



CITY OF COCOA

ANNUAL WATER QUALITY REPORT



2015



PWS ID#: fl 3050223
Claude H. Dyal Water Treatment Plant
351 Shearer Blvd., Cocoa, FL 32922

**Dear Cocoa Utilities Department
Water Customers:**

We're very pleased to provide you with this year's Annual Water Quality Report. This report is our opportunity to share with you our commitment to delivering safe and dependable, high quality drinking water every day. We accomplish this by continually improving our facilities, our work processes, the capabilities of our employees, and protecting our water resources. Our goal is and always has been, to provide you with a safe and dependable supply of drinking water.

The Cocoa Utilities Department will mail a copy of this report to customers upon request by calling (321) 433-8705 or emailing ddowns@cocoafl.org. It is also available at Cocoa City Hall, 65 Stone St., Cocoa, FL 32922 and all public libraries in our water service area. For more information about this report, for questions relating to your drinking water, or for additional hard copies of this report, please view www.cocoafl.org/waterqualityreport, call (321) 433-8705, or email ddowns@cocoafl.org. You can obtain additional information from EPA at their Safe Drinking Water Hotline (800-426-4791).



Where Does My Water Come From?

Cocoa has supplied central Brevard County with high quality drinking water since 1957. Our drinking water system processed approximately 8.0 billion gallons of water last year, with a peak flow of 27.6 million gallons per day (MGD) during the month of July. The Average daily flow was 21.9 MGD during 2015. Our water sources are ground water wells, aquifer storage and recovery wells, and surface water from the Taylor Creek Reservoir.

Ground Water Wells

Our system includes 48 wells located in east Orange County. The well field is capable of producing 48 MGD. Cocoa is permitted by the St. Johns River Water Management District to pump 27.70 MGD for annual average flows and 48 MGD for maximum daily flows. The wells draw from both the Intermediate and Floridan Aquifer.

Aquifer Storage and Recovery (ASR) Wells

Our ASR system consists of 10 wells. Approximately one billion gallons of treated water can be stored 300 feet underground during periods of low demand and recovered during periods of high demand.

Surface Water

The Taylor Creek Reservoir provides an additional source of water for our customers. Cocoa is permitted to withdraw an average of 8.83 MGD and a maximum of 12 MGD. Surface water, ground water and ASR water are blended after treatment, prior to distribution to our customers. In 2015, surface water was not utilized as a water source.

Source Water Assessment

The FDEP has conducted Source Water Assessments on the City of Cocoa's system dating back to 2004. These assessments were conducted to provide information about any potential sources of contamination in the vicinity of our water supply. The assessment results are available on the FDEP Source Water Assessment and Protection Program web site at www.dep.state.fl.us/swapp or by contacting the Conservation/Public Relations Officer at (321) 433-8705.

In 2015 the Florida 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 surface water intakes. The surface water system is considered to be at high risk because of the many potential sources of contamination present in the assessment area. The assessment results are available on the FDEP Source Water Assessment and Protection Program website at www.dep.state.fl.us/swapp or they can be obtained from Cocoa's Conservation/Public Relations Officer by calling (321) 433-8705.





How Is My Water Treated and Purified?



The Dyal Water Treatment Plant is unusual for Central Florida because it is capable of treating both ground water and surface water. Ground water enters the plant where chlorine, lime, soda ash, and coagulant are added to remove hardness and suspended solids. Fluoride is then added to the water in accordance with the Environmental Protection Agency/Center for Disease Control (EPA/CDC) guidelines.

Carbon dioxide is added to reduce the pH and to stabilize the water. Chloramination is used to disinfect the water before passing through filters containing sand and anthracite coal. Turbidity (cloudiness) is constantly measured at each filter.

Surface water requires a different type of treatment. After surface water enters the plant, ferric sulfate, hydrated lime, and a polymer are added. Ozone is injected into clarified water for disinfection, taste and odor removal, and for control of disinfection by-products. After adding ozone, the water is treated with hydrated lime, carbon dioxide, chlorine, and ammonia before passing through sand and anthracite coal filters. Turbidity is constantly measured at each filter.

Water from both processes is blended and pumped into storage tanks before it is sent into the distribution system and to your home or business.

We are pleased to report that our drinking water meets all federal and state requirements.

Continuing Our Commitment

Cocoa's Claude H. Dyal Water Treatment Plant routinely monitors for contaminants in your drinking water according to Federal and State Laws, rules, and regulations. This report is based on the results of our monitoring for the period of January 1, 2015 through December 31, 2015. Any data that was obtained before January 1, 2015 and presented in this report are from the most recent testing performed in accordance with the laws, rules, and regulations.

COCOA CITY COUNCIL

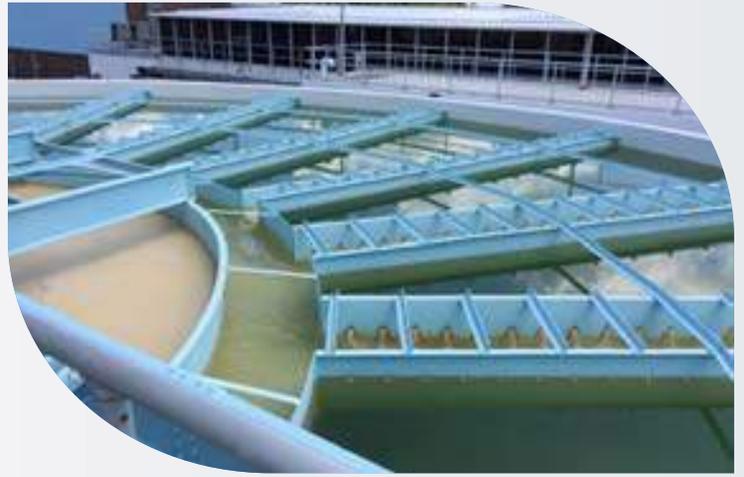
Henry U. Parrish III, Mayor

Michael Blake, Councilperson - District 1

Brenda Warner, Councilperson - District 2

Don Boisvert, Deputy Mayor - District 3

Tyler Furbish, Councilperson - District 4



Our NELAC (National Environmental Laboratory Accreditation Conference) certified laboratory analyzes water quality throughout the treatment process and distribution system to ensure safe drinking water is delivered to our customers. We remain vigilant in meeting the challenges of source water protection, water conservation and community education while continuing to serve the needs of all of our water users.

Community Involvement is Encouraged

Interested customers are welcome to attend Cocoa's regularly scheduled Council meetings held on the second and fourth Tuesday of every month. Please contact the City Clerk at **(321) 433-8488** to confirm day, time, and location of the meeting.

Definitions

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

Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goals (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.

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



Definitions (cont.)

Initial Distribution System Evaluation (IDSE): An important part of the Stage 2 Disinfection By-Products 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 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.

Million fibers per liter (MFL): measure of the presence of asbestos fibers that are longer than 10 micrometers.

Millirem per year (mrem/yr): measure of radiation absorbed by the body.

Nephelometric Turbidity Unit (NTU): measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

“ND” means not detected and indicates that the substance was not found by laboratory analysis.

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.

Parts per quadrillion (ppq) or Picograms per liter (picograms/l): one part by weight of analyte to 1 quadrillion parts by weight of the water sample.

Parts per trillion (ppt) or Nanograms per liter (nanograms/l): one part by weight of analyte to 1 trillion 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.

2015 Water Quality Test Results

MICROBIOLOGICAL CONTAMINANTS

Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	MCL Violation Y/N	Highest Monthly Percentage/ Number	MCLG	MCL	Likely Source of Contamination	
¹ Total Coliform Bacteria (% positive samples)	2015 (Monthly)	No	2.38%	0	For systems collecting at least 40 samples per month: presence of coliform bacteria in 5% of monthly samples	Naturally present in the environment	
² Fecal coliform and E.coli in the distribution system (positive samples)	2015 (Monthly)	No	0	0	0	Human and animal fecal waste	
³ E. coli (at the ground water source)	2015 (Monthly)	No	0	0	0	Human and animal fecal waste	
Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	MCL Violation Y/N	Highest Single Measurement	Lowest Monthly Percentage of Samples Meeting Regulatory Limits			Likely Source of Contamination
⁴ Turbidity (NTU)	2012 (Daily)	No	0.17	100	N/A	TT	Soil Runoff

RADIOACTIVE CONTAMINANTS

Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	MCL Violation Y/N	⁵ Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
Alpha emitters (pCi/L)	2015 (Monthly)	No	1.90	0-1.9	0	15	Erosion of natural deposits
Radium 226 + 228 [Combined Radium] (pCi/L)	2015 (Monthly)	No	1.59	0-1.59	0	5	Erosion of natural deposits

INORGANIC CONTAMINANTS

Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	MCL Violation Y/N	⁵ Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
Asbestos (MFL)	05/11	No	0.34	ND-0.34	7	7	Decay of asbestos cement water mains; erosion of natural deposits
Barium (ppm)	01/15	No	0.009	N/A	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Cyanide (ppb)	01/15	No	4	N/A	200	200	Discharge from steel and pulp mills; erosion of natural deposits
Fluoride (ppm)	01/15	No	0.35	N/A	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
Nickel (ppb)	01/15	No	1	N/A	N/A	100	Pollution from mining and refining operations. Natural occurrence in soil.
Nitrate (as Nitrogen) (ppm)	01/15	No	0.23	N/A	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Sodium (ppm)	01/15	No	74.5	N/A	N/A	160	Salt water intrusion, leaching from soil

⁶ STAGE 1 DISINFECTANTS AND DISINFECTION BY-PRODUCTS

Disinfectant or Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	MCL Violation Y/N	⁵ Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
Chloramines (ppm)	2015 (Quarterly)	No	2.58	0.60-4.70	MRDLG = 4	MRDL = 4.0	Water additive used to control microbes
Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	TT Violation Y/N	⁷ Lowest Running Annual Average, Computed Quarterly, of Monthly Removal Ratios	Range of Monthly Removal Ratios	MCLG	MCL	Likely Source of Contamination
Total Organic Carbon	2015 (Quarterly)	No	1.03	1.0-1.7	N/A	TT	Naturally present in the environment

⁸ STAGE 2 DISINFECTANTS AND DISINFECTION BY-PRODUCTS

Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	MCL Violation Y/N	⁵ Level Detected	Range of Results	MCLG	MCL	Likely Source of Contamination
Haloacetic Acids (HAA5) (ppb)	2015 (Quarterly)	No	32	16.9-40.1	N/A	60	By-product of drinking water disinfection
Total Trihalomethanes (TTHM) (ppb)	2015 (Quarterly)	No	75	45.69-113	N/A	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	Dates of sampling (mo./yr.)	AL Violation Y/N	90 th Percentile Result	No. of sampling sites exceeding AL	MCLG	AL (Action Level)	Likely Source of Contamination
Copper (tap water) (ppm)	07/14	No	0.0395	0	14.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (tap water) (ppb)	07/14	No	1.83	0	0	15	Corrosion of household plumbing systems; erosion of natural deposits

⁹ UNREGULATED CONTAMINANT MONITORING REQUIREMENTS 3 (UCMR 3)

Contaminant and Unit of Measurement	Dates of sampling (mo./yr.)	⁵ Level Detected	Range of Results	Likely Source of Contamination
Chromium (EPTDS) (ppb)	01/14, 04/14, 07/14	0.32	0.31-0.32	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
Chromium (DSMRT) (ppb)	01/14, 04/14, 07/14	0.37	0.28-0.37	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 (EPTDS) (ppb)	01/14, 04/14, 07/14	747	501-747	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Strontium (DSMRT) (ppb)	01/14, 04/14, 07/14	865	543-865	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 (EPTDS) (ppb)	01/14, 04/14, 07/14	0.5	0.44-0.5	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst
Vanadium (DSMRT) (ppb)	01/14, 04/14, 07/14	0.57	0.35-0.57	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst
Chromium, Hexavalent (EPTDS) (ppb)	01/14, 04/14, 07/14	0.17	0.15-0.17	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
Chromium, Hexavalent (DSMRT) (ppb)	01/14, 04/14, 07/14	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
Chlorate (EPTDS) (ppb)	01/14, 04/14, 07/14	129	82.5-129	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide
Chlorate (DSMRT) (ppb)	01/14, 04/14, 07/14	123	71-123	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide

Footnotes

1. Total coliform bacteria: Highest Monthly Percentage/Number is the highest monthly percentage of positive samples for systems collecting at least 40 samples per month.

2. MCL for fecal coliforms is 0 for acute violations only where a fecal or E. coli positive is followed by a repeat sample positive for fecal, E. coli or total coliform. A fecal or E. coli positive followed by proper repeat sampling absent of any contamination does not generate a violation as long as the total coliform rule has not been violated. For a system taking over 40 samples per month, this result is then totaled with any total coliform positive compliance results for the month to determine percentage compliance with the total

coliform rule.

A system that collects more than 40 samples per month and has one positive sample followed by two positive repeat samples, with at least one of those being fecal positive would have an MCL violation, even if the total number of positive samples is less than 5% of the total for the month.

3. All fecal indicator-positive ground water source samples (which include both triggered source water samples and assessment source water samples) must be reported and special notice language for the Ground Water Rule must be provided. One well tested positive for E-Coli on April 3, 2013. The well was tested again

Footnotes (cont.)

five times for E-Coli on April 5, 2013 and all samples came back negative.

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.

4. The result in the lowest monthly percentage column is the lowest monthly percentage of samples reported in the Monthly Operating Report meeting the required turbidity limits. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. High turbidity can hinder the effectiveness of disinfectants.

5. Results in the Level Detected column for radioactive, inorganic contaminants, and unregulated contaminants are the highest average at any of the sampling points or the highest detected level at any sampling point, depending on the sampling frequency.

6. For Chlorine, the Level Detected is the highest running annual

average (RAA), computed quarterly, of monthly averages of all samples collected. All of the 2015's TTHM and HAA5 samples were collected under "Stage 2 Disinfectants and Disinfection By-Products". Range of Results is the range of individual sample results (lowest to highest) for all monitoring locations.

7. The monthly TOC removal ratio is the ratio between the actual TOC removal and the required TOC rule removal requirements.

8. Stage 2 Disinfectants and Disinfection By-Products includes results from 2014 for LRAA calculation. Level Detected is the highest Locational running annual average (LRAA) for any given sample location during 2015. Range of Results is the range of individual sample results (lowest to highest) for all monitoring locations for 2015.

9. The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years EPA issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems (PWSs). The first Unregulated Contaminant Monitoring Rule (UCMR 1) was published on September 17, 1999, the second (UCMR 2) was published on January 4, 2007 and the third (UCMR 3) was published on May 2, 2012. This monitoring provides a basis for future regulatory actions to protect public health. City of Cocoa concluded testing for UCMR 3 in third quarter of 2014.

Cryptosporidium in Drinking Water

Cryptosporidium is a microbial parasite found in surface water throughout the United States. We detected Cryptosporidium in the untreated surface water. We detected this contaminant in two out of 25 samples tested in 2006 through 2008. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100% removal. Ozone is a powerful disinfectant that effectively destroys Cryptosporidium. The City of Cocoa ozonates all surface water before it is filtered to ensure the highest possible removal rate.

The City of Cocoa sampled Taylor Creek Reservoir for Cryptosporidium once a month. This was in accordance with Florida Department of Environmental Protection (FDEP)'s Long Term 2 (LT2) Enhanced Surface Water Treatment rule. This rule requires that the city sample for Cryptosporidium to provide a baseline for the amount of Cryptosporidium in Taylor Creek Reservoir. This baseline will be used by the EPA to increase treatment techniques or allow established techniques to continue to treat the surface water. Compliance sampling began in October 2006 and ended in October 2008. We began testing for LT2 compliance again in March, 2015. We will collect the last sample in March, 2017.

We believe it is important for you to know that Cryptosporidium may cause serious illness in immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders. These people should seek advice from their health care providers.

Lead and Drinking Water

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 Cocoa Utilities Department 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 <http://www.epa.gov/safewater/lead>.

Contaminants may be present in the source water

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.

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 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 1 (800) 426-4791**.

Important Health Information

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 (800-426-4791)**.

You can help protect our water quality. Quick Things You Can Do!

Protecting drinking water sources usually requires the combined efforts of many partners such as public water systems, communities, resource managers and the public.

- 💧 **Use and dispose of harmful materials properly.** Don't dump them on the ground! Hazardous waste that is dumped on or buried in the ground can contaminate the soil and can move down into the ground water or be carried into nearby surface waters by runoff during rainstorms. You might be surprised to learn that a number of products you use at home contain hazardous or toxic substances. Products like motor oil, pesticides, leftover paints or paint cans, mothballs, flea collars, weed killers, household cleaners and even a number of medicines contain materials that can be harmful to surface water and ground water.
- 💧 **Don't overuse pesticides or fertilizers.** You might apply fertilizers to make your grass thick and green, your flowers colorful and your vegetable crop abundant. You also might use pesticides to keep bugs from ruining what the fertilizers have helped to produce. What you might not know is that many of these fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water. If you feel you must use these chemicals, use them in moderation.
- 💧 **Don't flush your unused/unwanted medications down toilets or sink drains.** For more information, please click here at <http://www.dep.state.fl.us/waste/categories/medications/pages/disposal.htm>.

We at the Cocoa Utilities Department would like you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to insuring the quality of your water. If you have any questions or concerns about the information provided please feel free to call **(321) 433-8705** or email ddowns@cocoaf1.org.