

2005 WATER QUALITY REPORT



The Town of Hillsborough Had Levels of Total Trihalomethanes (TTHMs) Above Drinking Water Standards

Our water system violated a drinking water standard in 2005 and early 2006. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do and what we are doing to correct this situation. The Town is now back in compliance, as of May 2006.

Trihalomethanes are by-products of the Chlorination process. As soon as the water is chlorinated and released from the plant, chemical byproducts called Trihalomethanes (TTHMs) begin forming. This means the longer the water is in the system before it reaches your house, the more TTHMs are produced.

We routinely monitor for the presence of drinking water contaminants. The standard for Total Trihalomethanes is 0.080 milligrams per liter (mg/L). The Town's annual average of the last 4 quarters (April 2005 through March 2006) is 0.083 mg/L, which exceeds the standard or maximum contaminant level (MCL). The result sampled on February 28, 2006 was 0.051 mg/L. Unfortunately to achieve compliance, the average results for the last 12 months must be under the standard. The 2006 second quarter testing was performed on May 18, 2006, and the results of 0.064 mg/L (average) returned the Town to compliance.

The Town is committed to serving its customers safe water that falls within all acceptable contaminant levels set by the State of North Carolina. We have discovered and corrected the problem that caused higher levels of TTHMs. A new one million gallon Clearwell (storage tank) was constructed as part of the recent upgrade at the Water Treatment Plant. Operationally, this is a great addition, but chemically it has caused problems. The additional storage means that the pumps do not have to run as long and extra water is in place in cases of emergencies, but it also means that the water is allowed to stay in the distribution system longer, which allows more TTHMs to form. We have valved off the new clearwell and are now using the original 200,000 gallon clearwell. This means the water is in the distribution system a shorter amount of time, creating less TTHMs before it reaches your house and/or business.

**GET INVOLVED
GET INFORMED**

**Town Board
Meets the 2nd and 4th
Monday of every month
at 7:30 PM**

**Water Sewer Advisory
Committee
Meets the 1st Thursday
of every month
at 7:00 PM**

Citizen Input Welcome

Are you interested in how decisions are made regarding the operation and upgrade of your Water Treatment Plant? Citizens are welcome to attend regular Town Board Meetings. Town Board meets on the second and fourth Monday of each month in the Town Barn at 101 East Orange Street. The Town also has a Water Sewer Advisory Committee that meets on the first Thursday of every month in the Town Barn which is open to the public.

If you have any questions about this report or a question in general about Hillsborough's water, please call the plant at 919-732-3621.

We encourage all Hillsborough water customers to be well informed on the quality of their water.

En español

Este documento está disponible en español en la oficina que factura y en el sitio web del Pueblo.

What is a Source Water Assessment? (SWAP)

The North Carolina Division of Environmental Health, Public Water Supply (PWS) Section is responsible for implementing the SWAP and completing assessments for all public drinking water supplies in the state. The 1996 amendments to the Safe Drinking Water Act provided federal support and required states to conduct assessments of all public water systems. A source water assessment is a qualitative evaluation of the potential of a drinking water source to become contaminated by the identified potential contaminant sources (PCS) within the delineated area (watershed). The PWS Section has gathered information for each water supply and developed a process for completing the assessments. For a complete view of the report, visit website <http://www.deh.enr.state.nc.us/pws/swap>.

Hillsborough's SWAP information is as follows:

Source Name:	Eno River
Inherent Vulnerability Rating:	Higher
Contaminant Rating:	Moderate
Susceptibility Rating:	Higher

It is important to understand that a susceptibility rating of higher does not imply poor water quality. Susceptibility is an indication of a water supply's potential to become contaminated by the identified Potential Contaminant Sources (PCSs) within the assessment area.

Who Needs Water Restrictions...

Thanks to the completion of the West Fork of the Eno Reservoir (WFER), the Town is better able to control water shortages during drought conditions. The Town is able to control the level of the Eno River during dry periods with controlled releases from the WFER. When the Eno River flow drops below predetermined levels, measures are taken to maintain flow in the river. With the use of the reservoir, the Town Engineer opens the gate to release more water, which in turn increases the flow of the river. We are able to maintain the flow of the river so that we have plenty of water and the wildlife can continue to thrive.

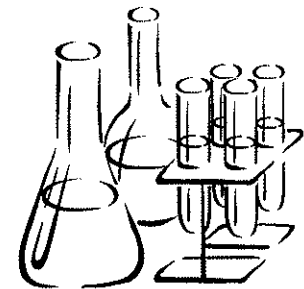
The Board of Commissioners adopted new looser water restrictions in 2004 in order to make better use of the WFER capacity. They are now as follows:

- Stage 0 - "No Stage" - Normal Conditions
- Stage 1 - Voluntary Restrictions (This stage begins when the usable water capacity remaining is less than 180 days of supply.)
- Stage 2 - Mandatory Restrictions (This stage begins when the usable water capacity remaining is less than 135 days of supply.)
- Stage 3 - Rationing (This stage begins when the usable water capacity remaining is less than 90 days of supply.)

For a more detailed explanation on each stage, go to the Town website (www.ci.hillsborough.nc.us) and reference the Town Code, chapter 14, sections 14-40.1 through 14-41.1.

Special Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from the Safe Drinking Water Hotline (800-426-4791).



What is Cryptosporidium?

Cryptosporidium is a microscopic organism that can cause diarrhea, fever and other gastrointestinal symptoms. We have tested for *Cryptosporidium* in our reservoirs and treated water and have never detected it in our treated water or lake water.

The organism comes from human and animal wastes and may occur in local streams and lakes. We control *Cryptosporidium* through a combination of source water protection and sophisticated treatment technology.

Please contact us at 732-3621 if you would like more information about *Cryptosporidium*.

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 inside 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 cause more grease to enter the plumbing system. These units shred solid material into smaller pieces and do not prevent grease from going 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 for by **you, the homeowner**
- Raw sewage overflowing into parks, yards, streets and streams
- Potential contact with disease-causing organisms
- An increase in operation and maintenance costs for local sewer departments, which causes **higher sewer bills** for customers.

What we can do to help ?

The easiest way to solve the grease problem and help prevent overflows of raw sewage is to keep this material out of the sewer system in the first place.

There are several ways to do this.

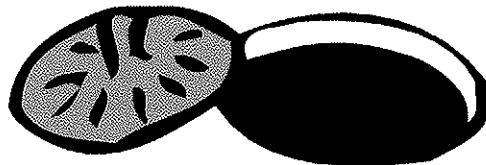
1. **Never** pour grease down sink drains or into toilets.
2. Scrape grease and food scraps from trays, pots, pans, utensils, grills and cooking surfaces into a can or the trash for disposal (or recycling where available).
3. Do not put food or grease down garbage disposals. Put baskets/strainers in sink drains to catch food scraps and other solids, and empty the drain baskets/strainers into the trash for disposal.
4. Speak with your friends and neighbors about the problem of grease in the sewer system and how to keep it out. Call your local sewer system authority if you have any questions.



Where does grease come from?

Most of us know grease as the by-product of cooking. Grease is found in such things as:

- Meat fats
- Lard
- Cooking Oil
- Shortening
- Butter and margarine
- Food scraps
- Baked goods
- Sauces
- Dairy Products



Hillsborough Wastewater Treatment Plant
(919) 732-2681

Hillsborough Sewer Collection System
(919) 732-1270, ext. 72 or 75

Fats, Oils and Grease are not just bad for your arteries and your waistline; they are bad for sewers, too.

A Survey on the Water from Your Tap

Close to 490 million gallons of water was treated at our Water Treatment Plant in 2005. The water treated is tested for over 100 different substances to ensure that your drinking water is safe. Listed in the chart on the right are 17 constituents that are monitored in Hillsborough's treated water. All water delivered to your households and businesses met and surpassed state and federal requirements, with the exception of total trihalomethanes (see page 1 for further explanation).

The reason for this violation is due in part to the lowering of the limit allowed by the EPA and the State of North Carolina, and the construction of the new one million gallon clearwell (storage tank). All tests were performed in 2005 unless otherwise noted.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems.

Glossary

MGD =	million gallons per day
BDL =	Below Detectable Limits at the Laboratory
MG =	million gallons
ppm =	parts per million
mg/l =	milligram per liter, or parts per million
ppb =	parts per billion
ug/l =	micrograms per liter, or parts per billion
AL =	Action Level - The concentration of the contaminant that triggers treatment or other requirements that a water system must follow. Action Levels are reported at the 90 th percentile for homes at greatest risk.
NTU =	Nephelometric Turbidity Units - Turbidity is a measure of cloudiness in the water.
MCL =	Maximum Contaminant Level - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG =	The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
pCi/L =	Picocuries per liter is a measure of radioactivity in water.

MINERAL & PHYSICAL CHARACTERISTICS OF YOUR WATER For calendar year 2005

The following constituents analyzed in your water are indicators of the appearance, taste and mineral content of the drinking water delivered to your tap.

<u>Constituent, unit of measure</u>	<u>Annual Average</u>	<u>Limits</u>
Nitrate, mg/l	Not Detected	10
Arsenic, mg/l	Not Detected	0.05
Cadmium, mg/l	Not Detected	0.005
Chromium, mg/l	Not Detected	0.100
Cyanide, mg/l	Not Detected	0.2
Iron, mg/l	Not Detected	0.3
Manganese, mg/l	Not Detected	0.05
Mercury, mg/l	Not Detected	0.002
Nickel, mg/l	Not Detected	not regulated
Selenium, mg/l	Not Detected	0.05
Antimony, mg/l	Not Detected	0.006
Beryllium, mg/l	Not Detected	0.004
Thallium, mg/l	Not Detected	0.002
pH, standard units	7.36	6.5-8.5
Hardness, mg/l	28.7	not regulated
Alkalinity, mg/l	41.6	not regulated

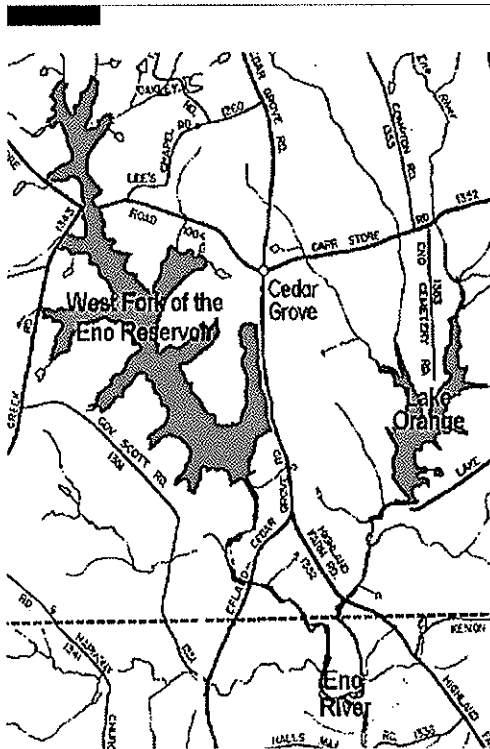
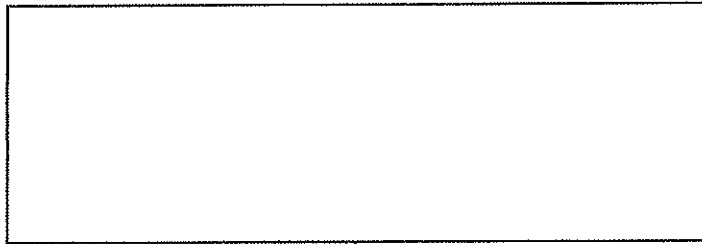
Drinking Water Quality: 2005 Test Results

Substance (Measuring Unit)	Highest Level Allowed [MCL]	Average Level Detected in Hillsborough	Potential Source(s) of Constituent
Regulated at the Treatment Plant			
Fluoride (ppm)	4.0	1.05	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.
Turbidity (NTU)	1.0 and 95 % of samples below 0.5	100 % of tests be- low 0.5	Turbidity is a measure of cloudiness in water. It may be caused by inorganic soil particles or fragments of organic matter that can interfere with treatment.
Beta Emitters (pCi/l)	50.0	5.7	A class of natural and man-made radioactive materials; Last monitored in 2003.
Hexachlorocyclopentadiene (ppb)	50	.15	This organic chemical is used as an intermediate in the manufacture of pesticides & flame-retardants; last monitored in 2003.
Measured in the Distribution System			
Total Organic Compounds (TOC) Raw Water (ppm)	Not Regulated	4.73	Naturally Present in environment.
Total Organic Compounds (TOC) Finished Water (ppm)	Not Regulated	2.61	By-product of drinking water chlorination.
Total Trihalomethanes (ppb)	80	82	By-product of drinking water chlorination.
Total Haloacetic Acids (ppb)	60	51	By-product of drinking water chlorination.
Total Coliform Bacteria (percent)	Presence of coli- form bacteria in ≤5% of monthly samples	<1.1 %	Human and animal fecal waste, indigenous sources such as vegetation, bacterial re-growth.
Measured at Customer's Tap			
Lead (ppb)	15 (AL)	5 (90 th percentile)	Lead occurs naturally in soils, but its presence in drinking water is almost entirely due to corrosion of private household plumbing systems.
Copper (ppm)	1.3 (AL)	0.26 (90 th percentile)	Copper occurs naturally in soils, but its presence in drinking water is almost entirely due to corrosion of private household plumbing systems.
Unregulated Substances Measured at the Water Treatment Plant			
Bromodichloromethane (ppb)	Not Regulated	9.1	One component of total trihalomethanes; a by-product of drinking water chlorination.
Chloroform (ppb)	Not Regulated	28.3	One component of total trihalomethanes; a by-product of drinking water chlorination.
Chlorodibromomethane (ppb)	Not Regulated	1.22	One component of total trihalomethanes; a by-product of drinking water chlorination.
Sodium (ppm)	Not Regulated	12.3	Element that occurs naturally in soils.
Sulfate (ppm)	Not Regulated	5.4	Mineral that occurs naturally in soils.

Town of Hillsborough

Water Treatment Plant
PO Box 429
711 Dimmocks Mill Road
Hillsborough, NC 27278
Phone: 919-732-3621
Fax: 919-732-3774

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An Explanation of the Treatment Process at the Water Treatment Plant

Raw water is pumped into the plant from the Eno River where it is run through screens that remove large debris. Chemicals are then added to kill disease-causing organisms and to also help control taste and odor causing substances. Alum and Polymers are added to aid in clumping (to help remove solids) before the water is passed through a flash mixer. In the mixer, fine particles gather together. It then goes through the settling basins for larger particles to settle out at the bottom of the basins. Chlorine is added to disinfect the water after the filtration process, which filters out remaining suspended particles. The chlorine kills any remaining disease causing organisms and provides a chlorine residual for the distribution system, which keeps the water fresh while it is stored for usage. After the filtration process, phosphate is added to decrease the corrosion of copper pipes and fluoride is added to help prevent tooth decay in children. The water is then stored in a tank at the Treatment Plant to allow the chlorine contact time for disinfection before it is distributed to our customers through our four storage tanks. Ammonia is added immediately prior to distribution to form Chloramines and reduce the formation of disinfection by-products.

This picture illustrates the two water sources from which the Town of Hillsborough gets its water to treat and distribute through the distribution system.

The only water users that need to pay particular attention and possibly consult their family physician because of the use of Chloramines to disinfect the water are those with weakened immune systems, dialysis patients and fish owners.