

2015 ANNUAL WATER QUALITY REPORT



Presented By
City of Stuart

Meeting the Challenge

The City of Stuart is pleased to present the annual water quality report, which covers all water quality analysis from January 1, 2015 to December 31, 2015. Over the years, the City has consistently produced drinking water that meets all Federal and State standards. The City continues to explore new methods for delivering the highest-quality drinking water to our consumers. As new challenges to drinking water safety arise, the City is committed to protecting source water, promoting water conservation, and providing community education while continuing to serve the needs of all our water users.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk of infections. These people should seek advice from their healthcare providers about drinking water. The United States Environmental Protection Agency (U.S. EPA) and the Centers for Disease Control and Prevention (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 at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Understanding 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 storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

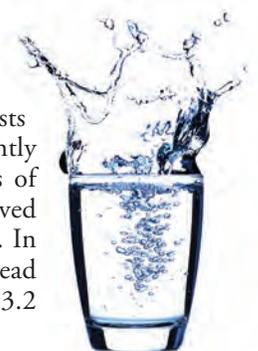
Radioactive Contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. EPA prescribes regulations that limit the amount of certain contaminants in water provided by public systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottle water that 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 (800) 426-4791.

Our Source Water

The City's water is obtained from the Surficial Aquifer through twenty-four production wells. The City's Water Treatment Facility has a capacity to treat six-million gallons of water per day. Major components consists of four air stripping towers, three solids contact units, three one-million gallon storage tanks, and five high-service pumps, for distribution to our customers. Treatment consists of hardness and color reduction, filtration, disinfection, and fluoridation. The City uses a slightly positive Langelier Index (a method of determining the stability of the water), which is a means of protecting water mains and household plumbing fixtures from corrosion. This protection is achieved by depositing a thin layer of calcium carbonate on the walls of pipes to create a protective coating. In addition, we add sodium hexametaphosphate as a method of protecting the water from leaching lead and copper from pipes and fittings. The Stuart Water Treatment Facility provides an average of 3.2 million gallons of clean, safe drinking water every day to its consumers.





Water's Worth It

Water should be clear, but not invisible. Indispensable to jobs, the economy, our health, and our communities, water runs through our lives in many ways. Everyone uses water and everyone must be responsible for it. To do that, we each need to learn to value water and come together to share an important message about water's worth.

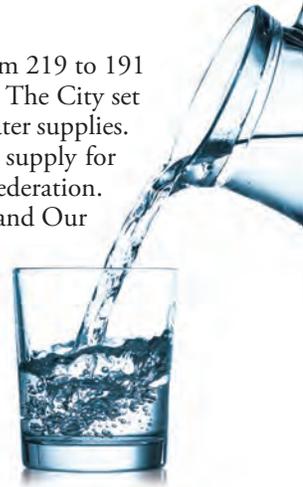
In 2007, the City of Stuart recognized that the average per person water use was 32 percent higher than the State average. This includes indoor and outdoor use. In addition, the City gets its water from the Surficial Aquifer, the shallowest of all the aquifers and a source of limited supply.

Stuart adopted a Water Conservation Initiative Plan to reduce the overall per-capita per-day (pcpd) usage from 219 to 191 by 2028 as required in a Consumptive Use Permit, issued by the South Florida Water Management District. The City set an even more aggressive goal to reach 163 pcpd by 2028 in order to postpone the need for costly alternative water supplies. The City has taken proactive measures with various water conservation programs to ensure a healthy water supply for the future. Stuart has adopted the "Water's Worth It" campaign, provided by the Water Environment Federation. Water's Worth It focuses on five essential components: Your Respect, Your Effort, Your Health, Your Future, and Our Passion. The City celebrates Water's Worth It with downtown pole banners, utility vehicle front license plates, uniform tee shirts for its utility employees, and information in the monthly utility bill newsletter.

Water's Worth It, along with other water conservation public outreach programs, has resulted in a 24 percent reduction in overall local water use.

Be as good to water as water's been to you. WATER'S WORTH IT!

To learn more, visit www.cityofstuart.us or www.WatersWorthIt.org.



Lead in Home Plumbing

Homes built before 1986 are more likely to have lead pipes, fixtures, and solder. 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. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. The City of Stuart's drinking water meets or exceeds all regulatory standards. As a rule, the City protects its customers from the exposure of lead through its regular treatment process. Because of our treatment methods, the City is required to perform lead sampling once every three years. When your water has been sitting in your plumbing for several hours, you can minimize the potential for lead exposure by flushing your tap for as little as 30 seconds and up 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 and the steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Additional Information on the Web

The USEPA Office of Water (<http://water.epa.gov>) and the Centers for Disease Control and Prevention (www.cdc.gov) websites provide a substantial amount of information on many issues relating to water resources, water conservation, and public health. Also, the Florida Department of Environmental Protection has a website (www.dep.state.fl.us) that provides complete and current information on water issues in Florida, including valuable information about our watershed.

QUESTIONS?

For questions about this report, or any questions about your water, please call Michael Woodside, Water Treatment Team Leader, at (772) 288-5343. For additional information about the City of Stuart, please visit our Web site: www.cityofstuart.us.

Source Water Assessment

In 2015, the Florida Department of Environmental Protection (FDEP) 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 12 potential sources of contamination identified for this system with a low to moderate susceptibility level. The assessment results are available on the FDEP Source Water Assessment and Protection Program Web site at www.dep.state.fl.us/swapp.



Good to Know

What is the typical per day water use?

While usage varies from community to community and from person to person, on average, according to the South Florida Water Management District's Upper East Coast Water Supply Plan, people use 117 gallons of water per person per day. The average family turns on the tap 70 to 100 times daily. About 74 percent of home water usage occurs in the bathroom, about 21 percent in the laundry room, and 5 percent in the kitchen. The average water use per person per day in the City of Stuart is 167.

How much water is used to create the food we eat each year?

The average American consumes 1,500 pounds of food each year; 1,000 gallons of water is required to grow and process each pound of food. Thus, 1.5 million gallons of water is invested in the food eaten annually by just one person! This, more than 200,000 cubic feet of water, is enough to cover a football field four feet deep.

Is it OK to use hot water from the tap for cooking?

No, ALWAYS use cold water. Hot water is more likely to contain rust, copper, and lead from household plumbing and water heaters. These harmful substances can dissolve into hot water faster than they do into cold water, especially when the faucet has not been used for an extended period of time.

What type of container is best for storing water?

Consumer Reports has consistently advised that glass or BPA-free (Bisphenol A-free) plastics such as polyethylene are the safest choices. To be on the safe side, do not use any container with markings on the recycle symbol showing 7 PC (which is the code for BPA). You could also consider using stainless steel or aluminum containers that have BPA-free liners.

How much water is used in the shower?

A 10-minute shower can use 25 to 50 gallons of water. High-flow shower heads allow a flow of 6 to 10 gallons per minute. High-efficiency shower heads can cut the rate in half without reducing pressure.

What can we do to conserve water?

Repair dripping faucets, replace old, high-volume shower heads with ultra-low versions, replace toilets that were in use prior to 1995, operate automatic dishwashers, and do laundry only with full loads. Don't overwater your lawn; lawns can be irrigated only two days per week in accordance with the City's Ordinance No. 2202-10. For more information on water conservation, please visit the City's website, www.cityofstuart.us, or visit the South Florida Water Management District's Web site at www.sfwmd.gov.

Sampling Results

This annual report is designed to inform you about the quality of the City's drinking water. During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic contaminants. The tables below show only those contaminants that were detected in the water. The State of Florida requires that the City monitor for certain substances less often than once per year as the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

PRIMARY REGULATED CONTAMINANTS

Microbiological Contaminants

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO./YR.)	MCL VIOLATION (YES/NO)	HIGHEST MONTHLY NUMBER	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Total Coliform Bacteria (# positive samples)	04/2015 and 5/2015	No	1	0	Presence of coliform bacteria in 1 sample collected during a month	Naturally present in the environment

Inorganic Contaminants

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO./YR.)	MCL VIOLATION (YES/NO)	LEVEL DETECTED	RANGE OF RESULTS	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Barium (ppm)	12/16/2015	No	0.0049	NA	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	12/16/2015	No	0.46	NA	4	4.0	Erosion of natural deposits; discharge from fertilizer and aluminum factories; water additive that promotes strong teeth when at optimum levels between 0.7 and 1.3 ppm
Nitrate [as Nitrogen] (ppm)	12/3/2015	No	0.23	NA	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite [as Nitrogen] (ppm)	12/3/2015	No	0.025	NA	1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium (ppm)	12/16/2015	No	21.3	NA	NA	160	Salt water intrusion; leaching from soil

Volatile Organic Contaminants

cis-1,2-Dichloroethylene (ppb)	01/2015, 04/2015, 07/2015, 12/2015	No	0.70	0.57–0.84	70	70	Discharge from industrial chemical factories
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Stage 2 Disinfectants and Disinfection By-Products

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO./YR.)	MCL VIOLATION (YES/NO)	LEVEL DETECTED	RANGE OF RESULTS	MCLG OR [MRDLG]	MCL OR [MRDL]	LIKELY SOURCE OF CONTAMINATION
Chloramines (ppm)	01/2015–12/2015	No	3.5	3.0–3.9	[4]	[4.0]	Water additive used to control microbes
Haloacetic Acids (five) [HAA5] (ppb)	01/2015, 04/2015, 07/2015, 12/2015	No	24	13–36	NA	60	By-product of drinking water disinfection
TTHM [Total trihalomethanes] (ppb)	01/2015, 04/2015, 07/2015, 12/2015	No	37	19–60	NA	80	By-product of drinking water disinfection

Lead and Copper (Tap water samples were collected from sites throughout the community.)

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO./YR.)	AL EXCEEDANCE (YES/NO)	90TH PERCENTILE RESULT	NO. OF SAMPLING SITES EXCEEDING THE AL	MCLG	AL (ACTION LEVEL)	LIKELY SOURCE OF CONTAMINATION
Lead [tap water] (ppb)	08/2013	No	5.5	1	0	15	Corrosion of household plumbing systems; erosion of natural deposits

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards (for example, maximum contaminant levels) to improve drinking water quality. For the complete list of results, including the non-detected contaminants, contact us at (772) 288-5343. If you would like more information on the EPA's Unregulated Contaminants Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

UNREGULATED CONTAMINANT MONITORING RULE PART 3 (UCMR3)

CONTAMINANT AND UNIT OF MEASUREMENT	DATES OF SAMPLING (MO/YR)	LEVEL DETECTED	RANGE	LIKELY SOURCE OF CONTAMINATION
Perfluoroheptanoic acid (ppb)	7/2014–01/2015	0.008	0.008–0.009	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluorooctanesulfonic acid (ppb)	7/2014–01/2015	0.14	0.14–0.18	Surfactant or emulsifier; used in fire-fighting foam, circuit board etching acids, alkaline cleaners, floor polish, and as a pesticide active ingredient for insect bait traps; US manufacture of PFOS phased out in 2002; however, PFOS still generated incidentally
Perfluorohexanesulfonic acid (ppb)	7/2014–01/2015	0.055	0.055–0.079	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluorononanoic Acid (ppb)	7/2014–01/2015	0.024	0.024–0.027	Manmade chemical; used in products to make them stain, grease, heat and water resistant
Perfluorooctanoic acid (ppb)	7/2014–01/2015	0.020	0.020–0.023	Perfluorinated aliphatic carboxylic acid; used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives and photographic films
Chromium (ppb)	7/2014–01/2015	0.38	0.34–0.38	See Hexavalent Chromium for use and source information. Though the amount measured when analyzing for “total chromium” is the sum of chromium in all of its valence states, the MCL for EPA's current total chromium regulation was determined based upon the health effects of chromium-6
Chlorate (ppb)	7/2014–01/2015	338	338–478	Agricultural defoliant or desiccant; disinfection byproduct; and used in the production of chlorine dioxide
1,4 Dioxane (ppb)	7/2014–01/2015	0.13	0.12–0.13	Cyclic aliphatic ether; used as a solvent or solvent stabilizer in manufacture and processing of paper, cotton, textile products, automotive coolant, cosmetics, and shampoos
Hexavalent Chromium (ppb)	7/2014–01/2015	0.23	0.16–0.23	Naturally-occurring element; used in making steel and other alloys; Chromium-3 or - 6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Strontium (ppb)	7/2014–01/2015	306	251–306	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium (ppb)	7/2014–01/2015	1.2	0.91–1.2	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst

Definitions

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

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.

NA: Not applicable

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).