# WATER QUALITY ANNUAL REPORT 2016

**Consumer Confidence Report** PWS ID 03-92-045 Reporting Year 2016

The Town of Apex Public Works and Utilities Department is proud to report that Apex's water continues to exceed State and Federal drinking water standards.

This water quality report is being furnished in accordance with the Safe Drinking Water Act in order to inform you about the contents of your drinking water and other pertinent water related issues. We strive to meet the challenges of source water protection, water conservation, and distribution quality while continuing to meet the needs of all our water customers. **The Town of Apex had no regulatory violations during the 2016 report year**.

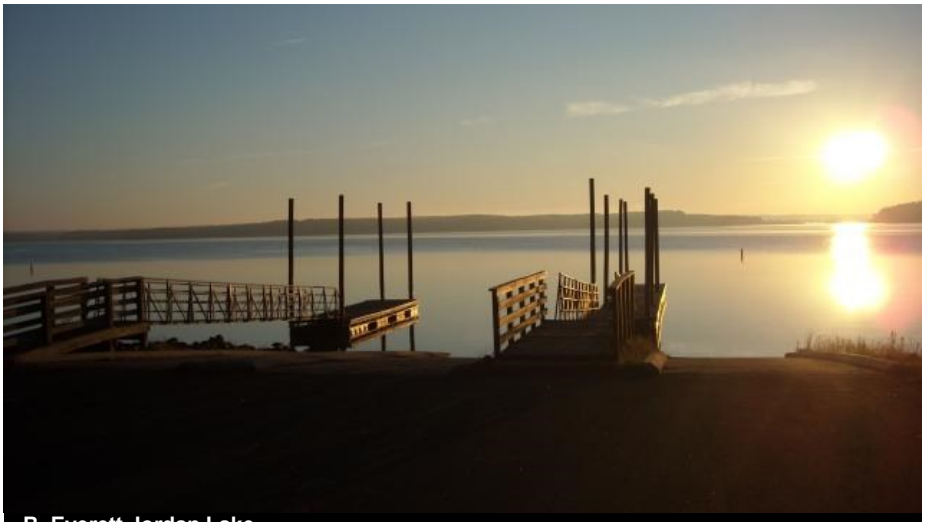
The Cary/Apex Water Treatment Plant is a member of the Partnership for Safe Water Program. This program was formed in conjunction with the Environmental Protection Agency (EPA) to encourage water suppliers to survey their utilities and identify and implement treatment improvements that will enhance the water system's ability to prevent microbial contaminants in the treated water.

We're proud to report that in 2016 the Cary/Apex Water Treatment Facility was once again awarded the Partnership for Safe Water Director's Award for its efforts to achieve excellence in water quality. The Cary/Apex Water Treatment Facility has received this award annually since 2003. The Partnership for Safe Water is a national volunteer initiative developed by EPA and other U.S. drinking water organizations representing water suppliers striving to provide their communities with drinking water quality that surpasses federal standards. Learn more about this award and the Partnership for Safe Water from the American Water Works Association at: **www.awwa.org.**

The Town of Apex encourages public interest and participation in our community's decisions affecting our drinking water. You may voice any concerns to the Town Council during their regular meetings. To learn more about Council meetings, call Town Hall at (919) 249-3400 or visit **www.apexnc.org**.

Inside this edition please refer to the chart entitled **2016 Water Quality Data** for a detailed analysis of our drinking water.

**Facility Expansion Update:** Completion is scheduled for early 2017. This will increase treatment capacity from 40 million gallons a day to 56 million gallons a day.



B. Everett Jordan Lake

**Contact Us:**

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## Water Source

B. Everett Jordan Lake serves as a drinking water supply to the Towns of Apex, Cary and Morrisville. Jordan Lake is located in Chatham, Wake, Durham, and Orange Counties in North Carolina The purposes of B. Everett Jordan Dam and Lake are to provide flood damage reduction, water supply, water quality control, fish and wildlife conservation and outdoor recreation.

Originally authorized in 1963 as the New Hope Lake Project, the reservoir was renamed in 1974 in memory of Everett Jordan, former North Carolina Senator. The reservoir covers 13,940 acres (5,640 ha) with a shoreline of 180 miles (290 km) at its standard water level of 216 feet (66 m) above sea level.

The reservoir is part of the Jordan Lake State Recreation Area and is owned and operated through a partnership between the U.S. Army Corps of Engineers and the State of North Carolina.

Raw surface water from Jordan Lake is treated at the jointly owned Cary/Apex Water Treatment Plant (WTP) The facility has a current capacity of 40 million gallons per day (MGD) utilizing a multiple-barrier treatment approach. In this approach, multiple processes are employed at the treatment plant including ozone, an advanced treatment process, as well as sediment removal, filtration, and a disinfection processes. The result is the production of safe, high quality drinking water for Town customers that consistently meets all regulatory standards.

## What EPA Wants You to Know

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, 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 care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; and radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

## Important Health and Safety Concerns

### Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing.

The Town of Apex is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or **http://www.epa.gov/safewater/lead.**

### Cross-Connection Control Program

Cross-connections can potentially contaminate drinking water distribution lines. A cross-connection is where a drinking water line connects to industrial equipment or systems containing chemicals. Examples include boilers, air conditioning systems, fire sprinkler systems, and lawn irrigation systems. Contamination can occur if a drop in water pressure occurs due to a water main break or heavy water demand. This drop in pressure causes contaminants to backflow from the users source back into the water distribution system. Valves known as backflow prevention devices must be installed at all institutional, commercial, industrial, and irrigation facilities. These devices require annual inspection and testing to provide maximum protection. This includes residential irrigation systems. For more information on the Town's Cross-Connection Control Program visit the Town's website.

## Jordan Lake Regional Water Supply Partnership

This Region's local governments and public water systems formed the Jordan Lake Regional Water Supply Partnership (Jordan Lake Partnership, or JLP) to jointly plan for meeting the Region's water resource needs, including the expanded use of the Jordan Lake water supply. A total of 13 local governments and public bodies have joined the Jordan Lake Partnership. Membership in the Partnership is voluntary. The members include the Town of Apex, Town of Cary, Chatham County, City of Durham, Town of Hillsborough, Town of Holly Springs, Town of Morrisville, Orange County, Orange Water and Sewer Authority (OWASA), Town of Pittsboro, City of Raleigh and its Merger Partners, City of Sanford, and Wake County. The Jordan Lake Partnership contracted with Triangle J Council of Governments (TJCOG) to develop this Triangle Regional Water Supply Plan (TRWSP). Project management support for the Partnership is provided through Fountainworks, LLC.

Our Purpose is to support efforts to provide for long-term, sustainable and reliable water supplies for the communities in the Region. Some of our goals of this regional water supply planning effort are to; identify the future service areas of the Region's water systems; determine and verify the future water supply demand projections provided by the systems; examine current water supply sources and estimated yields, and identify future water supply needs.

**Triangle Water Supply Plan Wins Award**

The Jordan Lake Partnership won an award from the North Carolina Chapter of the American Planning Association (APA-NC) for the Partnership's outstanding work in preparing the Jordan Lake Water Supply Plan. Read more at :http://www.jordanlakepartnership.org/links--resources.html

**The National Association of Regional Councils Honors The Jordan Lake Partnership**

The National Association of Regional Councils (NARC) presented its 2015 General Achievement and Leadership Awards recently and the Jordan Lake Partnership & Triangle Regional Water Supply Plan were one of the recipients. See new release at http://www.jordanlakepartnership.org/uploads/1/3/0/2/13025771/for_immediate_release__jlp_award.pdf

## GLOSSARY OF TERMS

**Maximum Contaminant Level (MCL):**

The highest level of a contaminant that is allowed in drinking water. MCLs are set as close as to the MCLGs as feasible using the best available treatment technology.

**Maximum Contaminant Level Goal (MCLG):**

The level of a contaminant in drinking water below which has no known or expected risk to health. MCLGs allow for a margin of safety.

**Parts per Million (ppm):**

Equivalent to milligrams per liter. One part per million corresponds to one penny out of $10,000.

**Parts per Billion (ppb):**

One part per billion corresponds to one penny out of $10,000,000.

**Nephelometric Turbidity Unit (NTU):**

A measure of the cloudiness of water by the amount of light that is reflected by the particles.

**Non-Detected (ND):**

Analysis indicates contaminant is not present at the detection level.

**Action Level:**

The concentration of a contaminant, which if exceeded, triggers treatment or other requirements which a Water System must follow.

**Treatment Technique (TT):**

A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

**Unregulated Substances:**

Unregulated substances are those for which EPA has not established drinking water standards. The purpose of unregulated substance monitoring is to assist the EPA in determining the occurrence of these substances in drinking water and whether future regulation is warranted.

**Not-Applicable (N/A):**

Information not applicable or not required for that particular water system or rule.

**Picocuries per liter (pCi/L):**

Picocuries per liter is a measure of the radioactivity in water.

**Locational Running Annual Average (LRAA):**

The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproducts Rule.

## Water Conservation Tips

⇒ **Odd/even Watering**

Odd-numbered addresses may water only on Tuesday, Thursday and Saturday.

Even-numbered addresses may water only on Wednesday, Friday, and Sunday.

Lawn irrigation is not allowed on Monday. Hand-held hose watering is allowed every day.

⇒ **Refit Your Plumbing**

Install water saving devices. Place a water-filled 2L bottle in your toilet tank to reduce the amount of water needed to fill it after each flush.

⇒ **Check for Leaks and Repair**

A single dripping water faucet can waste more water in a single day than one person could drink in an entire week! Leaks can amount to over 15% of all household water use.

⇒ **Use indoor water wisely**

Turn off the water while lathering, shaving, or brushing your teeth. In the kitchen and laundry room, only run the dishwasher and washing machine on full loads. Limit flushing of toilets. Time your showers!

⇒ **Take advantage of free water**

Catch rainwater from your gutters and use it to water your plants. Collect water from the shower while waiting for it to heat up.

Rain barrels can be purchased at the Public Works Facility located at 105 Upchurch St.

⇒ **Learn More!**

**www.apexnc.org/water-conservation**

## Source Water Assessment Program Results

The North Carolina Department of Environment and Natural Resources (DENR), Public Water Supply (PWS) Section, Source Water Assessment Program (SWAP) conducted assessments for all drinking water sources across North Carolina. The purpose of the assessments was to determine the susceptibility of each drinking water source (well or surface water intake) to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate or Lower.

The relative susceptibility rating of Jordan Lake was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the watershed and its delineated assessment area.). The assessment, dated July 2015, reported a rating of Higher for Jordan Lake watershed. View the Apex SWAP report at: http://www.ncwater.org/pws/swap

Please note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this website may differ from the results that were available at the time this Consumer Confidence Report was prepared.

To obtain a printed copy of the report, send an email request to swap@ncdenr.gov or mail a written request to: Source Water Assessment Program Report Request, 1634 Mail Service Center, Raleigh NC 27699. Please indicate the system name, PWSID, and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at (919) 715-2633.


It is important to understand that a susceptibility rating of "Higher" does not imply poor water quality, only the system's potential to become contaminated by PCSs in the assessment area.

PWS ID# 03-92-045

## 2016 Water Quality Data

Thousands of water samples have been collected and tested in order to determine the presence of any contaminants. The table below lists all the drinking water contaminants that we detected in the last round of sampling for the particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. ***Unless otherwise noted, the data presented in this table is from testing performed from January 1, 2016 through December 31, 2016.*** The U.S. EPA or the State requires monitoring for certain substances less often than once per year because concentrations of these substances are not expected to vary significantly from year to year. Some of this data, although representative of the water quality, is more than one year old. In these cases, the most recent data are included, along with the year in which the sample was taken. Unregulated substances are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated substance monitoring is to assist the U.S. EPA in determining the occurrence of unregulated substances in drinking water and whether future regulation is warranted.

| CONTAMINANTS (UNITS) | SAMPLE DATE | YOUR WATER | RANGE | MCLG | MCL | TYPICAL SOURCE |
|---|---|---|---|---|---|---|
| **Inorganic Contaminants** | | | | | | |
| Fluoride (ppm) | 2016 | 0.75 | N/A | 4 | 4 | Erosion of natural deposits; Water additive which promotes strong teeth; discharge from fertilizer and aluminum factories |
| **Water Characteristics Contaminants** | | | | | | |
| Manganese (ppm) | 2016 | 0.01 | ND - 0.04 | N/A | 0.05 | Erosion of natural deposits. |
| Sodium (ppm) | 2016 | 32.2 | N/A | N/A | N/A | Erosion of natural deposits. |
| Iron (ppm) | 2016 | ND | ND– 0.21 | N/A | 0.3 | Erosion of natural deposits |
| Sulfate (ppm) | 2016 | 32 | N/A | N/A | 250 | Erosion of natural deposits. |
| pH | 2016 | 7.73 | 7.44—8.16 | N/A | 6.5 to 8.5 | |
| **Turbidity-Systems with population > 10,000** | | | | | | |
| Turbidity (NTU) | 2016 | 0.16<br>100% | N / A | N/A | TT= 1 NTU<br>TT = 95% of samples < 0.3 NTU | Soil runoff. Note: The turbidity rule requires that 95% or more of the monthly samples be less than or equal to 0.3 NTU. |
| **Disinfection By-Product Contaminants** | | | | | | |
| Total Trihalomethanes (ppb) | 2016 | 36 (RAA) | 23—56 | None | 80 | By-product of drinking water chlorination. |
| Haloacetic Acids (ppb) | 2016 | 22 (RAA) | 14—34 | None | 60 | By-product of drinking water chlorination. |
| Chlorine (ppm) | 2016 | 3.2 | 1.0 - 3.2 | 4 | 4 | Water additive used to control microbes. |
| Chloramines (ppm) | 2016 | 3.9 | 1.0 - 3.9 | 4 | 4 | Water additive used to control microbes. |
| Bromate (ppb) | 2016 | N/A | N/A | 0 | 10 | By-product of drinking water disinfection. |
| **Note: Compliance with the MCLs for Disinfection By-Products is based on the running average shown in "Your Water" column** | | | | | | |
| **Lead and Copper Contaminants** | | | | | | |
| Lead (ppb) ( 90th. Percentile) | 2016 | <3.0 | < 3.0 - 8.0 | 0 | 15 (action level) | Corrosion of household plumbing systems; Erosion of natural deposits. |
| Copper (ppm) ( 90th. Percentile) | 2016 | 0.11 | < 0.050 - 0.300 | 1.3 | 1.300 (action level) | Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives. . |
| **Disinfection By-Product Precursor Contaminants** | | | | | | |
| | | Annual Removal ratio | Monthly Removal ratio | | | Compliance Method (Step 1 or ACC#) |
| Total Organic Carbon (ppm) -Treated | 2016 | 1.46 | 1.22 - 1.89 | N/A | TT | Naturally present in the environment. |

### Microbiological Contaminants in the Distribution System

**Total Coliform Rule (Samples Taken January 1, 2016 through March 31, 2016)**

| Contaminant | MCL Violation | Your Water | MCLG | MCL | Likely Source of Contamination |
|---|---|---|---|---|---|
| Total Coliform Bacteria | No | 0% positive | 0 | 5% of monthly samples are positive | Naturally present in the environment. |

**Revised Total Coliform Rule (Samples Taken April 1, 2016 through December 31, 2016)**

| Contaminant | MCL Violation | Your Water | MCLG | MCL | Likely Source of Contamination |
|---|---|---|---|---|---|
| Total Coliform Bacteria | N/A | N/A | N/A | TT* | Naturally present in the environment |
| *E. coli* | No | 0 | 0 | Routine and repeat samples are total coliform-positive and either is *E. coli* –positive or system fails to take repeat samples following *E. coli* – positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*. | Human and animal fecal waste<br><br>Note: If either an original routine sample and/or its repeat sample(s) are *E. coli* positive, a Tier 1 violation exists. |