

Town of Hillsborough

ANNUAL WASTEWATER QUALITY REPORT

Fiscal Year 2007 (July 2006-June 2007)

Released August 2007

Changes & Proposed Changes to the Wastewater Utility

Outside Testing

The Town of Hillsborough has always used an outside lab to test for some of the required parameters within its permit. In December 2006, the lab — Meritech Inc. in Reidsville — expanded its services to include parameters that the town formerly tested in house. These parameters include: biochemical oxygen demand (the measure of the amount of bacteria in the water that needs oxygen); ammonia nitrogen; and total phosphorous. Meritech now picks up samples from the plant daily instead of weekly as was formerly practiced.

Land Application Equipment

The town has contracted with Synagro Inc. of Mocksville to distribute the Wastewater Treatment Plant's Class B Biosolids for the Land Application Program. The town's current land application equipment is not efficient. Contracting with Synagro prevents the town from purchasing additional equipment.

Wastewater Treatment Plant

The engineering firm hired to perform the study on the Wastewater Treatment Plant, CH2M Hill, presented its findings to the town during the April Town Board meeting. The initial results clearly indicate that the town is fiscally better off upgrading the existing plant instead of pumping the wastewater to the City of Durham and paying Durham to treat it. CH2M Hill's findings underwent a peer review, by Earthtech, to double check the validity of the results. The peer review results were presented to the town and CH2M Hill at the end of July. CH2M Hill will resubmit, by the end of August, an updated report that will incorporate some of Earthtech's suggestions.

The cost estimate for the upgrade and expansion of the Wastewater Treatment Plant is estimated at around \$32 million. The town considers this quote to be high, even when taking into account that the quote was estimated high to include increasing construction costs. The town's goal is to drop the project price significantly. To stretch the project cost over a few years instead of having one large loan payment, the town also is looking into possibly completing the expansion/upgrade in phases. After the expansion/upgrade is complete, its treatment capacity will be expanded from the ability to treat 3 million gallons a day to 3.8 million gallons a day.

Points of Interest:

- *Definition of Treatment Process*
- *Proper Disposal of Grease*
- *System Performance Violations Table*
- *Pump Station Update*

Who Runs Your Wastewater Utility?

The Town of Hillsborough owns and operates a wastewater treatment plant at 355 Elizabeth Brady Road. The plant is permitted to process up to 3 million gallons of wastewater per day. The average flow through the plant is 0.679 million gallons per day. It discharges at less than 25 percent of its permitted capacity.

The Operator in Responsible Charge is Jeff Mahagan, and his backups are Greg Decker and David Lee. The phone number at the plant is 732-2681.

The Town of Hillsborough Wastewater Treatment Plant operates under Discharge Permit No. NC0026433, issued by the state. The Hillsborough Collection System operates under Permit No. WQCS00077.

Wastewater Treatment Process

The town currently has 27 pump stations pumping to the Wastewater Treatment Plant through the collection system.

The flow passes through a grinder and then is pumped to the grit basin before it enters the primary aeration basin. The aeration basin mixes the wastewater and allows the bacteria to break down and consume the waste. The town's system is aerobic, meaning the bacteria need oxygen to survive and to stabilize the waste.

The mixed waste goes into the primary clarifier, where sludge settles to the bottom and water is skimmed off. The sludge is pumped out and recirculated to the primary aerator to be processed again. The water goes into the secondary aeration basin, where more bacteria continues to break down the waste. The particles in the water are settled out again in the secondary clarifiers.

Once the wastewater has been through both aeration basins and clarifiers, it is pumped through a filtering process. It then is put in a chlorine contact chamber, where chlorine is added to the water for a minimum of 30 minutes. The chlorine then is removed from the water, and the water is discharged into the Eno River.

After recirculation, the sludge collected from the waste is passed through the sludge thickener, stored in one of three digesters and treated with lime. It then is removed with a tanker truck to be spread on agricultural lands as fertilizer.

How to Prevent Fats, Oils and Grease from Damaging Your Home and the Environment

Too often, grease is washed into the plumbing system, usually through the kitchen sink. Grease sticks to the insides of sewer pipes (both on your property and in the streets). Over time, the grease can build up and block the entire pipe. Home garbage disposals add grease to the plumbing system. These units shred solid material into smaller pieces and cause grease to go down the drain. Commercial additives — including detergents — that claim to dissolve grease may pass grease down the line and cause problems in other areas. The results can be:

- Raw sewage overflowing in your home or your neighbor's home.
- An expensive and unpleasant cleanup that often must be paid by **you, the homeowner**.
- Raw sewage overflowing into parks, yards and streets.
- Potential human contact with disease-causing organism.
- An increase in the operation and maintenance costs for local sewer departments, which causes **higher sewer bills** for customers.

The easiest way to solve the grease problem and help prevent overflows of raw sewage is to keep this material out of the sewer in the first place. There are several ways to do this:

- Never pour grease down sink drains or into toilets.
- Scrape grease and food scraps from dishes and cooking surfaces and dispose of in a trash can.
- Put baskets/strainers in sink drains to catch food scraps and other solids, and empty the drain baskets/strainers into the trash for disposal.

This report is available to customers at Town Hall and the Town Hall Annex. Customers were notified of this report in the two local papers, *The News of Orange County* and *The Chapel Hill Herald*. Users also may obtain a copy of the report from the town's Web site at www.ci.hillsborough.nc.us.

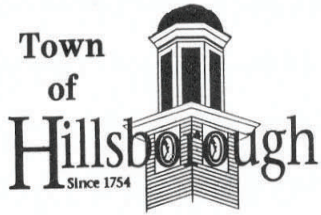
Certification:

I certify under penalty of law that this report is complete and accurate to the best of my knowledge. I further certify that this report has been made available to the users or customers of the named system and that those users have been notified of its availability.

Julie E. Vance, utilities analyst — August 2007

SYSTEM PERFORMANCE VIOLATIONS/NONCOMPLIANCES

Month	Violations/Noncompliances	Environmental Impact	Corrective Measures
July 2006	None		
Aug. 2006	Cyanide Limit	The cyanide result on Aug. 1, 2006, was noncompliant for the town's weekly average but below the daily maximum limit. The test results were received at the end of the week, preventing additional sampling to find the cause and to possibly lower the weekly average.	The town does not know the reason for the elevated level, but the testing frequency has been increased to twice a week. All results since have been well below the town's permitted limit.
Sept. 2006	Sanitary sewer overflow of 8,000 gallons from Exchange Club Lane manhole, caused by a foreign object and grease blockage (Sept. 8, 2007)	When the spill was discovered, it was contained and pumped back into the system. All solids then were removed. The next day a fish kill of 48 was discovered and removed. Once the site was dry, lime was applied to neutralize the area. All reporting requirements of the N.C. Division of Water Quality were followed.	This outfall line now is inspected regularly and cleaned as needed. The town also has implemented a grease trap program for all restaurants to decrease the amount of grease getting into the system.
Oct. 2006	None		
Nov. 2006	None		
Dec. 2006	Failure to test one day (Dec. 29, 2006) for total suspended solids on the influent	This test is an approximate measure of the quantity of sludge that will be removed by the plant. It is used for comparative purposes only and does not give any indication of water quality.	The omission of the test was due to miscommunication between the plant and the outside lab. This issue has been resolved since to prevent a reoccurrence.
Jan. 2007	None		
Feb. 2007	None		
March 2007	None		
April 2007	None		
May 2007	Failure to test one day (May 17, 2006) for fecal coliform on the effluent	The coliform organism, which is numerous and easily tested for, is used as an indicator organism. The absence of coliform indicates that the water is free from disease-producing organisms. The town believes that the effluent water quality remained well below the coliform permit limit since the chlorine feed remained at normal levels throughout the day and all other process tests revealed no other abnormalities.	The outside lab failed to pick up the sample and to perform the required analysis. The lab supervisor was at an all-day training event and had put in the request due to his absence. A new system for call-in pickups at the lab has been implemented to prevent a reoccurrence.
June 2007	The Class B Sludge Permit was issued a Notice of Violation for failure to resubmit an updated land application buffer map with requested changes before sludge was applied to the site.	An updated map with the requested changes was completed, but a written response was not sent due to an oral miscommunication between the town, a hired consultant and the state. Sludge was applied properly, outside of buffered areas.	A written response to the Notice of Violation was sent to the state with the required changes to the buffer map.



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PO Box 429
101 E. Orange St.
Hillsborough, NC 27278

Update on Sewer Pump Stations

Lakeshore Drive



The Lakeshore Drive pump station has not been converted yet to a gravity outfall due to various delays. The permitting process should be complete this summer, placing the outfall's completion during the fall or winter. A grant from the EPA State and Tribal Assistance Grant Program was awarded to the town to cover 55 percent of the installation cost. The outfall will decrease the annual number of sanitary sewer overflows. A significant number have occurred at Lakeshore.

Cates Creek

The Cates Creek outfall is complete and in operation. The pump stations on Beckett's Ridge Drive and Pointe Place no longer will be necessary and will be taken out of service when the outfall's second phase is complete. The generator at Beckett's Ridge Drive will be moved to serve an active pump station.

Phoebe Drive

The Waterstone development will upgrade an existing pump station on Phoebe Drive to serve the development's southeastern corner. As part of this upgrade, the station will get a permanent generator and a larger wet well.

Orange High School

The Orange High School pump station is being replaced with a new station south of U.S. 70 within the Corbinton Commons development.

Generators

The town is continuing to purchase generators to meet a goal of having one at every pump station. A project will begin in 2008 to install generators at all remaining pump stations.

