



the value of **tap** *water*

2012



Water Quality Report

WATER AND WASTEWATER SERVICES



**Alan W. Garcia, P.E., Director
Broward County Water and
Wastewater Services**

Dear Customers,

In 2012, Water and Wastewater Services (WWS) celebrated 50 years of providing safe drinking water and wastewater

treatment services to our customers. We are pleased to report that our water meets or exceeds all standards of the federal Safe Drinking Water Act.

Throughout our first half-century of serving you, our focus has remained on preserving, protecting and providing a most valuable resource to the people we serve. Plainly speaking, what is the value of tap water?

Tap water delivers public health. Our first obligation as a water supplier is to provide water that is safe for public consumption. Worldwide, an estimated 3 million people die every year from preventable waterborne disease. WWS operates a highly acclaimed, state-certified, award-winning laboratory that monitors daily for contaminants and must meet stringent federal, state and local regulations for water safety and quality. Tap water undergoes much more frequent testing than bottled water.

Tap water delivers fire protection. Well-maintained water systems are critical to protect communities from the threat of fire. Although firefighters are the primary operators of fire hydrants, water utilities are responsible for maintaining the volume and pressure of the hydrants.

Tap water delivers economic development. A safe and reliable supply of water is key to the economic success of communities. Tap water is vital to the day-to-

day operations of existing businesses as well as to the viability of new commercial enterprises and residential developments. And, in recent years, recycled (or reclaimed) water is assuming a critical role for communities using it for industrial cooling or irrigation of parks and golf courses.



Tap water delivers quality of life. Tap water is so essential to our everyday lives, so much more than a mere convenience that it is hard to imagine what we would do without it. All measures of what we consider a successful society — low mortality rates, economic diversity, productivity, public safety — can be dependent on access to safe water.



We all benefit from the network of treatment plants, pump stations, pipes, etc. that has been put in place and is regularly upgraded. The Neighborhood Improvement Program, which began in 1996, and which will ultimately impact more than 90,000 residents, has contributed greatly to Water and Wastewater Services' efforts to provide and maintain the infrastructure capable of supplying high quality raw and potable (drinking) water.

In addition, Water and Wastewater Services is committed to managing its overall Capital Improvement Program in such a way as to ensure that cost-effective and reliable infrastructure is available in a timely manner to meet the current and projected demands and capacities for raw and potable water within our service areas.



The water utility's efforts to protect and preserve — by upgrading and improving its infrastructure — this most valuable resource have been strongly complemented by our customers' embrace of conservation. Your efforts in this area have eased the pressure on water supplies and allowed Water and Wastewater Services to explore

other potentially cheaper options for the future. Newer, water-efficient toilets and other fixtures as well as restrictions on lawn irrigation have also helped to emphasize the value of water.

WWS offers programs that encourage conservation, such as a toilet credit program for homeowners installing low flow, high efficiency toilets, and is an active participant in community outreach and education activities such as 'Water Matters Day,' 'Earth



Day,' and 'National Drinking Water Week.' Representatives are available to address homeowner association groups and to conduct plant tours.

We thank you for your support and appreciate the opportunity to serve you — our valuable customers!

Handwritten signature of Alan W. Garcia.

Alan W. Garcia, P.E., Director
Broward County Water and
Wastewater Services



Our Water Quality Meets or Exceeds EPA Regulations

A review of the following WWS the 2012 water quality data shows that your drinking water quality meets all primary standards set by the United States Environmental Protection Agency. The following tables list the parameters set by the Safe Drinking Water Act and the levels detected in potable water for Districts 1A, 2A, 3A and 3B/C. This report includes the results of our monitoring for the period of January 1 to December 31, 2012. Data obtained before January 1, 2012, and presented in this report are from the most recent testing done in accordance with drinking water laws, rules, and regulations.

DEFINITIONS FOR THE TABLES

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

D/DBP: Disinfectant/Disinfectant By-product.

Maximum Contaminant Level or MCL: This is the highest level of contaminant that is allowed in 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 the 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.

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

N/A: Not applicable.

ppb: Parts per billion, or micrograms per liter ($\mu\text{g}/\text{l}$).

ppm: Parts per million, or milligrams per liter (mg/l).

TTHM: Total Tri-halomethanes.

2012 TEST RESULTS 3A and 3BC water supplied by the City of Hollywood

MICROBIOLOGICAL CONTAMINANTS									
Contaminant	Date of Sampling (mo/yr)	MCL Violation Y/N	1A Highest Monthly % Positive	2A Highest Monthly % Positive	3A Highest Monthly # Positive	3BC Highest Monthly % Positive	MCLG	MCL	Likely Source of Contamination
Total Coliform Bacteria	01/12 - 12/12	N	1.19%	0.00%	NA	4.97%	0.0%	> 5%	Naturally present in the environment
		N	NA	NA	0	NA	0	> 1	
E. Coli		N	1	0	0	0	0	0	Human and animal fecal waste
<p>In February 2012, the 1A water distribution system was sampled for the fecal indicator E. coli. 1A was notified on February 08, 2012 that one sample out of 82 tested, showed E. coli to be present. On February 09, 2012, three repeat samples were taken as required by Rule. On February 10, 2012, 1A was notified that all three repeat samples tested were absent for E. coli.</p>									
<p>Health Effects: Fecal coliforms and 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.</p>									
INORGANIC CONTAMINANTS									
Contaminant	Date of Sampling (mo/yr)	MCL Violation Y/N	1A	2A	3A	3BC	MCLG	MCL	Likely Source of Contamination
Arsenic (ppb)	01/11 - 12/12	N	ND	ND	0.65	0.65	0	10	Erosion of natural deposits
Barium (ppm)	01/11 - 12/12	N	0.004	0.006	0.004	0.004	2	2	Erosion of natural deposits
Fluoride (ppm)	01/11 - 12/12	N	0.939	0.904	0.85	0.85	4	4	Additive to promote strong teeth when 0.7-1.3 ppm.
Nitrate (ppm)	01/12 - 12/12	N	0.252	ND	0.11	0.11	10	10	Runoff from fertilizer use; erosion of natural deposits
Nitrite (ppm)	01/12 - 12/12	N	0.041	0.096	0.043	0.043	1	1	Runoff from fertilizer use; erosion of natural deposits
Sodium (ppm)	01/11 - 12/12	N	40.4	19.4	29.1	29.1	NA	160	Leaching from soil
Selenium (ppb)	01/11 - 12/12	N	ND	ND	3.4	3.4	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits
STAGE 2 DISINFECTANTS & DISINFECTION BY-PRODUCTS									
Contaminant	Date of Sampling (mo/yr)	MCL Violation Y/N	1A (range)	2A (range)	3A (range)	3BC (range)	MCLG or MRDLG	MCL or MRDL	Likely Source of Contamination
Chlorine (ppm)	01/12 - 12/12	N	3.5 (0.5-5.5)	3.9 (2.7-4.5)	3.5 (0.4-5.0)	3.5 (0.6-4.5)	4.0	4.0	Water additive used to control microbes
HAA5-haloacetic acids (ppb)		N	35.43 (21.6-46.8)	28.23 (9.4-47.3)	14.92 (6.7-31.7)	11.61 (5.6-18.7)	NA	60	By-product of drinking water disinfection
TTHM-total trihalomethanes(ppb)		N	42.88 (23.8-61.0)	21.18 (9.9-39.8)	11.07 (5.4-16.6)	10.43 (4.4-18.8)	NA	80	By-product of drinking water disinfection
LEAD & COPPER (Tap Water)									
Contaminant (90th Percentile Value)	Date of Sampling (mo/yr)	AL Violation Y/N	1A	2A	3A	3BC	MCLG	Action Level (AL)	Likely Source of Contamination
Copper (Tap Water) (ppm)	01/10 - 12/10	N	0.020	0.034	0.085	0.042	1.3	1.3	Corrosion of household plumbing systems, erosion of natural deposits
# of Sites exceeding the AL			0	0	0	0			
Lead (Tap Water) (ppb)		N	2.3	2.0	1.48	0	0	15	
# of Sites exceeding the AL			0	0	0	0			

Water Quality

Source of Water

Your tap water originates from the Biscayne Aquifer, which lies 50-200 feet underground. The Aquifer is comprised primarily of limestone and sand. Recharge is received from rainwater and surface canals. As a groundwater source, the Aquifer is naturally protected from undesirable microbial pathogens that are common in surface water supplies. This is due to the natural filtration that occurs in the Aquifer and the amount of time the water resides in the ground prior to being withdrawn.

Source Water Assessment

The State of Florida Department of Environmental Protection (FDEP) performed a Source Water Assessment on our systems in 2012. The report(s) indicated 0 unique potential contaminant sources in District 1A and 1 unique potential contaminant sources in District 2A. Potential contaminant sources include gas stations, dry cleaners, injection wells and other businesses that operate in the service areas. All potential sources are considered to be of moderate or low concern based on FDEP scoring results. In 2012, the Florida Department of Environmental Protection performed a Source Water Assessment for the City of Hollywood which provides water for the 3A and 3BC systems. The assessment results are available on the FDEP Source Water Assessment and Protection Program website at dep.state.fl.us/swapp.

Softening

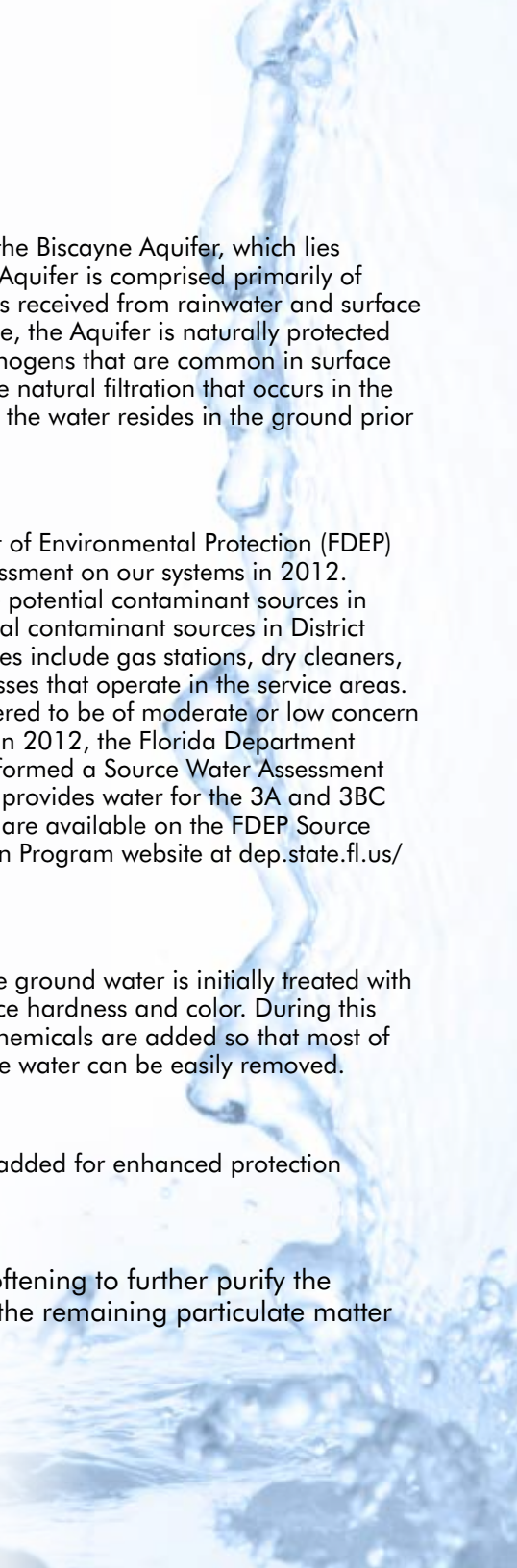
At the water treatment plant, the ground water is initially treated with lime and ferric chloride to reduce hardness and color. During this step of the treatment process, chemicals are added so that most of the hardness and particles in the water can be easily removed.

Fluoridation

Following softening, fluoride is added for enhanced protection against tooth decay.

Filtration

Filtration is used following softening to further purify the softened water by removing the remaining particulate matter from the treated water.



Disinfection

Disinfection, which is the final treatment step, is accomplished by the addition of chlorine and ammonia, otherwise known as chloramines. A small amount (residual levels) of chloramines disinfectant is maintained throughout the distribution system in order to control microbial regrowth.

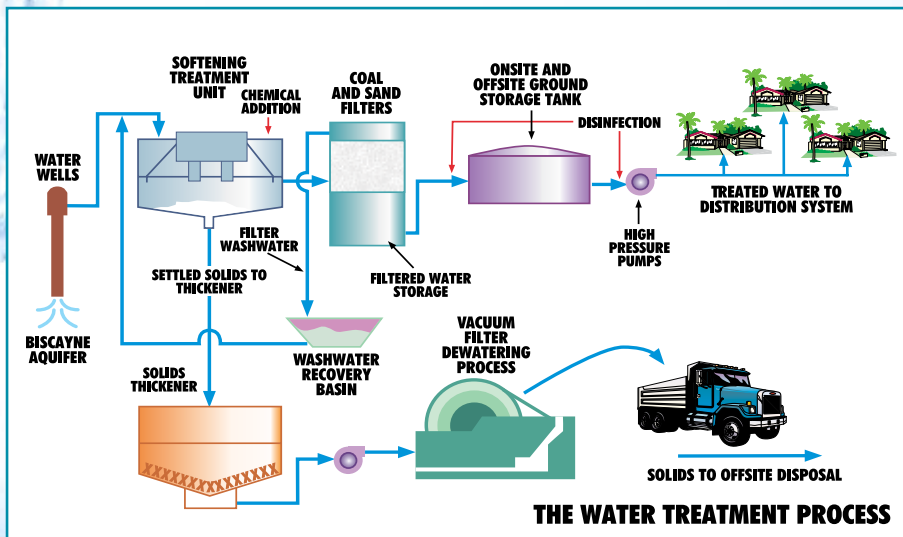
Dewatering

Solids that settle out during the treatment process are collected and pumped to a settling basin, where they are thickened. The thickened solids are pumped to a vacuum filter, which removes excess water. Dewatered solids are finally hauled away for land application.

Monitoring

More than 23,000 tests are performed each year to comply with national standards in WWS' NELAP* certified drinking water laboratory.

WWS also employs certified water treatment operators who conduct more than 317,000 process control tests annually. These tests ensure that the water treated and delivered to Broward County customers meets or exceeds all federal requirements for safe drinking water under the Safe Drinking Water Act.



* National Environmental Laboratory Accreditation Program (NELAP Institute/TNI)



Possible Contaminants

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, aquifers, 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 activities.
- (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.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration 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 EPA's Safe Drinking Water Hotline at **800-426-4791**.

A large, dynamic splash of water in shades of blue and white, occupying the left side of the page. The water is captured in mid-air, creating a sense of movement and freshness.

Immuno-Compromised Persons

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. The Environmental Protection Agency and Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection from *Cryptosporidium* and other microbiological contaminants are available from EPA's Safe Drinking Water Hotline at **800-426-4791**.

Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials and components associated with service lines and home plumbing. Broward County Water and Wastewater Services 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 two 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 at **800-426-4791** or at epa.gov/safewater/lead.





The Value of Water Conservation

WWS is governed by regulatory agencies, but is also affected by legislative decisions, such as the passed Senate Bill regarding Ocean Outfalls. Utilities are required to eliminate ocean outfalls as the primary disposal method for treated wastewater by 2025 and significantly decrease nutrients discharged through the outfalls by 2018.

While this legislative action will greatly benefit the environment it will also require utilities to build facilities with technology for Advanced Wastewater Treatment and reuse for about 60 percent of the water previously discharged through the outfalls. Utilities will incur higher costs and residents may have to pay higher rates as a result of this law. However, rate increases may be deferred and/or mitigated through water conservation. If customers reduce water consumption, utilities can build smaller treatment plants thereby reducing likely rate increases.

Water and Wastewater Services has been an essential part of this community for more than 50 years. Our challenges are your challenges. Our neighborhoods are your neighborhoods. The solutions we develop for our common issues and concerns help all of us.

The Water We Have Is the Water We've Always Had

Did you know that the same amount of water that exists today on earth existed 3 billion years ago? It is the same water that moves unendingly from sea to clouds to rain to earth and back again. This never-ending journey is referred to as the Water Cycle. During its journey, water is continuously reused and recycled. Because water covers three quarters of the earth's surface, it might appear that there is plenty to go around.

In reality, however, we have a limited amount of usable fresh water.

Over 97 percent of earth's water is found in the oceans as salt water. About two percent of the earth's water is stored in glaciers, ice caps and snowy mountain ranges. That leaves only one percent of fresh water that is readily available to us for our daily water supply needs. The earth's fresh water supplies are stored either beneath the ground, in soil or fractured bedrock, or in surface waters, such as lakes, rivers and streams.

While the total amount of water on earth remains constant, the availability of that water changes with weather (for example drought or flooding), season and human use.

In the past, our region has taken water for granted. Today, we realize our economic vitality and way of life are linked to water.

We realize we must change our ways and protect our water resources for the future.



Reduce Your Water Use ... No Excuse!



This section is designed to help you think about how you could make different choices to lessen your impact on the environment. Hopefully, it will show you that being more environmentally-friendly is possible even in the midst of a busy lifestyle and tight finances.

1. Fix your drips

A dripping faucet can waste 20 gallons of water a day. A leaking toilet can use 90,000 gallons of water in a month. Get out the wrench and change the washers on your sinks and showers, or get new washerless faucets. Keeping your existing fixtures equipment well maintained is probably the easiest and cheapest way to start saving water.

2. Install new fixtures


New, low volume or dual flush toilets, low flow showerheads, water-efficient dishwashers and clothes washing machines can all save a great deal of water and money. Investing in a low-flow toilet could save another 50-80 gallons of water a day. Together, those changes nearly cut in half the household's daily use.

3. Cultivate good water habits

Try to avoid wasting this precious resource by turning off the water while brushing your teeth or shaving and always wash laundry and dishes with full loads. When washing dishes by hand, fill up the sink and turn off the water. Take shorter showers. To put things in perspective, take a quick look at your next water bill when it arrives. The average household consumes multiple thousands of gallons each month. See if you can make this number go down.

4. Stay off the bottle

Bottled water companies' marketing campaigns that claim bottled water is safer or purer have been enormously successful. The truth is that tap water is actually held to more strict quality standards than bottled water, and some brands of bottled water are just tap water in disguise. What's more, our increasing use of bottled water — more than 22 gallons per U.S. citizen in 2004, according to the Earth Policy Institute — fuels an unsustainable industry that takes a heavy toll on the environment, including fossil fuel consumption, water consumption and waste.



So the next time you feel thirsty, give up the bottle and turn to the tap. You'll not only lower your environmental impact but also save money—bottled water can cost up to 10,000 times more per gallon than tap water. And because the EPA's standards for tap water are more stringent than the FDA's standards for bottled water, you'll be drinking water that is just as safe, or safer than bottled. If you will be away from home, fill a reusable bottle from your tap and refill it along the way; travel bottles with built-in filters are also available.

Finally, limit your bottled water purchases for those times when you're traveling in countries where water quality is questionable.

5. Rethink your lawn

NatureScape it, using native plants that are hardy and don't need a lot of water. If you have to water, do it during the coolest part of the day or at night to minimize evaporation. For more information on a Florida Friendly Landscape, visit broward.org/naturescape.

6. Harvest your excess water

Water from showers, sprinklers and rain can be used for other jobs. Placing a bucket to catch water in the shower provides water for indoor plants.

7. Use car washes

Car washes are often more efficient than home washing because they treat and recycle their water.

8. Keep your eyes open

Report broken pipes, open hydrants, and excessive waste. Don't be shy about pointing out leaks to your friends and family members, either. They might have tuned out the dripping sound a long time ago.

9. Don't spike the punch

Water sources have to be protected. Reducing your fertilizer use will decrease nutrient inputs to our waters and save you money. Instead of blowing grass clippings down the street, you can reduce your need for chemical fertilizers by spreading clippings over your lawn to return nutrients to the soil. Nutrients trapped in organic matter, like grass clippings, leaves, and other organic material can be re-released as pollutants when organic debris enters canals, and lakes. Clippings and leaves can also clog storm drains and culverts and create flooding.

Broward County's Commitment to Water Conservation

Conservation is central to maintaining an adequate supply of drinking water for the present and the future. Broward County has developed a water conservation program that includes the following components:

Regulations

- Ultra-low volume plumbing fixtures are required for all new construction.
- Lawn watering and car washing restrictions, broward.org/waterservices.
- Rain Sensor devices must be installed in all new irrigation systems.
- Two-day per week, year-round landscape watering restrictions are mandatory for County, city and private water customers.

Programs

- WWS offers credits of up to \$200 per home to customers who replace their high water use toilets with new, high-efficiency model toilets.
- WWS is partnering with the U.S. Environmental Protection Agency to promote their WaterSense® Labeled Toilet Program. For more information on WWS's Toilet Credit Program, visit broward.org/waterservices.
- WWS maintains an aggressive leak detection program to minimize water loss.
- WWS sponsors a low-income assistance leak repair program.
- WWS's 10-mgd wastewater reuse facility supplies water for the North Resource Recovery Facility and for lawn irrigation.
- WWS uses increasing block water rates, which means the less water you use, the lower rate per 1,000 gallons you pay.

Our Best In Every Drop

Mission Statement

Water and Wastewater Services is committed to being a benchmark comprehensive utility providing exceptional retail and regional water and wastewater management services and programs to its customers; supporting continuous improvement while maintaining the quality of life in Broward County through sound environmental practices.



A SERVICE OF THE BROWARD COUNTY BOARD OF COUNTY COMMISSIONERS

An equal opportunity employer and provider of services.

WATER AND WASTEWATER SERVICES

2555 West Copans Road,
Pompano Beach, FL 33069

broward.org/waterservices

GENERAL INFORMATION:

Customer Service

Phone: **954-831-3250**

PROJECT INFORMATION:

Water and Wastewater Engineering Division

Phone: **954-831-0745**

WATER CONSERVATION

broward.org/watermatters

EMPLOYMENT INFORMATION:

Phone: **954-357-JOBS**

broward.org/careers

ADDITIONAL INFORMATION:

Environmental Protection Agency

Safe Drinking Water Hotline

Phone: **800-426-4791**

epa.gov/safewater

National Centers for Disease Control

Phone: **800-232-4636**

cdc.gov

American Water Works Association

Phone: **800-926-7337**

awwa.org

South Florida Water Management District

Phone: **800-662-8876**

sfwmd.gov

FOR ADDITIONAL COPIES OF THIS REPORT, CONTACT:

Water and Wastewater Operations Division

Phone: **954-831-0810**

Fax: **954-831-0842**

TO VIEW THE 2012 WATER QUALITY REPORT ONLINE, GO TO:

broward.org/WaterServices/Documents/2012WaterQualityReport.PDF

This public document was promulgated at a cost of \$16,705.00, or \$0.34 cents per copy, including postage to provide public information about Broward County's drinking water quality during 2012. If you pay the water bill for a condominium or rental property (residential or commercial) please advise your residents/tenants that this report is available.



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Water Quality Report
WATER AND WASTEWATER SERVICES