



2016 WATER QUALITY REPORT

TOWN OF JUPITER UTILITIES



Water Plant Operations

MANAGING GROWTH WHILE ENSURING RELIABILITY

In 1978, the Town of Jupiter purchased its water system from Tri-Southern Utilities. At the time, the system's average daily flow was only 2.5 million gallons per day and served a population of approximately 15,000 people.

With the combined ground water from both the Floridan and Surficial Aquifer wells, the utility is capable of producing 30 million gallons a day of drinking water, which is enough to ultimately accommodate more than 120,000 people. Today,

its service areas encompass over 45 square miles including Jupiter, Juno Beach and many unincorporated areas of Palm Beach and Martin Counties.

To ensure reliability of service, over 27 million gallons of treated water storage is available and nearly all facilities have back up emergency power generation to help weather nearly any emergency, including hurricanes.

AWARD WINNING SERVICE

Did you know that residents of Jupiter have the best drinking water in the Southeast United States? Jupiter Utilities was awarded the Safe Drinking Water Act Excellence Award by the United States Environmental Protection Agency (EPA) in 1999, 2001, 2008 and 2010. This award proclaimed Jupiter as the top drinking water plant in the entire southeast portion of the United States.

The Florida Department of Environmental Protection awarded Jupiter Utilities the Plant Operations Excellence Award for 2008, 2009, 2010, 2013, and 2016. From 2008 through 2010, as well as 2014, the Florida Section of the American Water Works

Association has deemed the Jupiter Facility as the Best Class A Water Treatment Plant relative to Excellence in Operation and Maintenance.

In fact, over the past three decades, Jupiter's Water Utility has been honored by more than 40 awards for excellence by industry associations and the agencies which regulate its operation.

To view a full list of awards, visit our website at www.jupiter.fl.us/water



JUPITER'S TREATED WATER QUALITY RESULTS

The following tables list substances that may be found in your tap water, as well as the EPA's established acceptable levels of these contaminants. Jupiter's system again rates with excellence, has no violations, and meets or exceeds all federal and state requirements. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline, (800) 426-4791.

The Town of Jupiter Utilities 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 January 1 to December 31, 2016. Data obtained before January 1, 2016, presented in this report is from the most recent testing done in accordance with current regulations. Tests for sodium, volatile organic compounds, inorganic compounds, synthetic organic contaminants, and radiological contaminants are only required to be tested every 3 years per state regulation.

In addition to the items listed in the left column, we test for the presence of more than 100 other contaminants which do not appear in any detectable amounts. These

contaminants include 14 inorganic compounds such as arsenic and cyanide; 21 volatile organic compounds such as trichloroethylene; 30 pesticides and PCBs such as chlordane; 47 unregulated organic contaminants; and monthly, we perform 128 microbiological analyses for total coliform in the distribution system.

Although we are not currently required to test for Radon, we strive to go beyond state and federal standards. During 2016, we found only trace amounts of Radon in the finished water supply, far below the proposed federal standards, an average of 0.83 pCi/L. To put this in perspective, the proposed federal standard is 200 pCi/L. Radon is a radioactive gas that you can't see, taste or smell, and is a known human carcinogen. It can move up through the ground and into a home through cracks and holes in the foundation, and to a lesser extent, it can permeate indoor air when released from tap water during household activities such as showering and washing dishes. If you are concerned about Radon in your home, contact the EPA's Radon Hotline, (800) SOS-RADON, for more information.

LEAD AND COPPER (TAP WATER)

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO/YR)	AL EXCEEDANCE Y/N	90TH PERCENTILE RESULTS	NO. OF SAMPLING SITES EXCEEDING THE AL	MCLG	AL ACTION LEVEL	LIKELY SOURCE OF CONTAMINATION
COPPER (TAP WATER) (PPM)	08/16	N	0.30 PPM	0	1.3	1.3	Corrosion of household plumbing system; erosion of natural deposits; leaching from wood preservatives
LEAD (TAP WATER) (PPB)	08/16	N	2.1 PPB	0	0	15	Corrosion of household plumbing system; erosion of natural deposits

STAGE 1 DISINFECTANTS AND DISINFECTION BY-PRODUCTS

DISINFECTANT OR CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO/YR)	MCL OR MRDL VIOLATION Y/N	LEVEL DETECTED	RANGE OF RESULTS	MCLG OR MRDLG	MCL OR MRDL	LIKELY SOURCE OF CONTAMINATION
CHLORAMINES (PPM)	1/16 - 12/16	N	2.7 PPM	0.6 - 4.5	MCLG = 4	MCL = 4.0	Water additive used to control microbes

For chloramines or chlorine, the level detected is the highest running annual average (RAA), computed quarterly, of monthly averages of all samples collected. The range of results is the range of results of all the individual samples collected during the past year.

STAGE 2 DISINFECTANTS AND DISINFECTION BY-PRODUCTS

DISINFECTANT OR CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO/YR)	MCL OR MRDL VIOLATION Y/N	LEVEL DETECTED	RANGE OF RESULTS	MCLG OR MRDLG	MCL OR MRDL	LIKELY SOURCE OF CONTAMINATION
HALOACETIC ACID (FIVE) (HAAS) (PPB)	1/16 - 12/16	N	4 PPB	1 - 6	N/A	MCL = 60	By-product of drinking water disinfection
TTHM [TOTAL TRIHALOMETHANES] (PPB)	1/16 - 12/16	N	12 PPB	17 - 21	N/A	MCL = 80	By-product of drinking water disinfection

For haloacetic acids or TTHM, the level detected is the highest RAA, computed quarterly, of quarterly averages of all samples collected if the system is monitoring quarterly or is the average of all samples taken during the year if the system monitors less frequently than quarterly. Range of Results is the range of individual sample results (lowest to highest) for all monitoring locations, including Initial Distribution System Evaluation (IDSE) results as well as Stage 2 compliance results.

INORGANIC CONTAMINANTS

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO/YR)	MCL VIOLATION Y/N	LEVEL DETECTED	RANGE OF RESULTS	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
NITRATE AS NITROGEN (PPM)	4/16	N	0.14 PPM	N/A	10	10	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
NITRITE AS NITROGEN (PPM)	4/16	N	0.05 PPM	N/A	1	1	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
SODIUM (PPM)	2/14	N	43 PPM	N/A	N/A	160	Salt water intrusion, leaching from soil
FLOURIDE (PPM)	2/14	N	0.06 PPM	N/A	4	4	Erosion of natural deposits; discharge from fertilizer and aluminum factories. Water additive which promotes strong teeth when at optimum levels of 0.7
BARIUM (PPM)	2/14	N	0.0015 PPM	N/A	2	2	Discharge of drilling wastes; discharge of metal refineries; erosion of natural deposits

RADIOACTIVE CONTAMINANTS

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO/YR)	MCL VIOLATION Y/N	LEVEL DETECTED	RANGE OF RESULTS	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
RADIUM - 226 (pCi/L)	2/14	N	0.3 ± 0.2	N/A	0	5	Erosion of natural deposits

DEFINITIONS

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

Contaminant: Any unwanted physical, chemical, biological or radiological substance or matter in water.

Initial Distribution System Evaluation (IDSE): An important part of the Stage 2 Disinfection Byproducts Rule (DBPR). The IDSE is a one-time study conducted by water systems to identify distribution system locations with high concentrations of trihalomethanes (THMs) and haloacetic acids (HAAs). Water systems will use results from the IDSE, in conjunction with their Stage 1 DBPR compliance monitoring data, to select compliance monitoring locations for the Stage 2 DBPR.

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.

Maximum Contaminant Level or 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 or 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 or 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 or 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.

N/A: Not applicable.

ND: Not detected and indicates that the substance was not found by laboratory analysis.

Parts per billion (PPB) or Micrograms per liter ($\mu\text{g}/\text{l}$): One part by weight of analyte to one 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 one million parts by weight of the water sample.

Picocurie per liter (pCi/L): Measure of the radioactivity in water.

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

DRINKING WATER QUALITY

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.

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, 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 be reasonably 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.

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 at (1-800-426-4791).

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 Jupiter Utilities 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 (1-800-426-4791) or at www.epa.gov/safewater/lead.

2016 DROP SAVERS WINNER

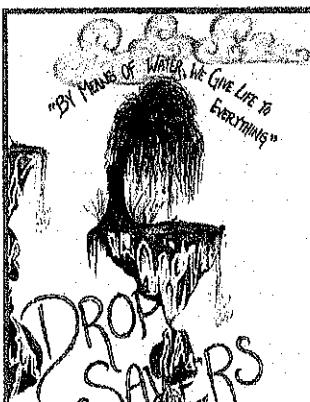
Nicholas Gordley
1st Place - Division 5
(9th-12th Grade)

Every year Jupiter Utilities participates in National Drinking Water Week in partnership with the FSAWWA. School children are encouraged to be more aware of water conservation. For more information about the Drop Savers Program, please visit www.jupiter.fl.us/water.

SOURCE WATER ASSESSMENT & PROTECTION PROGRAM (SWAPP)

In 2016, the Department of Environmental Protection performed a Source Water Assessment on our system. The assessment was conducted to provide information about any potential sources of contamination in the vicinity of our wells. There are 6 potential sources of contamination identified for this system with Low susceptibility levels.

The assessment results are available on the FDEP Source Water Assessment and Protection Program website at www.dep.state.fl.us/swapp.



OUR VISION

The Town of Jupiter's Water Utility is an established industry leader committed to maintaining standards of excellence while preserving the environment.

The water system strives to provide a cost effective, reliable potable water supply to customers, and has been recognized time and again by the industry and regulatory community for excellence in operations. The water system employs advanced drinking water treatment technologies to produce a product exceeding regulatory standards. The system has been developed to be dependable and worthy of our customer's confidence in the service provided. The Stormwater Utility strives to minimize the risk of flooding while working to enhance runoff water quality to restore, protect and enhance local water resources. Both utilities carry out their mission with the long-term goal of sustainability of our community.

ACHIEVING SUSTAINABILITY THROUGH INNOVATION

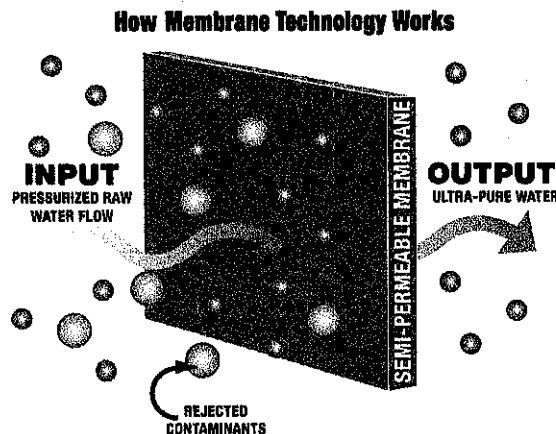
Jupiter's customers expect high water quality and responsible treatment of the environment. Achieving both of these things can sometimes be a challenge. As a coastal, south Florida community, Jupiter is in a region with limited fresh water supplies, and often experiences drought conditions during the dry season. Jupiter's nationally designated "wild and scenic" Loxahatchee River, which runs through the middle of the community, is subject to environmental harm if local freshwater supplies are depleted or damaged. If use of the shallow, fresh water aquifer in the Jupiter area is excessive, it can experience salt water intrusion from the nearby Atlantic Ocean.

To ensure a stable supply of drinking water for the area, Jupiter became one of the first large communities in the United States to employ state-of-the-art membrane water treatment technologies. Using innovative new processes, Jupiter is able to supply the highest quality drinking water while achieving environmental sustainability of its local water resources.

Jupiter uses two membrane treatment processes to treat its water: brackish water desalination through reverse osmosis and nanofiltration treatment of the fresh water supply. The product of these two treatment processes is combined to create high quality finished water that is distributed to the Jupiter region. These water treatment processes produce drinking water that surpasses all existing and many future quality standards. They also provide a way for Jupiter to use drought-resistant, alternative water supplies to create ultra-pure water in way that is not harmful to the environment.

Both the reverse osmosis and nanofiltration processes operate by forcing pressurized, raw water through a semi-permeable membrane that separates contaminants from the water. The chemical and physical properties of the membrane, combined with the pressure, remove unwanted substances from the groundwater. Membrane treatment also provides a barrier against viruses, bacteria and many other harmful contaminants found in raw water.

Jupiter's reverse osmosis (RO) facility was originally commissioned in 1990, and has been expanded three times since then. The RO plant treats the brackish water from the deep Floridan Aquifer, and produces water at such a high level of purity that it is coupled with an ion exchange treatment unit that helps stabilize the water for distribution. The RO facility can produce 15.5 million gallons per day of supply, or 75% of the community's total water demand in times of drought. Having a desalination facility that can produce high volumes of drinking water preserves limited fresh water resources



Jupiter is proud of its water utility and wants customers to be informed. If you have any concerns relative to our water quality, our professional lab staff would be pleased to respond at no cost to you.

◆ Contact Rebecca Wilder or Mark Cantor, 561-741-2601, Jupiter Water Utilities.

◆ Visit www.jupiter.fl.us/water.

◆ Attend Jupiter Town Council meetings when the Utilities Department business is on the agenda. Meetings are held on the first and third Tuesday of each month at 7:00 p.m. at Town Hall, 210 Military Trail, Jupiter. You can also watch Town Council meetings online and access agenda information at: www.jupiter.fl.us. Call Town Hall at 561-746-5134 for additional assistance.

from the shallow aquifer. It also ensures that demand for drinking water does not lead to any long-term environmental harm.

The nanofiltration water treatment system treats the fresh water from the shallower Surficial Aquifer and is very similar to the reverse osmosis desalination facility. Its membrane process also separates contaminants from the raw water, but it produces even higher-quality water. Nanofiltration produces very clear, clean-looking water that also exceeds drinking water standards.

Jupiter's nanofiltration process is also the first of its kind in the world, using an innovative design that reduces the amount of energy used by the plant. Called a "split-feed" nanofiltration process design, Jupiter's treatment plant has reduced energy requirements by 30% compared to conventional designs. Commissioned in 2010, the nanofiltration plant is a perfect example of Jupiter's commitment to preservation of the environment.

Jupiter preserves the raw water supply that comes from the aquifers by balancing its reverse osmosis and nanofiltration processes. But Jupiter was also concerned with how the waste from its treatment processes could be managed, so it applied some innovative thinking that ultimately protected the environment and broke some regulatory ground.

The treatment processes also produce by-products. Common practice in the industry is to treat these substances as waste, but Jupiter has found solutions for the management and use of this waste. A concentrate by-product from the reverse osmosis process is treated and discharged into a mixing zone in a canal before it is guided into the Loxahatchee River. The Florida Department of Environmental Protection and the United States Environmental Protection Agency both approved this process, which recycles the plant's brackish by-product by returning the water to the ecosystem. The concentrate by-product from the nanofiltration facility is also recycled, and is used by the community as a source of irrigation-quality water. This has resulted in a reusable water supply of over 3 million gallons per day.

With careful planning and a watchful eye on anticipated growth, Jupiter has developed one of the most advanced water systems in the country. Jupiter's water system is a workable combination of sustainability and conservation-oriented use of water resources. The Town is committed to the continued pursuit of innovative approaches to the treatment and supply of high-quality drinking water.