



WATER QUALITY REPORT

2022



Building Community

We are pleased to present our 2022 Annual Water Quality Report



Dear Valued JEA Customer,

Here in Northeast Florida, we are fortunate to have access to some of the most pristine water in the world—just by turning on the tap. We attribute this to the Floridan Aquifer, our natural water source, which is rated by the U.S. Geological Survey

as one of the highest-quality water sources in the country. Bringing this water to hundreds of thousands of homes each day is a responsibility we take seriously.

With this in mind, we are pleased to present the **2022 Water Quality Report**. In this publication, you will be able to review detailed information about JEA’s water treatment systems, results from our water quality testing, and conservation tips that can help you save money and further protect our water supply.

We know the water we deliver to your home or business plays an important role in your quality of life and that of our entire community. That’s why we work hard to manage and maintain these water resources, to meet your needs today and for future generations.

As our community continues to grow, please join us at JEA in helping to conserve and protect this critical natural resource.

Sincerely,

Jay Stowe, JEA Managing Director & CEO

FDEP Source Water Assessments

In 2022, the Florida Department of Environmental Protection performed Source Water Assessments to identify potential sources of contamination in the vicinity of JEA wells. Potential contamination sources include landfills, fuel storage tanks, dry cleaning facilities and wastewater disposal areas. Visit prodapps.dep.state.fl.us/swapp/ to view assessment results online.

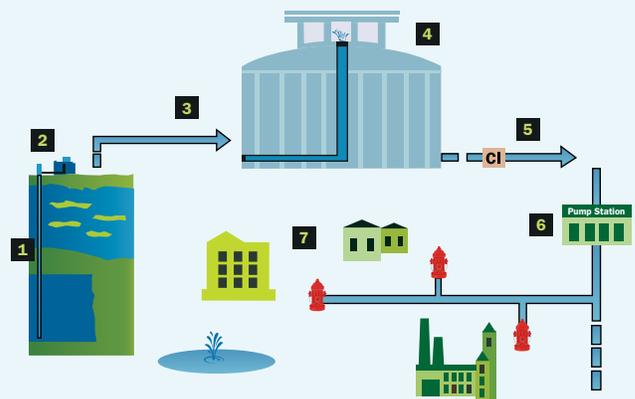
System	# of Potential Sources	Susceptibility Level
Major Grid	94	Low-Moderate
Mayport	2	Low
Lofton Oaks Grid	9	Low
Ponte Vedra Grid	2	Low
Ponce de Leon Grid	4	Low



On the cover: Scientists from the JEA Laboratory demonstrate a test for water hardness to middle school students, and explain the chemical reaction that causes the color changes in the test.

Water System Process

The JEA drinking water system consists of wells, water treatment plants, the distribution grid of pipelines, and finally the customers’ meters. We have over 130 wells that withdraw water from the Floridan aquifer, about 1,000 feet below land surface. The fresh, clean water is pumped from the well fields to one of 39 water treatment plants, where it then flows through an aerator to remove the sulfur (rotten egg) odor. The water leaves the reservoirs and is disinfected with chlorine per health regulations before it enters over 4,900 miles of water lines for distribution to our customers. Ozone is also utilized at two plants for sulfide removal and to improve taste and odors.



1. The Florida Aquifer is the source of water in Northeast Florida. JEA utilizes this source to provide potable (drinking) water to our customers. The aquifer is a gigantic underground river that courses through limestone formations many hundreds of feet underground. **2. Deep Well Turbine Pumps** are used to draw the water from the aquifer and deliver it through **3. Well Headers** to the **4. Water Treatment Plant**. At the plant, the water is aerated and stored until there is demand for the water. As needed, the water is chlorinated and pumped into the system by the plant’s service pumps. **5. Transmission Mains** carry the potable water throughout the many miles of service area and ultimately deliver the water through **6. Distribution Mains**, service connections, and water meters to our **customers**.

Tour JEA's Springfield Water Lab

Thousands of water tests are performed every year at JEA's Springfield Lab to ensure the safety of our drinking water. Utilize this QR code to view a video that takes you on a virtual tour of the lab so you can see where and how those tests are performed.



Pictured above, a licensed operator reviewing and recording drinking water treatment values – part of JEA's continuous monitoring of water quality requirements to ensure the highest standards are being met.

JEA's Rivertown Water Treatment Plant

The JEA Rivertown Water Treatment Plant is a new facility being built to serve the rapidly growing northern St. Johns County, which includes RiverTown, a new 4,170-acre master-planned community along the St. Johns River.

The addition of the new water treatment facility, which began construction in October 2021, will support future growth in St. Johns County, while providing improved water pressure and system reliability to all our customers in the area.

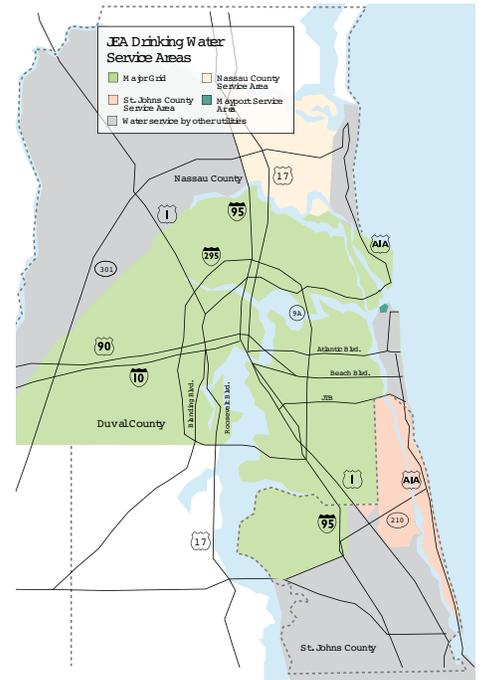


The first phase of the plant went online in April 2023 in order to meet the high water-demand of spring and summer, with final completion due by the end of the year.

H2.0 Purification

The JEA H2.0 Purification Program began in 2016 as a means of diversifying the water supply portfolio, protecting the aquifer, and ensuring a long term sustainable water supply. The first phase including pilot testing of two industry-leading purification technologies. The research was a cooperative effort with the St. Johns River Water Management District, focused on identifying sustainable water resources to support the needs of Northeast Florida.

JEA is currently designing a 1 million gallon per day (MGD) water purification demonstration facility. Initially the purified water will be blended into the reclaimed water system, but in the future it could be used for groundwater replenishment. The facility will include a visitor education center explaining the purification process, the importance of water conservation and how the JEA water system works. With the H2.0 Purification Program, we continue our role as a leader in ensuring a safe, reliable, locally controlled water supply that is essential for healthy environments, robust economies, and a high quality of life.



Jacksonville's Water Grid

JEA's Major Grid provides water to most of Duval County and the northwest portion of St. Johns County. JEA also supplies water to Mayport, the Yulee and Wildlight areas of Nassau County, and from Ponte Vedra south to Vilano Beach along A1A. Additionally, along the Intracoastal Waterway in Palm Valley, one small area gets its water through an interconnection with the St. Johns County Utility Department. Our grid arrangements provide reliable water service backup as needed, particularly during emergencies or periods of routine plant maintenance shutdowns. For additional information, visit jea.com/drinkingwater.

Water Hardness Levels

Water is described as "hard" when it contains high levels of dissolved minerals – primarily calcium and magnesium. While these naturally occurring compounds can leave spots on dishes and windows (easily removed with white vinegar), they do not present a health risk. In fact, both calcium and magnesium are commonly taken as health supplements.

The table indicating the total hardness found in all JEA-serviced zip codes can be found at jea.com/hardness.

WATER QUALITY MONITORING RESULTS

System	Major Grid			Mayport			Lofton Oaks Grid			Ponce de Leon Grid		
Contaminant & Unit of Measure	Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results
Microbiological Contaminants												
E. coli	01/22-12/22	1	ND - 1	ND	ND	ND	ND	ND	ND	ND	ND	ND
E. coli (at the ground water source)	01/22-12/22	1	ND - 1	ND	ND	ND	ND	ND	ND	ND	ND	ND

Note: 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

Radioactive Contaminants												
Alpha emitters (pCi/L)	02/22-11/22	3.08	ND - 3.08	ND	ND	ND	ND	ND	ND	03/18	2.9	ND - 2.9
Radium 226+228 or combined radium (pCi/L)	02/22-11/22	0.86	ND - 0.86	03/18	0.9	N/A	02/17	0.75	ND - 0.75	03/18	1.9	0.6 - 1.9
Uranium (µg/L)	02/22-11/22	0.52	ND - 0.52	ND	ND	ND	ND	ND	ND	ND	ND	ND

Inorganic Contaminants												
Antimony (ppb)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic (ppb)	03/20	1.03	ND - 1.03	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium (ppm)	03/20	0.038	0.015-0.038	03/21	0.027	NA	03/20	0.033	0.027-0.033	03/21	0.019	0.016-0.019
Fluoride	03/20	0.84	0.37-0.84	03/21	0.68	N/A	03/20	0.92	0.59-0.92	03/21	1.07	1.01-1.07
Lead (point of entry) (ppb)	03/20	1.7	ND - 1.7	ND	ND	ND	03/20	0.06	ND - 0.06	ND	ND	ND
Nickel (ppb)	03/20	17.8	ND - 17.8	ND	ND	ND	03/20	1.08	ND - 1.08	ND	ND	ND
Nitrate (as Nitrogen) (ppm)	03/22	0.13	ND - 0.13	ND	ND	ND	ND	ND	ND	03/22	0.04	ND - 0.04
Nitrite (as Nitrogen) (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium (ppb)	03/20	5.15	ND - 5.15	ND	ND	ND	03/20	1.1	ND - 1.1	3/21	0.525	ND - 0.525
Sodium (ppm)	03/20	106.44	7.67-106.44	03/21	13.678	N/A	03/20	34.05	20.65-34.05	03/21	62.82	32.34-62.82
Thallium (ppb)	03/20	0.52	ND - 0.52	ND	ND	ND	03/20	0.66	ND - 0.66	ND	ND	ND

Stage 1 Disinfectants and Disinfection Byproducts**												
Bromate (ppb)	01/22-12/22	2.83	ND-4.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlorine (ppm)	01/22-12/22	1.12	0.20-2.23	01/22-12/22	0.80	0.21-1.52	01/22-12/22	0.84	0.20 - 2.20	01/22-12/22	0.83	0.27 - 2.20
Stage 2 Disinfectants and Disinfection Byproducts**												
Haloacetic Acids (five) (HAA5) (ppb)	01/22-12/22	26.46	5.81-41.47	04/22	25.88	N/A	01/22-12/22	17.08	9.61-19.81	01/22-12/22	9.40	4.20-14.77
TTHM [Total Trihalomethanes] (ppb)	01/22-12/22	71.08	24.79-90.69*	04/22	60.80	N/A	01/22-12/22	61.45	31.89-62.79	01/22-12/22	66.17	25.09-92.81*

* Although the MCL value was exceeded, the annual average results were below the MCL.
 **Level Detected for Disinfectants and Disinfection Byproducts is the highest locational running annual average of monthly/quarterly averages if sampled monthly/quarterly, or the highest result if sampled annually.

Lead and Copper (Tap Water)												
System	Major Grid			Mayport			Lofton Oaks Grid			Ponce de Leon Grid		
Contaminant & Unit of Measure	Sample Date	90th Percentile	# Exceeding AL	Sample Date	90th Percentile	# Exceeding AL	Sample Date	90th Percentile	# Exceeding AL	Sample Date	90th Percentile	# Exceeding AL
Copper (ppm)	06/20-07/20	0.09	0 of 99	06/20-07/20	1.01	2 of 13	06/20-08/20	0.03	0 of 34	06/20-08/20	0.10	0 of 11
Lead (ppb)	06/20-07/20	1.31	1 of 99	06/20-07/20	0.61	0 of 13	06/20-08/20	0.62	1 of 34	06/20-08/20	1.3	0 of 11

Secondary Contaminants												
System	Major Grid			Mayport			Lofton Oaks Grid			Ponce de Leon Grid		
Contaminant & Unit of Measure	Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results
Chloride (ppm)	03/20-04/21	301	9.6-301	NR	NR	NR	NR	NR	NR	NR	NR	NR
Odor (threshold odor number)	03/20-06/20	4	ND-4	3/21	8	N/A	NR	NR	NR	03/21-04/21	16	4-16
Sulfate (ppm)	03/20-06/20	253	22.6-253	NR	NR	NR	NR	NR	NR	03/21-04/21	269	160-269
Total Dissolved Solids (ppm)	03/20-06/20	903	156-903	NR	NR	NR	NR	NR	NR	03/21-04/21	656	474-656

***High levels of these contaminants do not show adverse health effects. Note: St. Johns Forest WTP (Major Grid) has a FDEP waiver for Sulfate levels not to exceed 500 mg/L.

Ponte Vedra Grid			Palm Valley			Likely Sources of Contamination		
Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results	Violation Y/N	MCLG or MRDLG	MCL or MRDL
ND	ND	ND	ND	ND	ND	N	0	See note
ND	ND	ND	N/A	N/A	N/A	Y	0	0

02/17	3.36	ND - 3.36	ND	ND	ND	N	0	15	Erosion of natural deposits
ND	ND	ND	03/20	0.5	ND-0.5	N	0	5	Erosion of natural deposits
ND	ND	ND	ND	ND	ND	N	0	30	Erosion of natural deposits

ND	ND	ND	03/20	0.12	ND-0.12	N	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
ND	ND	ND	ND	ND	ND	N	0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
03/20	0.025	0.024-0.025	03/20	0.022	0.020-0.022	N	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
03/20	0.79	0.789-0.793	03/20	0.78	0.75-0.78	N	4	4.0	Erosion of natural deposits; discharge from fertilizer and aluminum factories. Water additive which promotes strong teeth when at the optimum level of 0.7 ppm
03/20	0.32	0.27-0.32	ND	ND	ND	N	0	15	Residue from man-made pollution such as auto emissions and paint; lead pipe, casing, and solder
03/20	0.73	N-0.73	03/20	7	ND-7	N	N/A	100	Pollution from mining and refining operations; natural occurrence in soil
ND	ND	ND	01/21-06/21	0.026	0.024-0.026	N	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
ND	ND	ND	ND	ND	ND	N	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
03/20	0.66	ND-0.66	ND	ND	ND	N	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
03/20	22.79	21.99-22.79	03/20	25.0	23.0-25.0	N	N/A	160	Salt water intrusion, leaching from soil
ND	ND	ND	ND	ND	ND	N	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories

N/A	N/A	N/A	N/A	N/A	NA	N	0	10.0	By-product of drinking water disinfection
01/22-12/22	0.94	0.20-1.36	01/22-12/22	1.23	0.25 - 2.20	N	4	4.0	Water additive used to control microbes
01/22-07/22	9.87	9.05-9.87	10/22	25.70	18.20-25.70	N	N/A	60	By-product of drinking water disinfection
01/22-07/22	50.35	34.57-50.35	10/22	58.79	47.46-58.79	N	N/A	80	By-product of drinking water disinfection

Ponte Vedra Grid			Palm Valley			Likely Sources of Contamination		
Sample Date	90th Percentile	# Exceeding AL	Sample Date	90th Percentile	# Exceeding AL	Violation Y/N	MCLG or AL (Action Level)	MCL or MRDL
06/20-07/20	0.21	0 of 27	06/20-07/20	0.15	0 of 14	N	1.3	1.3
06/20-07/20	1.53	0 of 27	06/20-07/20	0.60	0 of 14	N	0	15

Ponte Vedra Grid			Palm Valley			Likely Sources of Contamination		
Sample Date	Level Detected	Range of Results	Sample Date	Level Detected	Range of Results	Violation Y/N	MCLG or MRDLG	MCL or MRDL
NR	NR	NR	NR	NR	NR	Y***	N/A	250
NR	NR	NR	NR	NR	NR	Y***	N/A	3
NR	NR	NR	NR	NR	NR	Y***	N/A	250
NR	NR	NR	NR	NR	NR	Y***	N/A	500



The Water Quality Report is provided to all customers of community water systems on an annual basis as required by the Environmental Protection Agency (EPA) under the 1996 Safe Drinking Water Act Amendments.

JEA 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 to December 31, 2022. Data obtained before January 1, 2022, and presented in this report are from the most recent testing done in accordance with the laws, rules, and regulations.

Out of more than 100 contaminants for which JEA routinely tests, only those that have been detected appear in the tables.

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:

- (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- (B) 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.
- (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- (D) 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.
- (E) Radioactive contaminants, which can be naturally occurring or be the 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 800-426-4791**.



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

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

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.

Maximum residual disinfectant 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 disinfectant 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.

Non-Detect (ND) - means not detected and indicates that the substance was not found by laboratory analysis.

Not Required (NR) - Secondary contaminants with sample results below the MCL are not required to be reported.

Parts per billion (ppb) or Micrograms per liter (µg/l) - one part by weight of analyte to 1 billion parts by weight of the water sample.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part by weight of analyte to 1 million parts by weight of the water sample.

Picocurie per liter (pCi/L) - measure of the radioactivity in water.

Variances and Exemptions - State or EPA permission not to meet an MCL under certain conditions.

Note: MCLs are set at stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink two liters of water every day at the MCL for a lifetime to have a one-in-a-million chance of having the described effect.



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. JEA 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 epa.gov/safewater/lead.

TTHM [Total Trihalomethanes]: The following samples during 2022 exceeded the TTHM MCL of 80 ppb. However, the system did not incur an MCL violation because all annual average results at all sites were 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.

Major Grid:

6506 Greenfern Lane: 90.69 ppb (Jan)

Ponce de Leon Grid:

2371 S. Ponte Vedra Blvd.: 81.88 & 85.61ppb (Jan)

125 Tides Edge Place: 92.81 (Jul)

E. coli: On August 25, 2022, coliform bacteria samples were taken from five of our 38 water treatment plants. The analysis results the next day showed the sample from Oakridge was positive for the fecal indicator, E. coli. On August 26th, we took the water plant offline, sampled each well five times, issued a Boil Water Advisory (BWA) for the area, and sampled the distribution system for two days. All samples were Absent for coliforms and the BWA was lifted August 28. E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.



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 from their health care providers about drinking water. 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**.

JEA WATER FACTS



**JEA's
11**

wastewater treatment plants have substantially reduced the nitrogen levels in treated wastewater discharged to the St. Johns River.



With over
4,600 miles

of water lines for distribution to our customers, JEA's water system is one of the largest and most complex in the country. That's why we continually inspect, maintain and upgrade our existing infrastructure to meet an ever-increasing need for reliability.



383,481

Water Customers

JEA produced on average
19 million gallons

per day of reclaimed water.



22,634

Reclaimed Customers

JEA's 8,000+ miles of water and wastewater pipes is greater than the **6,783 miles** it takes to drive a lunar rover around the circumference of the moon.



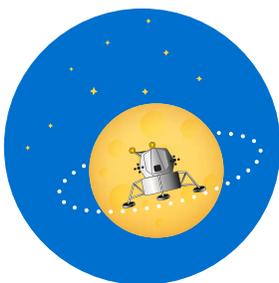
An estimated
40-50%

of the water JEA provides our customers is used outdoors, primarily for irrigation



39

Water Treatment Plants



337,920 Feet

of new water pipes, added in 2022, for the replacement of aging infrastructure & expansion of our distribution system.



136

Active Wells

Connect with us on



For more information on JEA's water quality tests or to request a report, please contact us.

Phone: (904) 665-6000

Email: WaterQuality@jea.com

Online: jea.com/WQR2022

By mail: JEA Water Quality
1002 N. Main St.

Jacksonville, FL 32206

In person: Printed copies are available at JEA's Downtown Customer Service Center and at every branch of the Jacksonville Public Library. JEA's board meetings are held 8 times per year at JEA's downtown offices, located at 225 N. Pearl Street, Jacksonville. The schedule is available at jea.com. The public is invited to attend.