

# 2023

# Annual Drinking-Water Quality Report

*for*

The City of DeLand  
“The Athens of Florida”  
PWS 3640286



UTILITIES DIVISION  
WATER TREATMENT and PRODUCTION  
386-626-7254

**We are pleased to report that our drinking water meets all federal and state requirements.**

We encourage public interest and communication to assist us in making decisions affecting your drinking water. In keeping with our directive of a customer oriented utility, we are proud to provide a Water Quality Hotline (386-626-7254) from 7:00 AM to 4:00 PM, Monday through Friday and an informational website at [www.deland.org](http://www.deland.org). City Commission meetings offer opportunities for public participation in decisions that may affect water quality. The Commission meets at 7:00 PM on the first and third Monday of each month at City Hall, 120 South Florida Avenue in DeLand.

This Report will be mailed to customers only upon request and is also available at the Utility Department office.

**2023 REPORT PUBLISHED IN 2024**

The City of DeLand is pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. Our water source is ground water from wells that draw from the Floridan Aquifer.



The **Safe Drinking Water Act (SDWA)** has been the primary regulation to ensure that public health and safety is protected in drinking water supplies throughout the nation. The Florida Department of Environmental Protection (DEP) initiated the SWAPP as part of the federal Safe Drinking Water Act.

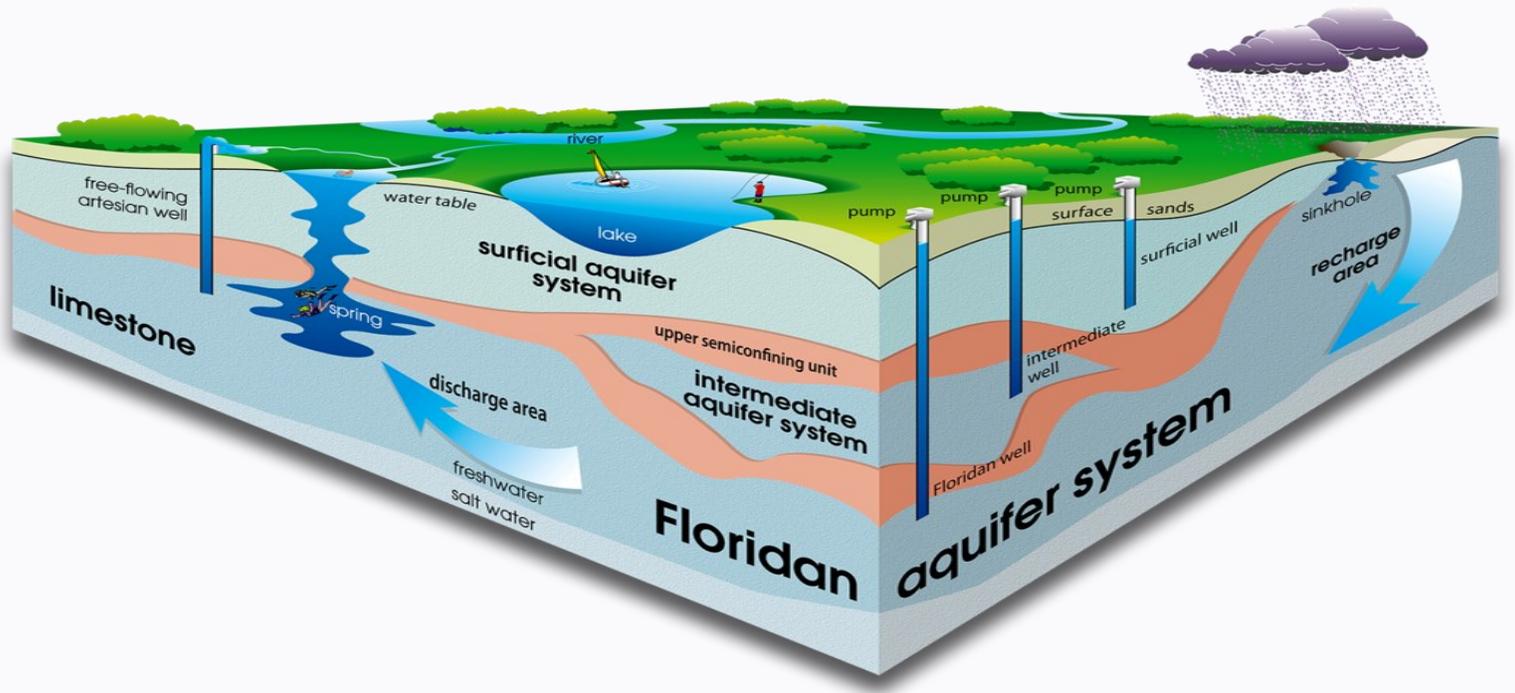
The **Source Water Assessment and Protection Program** or SWAPP was created in order to protect our vital resources. SWAPP is meant to ensure that your drinking water is safe not just at the tap, but at its source. In



In 2023 the Florida Department of Environmental Protection (DEP) performed a Source Water Assessment on the City of DeLand water system. The assessment was conducted to provide information about potential sources of contamination in the vicinity of our wells. The 2023 assessment states that there are sixteen (16) unique potential sources of contamination with susceptibility levels ranging from Low to High. The assessment results are available on the DEP Source Water Assessment and Protection Program website at <https://prodapps.dep.state.fl.us/swapp/> or they can be obtained from City of DeLand Utilities (386-626-7254).

The City of DeLand routinely monitors for contaminants in your drinking water according to Federal and State laws, rules and regulations. Except where indicated otherwise, this report is based on the results of our monitoring for the period of January 1, 2023 to December 31, 2023. Data obtained before January 1, 2023, and presented in this report is from the most recent testing performed in accordance with the laws, rules, and regulations.

In 2023, your water department distributed approximately 1.9 billion gallons of water from the city's 10 water treatment plants. Water treatment processes include chlorination, fluoridation, aeration and corrosion control. DeLand's source water comes from 19 deep wells obtaining groundwater from the Floridan Aquifer. The Floridan Aquifer is a lens of water located beneath the bedrock of the southeast United States. It is one of the highest producing aquifers in the world and it is found throughout Florida.



In the following table you may find unfamiliar terms and abbreviations. To help you better understand these terms we have provided the following definitions:

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

**Level 1 Assessment** - A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

**LRAA - Locational Running Annual Average** - The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

**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 - Maximum Contaminant Level Goal** - 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.

**MRDL - Maximum Residual Disinfectant Level** - 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.

**MRDLG - Maximum Residual Disinfectant Level Goal** - 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.

**ND - Not Detected** - Not detected by laboratory analysis.

**ppb - Parts per billion or Micrograms per liter (µg/L)** - one part by weight of analyte to one billion parts by weight of the water sample.

**ppm - Parts per million or Milligrams per liter (mg/L)** - one part by weight of analyte to one million parts by weight of the water sample.

**ppt - Parts per trillion or Nanograms per liter (ng/L)** - one part by weight of analyte to one trillion parts by weight of the water sample.

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

Inorganic Contaminants							
Contaminant and Unit of Measurement	Dates of Sampling (mo./yr.)	MCL Violation Y/N	Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
Barium (ppm)	06/23	N	0.047	0.016 - 0.047	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nitrate (as Nitrogen) (ppm)	06/23	N	0.64	ND - 0.64	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium (ppm)	06/23	N	15.1	7.2 - 15.1	Not Applicable	160	Salt water intrusion; leaching from soil
Fluoride (ppm)	06/23	N	0.72	0.088 - 0.72	4	4.0	Erosion of natural deposits; discharge from fertilizer and aluminum factories; Water additive which promotes strong teeth when at an optimum level of 0.7ppm
Arsenic (ppb)	6/23	N	0.72	ND - 0.72	0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Lead (ppb)	6/23	N	0.35	ND - 0.35	0	15	Residue from manmade pollution such as auto emissions and paint; lead pipe casing, and solder

Disinfectants and Disinfection By-Products							
Disinfectant and Unit of Measurement	Dates of Sampling (mo./yr.)	MCL Violation Y/N	Level Detected	Range of Results	MCLG or MRDLG	MCL or MRDL	Likely Source of Contamination
Total Trihalomethanes (TTHM) (ppb)	01/23, 04/23, 07/23, 10/23	N	68.0 (highest LRAA)	22.9 - 86.4	Not Applicable	80	By-product of drinking water disinfection
Haloacetic Acids (HAA5) (ppb)	01/23, 04/23, 07/23, 10/23	N	44.6 (highest LRAA)	12.6 - 51.5	Not Applicable	60	By-product of drinking water disinfection
Chlorine (ppm)	01/23- 12/23	N	0.90	0.02 - 3.0	MRDLG = 4	MRDL = 4	Water additive used to control microbes

One sample during 2023 (103 Wisteria Lane, July) had a Total Trihalomethanes result of 86.4 parts per billion (ppb), which exceeds the Maximum Contaminant Level (MCL) of 80 ppb. However, the system did not incur an MCL violation, because all annual average results at all sites were at or below the MCL. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.”

### Synthetic Organic Contaminants including Pesticides and Herbicides

Contaminant and Unit of Measurement	Dates of Sampling	MCL Violation	Highest Result	Range of Results	MCLG	MCL	Likely Source of Contamination
Dalapon (ppb)	06/23, 11/23	N	1.2	ND - 1.2	200	200	Runoff from herbicide used on rights

Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.

### Microbiological Contaminants

Contaminant	Dates of Sampling (mo./yr.)	TT violation Y/N	Result	MCLG	TT	Likely Source of Contamination
Total Coliform Bacteria	07/23	Y	1 positive	N/A	TT	Naturally present in the environment

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that another potentially harmful waterborne pathogen may be present, or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct an assessment to identify problems and to correct any problems that were found during the assessment.

During the past year, we were required to conduct one Level 1 assessment. One Level 1 assessment was completed. In addition, we were

### Secondary Contaminants

Contaminant and Unit of Measurement	Dates of Sampling (mo./yr.)	MCL Violation Y/N	Highest Result	Range of Results	MCLG	MCL	Likely Source of Contamination
Color (color units)	06/23	Y	25	5 - 25	Not Applicable	15	Naturally occurring organics
Odor (threshold odor number)	06/23	y	8	1 - 8	Not Applicable	3	Naturally occurring organics

Secondary Contaminants are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL. The most notable indicators of an Iron MCL exceedance are rusty color, sediment, metallic taste and reddish or orange staining.

### Lead and Copper (Tap Water)

Contaminant and Unit of Measurement	Dates of Sampling (mo./yr.)	AL Exceeded Y/N	90th Percentile Result	Sample sites Exceeding the AL	MCLG	AL (Action Level)	Likely Source of Contamination
Copper (tap water) (ppm)	06/23-9/23	N	0.54	0	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (tap water) (ppb)	06/23-9/23	N	ND	0	0	15	Corrosion of household plumbing systems; erosion of natural deposits

## Unregulated Contaminants

The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

Contaminant and Unit of Measurement	Dates of Sampling (mo./yr.)	Level Detected (average)	Range of Results	Likely Source of Contamination
Perfluorobutanesulfonic Acid (PFBS) (ppt)	04/23 - 12/23	2.9	ND - 4.5	Water-resistant or stain-resistant coatings on fabrics, carpets and paper
Perfluoroheptanoic Acid (PFHpA) (ppt)	04/23 - 12/23	1.95	ND - 2.7	Stain and grease proof coatings on food packaging, couches and carpets
Perfluorohexanesulfonic Acid (PFHxS) (ppt)	04/23 - 12/23	4.8	ND - 8.6	Firefighting foam
Perfluorohexanoic Acid (PFHxA) (ppt)	04/23 - 12/23	3.4	ND - 6.5	Degradation product of Perfluorohexanesulfonic Acid
Perfluorooctanesulfonic Acid (PFOS) (ppt)	04/23 - 12/23	5.6	ND - 8.6	Fabric protection, firefighting foam
Perfluorooctanoic Acid (PFOA) (ppt)	04/23 - 12/23	2.5	ND - 2.6	Non-stick surfaces
6:2-Fluorotelomersulfonic acid (6:2 FTS) (ppt)	04/23 - 12/23	13.0	ND - 13	Electroplating industry or aqueous film-forming foams
Perfluorobutanoic acid (PFBA) (ppt)	04/23 - 12/23	2.9	ND - 3.5	Photographic film
Perfluoropentanoic acid (PFPeA) (ppt)	04/23 - 12/23	4.9	ND - 9.6	Stain and grease proof coatings on food packaging, couches and carpets

The City of DeLand Utility Department has been monitoring for unregulated contaminants (UCs) as part of a study to help the U.S. Environmental Protection Agency (EPA) determine the occurrence in drinking water of UCs and whether or not these contaminants need to be regulated. On April 10, 2024 EPA established maximum contaminant levels (MCLs) for only a few UCs (PFOA, PFOS, PFNA, PFHxS, GenX Chemicals (HFPO-DA) and PFBS). At present no MCLs have been established for most of the UCs. However, we are required to publish the analytical results of our UC monitoring in our annual water quality report. If you would like more information on the EPA's Unregulated Contaminants Monitoring Rule, please call 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*, 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, are by-products of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff and septic systems.

*Radioactive contaminants*, can be naturally occurring or be a result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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 the 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 at 1-800-426-4791.

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 City of DeLand 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>.

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. U.S. Environmental Protection Agency/Center for Disease Control 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).

## QUESTIONS AND ANSWERS ABOUT CROSS-CONNECTION CONTROL

### **What is a cross-connection?**

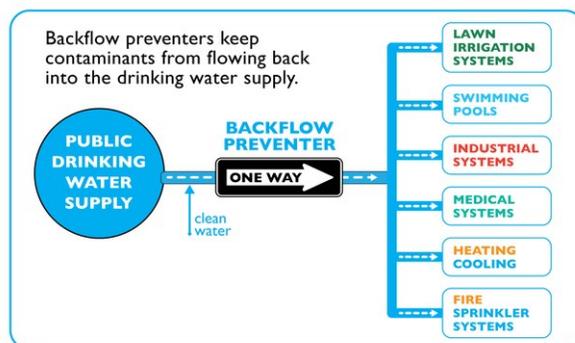
**ANSWER:** A cross-connection is any temporary or permanent connection between a public water system or consumer's potable (i.e., drinking) water system and any source or system containing non-potable water or other substances. An example is the piping between a public water system or consumer's potable water system and an auxiliary water system, cooling system, or irrigation system.

### **What is backflow?**

**ANSWER:** Backflow is the undesirable reversal of flow of non-potable water or other substances through a cross-connection and into the piping of a public water system or consumer's potable water system. There are two types of backflow... backpressure backflow and backsiphonage.

### **What is a backflow preventer?**

**ANSWER:** A backflow preventer is a means or mechanism to prevent backflow. The basic means of preventing backflow is an air gap, which either eliminates a cross-connection or provides a barrier to backflow. The basic mechanism for preventing backflow is a mechanical backflow preventer, which provides a physical barrier to backflow. The principal types of mechanical backflow preventer are the reduced-pressure principle assembly, the pressure vacuum breaker assembly and the double check valve assembly. A secondary type of mechanical backflow preventer is the residential dual check valve. New rules are under consideration that will require backflow devices on all auxiliary water sources. Such water sources include self supply irrigation wells and irrigation from lakes, springs, streams, rivers, etc..



### **Do you know the dangers of backflow?**

A resident sprays commercial weed killer on his lawn using a garden hose attachment. After finishing, he disconnects the applicator. Since it is a hot day, he takes a drink of water from the hose. A short time later, he becomes very ill from herbicide poisoning.

### **How could this happen?**

While the man was spraying weed killer, the water pressure dropped, which resulted in the chemical being sucked back into the hose. Later, when he drank from the hose, the herbicide was in the water. He unknowingly poisoned himself.

Some harmful substances to be wary of are chemicals used to kill weeds and insects or lawn fertilizers. The cleanser used around the kitchen sink could be hazardous if ingested, as could the bacteria in the water from a wading pool or waterbed.

**Keeping your water safe from contaminants is easy.** The following steps will help protect your drinking water.

- Never submerge hoses in buckets, pools, tubs or sinks. Keep the end of the hose clear of possible contaminants.
- Don't use spray attachments without a backflow prevention device.
- Purchase and install inexpensive backflow prevention devices for all threaded faucets around your home. They are available at hardware stores and home-improvement centers.

### **What is Reclaimed Water?**

**AREA  
IRRIGATED  
WITH  
RECLAIMED  
WATER**

**ANSWER:** Reclaimed water is the result of wastewater which has been highly treated, disinfected and reused. Reclaimed water is essentially free of bacteria and viruses. Reclaimed water is ideal for irrigation, but not suitable for human or animal consumption. No negative effects have been reported as a result of exposure to reclaimed water. Please remember that irrigation with reclaimed water should occur at a time when human or animal contact is least likely. As the demand for fresh water increases in Florida and around the globe, the challenge to develop alternate sources to satisfy future needs has become critical. Using reclaimed water reduces the demand on the Floridan Aquifer, our primary fresh water source.

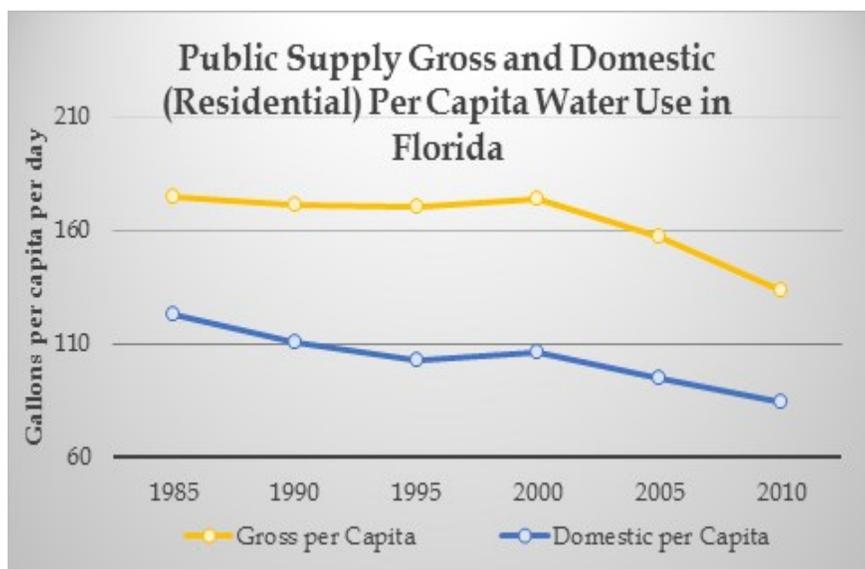
# Water Conservation Guidance from the Florida Department of Environmental Protection



Water conservation is the most important action we can take to sustain our water supplies, meet future needs and reduce demands on Florida's water-dependent ecosystems such as springs, rivers, lakes and wetlands. Water conservation activities can be implemented by utilities, sometimes utilizing cost-share programs of the water management districts; through regulation, such as landscape irrigation restrictions; but most importantly, water conservation can be implemented by YOU!

Water conservation measures, adoption of year-round landscape irrigation restrictions, increased use of reclaimed water and the use of Florida-Friendly landscaping techniques together have resulted in significant lowering of the per capita water use rates. For example, in 1995, the U.S. Geological Survey estimated the statewide public supply gross per capita at 170.2 gallons per day (gpcd) and the public supply residential per capita at 103 gpcd. By 2010, the public supply gross per capita average dropped to 134 gpcd, a 21 percent reduction, and the public supply residential per capita dropped to 84 gpcd, an 18 percent reduction.

What YOU can do!



## Inside

- **Check faucets and pipes for leaks.** A small drip from a worn faucet washer can waste 20 gallons of water per day; larger leaks can waste hundreds of gallons.
- **Use your dishwasher and washing machine only for full loads.** When possible, avoid washing during heavy downpours.
- **Minimize use of kitchen sink garbage disposal units.** The units require a lot of water to operate properly and also add to the volume of solids in a septic tank, which can lead to maintenance problems. Instead of using a garbage disposal, compost kitchen scraps and use the nutrient-rich compost to enhance yard or garden soil.

## Outside

- **Add mulch to reduce evaporation.** Mulching reduces water needed in a garden by as much as 50 percent. It also has the added benefit of preventing weed growth, deterring pests, stabilizing soil temperature, and, as it decomposes, providing nutrients to the soil.
- **Harvest rain** to water flower beds, herb gardens and potted plants. Rain is free, and it's beneficial for plants because rain does not contain hard minerals.
- **Choose native plants** that are adapted to the area and need less water.
- **Check hose and sprinkler connections for leaks** – a drop wasted each second can add up to a couple of gallons each day.
- **On slopes, plant native species** that will retain water and help reduce runoff.
- **Irrigate your lawn with reclaimed water.** To find out if reclaimed water is available in your neighborhood, contact your utility company.
- **Do not water the lawn in rainy weather.**

*We at the City of DeLand work around the clock to provide top quality water to every tap. We ask that all our customers help us to protect our water resources, which are the heart of our community, our way of life and our children's future. Thank you.*



## Volusia County Utilities: VC/Southwest WTP-2 2023 Water Quality Report

### Disinfectants and Disinfection By-Products

Contaminant and Unit of Measure	Dates of Sampling (mo/yr)	MCL Violation Y/N	Level Detected	Range of Results	MRDLG	MCL or MRDL	Likely Source of Contamination
Chlorine (ppm)	01/23 - 12/23	No	1.3	0.6 - 2.0	4	MRDL = 4	Water additive used to control microbes.
Haloacetic Acids (HAA5) (ppb)	07/23	No	10.6	10.0 - 10.6	N/A	MCL = 60	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM) (ppb)	07/23	No	52.5	50.0 - 52.5	N/A	MCL = 80	By-product of drinking water disinfection.

### Inorganic Contaminants

Contaminant and Unit of Measure	Dates of Sampling (mo/yr)	MCL Violation Y/N	Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
Nitrate (ppm)	03/23	No	0.86	N/A	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Barium (ppm)	03/23	No	0.016	N/A	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Fluoride (ppm)	03/23	No	0.12	N/A	4	4.0	Erosion of natural deposits; discharge from fertilizer and aluminum factories. Water additive which promotes strong teeth at the optimum level of 0.7 ppm
Sodium (ppm)	03/23	No	34.0	N/A	N/A	160	Salt water intrusion, leaching from soil.

### Lead & Copper (Tap Water)

Contaminant and Unit of Measure	Dates of Sampling (mo/yr)	AL Exceeded Y/N	90th Percentile	No. of Sampling Sites Exceeding AL (Action Level)	MCLG	AL (Action Level)	Likely Source of Contamination
Copper (tap water) (ppm)	08/23	No	0.13	0	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.
Lead (tap water) (ppb)	08/23	No	1.1	0	0	15	Corrosion of household plumbing systems, erosion of natural deposits.