675	1,196,849	983,669	244,588	1,805,729	1,381,970
Volume of Single Largest Spill	15,930,000 East Davidson PS	678,900 East Davidson PS	292,500 Northside PS	140,000 East Davidson PS	1,393,000 East Davidson PS	565,292 Pilot PS

In 2014 the City of Thomasville undertook multiple sanitary sewer infrastructure rehabilitation projects to address the issue of sanitary sewer overflows and there are more projects planned for the future. Two major pump station upgrades (Northside and East Davidson) were completed this year as well as the majority of Phase I of the upgrade of the North Hamby Creek Outfall line. This outfall line is one of the largest and oldest lines that the City has in the collection system. Backup Power Generators with Automatic Transfer Switches have also been installed at the Pilot and Rains Road pump stations to keep continuity of power even during loss of line power. Completion of these projects should greatly decrease both the number and volume of large spills experienced. Future planned large infrastructure projects include: Completion of the remainder of the North Hamby Creek Outfall project in multiple phases, Upgrades to the Hanks Branch Basin Collection System, and continued Rehabilitation of Man Holes on the South Hamby Creek Outfall. Numerous smaller pipe replacement projects are performed every year by contractors hired by the City.

In addition to these projects to address infrastructure issues the City has begun a more aggressive program of Right-of-Way maintenance over the last several years to help prevent root-caused blockages and increase accessibility for maintenance at the same time. This program consists largely of the cutting and removal of vegetation that has been allowed to grow within the sanitary sewer rights-of-way or easements. Several local tree services have been employed to help in this effort along with clearing performed by City of Thomasville personnel. In conjunction with this program a private contractor has been hired to chemically treat select sections of the collection system that have experienced problems associated with root intrusion into the lines. The chemicals they use kill back the root growth and prevent re-intrusion for at least three years.

## Fats, Oils, and Grease – AKA “FOG”

As briefly mentioned above fats, oils, and grease will also wreak havoc on the sewer system. What is a liquid in your kitchen not only sets up into a congealed substance in the sewer system, but becomes as hard as concrete. And while it’s easy to think, “Well, just a little won’t hurt,” the fact is that all of the “little” bits add up to a LARGE amount. Layers of oils and grease build up on each other and can completely block the pipes. The city has a “FOG” Program that addresses oil and grease sources like restaurants, but one of the main sources of “FOG” appears to be residential areas of town. As an alternative to pouring

grease or oil down the drain, you can pour the grease or oil into cans or jugs and bring it to the Public Works Facility at 525 Turner Street in Thomasville where the Solid Waste Division will gladly accept it for recycling for free. Restaurants must capture grease in “grease traps” before it enters the sewer system or face fines and possibly having their water cut off.

### **Maintaining the Collection System**

Every year the City’s Maintenance & Construction crews and contractors make a general inspection of virtually the entire 227 miles of collection system, inspect all of the “High-Priority Lines” (lines that cross or run very close to creeks) every six months, and clean at least 10% of the lines. In calendar year 2014 135,653 linear feet of pipe were cleaned. That’s 11.3% of the entire pipe in the system. That’s a lot of work! And that amount will be increasing to 15% of the entire system in fiscal year 2016. All of that is on top of repairing manholes, clearing blockages, clearing easements, making new connection taps, maintaining their facility and grounds, and also maintaining an additional 161 miles of Water Distribution Lines.

### **Southern Environmental Law Center and Yadkin Riverkeeper, Inc.**

In November, 2013 the Southern Environmental Law Center agreed to act as the attorney for the Yadkin Riverkeeper, Inc. for no charge and filed a lawsuit against the City of Thomasville alleging violations of the Clean Water Act. A settlement, known as a Consent Decree, was reached which states that the City of Thomasville will take the following steps: follow through with several previously planned sanitary sewer collection system capital improvement projects, increase the amount of lines cleaned from 10% to 15% per year (as indicated above), gather samples and analyze them for any spills in which 25,000 gallons or more are spilled, enforce the previously existing FOG program, and prepare and distribute this report annually listing Yadkin Riverkeeper, Inc. and the Southern Environmental Law Center “as partners in working to resolve the problem of SSOs” for the duration of the lawsuit Consent Decree.