



2022 Annual Drinking Water Quality Report TOWN OF APEX

WATER SYSTEM NUMBER: 03-92-045



The Cary Apex Water Treatment Plant has been awarded the Gold Star honor for receiving the prestigious North Carolina Area Wide Optimization Program (AWOP) award 10 consecutive years in a row. The AWOP Award is granted to water treatment plants for surpassing federal and state drinking water standards and for systems who met performance goals that are significantly more stringent than state and federal standards.

The Town of Apex Water Resources Department proudly reports that Apex's water continues to exceed State and Federal drinking water standards and no regulatory violations occurred in 2022. This water quality report is furnished in accordance with the Safe Drinking Water Act 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 encourages public interest and participation in our community's decisions affecting our drinking water. To participate in a public forum, please visit www.apexnc.org/agenda to view the upcoming Town Council meeting schedule.

If you have any questions about this report or the water quality data included in this report, please contact Lori Avent with the Town of Apex Utilities Engineering Division at (919) 249-3366 or lori.avent@apexnc.org.

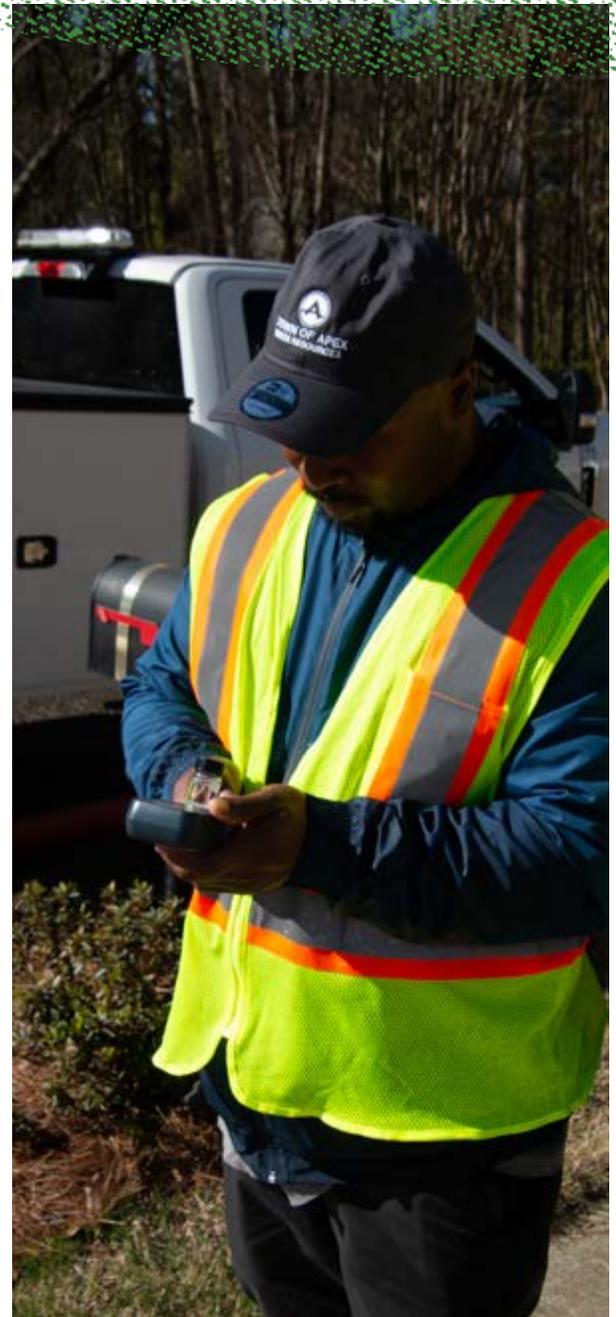
WHAT EPA WANTS YOU TO KNOW

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 microbial 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 stormwater 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 stormwater 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 stormwater 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.



SOURCE WATER ASSESSMENT PROGRAM (SWAP) RESULTS

The North Carolina Department of Environmental Quality (DEQ), 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 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 well or watershed and its delineated assessment area). The assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCSs)

Source Name	Susceptibility Rating	SWAP Report Date
Jordan Lake	Higher	September 2020

The complete SWAP Assessment report for The Cary / Apex Water Treatment Plant may be viewed on the Web at: https://www.ncwater.org/SWAP_Reports/NC0392045_SWAP_Report-20200909.pdf Note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this web site may differ from the results that were available at the time this CCR was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to:

**Source Water Assessment Program - Report Request
1634 Mail Service Center, Raleigh, NC 27699-1634**

or email requests to swap@ncdenr.gov.

Please indicate your system name, number, 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 919-707-9098.

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.



IMPORTANT HEALTH AND SAFETY CONCERNS

Cross-Connection Control Program:

A cross connection occurs when 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.

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 at <http://www.epa.gov/safewater/lead>.

Important Drinking Water Definitions:

Not-Applicable (N/A) - Information not applicable/not required for that particular water system or for that particular rule.

Non-Detects (ND) - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.

Parts per million (ppm) or Milligrams per liter (mg/L) - One part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter (ug/L) - One part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Parts per trillion (ppt) or Nanograms per liter (nanograms/L) - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

Picocuries per liter (pCi/L) - Picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) - Nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water.

Maximum Residual Disinfection Level (MRDL) - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfection Level Goal (MRDLG) - The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

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.

Running Annual Average (RAA) - The average of sample analytical results for samples taken during the previous four calendar quarters.

Maximum Contaminant Level (MCL) - 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.

Maximum Contaminant Level Goal (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.

Water Quality Data Tables of Detected Contaminants

Thousands of water samples have been collected and tested in order to determine the presence of any contaminants. The tables below list all the drinking water contaminants that we detected in the last round of sampling for each 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 done January 1 through December 31, 2022.** The EPA and the State allow us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

TURBIDITY*

Contaminant (units)	Treatment Technique (TT) Violation Y/N	Your Water	MCLG	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU) - Highest single turbidity measurement	N	0.09 NTU	N/A	Turbidity > 1 NTU	Soil runoff.
Turbidity (%) - Lowest monthly percentage (%) of samples meeting turbidity limits	N	100%	N/A	Less than 95% of monthly turbidity measurements are < 0.3 NTU	

* Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

INORGANIC CONTAMINANTS

Contaminant (units)	Sample Date	MCL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Fluoride (ppm)	2022	N	0.70	NA	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories

LEAD AND COPPER CONTAMINANTS

Contaminant (units)	Sample Date	Your Water (90th Percentile)	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper (ppm) (90th percentile)	2022	0.105	0	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppm) (90th percentile)	2022	ND	0	0	AL=0.015	Corrosion of household plumbing systems; erosion of natural deposits

Note: In 2022, drinking water samples from 30 homes were collected and analyzed for lead and copper. Only one sample had detectable lead and it measured 0.003 ppm (well below the action level of 0.015 ppm). Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels in your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

TOTAL ORGANIC CARBON (TOC)

Contaminant (units)	TT Violation Y/N	Your Water (lowest RAA)	Range Monthly Removal Ratio Low - High	MCLG	Treatment Technique (TT) violation if:	Likely Source of Contamination
Total Organic Carbon (TOC) Removal Ratio (no units)	N	1.59	1.36 - 1.86	N/A	Removal Ration RAA <1.00 and alternative compliance criteria was not met	Naturally present in the environment

DISINFECTANT RESIDUALS SUMMARY

	MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine (ppm)	2022	2.42	0.96 – 3.53	4	4.0	Water additive used to control microbes
Chloramines (ppm)	2022	2.96	1.01 – 4.08	4	4.0	

STAGE 2 DISINFECTION BYPRODUCT COMPLIANCE - Based upon Locational Running Annual Average (LRAA)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM (ppb)	2022	N			N/A	80	Byproduct of drinking water disinfection
B01			0.042	0.029 – 0.042			
B02			0.040	0.027 – 0.040			
B03			0.042	0.028 – 0.042			
B04			0.041	0.026 – 0.041			
B05			0.042	0.027 – 0.042			
B06			0.042	0.027 – 0.042			
B07			0.039	0.026 – 0.039			
B08			0.042	0.029 – 0.042			
HAA5 (ppb)	2022	N			N/A	60	Byproduct of drinking water disinfection
B01			0.014	0.012 – 0.014			
B02			0.014	0.012 – 0.014			
B03			0.014	0.012 – 0.014			
B04			0.014	0.011 – 0.014			
B05			0.014	0.012 – 0.014			
B06			0.016	0.011 – 0.016			
B07			0.015	0.012 – 0.015			
B08			0.013	0.012 – 0.013			

OTHER DISINFECTION BYPRODUCTS CONTAMINANTS

Contaminant (units)	MCL/MRDL Violation Y/N	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Bromate (ppb)	N	6	1.2 – 14 (individual measurements)	0	10 (RAA)	By-product of drinking water disinfection

RADIOLOGICAL CONTAMINANTS

Contaminant (units)	Sample Date	Your Water	Range Low High	MCLG	MCL	Likely Source of Contamination
Beta/photon emitters (pCi/L)	2017	4.2	N/A	0	50*	Decay of natural and man-made deposits

*Note: The MCL for beta/photon emitters is 4 mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

The PWS Section requires monitoring for other misc. contaminants, some for which the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor, and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water.

OTHER MISCELLANEOUS WATER CHARACTERISTICS CONTAMINANTS

Contaminant (units)	Sample Date	Your Water	Range Low High	SMCL
Iron (ppm)	2022	ND	No Range	0.3 mg/L
Manganese (ppm)	2022	ND	No Range	0.05 mg/L
Nickel (ppm)	2022	ND	No Range	N/A
Sodium (ppm)	2022	34.9	No Range	N/A
Sulfate (ppm)	2022	38	No Range	250 mg/L
pH	2022	7.8	No Range	6.5 to 8.5

Cryptosporidium

Our system monitored for *Cryptosporidium* and *Giardia* in 2022 and none was detected.

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

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

UNREGULATED CONTAMINANTS

Contaminant (units)	Sample Date	Your Water (average)	Range	
			Low	High
1,4-Dioxane (ppb)	2022	ND	ND	0.14
Perfluorobutylsulfonamide (FBSA) (ppt)	2022	0.37	0.37	0.37
Perfluorobutanesulfonic acid (PFBS) (ppt)	2022	3.6	3.1	4.3
Perfluorobutanoic acid (PFBA) (ppt)	2022	9.5	8.2	11
Perfluoroheptanoic acid (PFHpA) (ppt)	2022	2.2	2	2.5
Perfluorohexanesulfonic (PFHxS) (ppt)	2022	0.2	ND	0.8
Perfluorohexanoic acid (PFHxA) (ppt)	2022	7.3	6.3	8.7
Perfluorononanoic acid (PFNA) (ppt)	2022	ND	ND	0.13
Perfluorooctane sulfonate (PFOS) (ppt)	2022	ND	ND	1
Perfluorooctanoic acid (PFOA) (ppt)	2022	2.4	2.1	2.5
Perfluoropentanoic acid (PFPeA) (ppt)	2022	9.3	7.5	12

Want to learn more about PFAS? Per- and Polyfluoroalkyl Substances (PFAS) are a group of manufactured chemicals that are widely used and long lasting with components that break down very slowly over time. The Cary/Apex Water Treatment Plant successfully treats and reduces the PFAS in your drinking water using activated carbon as well as other treatment steps, producing drinking water that is consistently below the EPA’s newly proposed MCL’s. For more information on PFAS compounds and the steps we are taking to protect your drinking water at the Cary/Apex Water Treatment Plant, please click the link here or visit Town of Cary Emerging Contaminants webpage at: <https://www.carync.gov/services-publications/water-sewer-stormwater/water/water-treatment/emerging-contaminants>

HELP PROTECT YOUR WATER SOURCE

Protection of drinking water is everyone’s responsibility. To help conserve our water source:

- Odd/even irrigation schedule for all Apex water customers year-round Do not irrigate during the hottest time of the day, as much of the water is lost to evaporation. Early morning or late at night is best
- Avoid mowing during droughts as it adds stress to grass and is only relieved by more irrigation
- Limit vehicle washing to a minimum
- Refrain from washing down impervious areas such as sidewalks, driveways, and patios
- Refrain from leaving faucets running while shaving, brushing teeth, and rinsing dishes
- Only run full loads for laundry and dish washing
- Check for leaks and repair them promptly
- Track your water usage by registering for eServices
- Calculate how much water you use with the online water usage calculator
- Take showers instead of baths

Please do your part to help conserve this precious resource! Remember that every drop counts! Learn more at apexnc.org/waterconservation



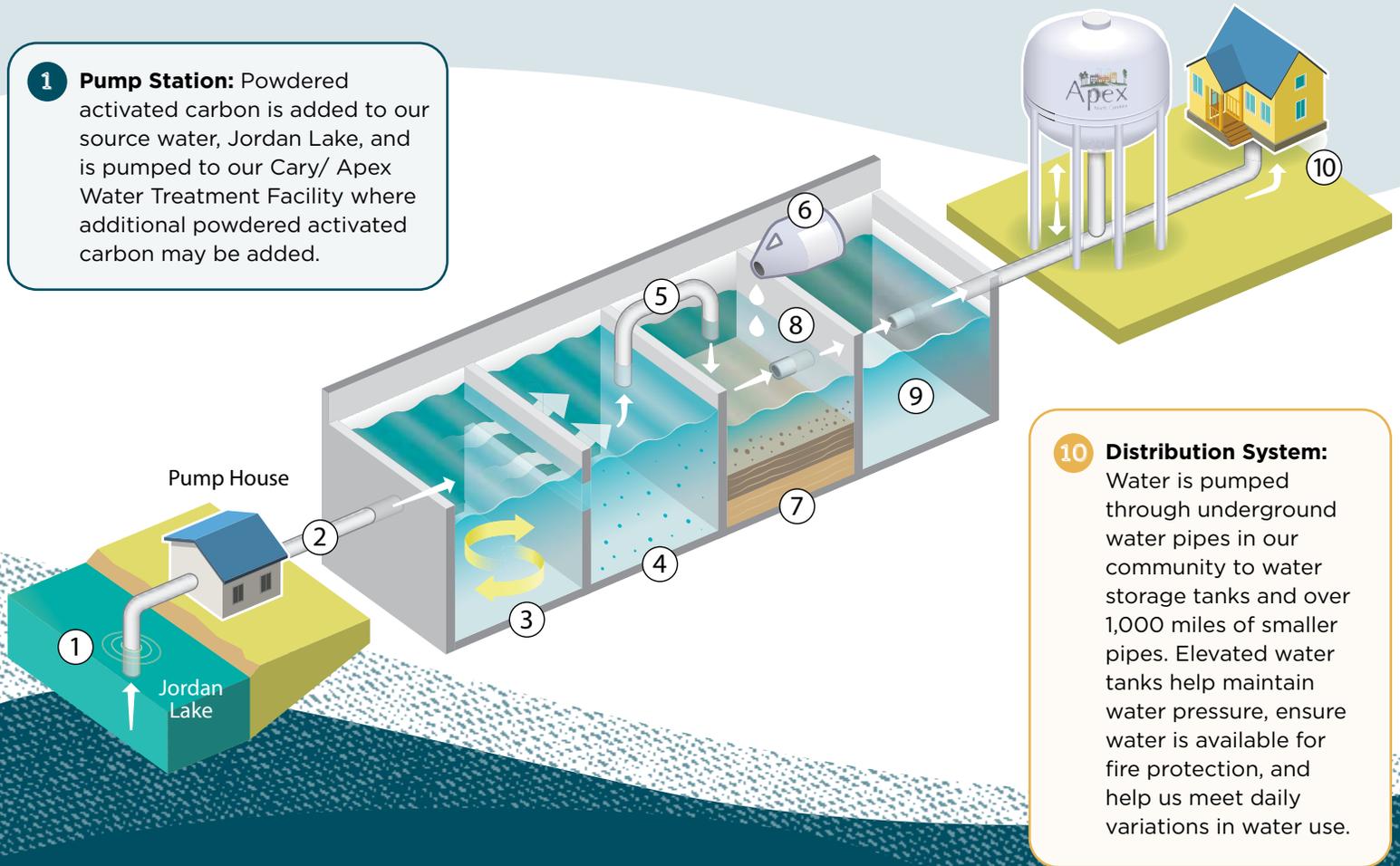
OUR WATER SOURCE

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 56 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.



2 Ozonation: Ozone is used to oxidize organics, remove color and to treat taste and odors.

3 Mixing: Aluminum sulfate and polymer are added in our Rapid Mix to help particles stick together.

4 Clarification: Water is pulsed up from the bottom of our SuperPulsators where floc collects on the baffles and the clean water goes out through the collection channels at the top.

5 Ozonation: There is an option for additional ozonation of the settled water.

6 Disinfection: As water flows to our filters, chlorine in the form of liquid bleach is added for disinfection.

7 Filtration: Water flows down through layers of sand and carbon in our filters, where additional particles are removed from the water.

8 Post Treatment: We add fluoride for dental health and chemicals to adjust the pH (acidity) of the water and for corrosion control in our water pipes.

9 Clearwell: Filtered water is put in clearwells for disinfection and storage until it is ready to be used. Chlorine and ammonia are added separately to form chloramines, which disinfects the water.

EPA LEAD AND COPPER RULE REVISION (LCRR)

In 1991, the EPA established the original Lead and Copper Rule to protect public health and reduce lead in drinking water. In October 2024 an update to the original rule, known as the Lead and Copper Rule Revision, will go into effect across the United States. The revisions aim to improve protections for the public from exposure to lead in drinking water and ensure our communities have equal access to clean drinking water. The revisions focus on sampling and education in schools and childcare facilities, finding and removing lead service lines, and teaching communities about lead in drinking water.

The Town of Apex consistently complies with all water quality requirements, including the original Lead and Copper Rule. The Town is proactively creating an inventory of all water service line materials in Apex, including those owned by our customers. We are also writing a plan to check for lead at our schools and childcare centers and a program to teach our customers about lead in drinking water.

We will be reaching out in 2023 to ask for help learning the materials of customer-owned lines. The Town website will include updates as our programs progress. We look forward to working with you to ensure our community is protected from lead in drinking water.

Additional information about the Lead and Copper Rule Revision can be found at: <https://www.epa.gov/ground-water-and-drinking-water/revised-lead-and-copper-rule>

APEX UTILITIES OPERATIONS CREW



The Town of Apex is a member of the Triangle J Council of Governments (TJCOG). Within the TJCOG, a collaboration of Apex and 12 other local governments and public bodies came together to form a partnership called the Triangle Water Supply Partnership (TWSP). The goal of the TWSP collaboration is to support efforts to provide for long-term, sustainable and reliable water supplies for the communities in the Region.

Regulatory Violations

The Town of Apex had no regulatory violations during the 2022 report year and has met or surpassed all state and federal drinking water regulations.

For a complete list of substances tested, including non-detects, see Water Quality Testing Summary online:

carync.gov/testingsummary

Contact Us

Town of Apex

Water Resources Department

(919) 249-3427

www.apexnc.org

Billing questions or to pay your bill, please call (919) 362-8676 or go to <https://www.apexnc.org/159/Utility-Billing-Customer-Service>

For all utility emergencies, please call 919-372-7475

Disconnection Due to Non-Payment (919) 362-8676

Mark Utility Lines / Call Before You Dig 811

Questions about Connecting/Disconnecting Utility Services (919) 362-8676

Sewer Backup or Other Issue (919) 372-7475

Water Pressure Problem (919) 372-7475

Water Quality Issue (919) 372-7475

Water Service Concerns / No Water (919) 372-7475