ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2014

Presented By

Florida Keys Aqueduct Authority

PWS ID#: 4134357, 5444047

Our Mission Continues

We are proud to present once again our annual water quality report covering all testing performed between January 1 and December 31, 2014. Most notably, last year marked the 40th anniversary of the Safe Drinking Water Act (SDWA). This rule was created to protect public health by regulating the nation's drinking water supply. We celebrate this milestone as we continue to manage our water system with a mission to deliver the best quality drinking water.

The Florida Keys Aqueduct Authority (FKAA) publishes this report to provide you, the consumer, with important information regarding your water quality. Where your water comes from, what analytical tests are conducted, what they reveal, and how the results compare to regulatory standards are all addressed here. We are passionate about maintaining superior water quality and are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of source water protection, distribution and transmission system protection, and water conservation.

Through proactive efforts, including extensive monitoring, continual assessments, and dynamic planning, the FKAA works diligently to safeguard our water supply. Progressive planning, such as construction of our reverse osmosis plant, the strategic installation of additional monitoring wells, and the implementation of alternative water supplies and advanced conservation strategies, will continually be used to protect our resource. Additionally, we persist in our efforts to manage the impacts to our transmission and distribution lines from ongoing outside utility construction and harsh environmental conditions. Throughout these challenges, we maintain our high standards in an effort to continue delivering the best-quality drinking water possible. There may be other hurdles in the future, but please know that we will always stand by you and the exceptional drinking water we work diligently to provide. We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you.

Community Participation

You are invited to participate in regularly scheduled board meetings and voice your concerns about your drinking water. Call the executive office at (305) 296-2454, or visit our Web site at www.fkaa.com for more information on these meetings.

Where Does My Water Come From?

J. Robert Dean Water Treatment Facility (PWS ID#: FL4134357)

The FKAA's primary drinking water supply originates from the Biscayne Aquifer, a below-ground limestone geological formation that produces high-quality freshwater. Our wellfield is located within an environmentally protected pine rockland forest west of Florida City on the mainland. The location of the wellfield near Everglades National Park, along with restrictions enforced by state and local regulatory agencies, contributes to the remarkably high-quality source water. The FKAA wells contain some of the highest quality groundwater in the state, meeting all regulatory standards prior to treatment.

Included in the regulations mentioned above are restrictions that limit the amount of water that can be extracted from the Biscayne Aquifer. To meet these regulations the FKAA utilizes the Floridan Aquifer, a brackish groundwater source located approximately 800 to 1,000 feet below the surface, to supplement and protect our primary Biscayne supply. The FKAA constructed a low-pressure reverse osmosis (LPRO) water treatment plant at our Florida City Wellfield in 2009 to utilize the Floridan Aquifer and contribute up to an additional six million gallons per day to our water supply.

Kermit H. Lewin Reverse Osmosis & Marathon Reverse Osmosis Facilities (PWS ID#: FL5444047)

During an emergency situation, the FKAA may utilize the emergency reverse osmosis Water Treatment Plants (WTPs) located in Stock Island (Kermit Lewin Reverse Osmosis Facility) and Marathon to supplement the water supply and increase emergency storage capacity. The RO WTPs withdraw from seawater wells to produce potable water from saltwater.

Source Water Assessment Plan

The Florida Department of Environmental Protection (FDEP) is conducting a statewide source water assessment project. This project will result in Source Water Assessment reports that will identify and assess any potential sources of contamination in the vicinity of each water supply in the state. This inventory only identifies potential sources of contamination. It does not mean that these sites are actively causing contamination of the drinking water source. The FDEP has performed a source water assessment on our shallow aquifer system in Florida City and a search of the data sources indicated one potential source (FKAA's injection well utilized for its disposal of concentrate from the RO water treatment plant) of contamination near our wells. This source is categorized by the FDEP as being of low concern; the product being chloride from the Floridan Aquifer.

The Source Water Assessment report for our system is available at the FDEP Source Water Assessment and Protection Program Web site at www.dep.state.fl.us/swapp.

Important Health Information for Vulnerable Populations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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.

How Is My Water Treated and Purified?

J. Robert Dean Water Treatment Facility (PWS ID#: FL4134357)

The water treatment plant is an integrated source facility staffed by state-licensed personnel. Groundwater extracted from the Biscayne Aquifer is the primary source water for this facility. A secondary groundwater source, the Floridan Aquifer, is utilized to a much lesser extent. The Biscayne source water is classified as very hard due to the high concentration of calcium in the water. A process called lime softening is used to reduce calcium hardness. Lime softening is achieved by the addition of excess lime (calcium hydroxide) under high pH conditions. This allows the water to become supersaturated with calcium carbonate, thereby causing the calcium carbonate to sink to the bottom of the lime softening treatment unit, leaving less hard (softened) water for use by FKAA. The FKAA finished product water is considered moderately hard.

The softened water is then piped to dual media filters, which are made up of layers of anthracite and fine sand for additional removal of particles (calcium) and further purification. Chlorine and ammonia are injected into the water to form chloramines, which provide long-lasting disinfectant protection without the objectionable taste and odor of regular chlorine. Fluoride, which is recommended for drinking water by the American Dental Association to prevent cavities, is also added.

To comply with Biscayne Aquifer withdrawal limitations, a Floridan wellfield and low-pressure reverse osmosis (LPRO) water treatment plant were constructed. Operational since the summer of 2009, the LPRO water treatment plant treats the brackish water of the Floridan Aquifer. The Floridan raw water contains approximately 4,000 to 5,000 parts per million (ppm) of salt. This concentration is significantly lower than the 35,000 ppm typically found in seawater. This LPRO system utilizes cartridge filters followed by very fine membrane elements. The water is pressurized to approximately 250 pounds per square inch (psi) rejecting the salt while allowing the passage of the pure finished water. The high pressure forces some of the water in through the RO membranes and is commonly referred to as permeate; the remainder of water is rejected as brine and disposed in an underground injection well. The permeate flows into a degasifier and clear well, where hydrogen sulfide and carbon dioxide are removed. Next, sodium hydroxide is added to raise the pH and a corrosion inhibitor may be added to provide corrosion control. In the final treatment stage, the permeate is disinfected with chloramines and the finished product is transferred to the storage tank for distribution.

The LPRO water is disinfected in the same manner as the Biscayne lime-softened water. Finished water from the LPRO WTP is blended with water treated from the Biscayne Aquifer.

The FKAA-treated water is pumped 130 miles from Florida City to Key West, supplying water to the entire Florida Keys. The water provided to customers in the Florida Keys is continuously monitored and tested to ensure the water quality is consistent, safe, and meets all federal and state drinking water standards. The FKAA operates two state-certified laboratories, located in Florida City and Stock Island, to perform many daily water quality analyses.

Kermit H. Lewin Reverse Osmosis & Marathon Reverse Osmosis Water Treatment Facilities (PWS ID#: FL5444047)

Similar to the Florida City RO plant, FKAA operates emergency water treatment plants at the Kermit H. Lewin and Marathon RO water treatment facilities. These facilities desalinate saltwater producing potable water. The saltwater from seawater wells first enters the cartridge filter to remove particulate matter. From the filters, the water is pressurized up to 900 psi. These pressures are significantly higher than those required at the Florida City LPRO because of the significantly higher salt content of the seawater.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Julie Cheon, Water Quality and Environmental Manager, at (305) 295-2150.

Safeguarding The Water Supply

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 U.S. EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

U.S Department of Health and Human Services Fluoride Recommendations

On April 27, 2015 the U.S. Department of Health and Human Services (HHS) released the final Public Health Services recommendation for the optimal Fluoride level in drinking water to prevent tooth decay. The new recommendation of 0.7 replaced the previous recommended range of 0.7 to 1.2 mg/l. This standard differs from the Environmental Protection Agency's (EPA) established maximum contaminant level (MCL). The EPA's MCL of 4.0 mg/l is set to a level to protect against either short-term or long-term health risks, while the HHS's recommendation reflects the optimal level in drinking water to prevent tooth decay.

The change was recommended because Americans now have access to more sources of fluoride, such as toothpaste and mouth rinses, than they did when water fluoridation was first introduced in the United States. The new recommended level will maintain the protective decay prevention benefits of water fluoridation and reduce the occurrence of dental fluorosis.

As shown in the Sampling Results section of this report the average fluoride level has remained within the HHS recommendations and the FKAA will continue to adhere to their recommendations.

Lead in Home Plumbing

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 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 www.epa.gov/safewater/lead.

Sampling Results

During the past year we have taken thousands of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases the most recent sampling data are included, along with the year the sample was taken. The table below shows only those contaminants that were detected in the water.

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Regulation (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 EPA needs to introduce new regulatory standards to improve drinking water quality.

If you would like to see a list of all regulated contaminant please go to our Drinking Water Standards Report on our website, www.FKAA.com, or contact Julie Cheon at (305) 295-2150.

PRIMARY REGULATED CONTAMINANTS

Microbiological Contaminants

CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO./YR.)	MCL VIOLATION (YES/NO)	HIGHEST MONTHLY PERCENTAGE	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
Total Coliform Bacteria (% positive samples)	01/2014-12/2014	No	1.9	0	Presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment

Radioactive 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
Alpha Emitters (pCi/L)	02/2014 & 9/2014	No	2.6	1.0 - 2.6	0	15	Erosion of natural deposits
Radium 226 + 228 [Combined Radium] (pCi/L)	02/2014 & 9/2014	No	2.7	2.0 - 2.7	0	5	Erosion of natural deposits

Inorganic Contaminants

Barium (ppm)	02/2014	No	0.009	NA	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Cyanide (ppb)	02/2014	No	11	NA	200	200	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm)	01/2014-12/2014	No	0.87	0.43–1.16	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)	02/2014	No	3.32	NA	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium (ppm)	02/2014	No	18.3	NA	NA	160	Salt water intrusion, leaching from soil

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
Copper [tap water] (ppm)	08/2013	No	0.0306	0	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead [tap water] (ppb)	08/2013	No	3	2	0	15	Corrosion of household plumbing systems, erosion of natural deposits

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	MCL	LIKELY SOURCE OF CONTAMINATION
Haloacetic Acids (five) [HAA5]–Stage 2 (ppb)	01/2014-12/2014	No	16.4	11.7–16.4	NA	60	By-product of drinking water disinfection
TTHM [Total trihalomethanes]–Stage 2 DDBP (ppb)	01/2014-12/2014	No	28.5	25.9–28.5	NA	80	By-product of drinking water disinfection

UNREGULATED CONTAMINANTS			
CONTAMINANT AND UNIT OF MEASUREMENT	DATE OF SAMPLING (MO./YR.)	AVERAGE RESULT	RANGE OF RESULTS
Chromium [Distribution] (ppb)	01/2014-12/2014	0.33	0.33–0.33
Chromium [POE] (ppb)	01/2014-12/2014	0.29	0.28–0.30
Chromium-6 [Distribution] (ppb)	01/2014-12/2014	0.19	0.18–0.20
Chromium-6 [POE] (ppb)	01/2014-12-2014	0.18	0.17–0.19
Molybdenum [Distribution] (ppb)	01/2014-12/2014	1.3	<1–1.3
Molybdenum [POE] (ppb)	01/2014-12/2014	1.3	<1–1.3
PFOS [POE] (ppb)	01/2014-12/2014	0.049	0.048–0.049
Strontium [Distribution] (ppb)	01/2014-12/2014	421	417–425
Strontium [POE] (ppb)	01/2014-12/2014	432	417–446
Vanadium [Distribution] (ppb)	01/2014-12/2014	1.3	1.3–1.3
Vanadium [POE] (ppb)	01/2014-12/2014	1.4	1.4–1.4

What is a part per million (ppm) approximately equal to:

- 1 penny in $10,000
- 1 minute in 2 years
- 1 ounce in 32 tons
- 1 ounce in 7,810 gallons

Definitions

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

IDSE (Initial Distribution System Evaluation): 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.

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

pCi/L (picocuries per liter): A measure of radioactivity.

POE: Point of entry into the distribution system.

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).